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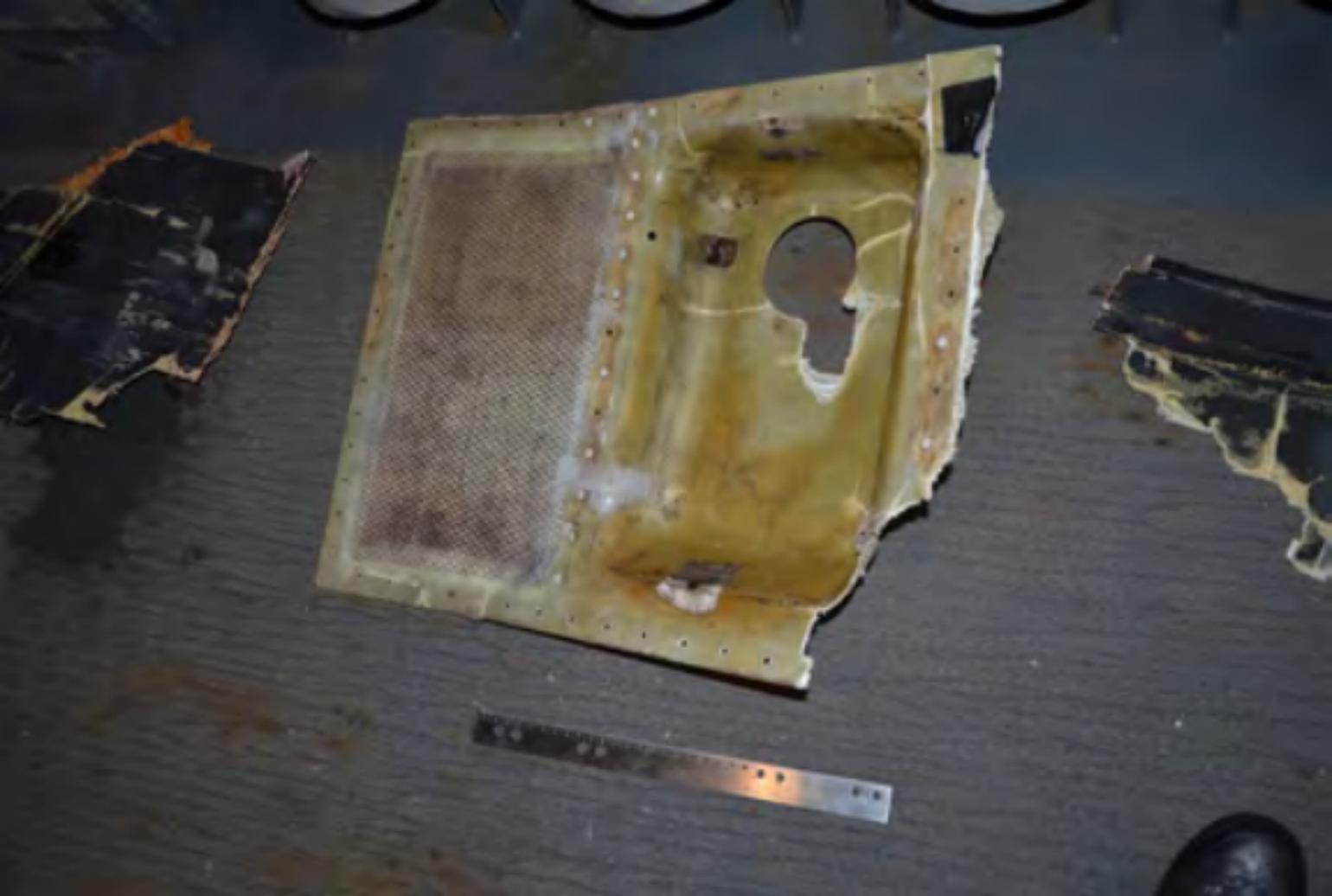


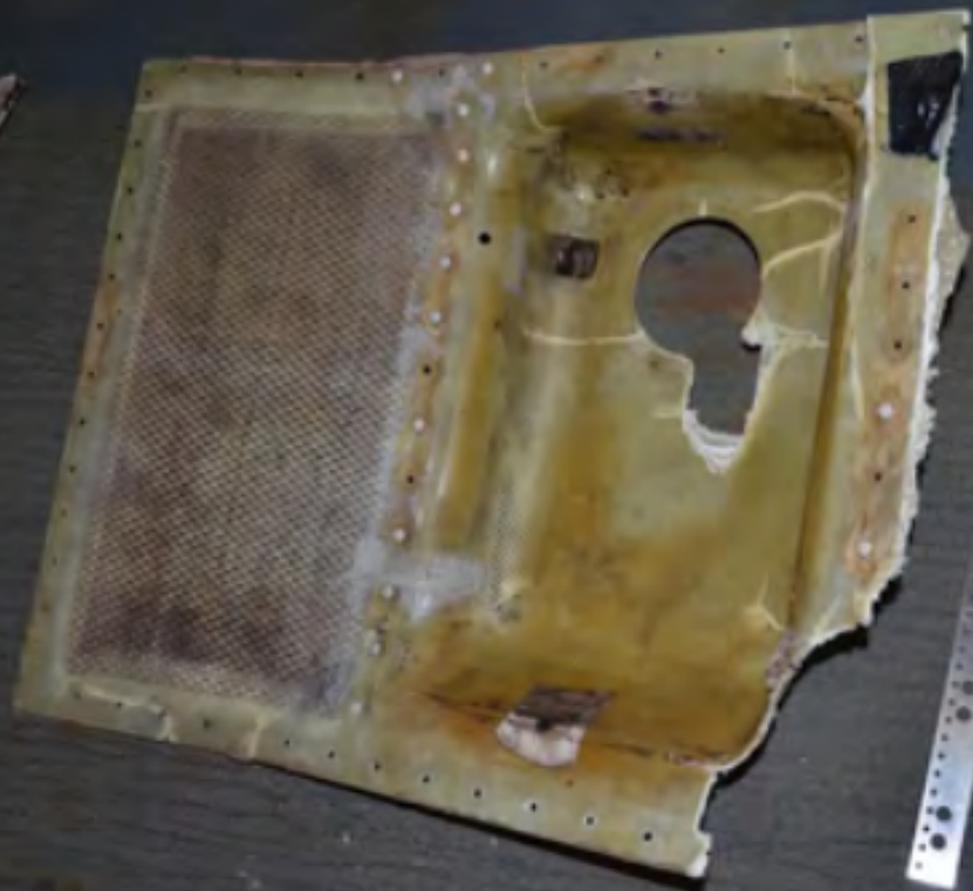
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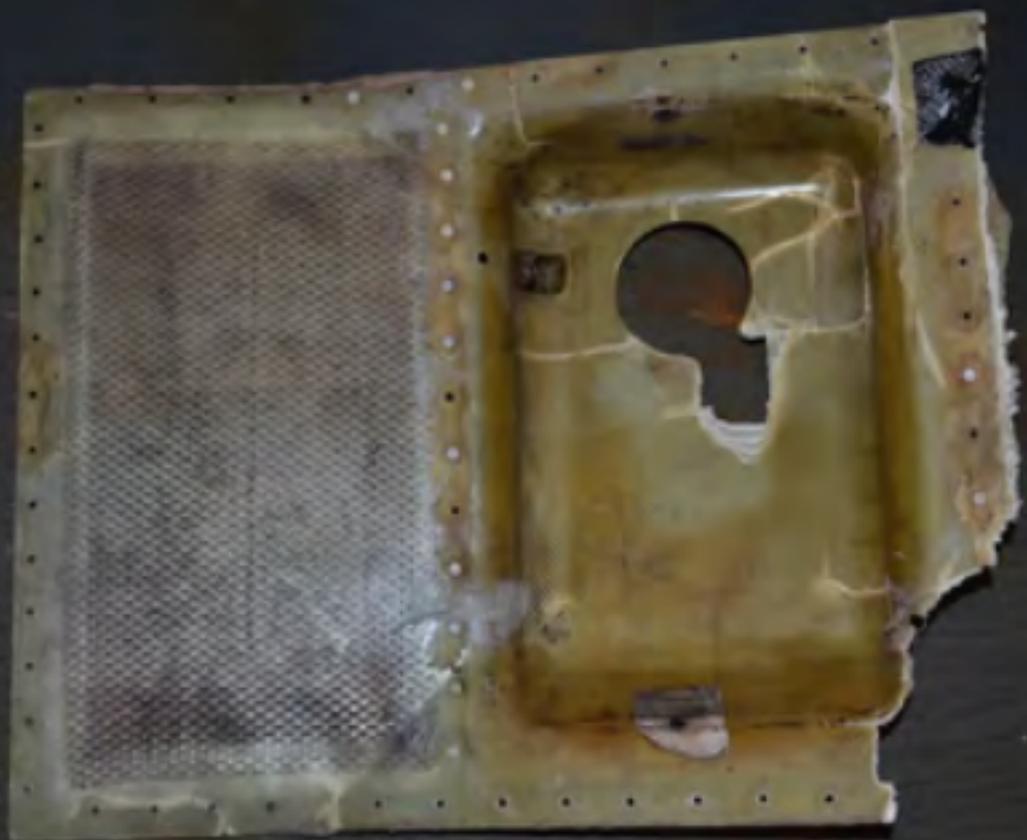




















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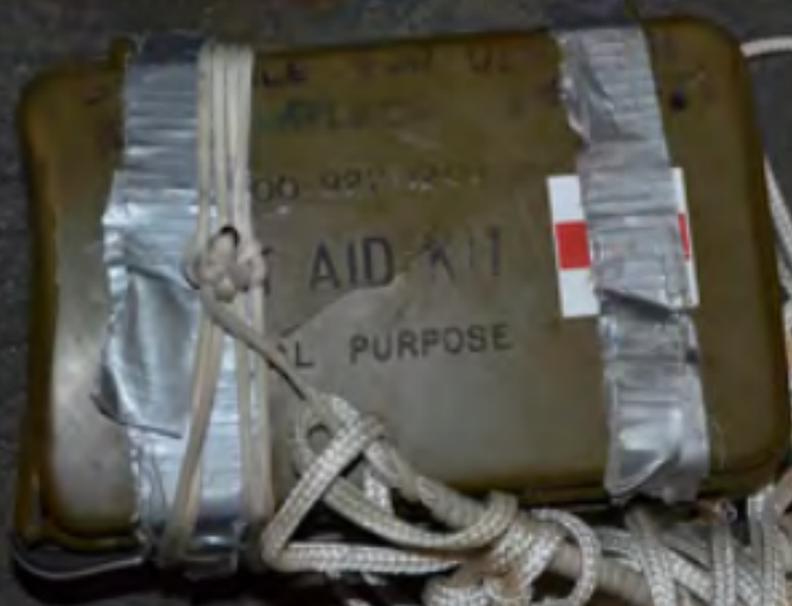
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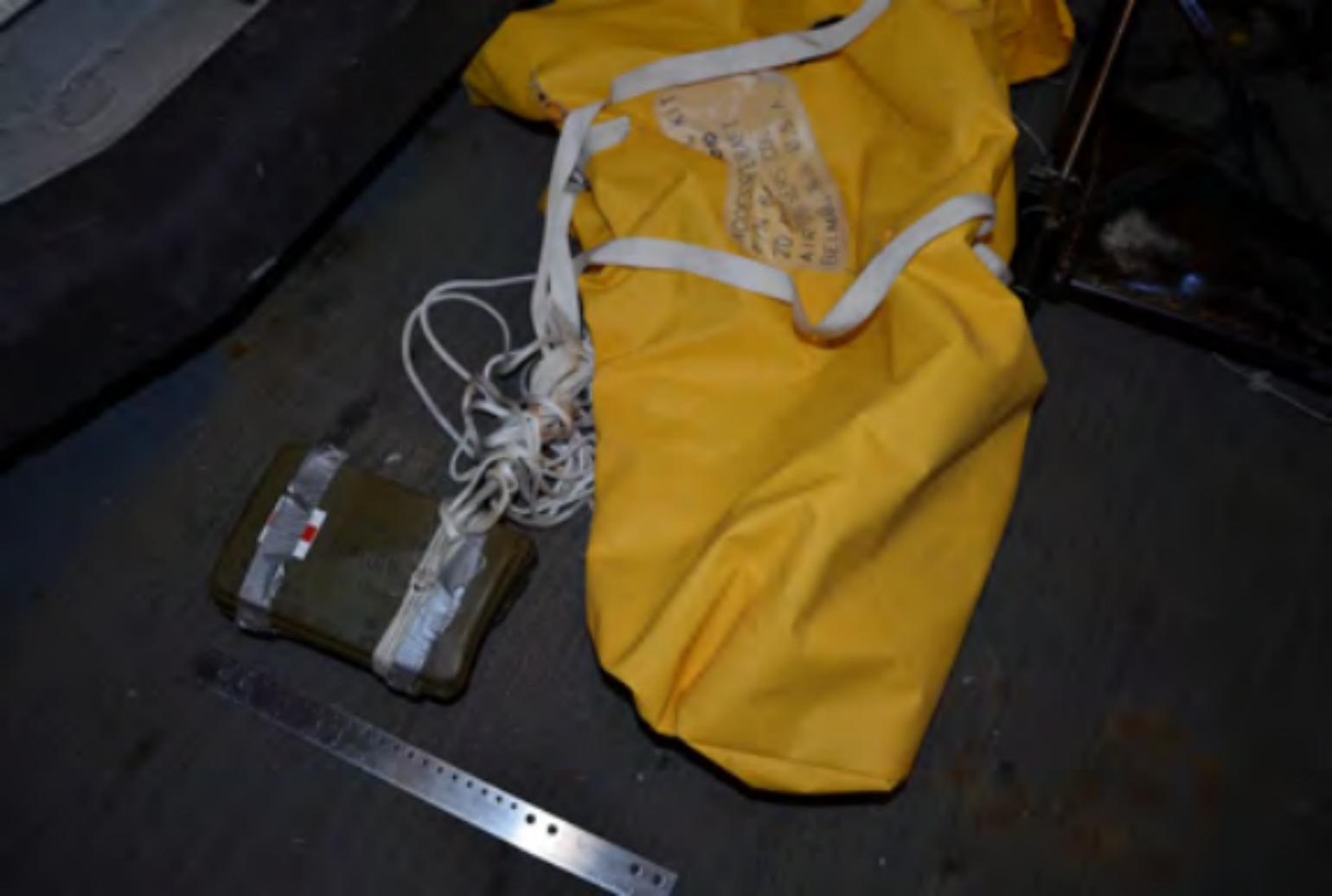
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DEPARTMENT OF THE NAVY
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From: Commandant of the Marine Corps
To: Distribution List

Subj: AVIATION TRAINING AND READINESS PROGRAM MANUAL

Ref: (a) MCO 3500.14

Encl: (1) Aviation T&R Program Manual

1. Purpose. In accordance with reference (a), enclosure (1) contains standards and regulations regarding the training of aircrews, Unmanned Aircraft System operators, Marine Command and Control System operators, Airfield Emergency Services specialists and Meteorological and Oceanographic Marines.

2. Cancellation. NAVMC 3500.14C

3. Scope. Highlights of major Training and Readiness (T&R) planning considerations included in this Aviation T&R Program Manual are as follows:

a. Incorporation of a Mission Essential Task Phase to measure unit readiness.

b. Revised and simplified sections on attaining, maintaining, and regaining skill proficiency.

c. Revised the Program of Instruction section, to include the addition of individual training status defined as either an Attain or Maintain status.

d. Modified the definition of Core Model Minimum Requirement.

e. Delegation of endorsement authority for deviations from Aviation T&R Program policy to the applicable Marine Aircraft Wing.

DISTRIBUTION STATEMENT A: Approved for public release;
distribution is unlimited.

4. Information. Recommended changes to this Manual should be submitted via the syllabus sponsor and the appropriate chain of command to: Commanding General (CG), Training and Education Command (TECOM), Marine Air Ground Task Force Training and Education Standards Division (MTESD) (C 466), Aviation Standards Branch using standard Naval correspondence or the Automated Message Handling System plain language address: CG TECOM MTESD.

5. Command. This Manual is applicable to the Marine Corps Total Force.

6. Certification. Reviewed and approved this date.


J. W. LUKEMAN
By direction

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CHAPTER 1 - AVIATION TRAINING AND READINESS PROGRAM

1.00 AVIATION T&R PROGRAM

1. The Marine Aviation Training and Readiness (T&R) Program provides the Marine Air-Ground Task Force (MAGTF) commander with an Aviation Combat Element (ACE) capable of executing the six functions of Marine Aviation. The T&R Program is the fundamental tool used by commanders to construct, attain, and maintain effective training programs and is the foundation for the Aviation Training System (ATS). This Manual, complemented by the ATS Order (MCO 3710.6), provides policy and procedures for development and standardization of all USMC Aviation T&R manuals and integrated training across all Marine Aviation.
2. The standards established in this program are validated by Subject Matter Experts (SME) and approved by the Commandant of the Marine Corps to maximize combat capabilities for assigned Mission Essential Tasks (MET) while conserving resources. Training Events are based upon specific requirements and performance standards to ensure a common base of training and depth of combat capability.
3. The Marine Aviation T&R Program develops unit warfighting capabilities by providing commanders standardized Programs of Instruction (POI) for training by community. This T&R Program is based on Unit Training Management (UTM) principles and performance standards and designed to ensure units attain and maintain proficiency in core/mission skills and combat leadership.
4. The sponsor of this publication is Commanding General (CG), Training and Education Command (TECOM), MAGTF Training and Education Standards Division (MTESD), Aviation Standards Branch (ASB). References to the sponsor throughout this publication will be listed as ASB.

1.01 PROGRAM MANUAL OVERVIEW

This Manual provides aviation communities with the requisite standards and regulations regarding the training of aircrew, Aviation Ground communities, and Unmanned Aircraft System (UAS) personnel.

1. Chapter 2. Provides overarching policy for individual and unit training including requirements, performance standards, readiness reporting, Combat Leadership, Aviation Training System (ATS), Marine Sierra Hotel Aviation Readiness Program (M-SHARP), and Aviation Career Progression Model (ACPM). A thorough understanding and familiarity of this Chapter is essential to building a relevant community T&R manual.
2. Chapter 3. This Chapter focuses on rules of conduct and policy for aircrew training and must be thoroughly referenced during the construct and review of aircrew T&R manuals.
3. Chapter 4. Provides overarching policy for Core Introduction training requirements and standards. The bulk of this Chapter pertains to aircrew Fleet Replacement Squadron (FRS) training, the Naval Aviation Production Process (NAPP), and the Aviator Production Plan.
4. Chapter 5. This Chapter lists roles and responsibilities of various agencies that contribute to the creation, maintenance, and sustainment of community T&R manuals. It outlines the process for facilitating T&R Working Groups to include the staffing of a community T&R manual to final production.
5. Chapter 6. Building upon the foundation outlined in the previous chapters, this Chapter provides a model for building, maintaining, and sustaining a community T&R manual. It provides the procedures, steps, and directions for writing chapters 1, 2 and subsequent chapters of a T&R manual, and provides a generic template to build from for each chapter.

1.02 AVIATION T&R PROGRAM AND UNIT READINESS

The Aviation T&R Program implements a comprehensive, capabilities-based training system that provides combat capable crews and leaders to MAGTF and combatant commanders. In Figure 1-1 below, the Unit Level Aviation T&R Program Core Model is the centerpiece of the foundation upon which warfighting capabilities are built. Note that Unit Level Readiness and Resource Requirements also provide essential elements that contribute to the development of warfighting capabilities.

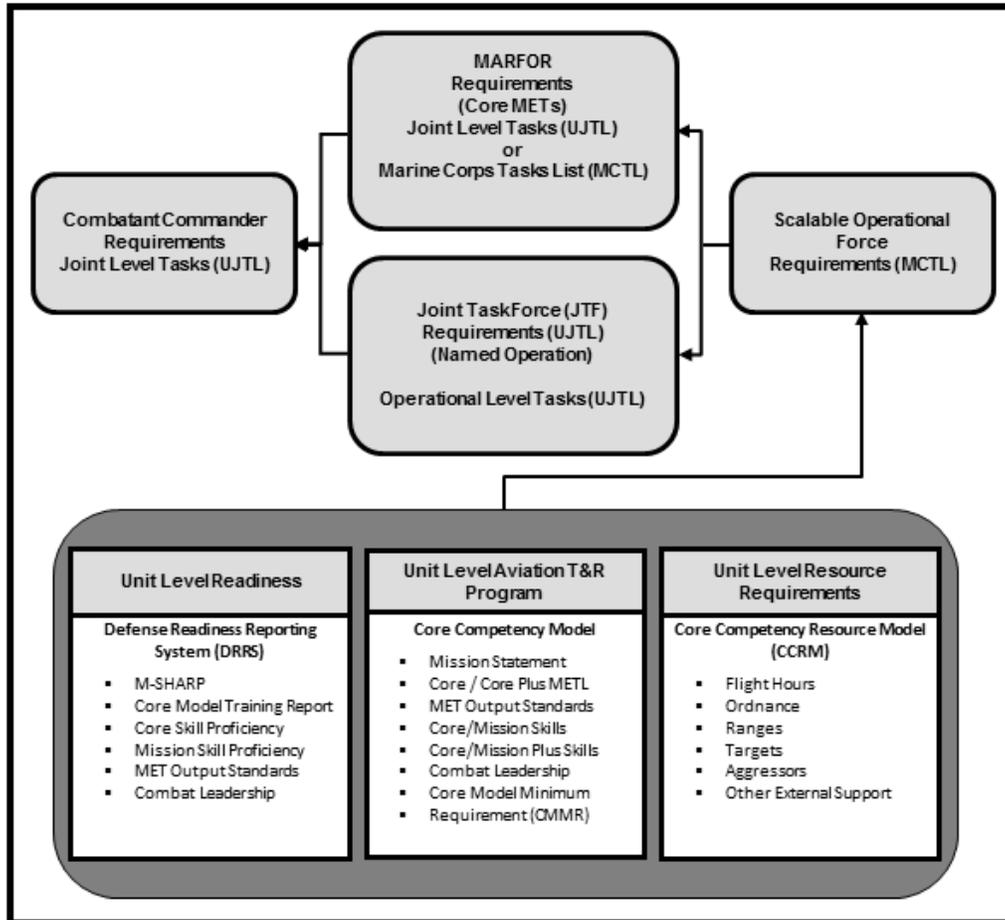


Figure 1-1: Capabilities-Based Training System

1.02.1 Readiness and Resources

The following elements form the nexus of establishing Readiness metrics for Marine Aviation.

1. Defense Readiness Reporting System (DRRS). The DRRS is the DoD system of record for unit readiness reporting created to provide an objective, accurate, and timely assessment of unit capabilities (DoD Directive 7730.65). Reporting is based on unit capability to accomplish specific tasks, within an established Mission Essential Task List (METL) providing a common baseline for unit readiness reporting. Each MET has one or more associated output standards which are the key performance measures used as reporting criteria in DRRS.
2. Marine Corps Task List (MCTL). A comprehensive list of Marine Corps tasks (MCT), doctrinally based, and designed to support current and future MET development.
3. Mission Essential Task (MET). "A MET is an externally focused action, process, or activity (task) deemed critical to mission accomplishment. Essential task characteristics are standard terminology (derived from the Universal Joint Task List (UJTL) or the Marine Corps Task List (MCTL)), essentially (absolutely necessary, indispensable, and critical), and external focus (action focused outside of the unit and supporting another unit or directly affecting the enemy). METs are the foundation for the community T&R manual" (MCO 3500.110, Policy for MET Development, Review, Approval, Publication and Maintenance).
4. Mission Essential Task List (METL). "The METL is the sum of all METs required by all missions assigned to a unit, as well as, additional tasks designated by the unit's chain of command. It is unique to a specific unit, but is based heavily on standardized Core METs, as well as, additional METs assigned to the unit. The METL reflects the reconciliation of multiple missions (core and assigned) into a single, cohesive list which helps to prioritize training and resources. Core METs are standardized for all units of the same type and define the design capabilities for a type of unit. Core Plus METs establish doctrinally appropriate tasks for the associated unit type which are not widely required from that type unit for the

execution of expected missions. Core Plus tasks support missions or plans which are limited in scope, theater specific, or have a lower probability of execution. Assigned Mission METs are developed when a unit must prepare to participate in a specific unit deployment, operation, or alert mission, and may include tasks not normally expected of the type unit, drawing from the Core Plus tasks for the unit type or other tasks from the MCTL. Commanders at all levels may require selected subordinate units or crews to train to selected Core Plus tasks in order to expand flexibility and maintain resident expertise.” (MCO 3500.110). The METL is the commander’s tool for maintaining focus on mission accomplishment and forms the foundation for readiness reporting.

1.02.2 Mission Statement

“The Mission Statement is a concise publication of the unit’s responsibilities in relation to other organizations, and it describes the unit’s role in support of the MAGTF...” (MCO 5311.1_). The Mission Statement sponsor is CG, MCCDC. The advocate for aviation T&R communities normally resides with DC AVN. T&R Working Groups will include the Mission Statement as a fundamental document that must be reviewed, staffed, and aligned with the METL.

1.02.3 Core Model Minimum Requirement (CMMR)

1. The CMMR is an objective readiness metric derived by the community to meet the required output standards defined within a unit’s core METs. This metric identifies the number of crews, composition of each crew, and the number of combat leaders required to meet the warfighting function of the unit. Each crew member is further identified within the CMMR by required skill proficiency. Attaining CMMR should be considered the minimal training objective.
2. CMMR numbers are determined by the community and derived only from the Mission Skill Phase, Mission Plus Phase, and Combat Leadership (from the Requirements, Certification, Qualification, Designation (RCQD) Phase. Attaining CMMR is considered the minimum for training. If a unit falls short of CMMR, commanders must refocus their training, or if unable to self-correct, request assistance from higher headquarters to meet the requirement.

1.02.4 Mission Essential Task (MET) Assessment Phase (7000)

The purpose of this Phase is to:

1. Assess CMMR representative crews during the execution of the unit’s specified METs in order to ensure standardization and combat readiness.
2. Fulfill the requirements of a Marine Corps Combat Readiness Evaluation (MCCRE) as specified in MCO 3501.1_ , Marine Corps Combat Readiness Evaluation.
3. A sample unit template for conducting the 7000 Phase is provided as Appendices C and D.

1.02.5 Marine-Sierra Hotel Aviation Readiness Program (M-SHARP)

M-SHARP is the training management system for scheduling and logging T&R Events, comparing logged data to community readiness metrics, and formatting readiness data within T&R Program Manual guidance.

1.02.6 Resources

The Core Competency Resource Model (CCRM) is a qualitative analytical tool (model) that displays external resources required to attain and maintain training/combat proficiency. This tool objectively captures and displays the required external resources for readiness. External resources are defined as those not organic to the unit. Examples are: flight hours, simulator hours, academic hours, ordnance, ranges, targets, external loads, Helicopter Support Teams (HST), aggressor air. The Flight Hour module of CCRM was primarily developed for use at the HQMC level as a Flying Hour Program budgetary support tool and was accredited by the Chief of Naval Operations and the Commandant of the Marine Corps. At the unit level, it may complement the Sortie Based Training Program (SBTP) by assisting units in the identification of flight hour resources needed to train the unit to core competency.

1.03 T&R PROGRAM ADMINISTRATION

The Aviation T&R Program applies to all Marine Aircraft Wings (MAW), Marine Aircraft Groups (MAG), Marine Air Control Groups (MACG), select communities assigned to the Marine Wing Support Squadrons (MWSS), Marine Corps Air Stations/Facilities, and Division Intel Battalions (for METOC). TECOM ASB maintains administrative oversight of T&Rs. A complete list of aviation T&R manuals is available online with a Common Access Card [CAC] at <https://vcepub.tecom.usmc.mil/sites/directorates/mtesd/asb/default.aspx>. The T&R Program consists of the following documents:

5 Feb 16

1. MCO 3500.14. The Aviation Training and Readiness Program Order assigns responsibilities and establishes USMC policy, procedures and direction regarding the training of Aviation personnel.
2. NAVMC 3500.14-. The Aviation Training and Readiness Program Manual (this Manual) provides policy, standardization and procedures for community aviation T&R manuals. Signature authority is CG TECOM, by direction of the Commandant of the Marine Corps.
3. NAVMC 3500.XX Series. Aviation T&R manuals containing individual training programs for applicable MOSs within a community. These manuals are reviewed and updated on a triennial basis. More frequent reviews may occur at the discretion of the applicable community. Aviation T&R manuals must comply with the Program Manual and may contain policy unique to a community/MOS. Signature authority is CG TECOM, by direction of the Commandant of the Marine Corps.

1.04 EXTERNAL POLICY

Aviation training requirements listed in other applicable publications shall be adhered to, including:

1. MCO 1200.17 Military Occupational Specialties Manual (MOS Manual). Identifies and codifies the personnel skill requirements for the Human Resources Development Process to build and maintain personnel inventory to meet the needs of the Force.
2. OPNAVINST 3710.7 NATOPS General Flight and Operating Instructions. Specifies Naval aviation training requirements (NATOPS Program, instrument ratings/qualifications, Naval Aviation Survival Training Program, etc.).
3. NAVAIR 00-80T-112 NATOPS Instrument Flight Manual. Provides guidance and standardization for instrument flight evaluators and aircrews on criteria for evaluating the instrument flying abilities and proficiency of aircrew members and conducting NATOPS Instrument Flight Evaluations.
4. NAVAIR 00-80T-114 NATOPS Air Traffic Control Manual. This manual standardizes ground and flight procedures but does not include tactical doctrine. It contains information on administrative and operational procedures for Navy and Marine Corps Air Traffic Control Facilities (ATCFs) and Fleet Area Control and Surveillance Facilities (FACSFACs), and applies on a worldwide basis.
5. MCO 3500.109 Weapons and Tactics Training Program (WTTP). The WTTP supports training programs by providing instructor and academic standardization for T&R syllabi. As the manager of the WTTP for the Marine Corps, Marine Aviation Weapons and Tactics Squadron One (MAWTS-1) produces standardized courseware to support community T&R syllabi as well as the maintenance of syllabi for advanced instructor designations, to include the Weapons and Tactics Instructor Course.
6. MCO 3500.110 Policy and Guidance For METL Development, Review, Approval, Publication And Maintenance. This Order provides policy and procedures for Mission Essential Task List (METL) development, review, approval, publication and maintenance for units, installations, and organizations.
7. MCO 3710.6 Marine Corps Aviation Training System Order. Provides policy, guidance, and responsibilities for the implementation of the Aviation Training System (ATS).
8. MCO 5311.1D Total Force Structure Process (TFSP). This Order establishes DC CD&I as the Total Force Structure Owner and defines the policy, procedures, roles, responsibilities, and integration points across the enterprise for the management of the TFSP.
9. OPNAVINST 1542.7 [Crew Resource Management (CRM) Program]. Specifies Crew Resource Management training requirements (applicable to flight units only).
10. Doctrinal Publications. Marine Corps doctrinal publications, in specific, Marine Corps Warfighting Publications (MCWP) and Marine Corps Interim Publications (MCIP), contain the doctrine and tactics, techniques and procedures (TTPs) utilized by the Marine Corps in the prosecution of war or other assigned missions.
11. MCRP 3-0A Unit Training Management Guide. Provides a background on the philosophy, principles, and policies of the Marine Corps training management system. It also provides guidance on how to develop, support and evaluate training plans.
12. Maneuver Description Guide (MDG) (Flying Units Only). A supplemental NATOPS manual that is used to further define procedural aspects of NATOPS maneuvers which are required for standardized and effective execution in all regimes of flight. Policy and procedures are contained in MCO 3710.8, USMC NATOPS.

13. MCO 3125.1X Marine Corps Flying Hour Program (FHP) Management. Outlines the Marine Corps flying hour program goals and requirements.
14. NAVMC 1553.1 Systems Approach To Training (SAT) Users Guide. Establishes the procedures and business rules for the application of the SAT process to formal school curriculum development. The SAT is the primary source of information for instructional program development and management for Marine Corps Formal Learning Centers (FLC) and formal courses of instruction collocated at other military service schools.
15. MCO 1553.2 Management of Marine Corps Formal Schools and Training Detachments. This Order publishes management policies and procedures for all Marine Corps formal schools, training centers and formal courses of instruction collocated with other military Service schools.
16. MCO 1553.3 Unit Training Management Guide. Unit Training Management (UTM). This Order establishes a Marine Corps-wide Unit Training Management and evaluation process. Provides policy that all elements of the Total Force will adhere to when developing, conducting, and evaluating training for wartime missions.
17. MCO 1553.4 Professional Military Education (PME). This Order defines the objectives, policies, programs, and responsibilities for coordinating the PME of Marines.
18. MCO 1553.6 Development, Management, and Acquisition of Interactive Courseware (ICW) for Marine Corps Instruction. This Order establishes policy, prescribes requirements, and assigns responsibilities for the development, management, and acquisition of ICW for Marine Corps instructional programs.
19. MCO 3500.26 Universal Naval Task List. A single source document that combines the Navy Tactical Task List (NTTL) and the Marine Corps Task List (MCTL). The UNTL's tactical level of war tasks are written utilizing the common language and task hierarchy of the Universal Joint Task List (UJTL). The UNTL is architecturally linked to the UJTL.
20. MCO 3000.13 Marine Corps Readiness Reporting SOP. Promulgates policies and procedures for reporting readiness on Marine Corps organizations.
21. NAVAIR 00-80T-115 U.S. Marine Corps Expeditionary Airfields and Marine Corps Air Stations NATOPS Manual. This manual prescribes minimum airfield operating instructions and procedures applicable to Forward Operating Bases (FOBS) and Expeditionary Airfields (EAF) in support of naval aircraft operations.
22. NAVAIR 00-80R-14 NATOPS Aircraft Rescue Firefighting and Rescue Manual. Contains firefighting doctrine, procedures, references and information for use by those involved in aircraft rescue, fire prevention, and firefighting response operations. It contains organizational, training and readiness requirements for air stations and aviation facilities ashore.
23. MCO 3710.8, United States Marine Corps Naval Air Training and Operating Procedures Standardization (NATOPS) Program. Amplifies policy and procedural guidance in administering the NATOPS program within Marine Corps Aviation.

1.05 AVIATION TRAINING COMMUNITIES

Tactical Manned Flight Communities are subdivided into three separate categories as depicted within Table 1-1:

Table 1-1: Tactical Manned Flight Communities

Aircraft	Unit
Fixed Wing	
AV-8B	VMA
TAV-8B	VMAT
FA-18A/C	VMFA
FA-18D	VMFA(AW)
KC-130T/J	VMGR
EA-6B	VMAQ
F-35B	VMFA
Rotary Wing	
AH-1W/Z	HMLA
UH-1Y	HMLA
CH-53E	HMH
Tiltrotor	
MV-22B	VMM

Support Aircraft are those fixed-wing or rotary-wing aircraft acquired and/or retained for Operational Support Airlift (OSA), Search and Rescue (SAR), Adversary Support, and Executive Transport (HMX-1) and are depicted in Table 1-2.

Table 1-2: Support Aircraft Communities

Operational Support	Aircraft	Unit
	UC-12F/M/W	VMR-1 or VMR Det
	C-9B	VMR-1
	C-20G	VMR Det
	UC-35C/D	VMR-1 or VMR Det
Adversary Support	Aircraft	
	F-5F/N	VMFT-401
Search & Rescue	Aircraft	
	HH-1N	H&HS Yuma
Executive Transport	Aircraft	
	VH-3D	HMX-1
	VH-60N	HMX-1
	VH-92	HMX-1
	MV-22B	HMX-1

Aviation Ground Communities are depicted below in Table 1-3.

Table 1-3: Aviation Ground Communities

Community	Unit
Tactical Air Command Center (TACC)	MTACS
Marine Air Traffic Control (MATC)	MACS
Meteorological and Oceanographic (METOC)	MACS and Intel Bn
Tactical Air Operations Center (TAOC)	MACS
Early Warning/Control	MACS
Direct Air Support Center (DASC)	MASS
Low Altitude Air Defense (LAAD)	LAAD Bn
Aircraft Rescue and Firefighting (ARFF)	AGS Department
Expeditionary Airfield (EAF) Services	MWSS
Aviation Operations Specialist (AOS)	MAG

Tactical Unmanned Aircraft Systems are depicted below in Table 1-4.

Table 1-4: Tactical Unmanned Aircraft Systems

Aircraft	Unit
RQ-7B	VMU
RQ-11B	Various MEF Units
MQ-21A	VMU

CHAPTER 2 - TRAINING POLICIES

2.00 TRAINING POLICY2.00.1 Purpose

To provide policy for unit and individual training to include requirements, performance standards, readiness reporting, and management of training records.

2.00.2 Core Model

The Core Model is the basic foundation and standardized format by which all Aviation T&Rs are constructed. It provides the capability of quantifying both unit and individual training requirements and a measure of readiness. This is accomplished by linking unit Mission Statements, Mission Essential Tasks, Proficiency Requirements and Combat Leadership. See Chapter 6 for detailed rules, regulations and requirements of the Core Model. The following phases of instruction outline the structure and are depicted in Table 2-1.

Table 2-1: Core Model Construction

PHASE	TERM	DEFINITION
0000-1999	Core Introduction	Fundamental system/equipment operation familiarization, initial individual or crew procedures, and initial exposure to future Core training. Includes aircrew specific Refresher, Series Conversion, and Transition training. Aviation Ground personnel receive all 1000 Phase training at their respective MOS formal schools (FLCs). At the completion of this Phase, individuals are normally assigned to operational units. For Fleet Replacement Squadron (FRS) training see chapter 4 of this Manual.
2000-2999	Core	Fundamental, environmental, or conditional capabilities required to perform basic functions. These basic functions serve as tactical enablers that allow crews to progress to the more complex Mission Skills.
3000-3999	Mission	Advanced individual crew position skills required to execute unit METs. These skills focus on crew coordination, integration with external agencies, and draw upon the knowledge and abilities developed during Core training.
4000-4499	Core Plus	Skill training associated with a low probability of execution and/or theater specific operations. Although Core Plus training Events may provide valuable training opportunities, they are not considered essential to achieve unit Core Competency.
4500-4999	Mission Plus	Advanced individual crew position skills required to execute Mission Plus unit METs that may be theater specific or have a low likelihood of occurrence. Although Mission Plus training Events may provide valuable training opportunities, they are not considered essential to achieve unit Core Competency.
5000-5999	Instructor Training	Instructor training Events.
6000-6999	Requirements, Certifications, Qualifications, and Designations (RCQD)	Training Events required by other directives, Events that lead to specific certifications, qualifications, and/or designations, and other Events requiring tracking. Examples include flying squadron emergency procedures monthly exams, quarterly evaluations, and school codes.
7000-7999	MET	Mission Essential Task training
8000-8999	ACPM	Training Events to enhance professional understanding of Marine Aviation, the MAGTF and additional training as provided by MAWTS-1.
9000-9999	Reserved	Reserved for M-SHARP use – to be assigned by ASB.

2.00.3 Policy

The Core Model is skill progression based and defined in community T&R manuals. It is founded on the following Unit Training Management (UTM) edicts contained in MCRP 3-0A:

1. Train as you fight.
2. Commanders are responsible for training.
3. Use standards based training.
4. Use mission oriented training.
5. Train the unit to fight as part of a MAGTF.
6. Train to sustain proficiency.
7. Train combat flight leaders.

8. Foster development and refinement of aviation skills.
9. Incorporate Operational Risk Management (ORM) in all levels of training to preserve assets.

2.00.4 Concepts and Programs

Marine aviation training incorporates the following concepts and programs:

1. Syllabus. All training and readiness Events for a PMOS, or in unique situations by crew position, within a community. For example, within the Direct Air Support Center Community T&R Manual, Chapter 7 details the 7242 syllabus.
2. Subject Matter Expert (SME) defined Standards.
3. Units are responsible for developing their training plan; see MCRP 3-0A for guidance on developing unit training plans.
4. Command Oversight and Responsibility. Each level of command shall monitor subordinate commands, ensure timely delivery and equitable distribution of training resources and personnel, and ensure safe execution of training plans within the allotted time to train.
5. Marine Corps Aviation Training System (ATS) Mission. To facilitate the execution and evolution of an integrated training system incorporating simulation devices and academic instruction and facilities, to assist with defining procurement and modification requirements through the Training Management Process (TMP), and to assist with Flight Leadership Program (FLP) execution and coordination of training support across Marine Aviation that produces a properly trained ACE for the MAGTF. Training system integration ensures the currency and relevance of training devices via Concurrency Management (CCM); integrating and managing training information; and providing an effective forum for identification of the operating forces' training needs and issues via the Training Management Process (TMP).
6. Flight Leadership Program (FLP) Standardization. Each MAW's ATS structure will support the MAW CG in implementing the FLP. Local MATSS will utilize available infrastructure and inherent processes to support improvements in the quality of flight leadership training, ensure standardization, and facilitate evaluation. Details of this program are outlined in paragraph 2.01.2.
7. Risk Management. The process of risk mitigation includes risk assessment, risk decision making, and implementation of effective risk controls. T&R requirements and NATOPS procedures are examples of controls developed to mitigate hazards identified over decades of operational experience. Application of these controls is crucial. Leadership emphasis on risk mitigation and aviation fundamentals during all aspects of training is required in developing and fostering a climate that promotes flight discipline and adherence to established procedures and requirements. Risk management and mitigation must be institutionalized at all levels and throughout the training syllabus.

2.00.5 Meteorological and Oceanographic (METOC)

There are varying pieces of METOC equipment within the Meteorological and Oceanographic (METOC) community, with an accompanying array of policies, procedures and CONOPS. Employment of METOC equipment and/or sensor is managed at multiple levels of command within the MAGTF, both from the ACE and the GCE. Due to the wide variance of capabilities and limitations across METOC equipment platforms, some policies in this Manual may not apply. As such, METOC syllabus sponsors shall ensure T&R manuals adhere to all applicable policies and are authorized to exclude policy that does not apply to the METOC equipment in question, in consideration of its unique mission and capability.

2.00.6 First Tour Assignments

1. Naval Aviators (NA), Naval Flight Officers (NFO), Unmanned Aircraft Systems (UAS) Officers, and enlisted aircrew shall be assigned to an operational squadron for a minimum of 2 years (optimally 3 years) after completing Core Introduction Phase training. Commands shall not assign the previously listed Aeronautically Designated Personnel outside the squadron unless such assignment is a T&R syllabus requirement.
2. ASB is the approval authority for deviations from First Tour Assignment policy. Requests for deviation from this policy shall be requested via message to CG TECOM MTESD via the operational chain of command with info notification to the syllabus sponsor.

2.00.7 Operations Officer Training Course

1. The goal of the Operations Officer Training Course is to provide standardized training for Operations Officers that prepares them for one of the most important billets in their unit. Operations Officers at the Squadron and Group level must

fully understand the requirements and directives that apply to the daily running and future planning of Squadron Operations.

2. Wings shall host courses which encompass USMC-wide requirements and specific procedures for local operations. Each Wing will determine when it is appropriate to hold this training and provide the resources to execute it.
3. ASB and HQMC Aviation will help maintain the schedule of events and course material.

2.01 INDIVIDUAL TRAINING

2.01.1 Individual Training Philosophy

Mastery of Skills and Leadership (2000, 3000, 4000, 5000, and 6000 Phase Events) serve as the building blocks for unit training. Training programs are based on increasingly challenging Events, with the requirement for periodic revalidation of proficiency. Definitions of the following terms are provided to aid in understanding the building block approach of individual and unit training:

1. Event. A flight or ground training evolution defined or required by individual Programs of Instruction within a syllabus. Analogous to Syllabus Event.
2. Stage. Events which share a singular desired outcome or trait are grouped together into Stages. Examples include Low Altitude Training (LAT), Equipment (EQUIP), and Applied Meteorological Science (AMS). Stages and skills may have the same naming convention and a Stage name may be used in multiple phases.
3. Phase. A phase is an administrative group of Stages consisting of Events. Each Phase is numbered in increments of one thousand (0000, 1000, 2000, 3000, 4000, 5000, 6000, 7000, 8000, etc.).
4. Skill. An ability required by the community and developed or enhanced through training. Individuals are trained to skill proficiency through targeted syllabi, providing proficient crews to accomplish unit assigned METs.
5. Syllabus. All Events for a PMOS, or in unique situations by crew position, within a community. For example, within the Direct Air Support Center Community T&R Manual, Chapter 7 details the 7242 syllabus.

2.01.2 Program of Instruction (POI) Assignment

A POI is a training track assigned to a Marine based on their proficiency in a skill. All Marines undergoing training are assigned to at least one POI. The following POIs can be assigned:

1. Basic (B). This POI is automatically assigned in M-SHARP and constitutes all Events in a T&R manual by crew position (this POI includes initial accession or initial training).
2. Refresher (R). Marines are assigned to the Refresher POI when they have not performed their primary MOS duties within a period of time as specified by the community. If used, details will be in the Chapter Syllabus Notes, section 2.7.
3. Conversion (C). Model Conversion personnel (personnel converting from one model aircraft/system to another within the specific aircraft/unit type e.g., UH-1Y to CH-53 or EA-6 to FA-18), shall be assigned to the Conversion POI in accordance with the applicable T&R.
4. Series Conversion (S). Personnel converting from a particular series of aircraft or weapons system to a new series that has significantly different aircraft or weapons systems characteristics. Assignment will be in accordance with the applicable T&R. Examples include KC-130T/KC-130J, CH-53E/CH-53K, and AH-1W/AH-1Z.
5. Transition (T). Personnel changing aircraft or weapon systems shall be assigned to the Transition POI in accordance with the applicable T&R. Examples include fixed wing to rotary wing, fixed wing to tilt rotor, and rotary wing to tiltrotor.
6. Maintain (M). This training track is automatically assigned to personnel upon demonstration of skill proficiency. The requirement to demonstrate skill proficiency more than once is established by the community (see guidance below) and is reflected by events in the skill having an assigned Proficiency Period. Proficiency Period is an amount of time (expressed in calendar days) between each demonstration of event proficiency.

Note:

See Chapter 4 for additional POIs that are assigned to 1000 Phase training at the FRS: (Modified Refresher, Safe for Solo, Foreign, other service).

7. The training status of a Marine while assigned to a POI is either:

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a. Attain Status. This status refers to a POI when a Marine has never demonstrated skill proficiency or is required to re-demonstrate upon losing proficiency.

b. Maintain Status. This status applies to a POI when a Marine has demonstrated proficiency in a skill and the T&R requires proficiency to be demonstrated more than once to maintain skill proficiency.

8. Aviation Flying Communities shall identify Events in all 2000 through 4000 skills requiring a proficiency period.

9. Aviation Ground Communities shall require a minimum of one event with a proficiency period in each 3000 skill.

2.02 UNIT TRAINING

2.02.1 Unit Training Plans

Units should use the Core Model Minimum Requirement (CMMR) and the Core Model Training Standard (CMTS) (CMTS is optional for Aviation Ground communities) as a reference point to design, implement and evaluate training plans. The ability of a unit to execute the plan is contingent on its instructor base. Training personnel must balance the requirements of creating an instructor base with the requisite production capacity to train replacement crew(s) within time constraints and asset availability without over-tasking maintenance and supply.

2.02.2 Core Model Minimum Requirement (CMMR)

1. The CMMR is an objective readiness metric derived by the community to meet the required output standards defined within a unit's core METs. This metric identifies the number of crews, composition of each crew, and the number of combat leaders required to meet the warfighting function of the unit. Each crew member is further identified within the CMMR by required skill proficiency. Attaining CMMR should be considered the minimal training objective.

2. CMMR numbers are determined by the community and derived only from the Mission Skill Phase, Core Plus Phase, and Combat Leadership (from the Requirements, Certification, Qualification, Designation (RCQD) Phase. Attaining CMMR is considered the minimum for training. If a unit falls short of CMMR, commanders must refocus their training, or if unable to self-correct, request assistance from higher headquarters to meet the requirement.

2.02.3 Core Model Training Standard (CMTS)

CMTS is a community determined standard reflecting the desired number of individuals trained to/as Core Skill Proficiency (CSP)/Mission Skill Proficiency (MSP)/Core Plus Skill Proficiency (CPSP)/Mission Plus Skill Proficiency (MPSP)/ Instructors/Combat Leaders/Flight Leaders by syllabus. The CMTS is the optimal training objective and must equal to or greater than CMMR. CMTS is only used for internal squadron planning and not utilized for readiness reporting. CMTS is required for flying communities, but optional for Aviation Ground.

2.02.4 Core Model Training Report (CMTR)

The CMTR is a report produced by M-SHARP that provides a visual depiction of a unit's status in meeting the CMTS. It is designed for units to easily identify deficiencies to focus their T&R training objectives. Use of CMTR is optional for Aviation Ground communities.

2.02.5 Tactical Aircrew/MACCS Integration Training

Aviation Command and Control (AC2) often requires external syllabus support for both aircrew and MACCS skill progression and proficiency. Tactical aircrew and MACCS personnel shall actively collaborate to create training opportunities. Exercising C2 functions and information exchanges are necessary for airspace battle management training and to increase application of air power efficiency. Coordinated Events maximize the training leveraged from each occurrence for both the aircrew and aviation ground communities.

2.03 Emergency Procedures

All aircrew shall complete a monthly emergency procedures examination and a quarterly emergency procedures simulator review. If the community lacks a simulator or one is not available, the command shall substitute with an appropriate cockpit-cabin drill for the emergency procedures simulator review.

2.04 Combat Leadership for Aviation Ground Communities

The goal of the combat leadership program is to create a Marine capable of employing their section, agency, or unit, as a cohesive team in accomplishing the unit MET(s). The role of an Aviation Ground Combat Leader includes duties such as Operations Officer, Detachment Commander, or Detachment Chief. Once a Marine is designated by the commanding

officer as a Combat Leader and counted against the CMMR, their name cannot be used towards any other CMMR position.

2.05 Standardized Functional Check Flight (FCF) Policy

2.05.1 Wing FCF SOPs

All Wing SOPs shall incorporate standardized FCF procedures that include the preflight planning and execution of FCFs. Oversight for standardization across all Wings is under the cognizance of DC AVN.

2.05.2 Functional Check Pilot (FCP) Qualifications

Aviation flying communities shall implement standardized FCP syllabi in individual T&R manuals. Standardized FCP workup/evaluation Events shall be delineated in individual T&R manuals under the Requirements, Qualifications, Designations Phase (6000 Phase). The syllabi shall be structured in accordance with directives and guidelines established in the current version of the COMNAVAIRFORINST 4790 aviation maintenance manual and Wing SOPs. At a minimum, the FCP certification event shall be evaluated. FCP qualification requires successful completion of a community standardized program and a designation letter from the CO.

2.06 Standardized Instructor Designations

Instructor designations are assigned to personnel based on their ability to conduct instruction and having met the proficiency requirements established by their assigned T&R. Instructor designations fall into two categories: Standardized and Syllabus Unique:

1. Standardized. Standardized instructor designation/re-designation requirements shall be consistent with the instructor requirements listed in the MAWTS-1 Course Catalog, MAWTS-1 C3 Course Catalog, NATOPS, and other directives, as applicable. Examples include Night Systems Instructor, Terrain Flight Instructor, NATOPS Instructor, etc.

2. Syllabus Unique. Syllabus Unique instructor designation/re-designation requirements shall be defined within the individual syllabus. Each instructor designation is designed to address the need for specialized skills as determined by community SMEs.

a. Fleet Replacement Squadron Instructor (FRSI). The Fleet Replacement Squadrons (FRS) shall ensure standardized FRSI syllabi are included in individual T&R manuals. Standardized FRSI workup/ evaluation Events shall be delineated in individual T&R manuals under the Instructor Training Phase (5000 Phase). FRSI designation requires successful completion of a community standardized program and a designation letter from the CO.

b. Contract Simulator Instructors (CI). Each community that utilizes CIs for simulation training shall build and maintain a standardized CI program for inclusion in individual T&R manuals.

c. Basic Instructor Pilot (BIP). Assault Support communities (Rotary Wing, Tiltrotor, and KC-130 T/M/S) and the UAS community shall ensure standardized BIP programs are included in individual T&R manuals for Core, Mission, or Core Plus training. The BIP program introduces the fundamental skills required of instructor pilots in fleet squadrons. Standardized BIP workup/evaluation Events shall be delineated in individual T&R manuals under the Instructor Training Phase (5000 Phase). BIP designation requires successful completion of a community standardized program and a designation letter from the CO.

d. Basic Instructor (BI) and Senior Instructor (SI). Aviation Ground communities shall ensure BI and SI syllabi standardized in the MAWTS-1 C3 Course catalog are implemented in their T&R manuals. BI and SI training provides proficient and experienced personnel the additional skills necessary to instruct, evaluate, and recommend Marines for Core, Mission or Core Plus Skill completion, certification, qualification, or designation. See the C3 Course Catalog for further information.

e. Assistant NATOPS Instructor (ANI) / NATOPS Instructor (NI). Operational Support Airlift (OSA) communities (UC-35C/D, UC-12F/M/W, C-20G, and C-9B) shall ensure standardization for training by utilizing ANIs/NIs as instructors for all initial training flights (1000-4000 Phases) at OSA units. OSA unit commanders may also use designated unit ANIs/NIs to administer NATOPS or instrument checks during Command Aircraft Crew Training Simulator sessions.

2.07 Unit Readiness Reporting

2.07.1 Reporting Responsibility

Commanding officers report the status of unit readiness and training through the Defense Readiness Reporting System-Marine Corps (DRRS-MC). DRRS-MC is governed by the HQMC Plans, Policy, and Operations (PP&O) Readiness

Branch, in accordance with policy and procedures established by MCO 3000.13 (Marine Corps Readiness SOP). Chapter 1 of each T&R Manual provides the foundation and data that influences readiness reporting.

2.07.2 CMMR and Readiness

1. Aviation Flying Units. The CMMR (the number of formed crews capable of performing the MET standard) is a measure of Mission Skill Proficiency (MSP) and Combat Leadership for DRRS-MC, given 90 percent or better crew manning.
2. Aviation Ground Communities. The CMMR reflects the breakdown of MET requirements into crews, skill positions per crew, and Combat Leaders. The CMMR is the minimum requirement to fulfill a unit’s METs.

2.08 TRAINING PROFICIENCY

Skill	Description
Core Skill Proficiency (CSP)	CSP is a measure of training completion for 2000 Phase Events. CSP is attained by executing all Events listed in the Attain Table for each Core Skill. The individual must be simultaneously proficient in all Events within that Core Skill to attain CSP.
Mission Skill Proficiency (MSP)	MSP is a measure of training completion for 3000 Phase Events. MSP is attained by executing all Events listed in the Attain Table for each Mission Skill. The individual must be simultaneously proficient in all Events within that Mission Skill to attain MSP. MSP is directly related to Training Readiness. MSP may contain 2000 Phase Events.
Core Plus Proficiency (CPP)	CPP is an administrative collective term used to describe proficiency in the 4000 Phase of instruction. Specific training proficiency (by crew member) in the 4000 Phase shall be by CPSP and MPSP.
Core Plus Skill Proficiency (CPSP)	CPSP is a measure of training completion for 4000 Phase Skill Events. CPSP is attained by executing all Events listed in the Attain Table for each Core Plus Skill. The individual must be simultaneously proficient in all Events within that Core Plus Skill to attain CPSP. CPSP may contain 2000 and 3000 Events as required.
Mission Plus Skill Proficiency (MPSP)	MPSP is a measure of training completion for 4000 Phase Mission Plus Skill Events. MPSP is attained by executing all Events listed in the Attain Table for each Mission Plus Skill. The individual must be simultaneously proficient in all Events within that Mission Plus Skill to attain MPSP. MPSP may contain 2000 and 3000 Events as required.

2.08.1 Attaining Skill Proficiency

Marines attain skill proficiency by completing all the Events in the T&R syllabus matrix for the skill.

2.08.2 Maintaining Skill Proficiency

Marines maintain skill proficiency by remaining proficient in the skill Events that have a proficiency period. The Refresher POI updating rule applies (paragraph 2.03.5 below).

2.08.3 Regaining Skill Proficiency

1. The Maintain POI requires a Marine to re-demonstrate event proficiency within the proficiency period or become delinquent. The proficiency period is event specific and detailed within community T&Rs.
2. A Skill becomes delinquent when any Event with a proficiency period associated with that Skill goes delinquent. To regain proficiency, a Marine needs to demonstrate proficiency in all delinquent R-coded Events..
3. Unit. If an entire unit loses proficiency, unit instructors shall regain proficiency by completing event(s) with instructors from another like unit; if not feasible, proficiency shall be regained by completing event(s) with another instructor. If a unit has only one instructor and another instructor is not available, instructor proficiency shall be regained with another aircraft commander or as designated by the commanding officer.

2.08.4 Updating

Event proficiency dates shall be updated when an event is:

1. Re-demonstrated proficiently
2. Chaining
3. Mirror Updating (mirroring). Mirroring establishes Event equivalency between different syllabi, and is determined by community. This equivalency results in M-SHARP automatically “granting” Event proficiency in one syllabus when an individual is proficient in the mirrored event (from the other syllabus). Updating of Events in an individual’s training record occurs when the individual is assigned the identified syllabi, both new and mirrored. When constructing Events in the T&R Syllabus, the community identifies other syllabi/Event(s) that should mirror.

4. POI updating

2.08.5 Refresher (R) POI Updating

1. When all R-coded Events in a Stage/Skill are completed, all remaining Events in that Stage/Skill are updated. Additionally, Never Been Attempted (NBA) and Incomplete Events are not updated and must be completed.
2. The individual must be simultaneously proficient in all R-coded Events within the Stage/Skill to attain proficiency.
3. Individuals assigned to the Refresher POI are required to complete Basic POI Events that have never been completed. Additionally, Never Been Attempted (NBA) and Incomplete Events are not updated and must be completed.

2.08.6 Conversion (C) POI Updating

1. When all C-coded Events in a Skill are completed, all remaining Events in that Skill are updated. The individual must be simultaneously proficient in all C-coded Events within the Skill to attain proficiency.
2. All remaining Events are updated regardless of their proficiency status.

2.08.7 Series Conversion (S) POI Updating

1. When all S-coded Events in a Skill are completed, all remaining Events in that Skill are updated. The individual must be simultaneously proficient in all S-coded Events within the Skill to attain proficiency.
2. All remaining Events are updated regardless of their proficiency status.

2.08.8 Transition (T) POI Updating

1. When all T-coded Events in a Skill are completed, all remaining Events in that Skill are updated. The individual must be simultaneously proficient in all T-coded Events within the Skill to attain proficiency.
2. All remaining Events are updated regardless of their proficiency status.

2.08.9 Chaining

Chaining allows for Events that are more complex to update other Events. This process is community dependent and specific rules determine which Events will be updated.

1. Guidance

- a. During a T&R Working Group, SMEs will identify Events that chain other Events with equivalent skills by noting them in the T&R syllabus matrix; those chained Events may be updated.
- b. Only those Events that are proficient are updated via chaining.
- c. Delinquent, NBA, or Incomplete events shall not be updated in chaining.
- d. Recursive Chaining. This automatic update process occurs when chaining of completed events invokes subsequent event chaining. Example - Event 2110 is chained by Event 2111. When any other completed event chain updates Event 2111, Event 2110 is updated as a byproduct of the recursive chaining process. For any event which invokes chaining of Event 2111, Event 2110 need not be listed separately.

2. Considerations

- a. All aspects of an Event should be considered when determining chaining. Event conditions, type and number of devices, requirements, performance standards, ordnance requirements, etc., must be considered when determining equivalent skills and subsequent chaining.
- b. Communities should be careful not to 'over' or 'under' chain T&R Events. A single Event should not chain a large number of Events unless such a chaining Event specifies equivalent skill requirements in all of the chained Events.
- c. Conditional Chaining. Events may be chained depending upon environmental light levels (e.g. D, HLL, LLL) and/or device (Aircraft/Simulator) considerations or whether or not ordnance is available. Automated conditional chaining for device or light levels is available in M-SHARP. Ordnance updating occurs by manually updating specific codes associated with the expended ordnance.

2.09 TRAINING PREREQUISITES

1. Phases, Stages, and Events may have prerequisites that are required as a prior condition and shall be completed prior to commencing the subject training, unless it has been waived or deferred. A prerequisite may be a POI event, certification, qualification, designation, Stage, or Phase.
2. When listing prerequisites for an event, only the directly linked event(s) are required to be listed.
3. Recursive Prerequisites. Recursive prerequisites occurs when an event prerequisite invokes subsequent event prerequisites. Example - Event 2110 is a prerequisite of Event 2111. When any other event (Event 3200) lists Event 2111 as a prerequisite, Event 2110 is automatically a prerequisite of the first Event. In this case, Event 3200 lists Event 2111 as the prerequisite, but recursive prerequisites mean both Event 2111 and Event 2110 must be completed prior to being able to complete Event 3220. Event 2110 does not need to be listed separately within Event 3200.

2.10 EVENT REQUIREMENTS

2.10.1 Sequencing

Personnel should be scheduled to complete T&R Events of a skill in sequential order whenever practicable.

2.10.2 Proficiency

1. Event proficiency is defined as successful completion of the performance standard as determined by the instructor. Event completion is predicated upon demonstrated proficiency.
2. When an event is completed, it shall be logged in M-SHARP by entering the appropriate event code. M-SHARP automatically updates the event proficiency date to reflect the event completion date.
3. Multiple Event Logging. There may be opportunities to accomplish the requirements of more than one event during training. Units are encouraged to take advantage of complex training opportunities which allow multiple event completion. Event logging (single or multiple) is allowable if the requirements for each event are accomplished per the performance standard.

2.11 T&R EVENT EVALUATION

Standardized evaluation procedures provide commanders with an effective management tool to improve training and monitor personnel progress. For compliance, communities shall develop T&R evaluation forms for all Events.

1. Event Evaluation Forms. Communities shall develop T&R evaluation forms for all Events. These evaluation forms shall be placed in T&R manuals as an appendix or shall be maintained by the syllabus sponsor.
2. Events shall be documented for flying communities per the following instances:
 - a. Completion of Events flown for the first time (initial 'X'), even if assigned to a Refresher or similar POI, shall be documented with a T&R evaluation form.
 - b. Evaluation documentation for NATOPS and Instrument check Events are governed by the OPNAV 3710 series.
3. Aviation ground community Marines require an evaluation form filled out by the event instructor for each/every event.

2.12 SIMULATOR POLICY

1. All T&R manuals shall maximize the use of simulation in the T&R development/review process. Particular emphasis should be placed upon the capabilities and/or limitations of a community's simulation capability in the selection of the device utilized to execute/complete an event. If the community possesses a simulator with the capability of executing the goal and requirement of an event as well as the means of evaluating the performance standard, then it shall be conducted in the simulator or, at a minimum, be listed as simulator preferred (see Chapter 6 for device coding). In order to exploit emerging capabilities, network training capabilities should be considered for inclusion in T&R manuals.
2. Annual instrument and NATOPS evaluations shall be completed in the simulator to the maximum extent possible.
3. Events designated as training device preferred may be conducted on the operational system only if the training device is not available, or is assessed by the supported community instructor Flight Leadership Standardization Evaluators (FLSE) that the training device is not sufficient to achieve the Mission Performance Standards (MPS).
4. Training device event briefs shall be identical, both procedurally and in content, to aircraft/operational system event briefs. The length of the brief should be based upon the event to be conducted and content to be covered.

5. Community T&R Manuals shall delineate maximum intervals between prerequisite Events conducted in training devices and Events conducted in aircraft/operational systems. This interval shall be no greater than the Proficiency Period for the primary event.

6. Each community that employs training devices shall develop a Training Device Event Essential Subsystem Matrix (EESM). The purpose of the EESM is to link specific sub-systems to support of T&R achievement, and demonstrate how their absence prevents attainment of unit core competency. See Chapter 6 for EESM application.

a. T&R Events that require the use of a training device shall only be scheduled in devices that are equipped with all mandatory subsystems per the EESM. For each event, a training device is categorized as follows:

(1) Event Capable (EC). A training device is EC for a T&R event if all mandatory subsystems are installed and operational.

(2) Non-Event Capable (NEC). A training device is NEC for a T&R event if any one of the mandatory subsystems is not installed or non-operational. In addition, if more than 5 or more than 50 percent of preferred subsystems are not installed or operational the device is NEC for that T&R event. A training device will be considered NEC for all Events if its configuration is greater than 6 months out of date as compared to the majority of the current operational systems at the primary location supported by the training device.

b. The MAW Commanding General shall notify HQMC DC AVN [Info CG TECOM MTESD and the procurement agency (e.g. NAVAIR and/or MARCORSSYSCOM)] by AMHS message (via the applicable chain of command) when aware that training devices will be NEC for greater than six months due to operational system configuration changes, or when, in the Commanding General's judgment, the configuration of the training device has had an adverse effect on the wing's ability to train.

2.13 ACADEMIC TRAINING

1. Academic training shall support individual and unit training requirements outlined in community T&Rs.

2. The MAWTS-1 Course Catalog, MAWTS-1 C3 Course Catalog and other formal schools training catalogs contain detailed academic instruction designed to facilitate T&R progression.

2.14 AVIATION CAREER PROGRESSION MODEL (ACPM)

ACPM is a formalized training program which prepares Aviation Combat Elements (ACE) to employ forces in operational environments. The ACPM is divided into Phase 1 and Phase 2.

2.14.1 ACPM PHASE I

The training continuum for Phase I consists of two distinct, tailored POIs; one each for aviators/UAS Crews (UASC) and AC2 personnel.

2.14.1.1 Aviators

1. Purpose. To enhance professional understanding of Marine Aviation and the MAGTF and to ensure aviators and UASC possess the requisite skills to fill battle command and battle staff positions in support of the ACE and the MAGTF in a joint environment.

2. Academic training requirements will be embedded in all aviation T&R manuals within the progressive training Phases to include the 2000, 3000 and 6000 Phases of training. Commanding officers shall ensure the requisite ACPM training requirements have been met prior to designating flight leaders.

3. Chapter 6 provides direction on specific ACPM training requirements and how courseware is to be embedded within training phases.

2.14.1.2 Aviation Command and Control (AC2)

1. Purpose. To enhance professional understanding of Marine Aviation and the MAGTF and to provide MOS 72XX/59XX personnel with a knowledge of doctrine and Tactics, techniques and Procedures (TTPs) of AC2. The AC2 ACPM is designed to guide Marines in reading and understanding doctrinal publications that outline AC2. The MACCS ACPM is subdivided into five stages: MACCS, ACE, Threat, MAGTF, and Joint Air Operations. The requirements for completing each stage are outlined in MACCS agency T&R manuals. The content of the MACCS ACPM is maintained in the MAWTS-1 C3 Course Catalog.

2. The ACPM augments academic training requirements and thus shall be embedded in all AC2 agency T&R manuals as prerequisites to certifications, qualifications or designations.
3. All MOS 72XX/59XX personnel assigned to the operating forces shall complete ACPM training requirements as prescribed in the applicable community T&R manual and the MAWTS-1 C3 Course Catalog.

2.14.2 ACPM PHASE II

There are three components to ACPM Phase II; MAGTF Tactical Commander's Course, TACC University, and the Operations Officer Training Course.

2.14.2.1 MAGTF Tactical Commander's Course

1. The mission of the MAGTF Tactical Commander's Course hosted by the Marine Air Ground Task Force Training Command (MAGTFTC) is to refresh selected and current battalion and squadron commanders from the air, ground, and logistic combat elements on the current issues that affect their community. This period of instruction (POI) is executed by subject matter experts from the weapons schools.
2. Each MAG and T/M/S squadron commander shall attend the course prior to or during their period of Command. MACG and respective squadron commanders are encouraged to attend.

2.14.2.2 TACC University

The mission of the TACC University is to provide ACE commanders with a cadre of trained professionals to serve as part of the ACE commander's battlestaff. The curriculum is designed to provide training which is lean, on-time, with billet-specific systems and TTPs. This training culminates in a capstone event, such as a MACCS integrated systems training exercise (MISTEX).

2.14.2.3 Operations Officer Training Course

It is vital to have standardized training for Operations Officers that prepares them for one of the most important billets in their unit. Operations Officers at the Squadron and Group level must fully understand the requirements and directives that apply to the daily running and future planning of Squadron Operations. As such, Wings shall host a course that encompasses both USMC-wide requirements and specific procedures for local operations. ASB and HQMC Aviation will help maintain the standardized POI and its course material; the Wings will determine when it is appropriate to hold this training and provide the resources to execute it.

2.14.2.4 ACPM Administration

1. Commanding officers shall ensure requisite ACPM training requirements have been met prior to approving certifications, qualifications or designations for which ACPM is a prerequisite.
2. T&R syllabus sponsors shall ensure all ACPM training requirements are properly integrated into each T&R manual. This process will occur at a minimum during the conduct of a T&R conference or as new ACPM training requirements evolve through the T&R manual change process. The operating forces may request changes through the Training Management Team (TMT) process.
3. ACPM training will be tracked and managed in M-SHARP.
4. MAWTS-1 Academics department will maintain all ACPM courseware and a corresponding question bank on the Marine Corps Aviation Learning Management System at <https://mcalms.usmc.mil>.

2.15 REQUIREMENT, CERTIFICATION, QUALIFICATION, DESIGNATION (RCQD) EXECUTION

2.15.1 Requirement

Requirement Events consist of recurring or one-time events that are prescribed by governing directives applicable to a community.

2.15.2 Certification

A Certification refers to the formal endorsement of having attained a specialized skill. The evaluation process is conducted in accordance with the Certification event(s) by a designated instructor or authorized personnel (i.e. CompTIA A+ certification as a computer technician after passing the A+ certification exam). A formal Certification letter will be presented in accordance with the community T&R. Certifications may require a proficiency period.

2.15.3 Qualifications

Qualifications are assigned to personnel based on demonstration of proficiency in a specific skill. All qualifications are assigned one or more required T&R Events. When all qualification requirements are completed and proficient, the individual may be granted the respective qualification by the commanding officer or in the case of aviation ground communities, as directed in the community T&R Manual. An individual's qualification status may be either "Qualified" or "Not Qualified." At least one requirement/event for a qualification must have a proficiency period assigned. Under exceptional circumstances (Waiver), an Event may be determined to be not required per Paragraph 2.19.

1. Not Qualified Status. If an individual goes delinquent in any associated qualification event's proficiency period, the qualification status automatically reverts to "Not Qualified." An individual may also become "Not Qualified" if, during the course of the Maintain POI, event proficiency is not re-demonstrated.
2. Re-Qualification. Re-qualification requires demonstration of proficiency in all required Events. To regain a lost qualification, the individual must demonstrate proficiency in the event(s) which are delinquent. Upon completion, the qualification status automatically reverts back to "Qualified."

2.15.4 Designations

Designations are assigned based on demonstrated instructor or combat leadership proficiency. When all training requirements are completed, the respective Designation may be granted and a formal Designation letter may be presented in accordance with the community T&R by the commanding officer. These designations are command specific and remain in effect until removed for cause or the individual is transferred to another command. Community T&Rs may stipulate re-designation criteria. If not, re-designation is at the commanding officer's discretion. Under exceptional circumstances (Waiver), an Event may be determined to be not required per Paragraph 2.12.

2.15.5 Documentation

1. All individual RCQD shall be documented in Performance Records and Aircrew Performance Records (PR/APR).
2. Commanding officers or designated representatives, in accordance with community T&Rs, shall issue RCQD letters.
3. After the RCQD letter has been signed, the original letter will be presented to the individual, a copy will be included in section 4 of the PR/APR, and M-SHARP will be updated.

2.16 FLIGHT LEADERSHIP

2.16.1 Flight Leadership Program Execution

1. The flight leadership program is governed by this Manual, executed through community T&R programs of instruction, and implemented under the oversight of Wing Commanding Generals and the Commanding Officer of MAWTS-1.
2. Each MAWTS-1 T/M/S Division head will be assigned as the Model Manager for specific T/M/S aircraft.
3. Wing Commanding Generals shall designate a WTI graduate as a program coordinator for each T/M/S aircraft within the Wing.

2.16.1.1 Implementation and Support

1. Each Marine Aircraft Wing's Aviation Training System (ATS) structure will support the MAW CG in implementing the flight leadership program. Marine Aviation Training System Sites (MATSS) will support improvements in the quality of flight leadership training, ensure standardization, and facilitate evaluation. Close cooperation between the operating forces and ATS entities is the foundation of the single integrated aviation training system envisioned for Marine Aviation.
2. As MATSS infrastructure and staffing resources become available to support the FLP, Program Coordinator responsibilities for each T/M/S will be transferred to the appropriate MATSS site.
3. MARFOR CGs, Deputy Commandant for Aviation (APP and APW), and CG TECOM (MTESD and MAWTS-1) shall support the Wing Commanding Generals in implementing the flight leadership program. A diagram depicting an example of flight leadership program relationships is detailed below in Figure 2-1.

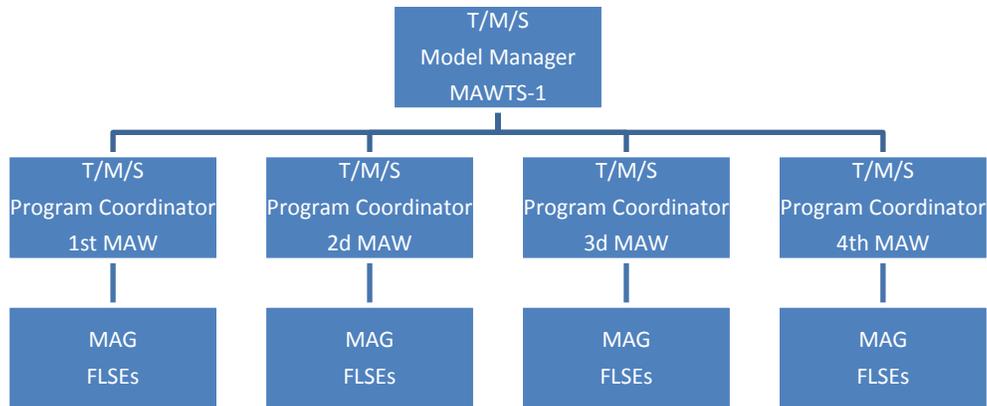


Figure 2-1: Flight Leadership Relationships

2.16.1.2 T/M/S Flight Leadership Model Manager

The T/M/S Model Manager is that Marine Aviator or NFO responsible for management of the flight leadership program across all Wings for a specific T/M/S. The T/M/S Model Manager shall ensure FLSE and flight leader standardization issues are addressed at the appropriate level and shall coordinate proposed changes per Chapter 5. The respective MAWTS-1 T/M/S Division Head will serve as the Model Manager

2.16.1.3 T/M/S Flight Leadership Program Coordinator

The MAW T/M/S Program Coordinator is an Aviator or NFO who is responsible for management of the flight leadership program within their T/M/S for their respective Wing. MAW T/M/S Program Coordinators shall provide input to the T/M/S Model Manager on standardization issues and recommended changes to the program. The Program Coordinator is responsible for the certification of FLSEs of their particular aircraft types within their Wing. Additionally, the Program Coordinator is responsible for annual standardization training.

2.16.1.4 Flight Leadership Standardization Evaluators (FLSE)

1. A MAG designated T/M/S FLSE is an Aviator or NFO responsible for implementing the community Flight Leadership POI at the unit level.
2. MAWTS-1 instructors are authorized to perform FLSE functions as requested.
3. FLSEs provide input to the Program Coordinator/Model Manager on standardization issues and recommended changes to the program.
4. The number of FLSEs should reflect the required number to accomplish effective MAG/squadron training and shall be strictly controlled by MAG commanding officers. As a guideline, MAG commanding officers should designate 2 FLSEs per squadron under his command (e.g., a MAG with 4 squadrons would typically designate 8 FLSEs within the MAG). This estimate should, in no way, limit MAG commanding officers from designating additional FLSEs. MAG commanders ultimately retain the flexibility to designate the number of FLSEs required for mission accomplishment.
5. All FLSEs shall complete annual standardization training IAW the community T&R with one of the following individuals:
 - a. Model Manager/Program Coordinator (same T/M/S).
 - b. FLSE inside the MAW (same T/M/S).
 - c. FLSE outside the Wing (to be funded by the requesting unit).
6. Flight Leadership Standardization Evaluator POI. FLSE POI will be published by MAWTS-1 via the FLSE Program Guide.

2.16.2 Flight Leadership POIs

1. Flight communities shall implement standardized flight leadership POIs for the following designations: Section Leader, Division Leader, Flight Leader, Mission Commander/Air Mission Commander, and Refueling Area Commander. Prospective Flight Leads are required to successfully complete all Events in the community flight leadership POI as a

prerequisite to the respective flight leadership designation. Upon successful completion of the POI, the prospective Flight Lead may be designated in writing by the unit commanding officer.

2. Flight Leadership POIs shall be delineated in the 6000 phase of each respective T/M/S community T&R Manual.
3. Aviators shall log the respective flight leadership proficiency tracking code when they lead a flight.
4. Communities with approved multi-simulator tactical environment networked virtual training systems shall maximize the use of these simulators for conducting flight leadership T&R Events.
 - a. POI Content. Flight leadership POIs shall ensure aircrew are trained and evaluated in the skills and missions that the aircrew will be expected to lead once designated.
 - b. Flight leadership POIs shall include both Core and Mission Skill Events. These Events shall encompass the conditions that are specified in each community Core METL.
 - c. Flight leadership POIs shall specify appropriate administrative and tactical flight leader requirements as stated in SOPs (e.g., NORDO approach, system malfunctions, non-standard departures/recoveries, etc.).
 - d. Community flight leadership POIs shall delineate academic requirements that include self-paced readings, chalk talks, and lectures applicable to the respective flight leadership designation. Flight leader academic requirements should include the following:
 - (1) Flight lead mission planning considerations.
 - (2) Flight leader application of TTPs.
 - (3) Operational Risk Management (ORM) and Crew Resource Management (CRM).
 - (4) Standard Operating Procedures (SOP).
 - (5) Aviation Career Progression Model (ACPM) training requirements.
 - e. Simulator training shall be incorporated into the flight leadership POIs to the maximum extent practical. Simulator training requirements vary among aviation units based on simulator capabilities, physical location, and training needs. Flight leadership POIs shall include simulator training requirements that reflect current simulator facility capabilities and training goals.
 - f. Flight leadership POIs shall delineate prerequisites appropriate to the respective Flight Leadership designation. Flight leadership prerequisites shall state whether the requirement applies to commencement of the flight leadership POI, certification event or designation.
 - g. At a minimum, prerequisites must ensure that the prospective flight lead has demonstrated proficiency in all Events that he could be expected to lead.
 - h. Communities shall delineate appropriate qualification and designation prerequisites.
 - i. Completion of 2000 and 3000 phases shall be a prerequisite to commencing the Section Leader POI. Exceptions shall be delineated in the community Section Lead POI.
 - j. Community Aircraft Commander designations shall be a prerequisite to commencing the Section Leader POI.
 - k. The last event performed in each T&R flight leader POI shall be a flight event.
 - l. Communities shall establish flight leadership tracking codes in the 6000 phase which are intended to be used as a tool for ORM and training management purposes.
 - m. Communities shall R-code POI Events required to regain flight leadership proficiency.
 - n. Community flight leadership POI event requirement and performance standard descriptions shall be commensurate with flight leadership criteria. Flight event descriptions shall include event requirement accomplishment criteria to determine whether the prospective flight lead completed the event. The prospective flight lead shall use the performance standards to debrief the flight. The following shall be considered when developing flight leadership POI event Requirement and Performance Standard descriptions:
 - (1) Flight Leadership (FL) Requirements
 - 1 Plan, brief, lead, and debrief Events.
 - 2 Understand the community T&R and Aviation T&R Program Manual and execute T&R policy.

- 3 Incorporate ORM and CRM in all levels of training.

(2) FL Performance Standards

- 1 Maintain situational awareness.
- 2 Make sound administrative and tactical decisions.
- 3 Safely lead and control aircraft within flight.
- 4 Adhere to Standard Operating Procedures (SOPs).
- 5 Demonstrate sound tactical execution.
- 6 Respond to unplanned circumstances.
- 7 Communicate intentions to the flight.
- 8 Accurately recall/reconstruct event and debrief learning points.

2.16.3 Flight Leadership Evaluations

1. A FLSE from a different unit shall evaluate the required number (minimum of 1) of flight leadership POI Events as specified in each community POI. Flight leadership POI Events evaluated by a FLSE where performance is evaluated as ‘unsatisfactory’ must be rescheduled and successfully completed with a FLSE.
2. FLSE certification of prospective flight leaders for deployed units or locations where a FLSE from a different unit is not available to conduct the certification may be conducted by an internal FLSE with a minimum of MAG/MAGTF Commander level of approval.

2.16.3.1 Fixed Wing Evaluation Requirements

Individuals evaluating a prospective flight lead during flight leadership POI Events should normally be of the same crew position and community for the prospective flight lead. Mission Commander evaluations, and others as specified within each community, may be conducted by a pilot or NFO of the same community. The designations within Table 2-2 are required in order to evaluate prospective FW flight leads (unless otherwise stated in the community POI):

Table 2-2: Fixed-Wing Evaluation Requirements

Prospective Flight Lead	Minimum Qualification to Evaluate
Section Leader	Division Leader (Section Lead EA-6B)
Division Leader	Mission Commander (Division Lead EA-6B, KC-130)
Refueling Area Commander	Refueling Area Commander
Mission Commander	Mission Commander

2.16.3.2 Rotary Wing and Tiltrotor Flight Leadership Evaluation Requirements

Individuals evaluating a prospective flight lead during flight leadership POI Events should normally be of the same crew position and community for the prospective flight lead. Air Mission Commander evaluations and others, as specified within each community, may be conducted by a pilot of another Model/Series community. For example, a UH-1Y AMC may evaluate a prospective CH-53E AMC. The designations in Table 2-3 are required in order to evaluate prospective flight leads (unless otherwise stated in the community POI). Rotary Wing and Tiltrotor Air Mission Commanders (AMC) may be certified by FLSEs from different Assault Support models.

Table 2-3: Rotary-Wing Evaluation Requirements

Prospective Flight Lead	Minimum Qualification to Evaluate
Section Leader	Division Leader
Division Leader	Flight Leader
Flight Leader	Flight Leader
Air Mission Commander	Air Mission Commander

2.16.4 Flight Leadership Re-Designation

Flight leadership re-designation criteria for aircrew that do not require Core Introduction Refresher training is at the discretion of the commanding officer. For aircrew who require Core Introduction Refresher Training per paragraph 4.05.1, the minimum re-designation requirement for flight leader positions is successful completion of the R-coded flight leader POI Events.

2.17 SYLLABUS TRAINING EXCEPTIONS

2.17.1 Waiver

Under exceptional circumstances, an event may be determined to be not required. If granted, waiver(s) remain in effect until transfer. Upon transfer, the joining commander shall review waivers to determine validity. If the joining commander validates the waiver(s), a new waiver letter shall be completed that will be included in the PR/APR.

1. Events may be waived for the following training:
 - a. Maintain POI
 - b. Transition POI
 - c. Series Conversion POI
 - d. Conversion POI
 - e. Refresher POI
2. For commanding officers who desire to waive multiple Events, the following guidance applies:
 - a. Individuals shall complete the culminating Maintain event (normally the highest level event for the given skill).
 - b. If no culminating Maintain event exists, then individuals shall complete the highest level event for the given skill or Instructor Designation as applicable.
 - c. Community T&Rs may provide amplifying information.
3. Event waivers shall not be granted for:
 - a. Basic POI Events for initial accession personnel. For Aviation Flying communities, see paragraph 4.00.0 for 1000 Phase waivers.
 - b. Basic POI Events which are not encompassed by another POI - (M, T, S, C, R)
 - c. All Events in a Stage
 - d. All Events in a Skill
 - e. All Events leading to any Qualification or Designation
 - f. Any FLSE event, prerequisite, or standard
 - g. All Events in a POI

2.17.2 Waived Prerequisites

Commanding officers may waive prerequisites when the prerequisite waiver does not pose an unacceptable safety risk. A signed flight schedule, signed ground schedule, or training plan constitutes documentation for waived prerequisites.

2.17.3 Deferral

1. Events may only be deferred when the lack of logistical support or training assets prevents timely Event completion. Examples include non-availability of a simulator/training device, academic courses, ranges, or lack of instructor capability. Deferrals remain in effect for the proficiency period or current tour of duty, whichever is less. Deferrals may also be designated to remain in effect for a specified period of time. Commanders may authorize the conduct of deferred simulator/simulated Events in an aircraft/live.
2. Waiving or deferring syllabus Events or prerequisites shall only be authorized by unit commanding officers.
 - a. NATOPS and OPNAV requirements shall not be waived or deferred unless authorized by the respective publication.
 - b. Core Introduction (1000 Phase) training event deferral/waiver policy for aircrew is contained in Chapter 4, paragraph 4.00.2.

2.17.4 Logging of Waived or Deferred Events

The proficiency date for that event shall be updated in M-SHARP and the individual's training record.

1. Documentation in M-SHARP for Waivers. A waiver in M-SHARP is an administrative entry. For example, a waived event will be displayed as "02/25/14W" (date and W = waived).

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2. Documentation in M-SHARP for Deferrals. A deferral in M-SHARP is an administrative entry. For example, a deferred event will be displayed as “02/25/14D” (date and D = deferred). Deferral dates will be chain updated and will retain the “D” designation until the event is logged.

2.18 DEVIATIONS FROM T&R PROGRAM POLICY

1. For any situation or circumstance (waivers/deferrals) that will result in a deviation from the Aviation Program Manual or a T&R Manual, ASB is the approval authority.

2. Requests for T&R policy deviation shall be requested via AMHS message to CG TECOM MTESD via the operational chain of command up to the MAW level (squadron/unit, MAG/MACG, MAW), with info notification to the MEF, MARFOR, and the syllabus sponsor. All requests must be endorsed by the applicable MAW. In exceptional cases, endorsement may be deemed to be required from the applicable MARFOR and/or DC AVN, as determined in collaboration with the applicable MAW and ASB. A sample message template is provided in APPENDIX G.

3. For time-sensitive requests, chain of command endorsement(s) may be obtained by e-mail or telephone. If received by either method, the endorsement(s) will be included as references in the deviation request message.

4. Example. A change to the Aviation T&R Program Manual mandates that all AV-8B NSQ sorties be flown with an NSI. However, the current version of the AV-8B T&R Manual states that only 5 of the 9 NSQ sorties must be flown with an NSI. In this case, the AV-8B community requests and is granted a T&R deviation to continue Night Systems training in accordance with the current AV-8B T&R Manual until it is updated.

5. Contingency/Combat Operations. MAGTF or MAW commanders may deviate from Aviation T&R training policies at their discretion.

2.19 RECORDS MANAGEMENT

Units shall maintain performance records for all assigned individuals undergoing aviation T&R syllabi training.

1. Flying units shall utilize Aircrew Performance Record (APR) folders.

2. Aviation Ground communities shall use Performance Records (PR) as prescribed by the individual communities in coordination with the syllabus sponsor.

3. Performance records shall be audited and updated when:

a. An individual initially reports to a unit.

b. Annually within 30 days of birthday.

c. An individual transfers from a unit. The transferring unit shall ensure the commanding officer (or authorized agent) signs the audit page certifying the performance records is complete and accurate.

4. Performance records shall consist of at least four parts with the following sections:

a. Section One - Administrative Information. This section shall contain:

(1) Privacy Act statement.

(2) Record of audit.

(3) Undergraduate Aviation Training information.

(4) Aviation related civilian education/training.

(5) Additional administrative information, as appropriate.

b. Section Two - Core Introduction Training. For Marine Corps formal schools or joint training units, commanders shall ensure the performance records contain complete section 2 information prior to transfer. When Core Introduction Events are not completed, the receiving unit shall reconcile those Events in accordance with the community T&R manual.

c. Section Three - Squadron Training. This section shall contain:

(1) Event Evaluation Forms. Evaluation forms shall be retained on a permanent basis to note performance trends.

(2) Academic/Ground School Training. Documentation for all required aviation academic/ground training and formal courses completed.

(3) M-SHARP Transfer Data Summary. When transferring, a current hardcopy report for the individual shall be included in this section.

(4) Aircraft Weapons Qualifications

(5) Licenses, certificates, etc

d. Section Four - Individual Training Requirements. This section shall contain:

(1) All command qualification, designation and certification letters.

(2) Formal Schools completion certificates.

2.20 MARINE SIERRA HOTEL AVIATION READINESS PROGRAM (M-SHARP)

1. The Marine Sierra-Hotel Aviation Readiness Program (M-SHARP) shall be used by all aviation units governed by this Manual to plan, schedule, log, track, and manage all training and readiness reporting requirements.

2. The efficiency and effectiveness of training and Operational Risk Management is enhanced through the use of M-SHARP.

3. M-SHARP is designed to streamline operations and assist units in achieving combat readiness via the following primary functions:

a. Training Management. Provided through scheduling and logging of all aviation training, standardized reporting of requirements, certifications, qualifications, designations, proficiency and currency in accordance with Chapter 2.

b. Operational Risk Management. Provides pre-execution hazard identification through objective enforcement of Naval Aviation, Marine Aviation, and local Command policies.

c. Document Management. The T&R manuals for all aviation communities are contained in M-SHARP as the single source of T&R information and standardization.

d. Flight Hour Management. Collects, calculates, and reports real time flight hour execution via Naval Flight Information Record (NAVFLIR) logged data to the Deputy Commandant for Aviation (DC AVN), Aviation Plans and Policies (APP), in support of the MCO 3125.1_ Flight Hour Execution Program/SBTP.

e. Readiness Management. Reports individual and unit Core Skill Proficiency (CSP) and Mission Skill Proficiency (MSP) forecasts and execution via T&R Event Proficiency to DC AVN APP in support of MCO 3125.1_ and the Naval Aviation Enterprise Aircrew Core Competency Program.

2.21 M-SHARP UNIT REQUIREMENTS

1. M-SHARP shall be used to track all aviation-related training governed by this Manual for the following active and reserve unit types:

a. All Type/Model/Series aircraft and UAS squadrons, detachments, and Fleet Replacement Squadrons (except VMFAT-101).

b. All Marine Air Control Group (MACG) squadrons, units, detachments, and sections (except MWCS).

c. All Operational Support Airlift (OSA) aircraft.

d. All Higher Headquarters (HHQ) units (MARFOR, MAW, MEF, MCI, MCAS, MAG, MACG, Intelligence Battalions (METOC), and as applicable, MAWTS-1).

e. Marine Executive Helicopter Squadron One (HMX-1).

2. All units identified above shall appoint an M-SHARP Implementation Officer (MIO) from within the Operations/WTTP/Training Department who will be responsible for the overall management of the unit's M-SHARP program. The Operations/WTTP/Training Chief shall assist the MIO, provide continuity, and ensure the proficiency of Operations/WTTP/ Training Clerks is maintained while performing M-SHARP data processing.

3. All units identified above shall appoint, at a minimum, one M-SHARP Administrator (NCO and above) who manages the unit-specific permissions.

4. All flying units identified above shall capture post flight NAVFLIR data within M-SHARP via the logger module. The data from the NAVFLIR shall be electronically transferred to NALCOMIS/OOMA via one of the published procedures available on the M-SHARP User Support website <http://marineit.freshdesk.com/solution/categories> under the

Resource tab. Direct entry of NAVFLIRs data into NALCOMIS/OOMA, and subsequent backfill or re-entry into M-SHARP is NOT recommended. This action will produce errors and data mismatches between the two systems. Direct entry into NALCOMIS/OOMA should only be done if M-SHARP is offline or unavailable for a substantial amount of time.

5. All M-SHARP users shall maintain the integrity of their M-SHARP data for budgeting and accounting purposes. All M-SHARP data must be maintained at the highest level of accuracy to ensure commanders are provided the necessary information about unit training and readiness. To provide higher headquarter elements with information about the accuracy of individual unit data, the health of each unit's M-SHARP program is measured and tracked using the 5 color-coded progression levels per MCO 3125.1 as outlined below. Each unit's System Accuracy Status (SAS) is objectively assessed by the M-SHARP Support Representatives for all levels except Level 1/Green which requires the unit commander's assessment. The M-SHARP System Accuracy Status Report of all units and M-SHARP System Accuracy Status assessment procedures can be found at <http://marineit.freshdesk.com/solution/categories>.

a. Level 1/Green. Unit is maintaining the requirements for Level 2/Blue, and the Commander has assessed his unit's M-SHARP database accuracy as sufficient for automated reporting to higher headquarters. Commanders or a designated representative shall communicate their Level 1 assessment to TECOM ASB via M-SHARP Support Representatives. Units are required to maintain their M-SHARP program at Level 1/Green.

b. Level 2/Blue. Unit is maintaining the requirements for Level 3/Yellow, has baselined crew data, is logging all flights/training in M-SHARP, is transferring all flights to NALCOMIS (if applicable), and is publishing all schedules using M-SHARP (except in cases where schedules are deemed classified) but the Commander has not assessed his unit's M-SHARP database accuracy as sufficient for automated reporting to higher headquarters.

c. Level 3/Yellow. M-SHARP has been implemented, essential personnel have been indoctrinated in its utilization, and at least one operations/training representative (officer or enlisted) has successfully completed the M-SHARP administrators course offered by M-SHARP support representatives.

d. Level 4/Red. M-SHARP has been implemented, essential personnel have been indoctrinated in its utilization, but no Operations/Training representative (officer or enlisted) has successfully completed the M-SHARP Administrators Course offered by M-SHARP support representatives. Note that it is possible for a unit to regress from Level 1/Green to Level 4/Red due to turnover of Operations personnel.

e. Level 5/Gray. Unit is not required to use M-SHARP. Primarily this coloration is assigned for units or communities that have not yet been fielded with M-SHARP.

2.22 M-SHARP TRAINING REQUIREMENTS

1. M-SHARP training is offered regularly by M-SHARP Customer Support Representatives in a variety of formats ranging from one-on-one over the shoulder training to formalized classroom instruction applicable to the various user levels including User, Logger, Scheduler, and Administrator. Training requests/coordination can be done directly through the local support representative or through a Ticket request via M-SHARP User Support, located at (<http://marineit.freshdesk.com/support/home>).

2. M-SHARP Implementation Officers, M-SHARP Administrators, and Operations/Training Chiefs shall attend the M-SHARP Administrator Course instructed by an M-SHARP Customer Support Representative before any Administrator permissions will be granted. The M-SHARP Administrator Course completion certification shall be maintained on file by the individual and the unit for inspection purposes.

3. All personnel in M-SHARP shall have a Personnel Record, User Account, or both, depending on the duties and requirements of that individual. The Personnel Record and User Account will follow the individual as they are transferred from unit to unit. Management of the Personnel Record and User Account, rank changes, T&R syllabus changes, user permissions, and password resets are the responsibility of the unit M-SHARP Administrator(s).

a. Personnel Record. Individuals with only a Personnel Record will NOT have access to the M-SHARP application. The Personnel Record is used to link an individual with a T&R syllabus for scheduling, logging, and reporting of training. Additionally, individuals can be entered here for the sole purpose of duty scheduling.

b. User Account. Individuals with a User Account will have access to the M-SHARP application via user name and password. Areas of access are controlled via the Security Groups (i.e. permissions) and are assigned by the local command via the Unit M-SHARP Administrator.

2.23 M-SHARP UTILIZATION

1. The functionality of the application is based upon Navy and Marine Corps policy as defined or referenced in this Manual.

2. Administration and management of unit M-SHARP data at the local level shall be governed and evaluated by the following procedures:

a. Daily Procedures for Operations Chief and Clerks

- (1) NAVFLIR reconciliation with Maintenance.
- (2) Reconciliation of SBTP and unit Flight Hours.
- (3) Report generation/maintenance (Hotboards, 30/60/90, etc.).

b. Daily Procedures for Maintenance Administration

- (1) NAVFLIR reconciliation with Operations.
- (2) Aircraft Summary reconciliation with Operations.

c. Daily Procedures for Operations Officers

(1) Review corrected flight schedule, cancellation OF NAVFLIRS, currency/proficiency reports, SBTP execution.

(2) Generate daily schedule.

d. Daily Procedures for DoSS Officers. Review currency/proficiency reports.

e. Monthly Procedures

- (1) Flight hour/SBTP reconciliation and reporting
- (2) Duty schedule input into M-SHARP (for flight schedule production)
- (3) MIFAR
- (4) Log Books reconciliation (electronic to paper)

(5) On the last working day of each month, M-SHARP support representatives shall produce a data accuracy assessment of every flying unit, and shall publish the results to Group and unit operations by the end of the month. This effort contributes to validating data accuracy for the Flight Hour Program (FHP) Sortie Based Training Program (SBTP), and Aircrew Core Competency (ACC) to HQMC.

(6) M-SHARP representatives shall assist units with correcting all data inaccuracies in preparation for the current readiness SBTP Execution Report by the fifth working day of the month.

2.24 M-SHARP CONSIDERATIONS

Units deploying to areas with little or no internet connectivity for over 30 days can request a self-contained stand-alone version of M-SHARP on a single laptop, shore-based LAN server, or shipboard server for the deployment. This stand-alone version is called M-SHARP Deployable. M-SHARP Deployable should not be considered a complete substitute for M-SHARP, but rather a means of bridging the deployment gap for scheduling, tracking individual proficiency, and processing NAVFLIR data. Baselineing of T&R and aircrew hours should not be done on M-SHARP Deployable; it is recommended that all baselineing or editing of such data be done prior to deployment.

2.24.1 Pre-deployment

1. At least two weeks lead time is needed to coordinate unit data pulls, installation/configuration, and testing of M-SHARP Deployable prior to delivery to the unit. All personnel and aircraft transfers in or out of the unit must be complete prior to the generation of the unit's Deployable database from M-SHARP Global. When requesting a Deployable platform, M-SHARP Support will require the desired "data cutoff date", i.e. the date and time of the last flight logged on M-SHARP after which the unit should stop using M-SHARP Global and enter all flights into Deployable upon delivery. This will usually mean a few days of backlogged NAVFLIRs data entry to bring the Deployable instance completely current prior to deployment.

2. VMM squadrons assigned as the ACE for a Marine Expeditionary Unit will usually require the M-SHARP Deployable due to limited shipboard bandwidth. M-SHARP Deployable can be integrated into the MEU Local Area

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Network (LAN) to allow access throughout the LHD. An M-SHARP Support representative will normally embark aboard the LHD during work-ups as part of the Deploying Group System Integration Testing (DGSIT) team to ensure proper configuration and functionality on the MEU's LAN. Training for all appropriate MEU ACE personnel may be conducted during this time.

2.24.2 During deployment

Portable installations of M-SHARP can be synchronized regularly with the master server through the use of a Synchronization of Portable Installation (SPIN) file. The SPIN file may be created regularly from the portable installation and contains a deployed unit's new information to update the master server. The SPIN file must be transferred to an internet/NIPRNET-capable computer using a USB drive or other portable media where it can be submitted via email as an attachment. At a minimum, SPIN files of disconnected units shall be submitted by the 5th working day of every month in order to update the master M-SHARP database. Local policy may specify a more frequent submission interval. While disconnected, units are responsible for maintaining their own backups locally and should conduct a full data backup at least once weekly.

Note:

Classified Data. M-SHARP is not approved for installation on classified systems.

2.24.3 Post-deployment

Any remaining unsynchronized data from the deployment will be submitted via SPIN file. M-SHARP shall be uninstalled and shall not be maintained on deployable assets following the deployment.

2.25 M-SHARP ADMINISTRATION

1. M-SHARP user support website contains names, phone numbers, and email addresses of all M-SHARP field representatives at each Air Station:

<http://marineit.freshdesk.com/solution/categories/1000109585/folders/1000174727/articles/1000085018-customer-support-contact-list>

2. The M-SHARP customer request form allows users without on-site support representation to submit feature requests, report bugs, request an account, and request further training at the following site: <http://marineit.freshdesk.com>.

3. M-SHARP is governed by Federal acquisition regulations. Aviation Standards Branch is responsible for M-SHARP program management, to include contract and administrative oversight.

CHAPTER 3 - RULES OF CONDUCT

3.00 GENERAL AVIATION ROC3.00.1 Purpose

This chapter contains policy for the following flight programs. CG, MCCDC tasks the Commanding officer, MAWTS-1 with developing training courses and establishing criteria for instructor certification for these programs:

1. Low Altitude, including:
 - a. FW Low Altitude Tactics (LAT).
 - b. RW Terrain Flight (TERF).
 - c. Tiltrotor LAT.
2. Night operations and Night Systems (NS) for RW, FW, and Tiltrotor.
3. Air Combat Maneuvering (ACM) including:
 - a. FW ACM and Defensive Tactics (DT).
 - b. RW Defensive Measures (DM) and Defensive Air Combat Maneuvering (DACM).
 - c. Tiltrotor Defensive Combat Maneuvers (DCM).
4. Forward Air Control (Airborne) [FAC(A)]

3.00.2 Authority

Authority and responsibility for ROC rests with CMC (DC AVN), CG MCCDC and Force Commanders. Training ROC are applicable during peacetime training evolutions and are not intended to restrict contingency/combat operations or combat rehearsals.

3.00.3 Safety

1. Commanders shall conduct training in accordance with the guidelines of this chapter and OPNAVINST 3710.7.
2. Assault Support Rotorcraft Passenger Limitations. Policy for the transportation of passengers aboard Assault Support rotorcraft equipped with crash attenuating seats (UH-1Y, MV-22B, CH-53E/K) is as follows:
 - a. Unless operating in accordance with an authorized waiver, the maximum number of embarked passengers will be limited only by the number of crash attenuating seats available for passengers and proper weight and power/balance considerations.
 - b. Authority to embark passengers in non-crash attenuating seats will be vested with the Wing Commanding General.

3.00.4 Currency

Currency is a control measure used to provide an additional margin of safety based on exposure frequency to a particular skill. It is a measure of time since the last event demanding that specific skill. Loss of currency does not affect a loss of proficiency. For example, currency determines minimum altitudes in ROC based upon the most recent low altitude fly date.

3.01 ROC FOR LOW ALTITUDE FLIGHT3.01.1 General

1. Purpose. To standardize ROC for low altitude flight programs.
2. Scope. T&R manuals contain community specific policies, responsibilities, training syllabi and flight objectives for FW, RW, and tiltrotor aircraft participating in LAT and TERF. This section stipulates the training criteria and the ROC peculiar to the 3 types of low altitude flight.
3. Safety. The low altitude regime places high demands on aircrew skill and judgment requiring stringent ROC to ensure safe event completion.
 - a. Squadron commanders shall ensure that aircrew conducting LAT/TERF training are in compliance with appropriate T&R ROC.

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- b. Unscheduled LAT/TERF is strictly prohibited.

3.01.2 Definitions

1. Comfort Level (CL). CL is the lowest altitude where aircrew can accommodate task loading and maintain safe terrain clearance. CL is a perceptual concept that concedes individual differences and is never a hard altitude. CL will vary according to terrain, aircrew skill, currency, and degree of training in the low altitude environment.
2. Climb to Cope. Aircrew will employ climb to cope when situational awareness or mission performance is degraded. The climb to cope may be executed as an adjustment for CL or as a response to a “Knock It Off” call. Training may resume once all aircrew are confident that continued safe operations are assured.
3. Knock It Off (KIO). When a dangerous loss of situational awareness is recognized or a potentially hazardous circumstance develops, any crewmember shall call for a KIO without delay. The response to a KIO call will be an immediate wings level controlled climb to briefed altitude and discontinuation of training until the cause for the KIO has been adequately addressed and all aircrew concur on a course of action.
4. Terminate. To cease the current maneuver, crewmembers shall use the term “terminate.” The response to “terminate” shall be an immediate discontinuation of maneuvering and leveling off at present or briefed altitude.
5. Minimum Safe Altitude (MSA). An altitude that provides 500 feet of clearance above the highest obstacle within 5 nm either side of course line or planned course deviation for that leg of the route. MSA shall be briefed for all LAT training.
6. Emergency Safe Altitude (ESA). An altitude that provides 1000 feet of clearance above the highest obstacle within 25nm either side of course line for the entire route. ESA shall be briefed for all LAT training.

3.01.3 Weather Minimums

Low altitude weather minimums are depicted in Table 3-1:

Table 3-1: Low Altitude Weather Minimums

Flight	Ceiling/Visibility
TERF	1,000ft AGL/3 NM
LAT	3,000ft AGL/5 NM
MV-22 LAT in Conv Mode	1,000ft AGL/3 NM

3.01.4 Low Altitude Flight Qualification, Proficiency, and Currency

3.01.4.1 Low Altitude Qualifications

Aircrew achieve FW LAT/Tiltrotor LAT/TERF qualification by completing the stage of training or specified Events as delineated in individual T&R syllabi. Non-qualified aircrew require supervision of a FW LAT/Tiltrotor LAT/TERF instructor.

3.01.4.2 Low Altitude Proficiency

1. When FW LAT/Tiltrotor LAT/TERF qualified aircrew lose proficiency in a particular FW LAT/Tiltrotor LAT/TERF flight event, they may regain proficiency in that flight event by satisfactorily demonstrating those skills required of that particular syllabus flight event to a Low Altitude Tactics Instructor (LATI) or Terrain Flight Instructor (TERFI).
2. In cases where there are no proficient LATIs/TERFIs available, two non-proficient LATIs/TERFIs may fly together in order to regain proficiency (See paragraph 2.03).

3.01.4.3 Low Altitude Flight Currency

Currency Intervals are the measure of time since the last event demanding that specific skill. When aircrew exceed a currency interval, the aircrew must abide by the minimum altitudes commensurate with their particular currency interval. Aircrew may update the currency interval and corresponding minimum altitudes during a single sortie; the individual may update currency after flying an appropriate segment of a FW LAT/Tiltrotor LAT/TERF route. In aircraft requiring two or more aircrew for the briefed mission, the most restrictive aircrew's currency interval applies to the aircraft. In flights of two or more aircraft, the most restrictive aircrew currency interval applies to the flight.

3.01.5 Low Altitude Flight Training Areas

1. Pilots shall conduct low altitude flight in restricted airspace, MOAs, and on published Military Training Routes. Wing/MAGTF commanders may designate other low altitude training areas.

2. Low altitude training areas should be suitable for the aircraft to perform training in dive recovery, three dimensional maneuvers and three dimensional defensive maneuvers against simulated air-to-air, SAM, and AAA threats. Although not required, the optimum terrain should also allow training in terrain masking, indirect terrain masking, and ridgeline crossings.
3. The area should be free of vertical obstacles that constitute a danger to the free navigation required of low altitude training.

3.01.6 Night Low Altitude Flight

Night low altitude flight (FW LAT/Tiltrotor LAT/TERF) without NVGs is prohibited. Aircrew must be day FW LAT/Tiltrotor LAT/TERF qualified prior to commencing night low altitude training. See currency tables in paragraphs 3.03, 3.04, and 3.05.

3.01.7 FW LAT/Tiltrotor LAT/TERF Training with Embarked Troops

Low altitude flight poses increased operational risk. The transport of troops during FW LAT/Tiltrotor LAT/TERF training is authorized subject to the following restrictions:

1. All aircrew are qualified, proficient and current per this Manual and the respective T/M/S T&R Manual.
2. Aircrew shall utilize FW LAT/Tiltrotor LAT/TERF areas or routes as specified in respective MAW and MAG operations SOPs.
3. The aircraft has the requisite power margin as specified in respective MAW, MAG and squadron operations SOPs.
4. Authorization for the specific FW LAT/Tiltrotor LAT/TERF training event has been approved by the MAGTF commander. For training Events conducted during MAWTS-1 WTI classes, approval authority is CG TECOM G-3.
5. Waiver authority for any of the above restrictions is vested in the MEF CG.

3.02 FW LAT

1. The term FW LAT applies where the briefed intent is to conduct tactical flight when terrain avoidance is a significant factor. FW LAT is further defined as intent to fly below 500 feet AGL.
2. F-5 Adversary Missions and LAT Restrictions. Due to fixed wing adversary missions in rotary wing T&R manuals, the F-5 T&R manual requires a FW LAT qualification and LATI syllabus. The minimum altitude for the F-5 in a FW LAT environment shall be 500 feet AGL.
3. FW Ordnance Delivery Minimum Recovery Altitudes. FW ordnance delivery for the sole purpose of refining delivery skills is excluded from the FW LAT definition. The minimum dive delivery recovery altitude will be the applicable TACMAN NATIP altitude as defined for the specific ordnance being employed. The minimum altitude will be the result of an appropriate release altitude that accounts for the highest altitude as required for fragmentation avoidance, terrain clearance and fuse arming time.
4. FW Initial Qualification. A LATI is required in the aircraft/flight.
5. FW NS LAT. See paragraph 3.10.

3.03 FW LAT CURRENCY AND MINIMUM ALTITUDES

The minimum altitude for FW LAT training is 300 feet AGL. Day LAT shall not update NS LAT currency requirements. NS LAT shall update day LAT currency requirements. The following minimum altitude restrictions based on currency interval apply:

3.03.1 Single Aircraft and Section

CL but no lower than 300 feet AGL.

3.03.2 Minimum altitudes for KC-130 aircraft

1. While Air Delivery (AD) and Assault Landing Zone (ALZ) do not constitute LAT, maneuvering at low altitude makes terrain avoidance a significant factor just the same. Accordingly, the altitude parameters outlined below shall apply to those operations as well.
2. Minimum maneuvering altitude is 500 feet AGL regardless of currency interval.

3. Minimum non-maneuvering altitude is 300 feet AGL. Angle of bank shall be no greater than 30 degrees and flight path angle not be lower than -1 degrees. Turns conducted below 500 feet AGL shall be limited to those required for navigation, with no single turn exceeding 60 degrees of heading change.

3.03.3 Division/Strike Formation

CL but no lower than 500 feet AGL. In a formation where sections have a minimum of 1 nm nose to tail separation, the flight lead should consider each section as a separate section for altitude criteria. See Table 3-2 for specifics.

Table 3-2: LAT Minimums

LAT EVENT	1-30 DAYS CURRENCY INTERVAL	OVER 30 DAYS CURRENCY INTERVAL
Single or Section	300' AGL*	500' AGL
Division	500' AGL	500' AGL
Air-to-Air Refueling	500' AGL	1,500' AGL
* KC-130 non-maneuvering altitude		

3.03.4 FW LAT Minimum Altitude Waivers

Requests to fly LAT training Events lower than the FW LAT minimum altitudes delineated above shall be submitted in message format to HQMC via operational chain of command (To CMC WASHINGTON DC APP; Info CG TECOM MTESD). Requested training Events, altitudes and applicable time periods for the waiver should be identified.

When authorized by DC, Avn, the following FW LAT minimum altitude restrictions based on currency interval apply:

3.03.4.1 Single Aircraft

CL but no lower than 200 feet AGL.

Minimum Altitude Capability (MAC). MAC is flown as a defensive response to engagement by a threat and during speed rush baseline training. At this level, aircrew focuses entirely on terrain clearance tasks. The minimum FW MAC training event altitude is 100 feet AGL (200 feet AGL for KC-130 aircraft) when the pilot is current and chased by a current LATI on an approved low altitude course.

Night MAC Training is restricted to no lower than 200 feet AGL.

3.03.4.2 Section

CL but no lower than 200 feet AGL.

MAC not authorized.

3.03.4.3 Division/Strike Formation

CL but no lower than 500 feet AGL.

MAC not authorized.

WHEN AUTHORIZED BY DC, AVN: CL, BUT NO LOWER THAN:

Table 3-3: FW LAT Minimum Altitude

LAT Event	1-15 Days Currency Interval	16-30 Days Currency Interval	30+ Days Currency Interval
Single Aircraft	200' AGL/MAC	300' AGL	500' AGL
Section	200' AGL	300' AGL	500' AGL
Division	500' AGL	500' AGL	500' AGL
Air-to-Air Refueling	500' AGL	500' AGL	1,500' AGL

3.04 RW TERF

3.04.1 TERF Flight

TERF is RW flight conducted during day or night, VMC, when the intent is to fly below 200 ft AGL. Low Level, Contour, and Nap Of the Earth (NOE) compose the basic TERF regimes. Missions performed on an ordnance delivery range for the sole purpose of refining delivery skills does not constitute TERF. Confined Area Landings (CALs) training does not constitute TERF from the IP to the LZ.

3.04.1.1 Low Level Flight

Flight conducted at a selected altitude to minimize or avoid enemy detection or observation. Aircrews pre-select the route that generally consists of straight-line navigation, constant airspeed and constant altitude (MSL).

3.04.1.2 Contour Flight

Contour Flight conforms generally to the elevations of the earth. Contour flight takes advantage of available cover and concealment to avoid enemy observation or detection of the aircraft. The pilot varies airspeed and altitude as vegetation and obstacles dictate.

3.04.1.3 Nap of the Earth (NOE) Flight

NOE is flight conducted as close to the earth's surface as vegetation and obstacles permit while generally following the contours of the earth's surface. The pilot varies airspeed and altitude as influenced by terrain, weather, ambient light, and the enemy situation.

3.04.2 Aircrew Requirements

To ensure full lookout coverage capability in helicopters possessing a cabin section (CH-53E, UH-1), minimum aircrew for all TERF flights shall be a pilot, copilot, crew chief, and aerial gunner/observer. The aircraft commander shall ensure a thorough mission brief is conducted with all aircrew. Emphasize lookout doctrine, obstacle clearance, ICS calls, radio procedures, and emergencies.

3.04.3 TERF Currency and Minimum Altitudes

1. Minimum TERF altitude for CH-53E is 50 feet AGL.
2. Minimum TERF altitude for AH-1/UH-1 is 10 feet AGL.
3. The following minimum altitude and airspeed restrictions based on currency apply:

COMFORT LEVEL, BUT NO LOWER THAN:

Table 3-4: TERF Currency and Minimum Altitudes

TERF Event	1-30 Days Currency Interval	Over 30 Days Currency Interval
Low Level	100' AGL	150' AGL
Contour	50' AGL	100' AGL
NOE	10' AGL (40 knots or less)	(Authorized after Para 304.3.6 requirements are met.)

4. Refer to Paragraph 3.01.4.3 for low altitude flight currency involving two or more aircrew.
5. After 30 days, CH-53E pilots shall regain currency by performing low level flight prior to conducting contour flight.
6. After 30 days, AH-1/UH-1 pilots shall regain currency by flying an NOE flight with a 30-day current PQM. If a 30-day current PQM is unavailable, the pilots shall regain currency by performing low level flight followed by contour flight prior to NOE flight.

3.05 TILTROTOR LAT

Tiltrotor LAT is flight conducted during day or night, VMC, where the briefed intent is to conduct tactical flight where terrain avoidance is a significant factor. LAT is further defined as intent to fly at/or below 500' AGL in order to develop terrain avoidance skills. Assault Landing Zone operations are excluded from the LAT definition. Tiltrotor LAT is composed of both low level and contour flight profiles, and can be accomplished in APLN and CONV (Nacelle settings greater than or equal to 60 degrees) modes.

3.05.1 Low Level Flight

Flight conducted at a selected altitude to minimize or avoid enemy detection or observation. Aircrews pre-select a route that generally consists of straight-line navigation, constant airspeed and constant altitude (MSL).

3.05.2 Contour Flight

Contour flight conforms generally to the elevations of the earth. Contour flight takes advantage of available cover and concealment to avoid enemy detection or observation of the aircraft. The pilot varies airspeed and altitude as vegetation and obstacles dictate.

3.05.3 Tiltrotor LAT Currency and Minimum Altitudes

Following successful completion of a 50 nautical mile segment on an approved LAT route at the appropriate currency interval altitude, the aircrew is considered current and may continue LAT at the next lower currency interval. The following minimum altitude restrictions based on currency interval apply in Table 3-5:

Table 3-5: LAT Currency and Minimum Altitudes (AGL)¹

Flight Mode	0-30 Days		31+ Days	
	Day/HLL	LLL	Day/HLL	LLL
APLN	200'	500' [*]	500'	500'
CONV	50'	100'	200'	200'

3.06 GENERAL ROC FOR NIGHT OPERATIONS

1. Purpose. To standardize the training rules for FW, RW and tiltrotor aircraft conducting night operations training.
2. Scope. This section stipulates training criteria and ROC peculiar to FW, RW and tilt-rotor aircraft night operations.
3. Safety. Squadrons will conduct night operations within the guidelines of this Chapter and OPNAVINST 3710.7. Commanders shall ensure aircrew conducting night training are properly qualified and appropriate flight leadership is represented within the flight.

3.06.1 Illumination

The approved methods for deriving illumination requirements for night operations are the Solar/Lunar Almanac Program (SLAP) and Solar/Lunar Almanac Calculations (SLAC) within M-SHARP, and the Sun Moon (SUMO) tool. These programs do not factor in the effects of cloud cover, humidity, haze, dust, effects of low moon angle, terrain, and shadows. These effects may degrade forecast illumination. Sound judgment must temper decisions to fly under less than optimal conditions. Illumination levels are defined as:

1. High Light Level (HLL): Illumination .0022 LUX or above.
2. Low Light Level (LLL): Illumination below .0022 LUX.

3.06.2 NVD Operations

Aircrew shall only utilize NAVAIR approved NVGs for specific T/M/S. NAVAIR NVD restrictions as applicable to T/M/S and NVG model/type shall be adhered to. Squadrons shall establish an NVG eye lane as described in the MAWTS-1 NVG Manual or use the ANV-2020 (Hoffman 20/20 box) to assess NVG performance prior to every NVG flight.

3.06.3 Night Systems (NS) Qualifications

Aircrew achieve NS qualifications by completing the stage of training or specified Events as delineated in individual T&R syllabi and Chapter 6 of this Manual. Non-qualified aircrew require supervision of a Night Systems Instructor (NSI), Night Systems SAR Instructor (NSSI), Night Systems Familiarization Instructor (NSFI), or equivalent where applicable.

3.06.4 Night Currency

No pilot shall sign for an aircraft for a night flight (Night Systems or unaided) without having flown that model aircraft within the previous 15 days.

3.07 FW NIGHT EXTERNAL LIGHTING RULES

3.07.1 FW Night External Lighting

Aircraft external lighting shall comply with existing FAR regulations and approved FAA exemptions. Aircraft incandescent external lighting shall be at the highest intensity consistent with NVD compatibility unless the FAA grants specific FAA waivers to solely use IR external lighting.

3.07.2 Single Aircraft Operations

Navigation/position lights on and at the highest intensity consistent with NVD compatibility, and anti-collision light(s) on.

3.07.3 Multi-aircraft Operations

1. Mission Commanders and PICs need to make appropriate risk decisions to maintain FAR see and avoid principles in various airspace with non-participatory and civilian non-NVG equipped aircraft during aided formation flying.

¹ In LLL conditions, 300' AGL in airplane (APLN) mode is authorized for a 0-30 day LAT current crew along an approved route segment of 50 nm or less. Descent to 300 AGL under these circumstances shall be commenced from a wings level attitude. Once established at the lower altitude, the aircraft is limited to 30° angle of bank with no single turn exceeding 60° of heading change. Prior to flying a route segment at 300' AGL in LLL conditions, the segment shall be screened to ensure that there are no obstructions in excess of 200'AGL for three nautical miles either side of the route width.

Consideration needs to be given regarding use of overt lighting, aircraft separation and whether or not to dissolve the flight (e.g. fly section or single ship) or rendezvous enroute to maintain the formation's visibility to other non-participatory and civilian non-NVG equipped aircraft.

a. Flights of up to four aircraft shall use lighting compatible with NVD operations. Per FAR 14 CFR Section 91.209(b), the anti-collision light(s) need not be lighted when the PIC determines that, because of operating conditions, it would be in the interest of safety to turn the light(s) off. In all cases, the last aircraft in the flight shall fly with navigation/position lights on, formation lights on at the highest intensity consistent with NVD compatibility, and anti-collision light(s) on. Anti-collision light(s) shall be incandescent when FAA waivers do not apply.

b. All flight members shall be briefed on the lighting configuration of each aircraft in the flight before they conduct separation and rejoin.

2. Flights outside CONUS shall obtain approval from the airspace controlling authority prior to conducting training with any aircraft lighting secured.

3. The FAR regulation to see and avoid shall take priority over NVD tactical training. When conducting NVD operations, aircrew should be aware that most civilian aircraft will not be able to see and avoid NVD light configured aircraft. All aircrew shall become familiar with FAR 14 CFR Section 21.209 in their entirety.

3.08 RW AND TILTROTOR EXTERNAL LIGHTING RULES

3.08.1 RW and Tiltrotor External Lighting

Aircraft external lighting shall comply with existing FAR regulations and approved FAA exemptions. Aircraft incandescent external lighting shall be at the highest intensity consistent with NVD compatibility unless the FAA grants specific FAA waivers to solely use IR external lighting.

3.08.2 FAA Exemption 8028

FAA Exemption 8028_ allows the DoN to conduct U.S. Marine Corps aircraft night vision device flight training operations without lighted position lights. The following conditions and limitations are excerpts from the exemption regarding training operations.

1. A flight of two or more aircraft must have a dedicated observer aboard each aircraft to provide timely traffic notifications with nonparticipating traffic.
2. Flights need to be escorted by a properly lighted aircraft serving as an observation platform.
3. When nonparticipating aircraft are relevant, the PIC of each aircraft must light its position lights and keep them lighted until traffic is no longer a factor.
4. Training operations must be conducted at or below 500' AGL and contained within a prescribed and publicized area that is simply defined, is established in an area of low traffic density, is not within 4 NM of any public use airport, does not infringe upon FAA designated airspace areas, and has been coordinated with the appropriate FAA regional offices.

3.08.3 Single Aircraft Operations

1. Navigation/position lights on and at the highest intensity consistent with NVD compatibility, and anti-collision light(s) on.
2. When conducting ground hover or during terminal level of landing at designated training areas, anti-collision light(s) and/or navigation/position lights may be turned off if they interfere with safe flight operations.
3. When operating in Class D airspace, controller permission is required prior to securing lights during hover or terminal phase of landing.

3.08.4 Multi-aircraft Operations

Mission Commanders and PICs need to make appropriate risk decisions to maintain FAR see and avoid principles in various airspace with non-participatory and civilian non-NVG equipped aircraft during aided formation flying. Consideration needs to be given regarding use of overt lighting, aircraft separation and whether or not to dissolve the flight (e.g. fly section or single ship) or rendezvous enroute to maintain the formation's visibility to other non-participatory and civilian non-NVG equipped aircraft.

3.08.4.1 Outside Special Use Airspace

Flights of up to four aircraft are permitted and shall have:

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1. Navigation/position lights on the highest intensity compatible with NVD operations and ambient conditions for lead through the dash three aircraft. Per FAR 14 CFR Section 91.209(b), the anti-collision light(s) need not be lighted when the PIC determines that, because of operating conditions, it would be in the interest of safety to turn the light(s) off.
2. In all cases, the last aircraft in the flight shall have anti-collision and navigation/position lights on and at an appropriate setting for existing ambient conditions and visible to non-participatory aircraft.
3. All functional, visible formation and blade tip lighting on and at the highest intensity compatible with NVD operations for all aircraft in the flight.
4. Use of IR lighting is at the discretion of the aircraft commander/flight leader. This does not preclude the requirement for visible navigation and anti-collision light(s) as described above.
5. Regardless of the number of aircraft in the flight, separation between lead aircraft and the last aircraft in the flight shall not exceed 1 nm.

3.08.4.2 Within Special Use Airspace

1. When operating in special use airspace with NVDs, flights shall operate as follows:
 - a. Lead to, but not including the last aircraft, may have navigation/position and anti-collision lights secured if at or below 500'AGL. Per FAR 14 CFR Section 91.209(b), the anti-collision light(s) need not be lighted when the PIC determines that, because of operating conditions, it would be in the interest of safety to turn the light(s) off.
 - b. All functional, formation and blade tip lighting on and at the highest intensity compatible with NVD operations for all aircraft in the flight.
 - c. The last aircraft in each flight shall have anti-collision light(s) on and navigation/position lights on and at the highest intensity compatible with NVD operations.
 - d. Regardless of the number of aircraft in the flight, separation between lead aircraft and the last aircraft in the flight shall not exceed 1 NM.
2. Flights outside CONUS shall obtain approval from the airspace controlling authority prior to conducting training with any aircraft lighting secured.
3. FAR regulations to see and avoid shall take priority over NVD tactical training. When conducting NVD operations, aircrew should be aware that most civilian aircraft will not be able to see and avoid NVD light configured aircraft. All aircrew shall become familiar with FAA Exemption 8028_ and FAR 14 CFR Section 21.209 in their entirety.

3.09 RW NIGHT OPERATIONS

3.09.1 Night Training Policies

1. On unaided night flights, NSQ aircrew may wear and temporarily utilize NVGs to enhance situational awareness, terrain avoidance, and safety. The flight will be conducted under unaided flight rules. NVG use shall be noted on the flight schedule.
2. To ensure full lookout coverage in helicopters possessing a cabin section, there shall be an aerial gunner/observer in addition to the crew chief for NVG flights, except as detailed per individual T&R manuals.

3.09.1.1 NVG HLL/LLL Flights

1. All aircrew shall be NSQ HLL per appropriate T&R syllabus prior to commencing LLL syllabus training.
2. All pilots flying NVG HLL flights shall fly with a NSI/NSFI unless both the pilot and copilot are NSQ HLL. All pilots shall fly NVG LLL flights with a NSI unless both the pilot and copilot are NSQ LLL.
3. All enlisted aircrew flying NVG HLL flights shall fly with a designated NSI/NSSI/NSFI unless both the crew chief and the Aerial Gunner/Observer (AGO) are NSQ HLL. All enlisted aircrew flying NVG LLL shall fly with a NSI/NSSI unless both the crew chief and the AGO are NSQ LLL.
4. Night TERF operations without NVGs are prohibited. NVG TERF flights shall be conducted in approved areas or on routes using maps updated with current hazards. Night TERF operations must meet the requirements set forth in paragraph 3.04 of this Manual.

3.09.1.2 Night Carrier Qualifications

All T/M/S aircraft T&R manuals shall require the capability to operate unaided on ships. In recognition of the safety and increased situational awareness afforded by the use of NVDs, unaided CQ is not a prerequisite to NVG CQ. Since landing to an NVD compatible deck cannot always be assured, unaided recoveries remain a valid requirement. Initial Night Systems Carrier Qualification training shall be accomplished under High Light Level conditions. Requalification and proficiency training may be accomplished under any light level condition.

3.09.2 Night Currency

Prior to conducting night shipboard operations with passengers aboard, the pilot and copilot shall be night carrier qualified and have conducted a minimum of two night shipboard landings each within the last 30 days. All other crewmembers shall be night carrier qualified and have one night shipboard flight within the last 30 days.

3.09.3 NVG Equipment Requirements

1. Aircrew shall conduct NVG operations only in NVG compatible aircraft.
2. Aircrew members shall possess an operational standard issue flashlight with an NVG compatible lens on every NVG flight.
3. Aircraft shall have an operational spotlight on all NVG sorties. The IR spotlight is not a substitute for ambient illumination.

3.09.4 NBC Training

For NBC flight training, aircrew are authorized to wear full NBC protective equipment subject to the following restrictions:

1. For night operations, only the CBR/AR-5 eye/respiratory protective system is authorized for in-flight use.
2. Initial NBC training syllabi shall be complete per T&R T/M/S syllabi.
3. All aircrew shall be NSQ appropriate for the ambient conditions. When using the CBR/AR-5 during NVG training flights, one pilot and one aircrew must remain unmasked due to the restricted field of view when using AN/AVS-9 with the CBR/AR-5.

3.09.5 NVG Training Without Troops

NVD training/operations are subject to the following restrictions:

1. HLL Conditions. Minimum aircrew shall include NSQ HLL pilot, co-pilot, crew chief and aerial observer.
2. LLL Conditions. Minimum aircrew shall include NSQ LLL pilot, co-pilot, crew chief and aerial observer.
3. All aircrew shall be NSQ HLL per appropriate T&R syllabus prior to commencing LLL syllabus training.

3.09.6 NVG Training With Troops

3.09.6.1 HLL conditions with Embarked Troops

1. Minimum crew shall be a Pilot, copilot, crew chief and an aerial gunner/observer.
2. The pilot and copilot shall be NSQ HLL per the appropriate T&R syllabus and must have flown one hour of NVG time within the last 30 days.
3. Crew chiefs and aerial gunners/observers shall be NSQ HLL per the appropriate T&R syllabus and have flown one hour of NVG time within the last 30 days.

3.09.6.2 LLL Conditions with Embarked Troops

1. Minimum aircrew as defined in paragraph 3.09.6.a.1
2. The pilot and copilot shall be NSQ (HLL and LLL) per the appropriate T&R syllabus and have flown one hour of NVG time (HLL or LLL) within the last 30 days.
3. Crew chiefs and aerial gunners/observers shall be NSQ LLL per the appropriate T&R syllabus and have flown one hour of NVG time (HLL or LLL) within the last 30 days.

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3.09.7 NVG Carrier Qualification (NVG CQ)

1. NVG CQ shall be delineated in respective T/M/S syllabi. Initial Night Systems Carrier Qualification training shall be accomplished under High Light Level conditions. Requalification and proficiency training may be accomplished under any light level condition.
2. All participants shall have a thorough understanding of LHA/LHD NATOPS and fleet/ship specific NVG procedures as well as other applicable directives and procedures. Aircrew shall brief, understand, and comply with these directives and procedures.
3. The Pilot Under Instruction (PUI) and/or Crew Chief/AGO under instruction shall be NSQ HLL.
4. Initial NVG CQs shall be flown with a NSI.
5. Unaided night CQs will be chained to aided CQs.

3.10 FW NIGHT OPERATIONS

3.10.1 FW NS LAT Training

1. The following equipment is required and shall be operable for FW NS LAT training missions unless the MAGTF/MAG commander grants a waiver: Night Vision Devices, Heads Up Display (HUD), inertial navigation systems, moving map, radar altimeter, and anti-collision lights.
2. FW NS LAT altitude restrictions, currency and proficiency requirements are the same as day LAT restrictions and requirements.
3. FW NS LAT operations shall only be conducted during HLL conditions.
4. FA-18/AV-8/KC-130J aircrew conducting FW NS LAT operations shall be LAT and NS Low qualified. Non-NSQ Low aircrew shall be NSQ HI prior to NSQ Low training and require supervision of an NSI flight lead or equivalent during NSQ Low training.

3.10.2 Non-LAT FW NS Training

1. FW night flights are limited to 1,000 feet AGL minimum when operating without NVGs.
2. NAs/NFOs who are not NSQ/NSQ HI require an NSI, or equivalent, in the flight. For EA-6 aircraft, NS qualification requirements apply to front seat aircrew.
3. Pilots who are NSQ, NSQ HI, or NSQ Low may operate down to minimum altitudes of 500' AGL in HLL conditions and 1000' AGL in LLL conditions.
4. KC-130 altitude restrictions above apply except for AD and ALZ missions from IP inbound. IP to DZ/ALZ constitutes the terminal environment; minimum altitudes listed in the KC-130 ANTTTP apply.
5. During unaided flights, NSQ aircrew not at the controls may use either helmet mounted or handheld NVGs to enhance situational awareness. NVG use by authorized aircrew shall be noted on the flight schedule. Squadrons shall not procure or manufacture NVG light kits.
6. When conducting NVG operations, all aircrew shall use NVGs unless crew duties dictate otherwise. In a flight of aircraft, all aircrew in the flight shall use NVGs unless crew duties dictate otherwise. Flights utilizing NVGs may support, or be supported by, non-NVG equipped aircraft provided they are briefed and flown as a separate flight. Helmet mounted NVGs shall be utilized unless crew duties dictate otherwise. When crew duties dictate, NVGs may be temporarily donned in the up position.
7. The use of NVGs for FW takeoffs and landings is authorized provided airfield lighting has been adjusted to the minimum level consistent with flight safety. Consideration must be made for lighting conditions in the local operating environment. NAVAIR NVD restrictions applicable to T/M/S and NVG model/type shall be observed.

3.11 TILTROTOR NIGHT OPERATIONS

3.11.1 Night Training Policies

1. On unaided night flights, NSQ crewmembers may wear and temporarily utilize NVGs to enhance situational awareness, terrain avoidance, and safety. The flight will be conducted under unaided flight rules. NVD use by authorized crewmembers shall be noted on the flight schedule.

2. The requirement for an aerial gunner/observer in the cabin section in addition to the crew chief for NVD flights is as specified in MV-22 T&R Chapters.
3. Crewmembers shall fly NVD Events with a designated and proficient NSI (or NSFI for 1000 phase training) unless the aircrew are NSQ for the predicted light level.

3.11.2 Night Currency and Proficiency

1. Prior to conducting night shipboard operations with passengers aboard, the pilot and copilot shall be night carrier qualified and shall have conducted a minimum of two night aided shipboard landings each within the previous 30 days. All other aircrew shall be night carrier qualified.
2. When qualified aircrew lose proficiency in a Night Systems LAT sortie, they may regain proficiency by satisfactorily demonstrating those skills required of that particular syllabus flight to an NSI.

3.11.3 NVD Training Without Troops

For initial and refresher training, the copilot, crew chief and aerial gunner/observers shall be NSQ HLL per the appropriate MV-22 syllabus prior to flying in LLL conditions.

3.11.4 NVD Training With Troops

1. Flights with embarked troops in HLL are subject to the following criteria:
 - a. Minimum crew IAW the applicable MV-22 syllabus.
 - b. The pilot and copilot shall be designated NSQ HLL and must have flown at least one hour of NVD time within the last 30 days.
 - c. Crew chiefs and aerial gunners/observers shall be NSQ HLL.
2. NVD operations with embarked troops in LLL conditions are subject to the following criteria:
 - a. Minimum crew IAW the applicable MV-22 syllabus.
 - b. The pilot and copilot shall be designated NSQ (HLL and LLL) and must have flown at least one hour of NVD time (HLL or LLL) within the previous 30 days.
 - c. Crew chiefs and aerial gunners/observers shall be NSQ LLL.

3.11.5 NVD Carrier Qualification (NVD CQ)

1. NVD CQ shall be delineated in respective T/M/S syllabi. Initial Night Systems Carrier Qualification training shall be accomplished under High Light Level conditions.
2. All participants shall have a thorough understanding of LHA/LHD NATOPS and fleet/ship specific NVD procedures as well as other applicable directives and procedures. Crewmembers shall brief, understand, and comply with these directives and procedures.
3. The PUI shall be NSQ HLL.
4. Initial NVDCQ shall be flown with a NSI.
5. Unaided night CQs will be chained to aided CQs.

3.12 ROC FOR ACM, DT, DM, DACM, AND DCM

1. Purpose. To standardize ROC for aircraft conducting ACM/DT/DM/DACM/DCM training. The rules set forth herein and in OPNAVINST 3710.7 are minimum requirements. Commanders should promulgate supplementary directives to delineate syllabus contents, proficiency levels required, communications procedures, safety precautions, and other applicable areas of concern. Responsibility for the safe and efficient implementation of realistic combat training rests with all levels of command.
2. Scope. ACM/DT/DM/DACM/DCM training is designed to develop the high level of skill required to combat the current and future threat. OPNAVINST 3710.7 and the Aviation T&R Program contains the overall policies, responsibilities, training syllabi, and flight objectives for ACM/DT/DM/DACM/DCM.
3. Safety. Squadrons conducting ACM/DT/DM/DACM/DCM will operate within the guidelines of this chapter, OPNAVINST 3710.7, and applicable MAWTS-1 publications. Squadrons should conduct FW ACM/DT training under radar control when available. Commanders shall ensure aircrew conducting ACM/DT/DM/DACM/DCM training are

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properly qualified and appropriate flight leadership is represented within the flight. Unscheduled ACM/DT/DM/DACM/DCM is strictly prohibited.

3.12.1 ACM/DT/DM/DACM/DCM Qualifications

Aircrew achieve qualification by completing the stage of training or specified Events as delineated in individual T&R syllabi and Chapter 6 of this Manual. Non-qualified aircrew require supervision of a FAI/MDTC/DT/RWDACM/DCM instructor, or equivalent.

3.12.2 ACM/DT/DM/DACM/DCM Training Areas

1. Training shall only be conducted in designated warning areas, restricted areas, Military Operating Areas (MOAs), appropriate blocks of controlled airspace as assigned by Air Traffic Control (ATC), or in other designated areas where safe separation from non-participants can be maintained.
2. At a minimum, designated ACM/DT/DM/DACM/DCM training areas shall be clear of Federal airways, control zones, and other areas of air traffic congestion, unless established pursuant to a letter of agreement with the Federal Aviation Administration (FAA) or host nation agreement.
3. When authorized by Force commanders, subordinate commanders may designate ACM/DT/DM/DACM/DCM training areas and establish procedures to ensure aircrew and flights entering these areas are aware of all other flights operating therein.
4. ACM/DT/DM/DACM/DCM aircrew should use instrumented air combat ranges such as the Navy/Marine Tactical Combat Training System (TCTS) or the Air Force Air Combat Maneuvering Instrumentation (ACMI) as much as possible.
5. ACM/DT/DM/DACM/DCM training flights entering special use airspace will request, from the appropriate controlling agency, advisory information on all other flights operating in the same area. Flights will use RADAR flight following when practical.

3.12.3 FW Air Combat Maneuvering

Aircrew participating in ACM/DT will conform to the following flight guidelines:

3.12.3.1 FW v FW

1. When all crewmembers of a flight are ACM/DT qualified, the flight does not require a Fighter Attack Instructor (FAI), Marine Division Tactics Course (MDTC) graduate, Air Combat Tactics Instructor (ACTI), a Defensive Tactics Instructor (DTI), Adversary Tactics Instructor (ATI) or equivalent.
2. A non-ACM qualified NA may participate in ACM/DT training provided his flight leader is a FAI/MDTC or equivalent. In the case of 1 V 1 dissimilar ACM, the adversary must be an FAI/MDTC/ACTI/ATI (USMC), designated ACM instructor or equivalent.
3. A non-ACM/DT qualified NA/NFO of a crew concept aircraft may participate in ACM/DT training, provided at least one other aircrew in the same aircraft is designated an FAI/MDTC/SFTI/DTI or equivalent.
4. In the case of 1 V 1 dissimilar DT training with a non-qualified NA and/or NFO, the adversary pilot must be an FAI/MDTC/ACTI/ATI, ACM Flight Lead/Section Lead or equivalent.

3.12.3.2 FW v RW or Tiltrotor

1. Aircrew of FW aircraft engaged in RW or tilt-rotor attack shall be ACM and LAT qualified. Slow speed, high AOA maneuvering below 10,000 ft AGL is prohibited by FW aircraft. Direct over-flight of adversary aircraft by the FW aircraft is prohibited. Supersonic flight is not authorized. Minimum FW altitude is 500 ft AGL.
2. Per OPNAVINST 3710.7, the following maneuvers are not considered ACM training:
 - a. Snapshot drills (Gun Weave, Weapons Weave).
 - b. Tail Chase (Heat to Guns drills).
 - c. Forward Quarter Missile Defenses terminated at the merge.
 - d. Level, Turn Circle drills.
 - e. Air Intercepts performed per applicable portions of the T&R Manual.

- f. Aerobatic maneuvers per NATOPS manuals on scheduled training flights approved by competent authority.

3.12.3.3 DM and DACM

1. RW assault aircrew conducting DM and RW attack and utility aircrew conducting DACM will conform to the following flight guidelines. These training rules, along with the applicable T/M/S T&R syllabi and the MAWTS-1 DM and DACT guides delineate the responsibilities and flight objectives for this training.
2. When all aircrew of a flight are DM/DACM qualified, the flight does not require a Defensive Measures Instructor (DMI)/Defensive Air Combat Maneuvering Instructor (DACMI). Additionally, two RWDACM qualified pilots may fly RWDACM sorties for training and proficiency.
3. To ensure full lookout coverage capability in RW aircraft possessing a cabin section, there shall be an aerial gunner/observer in the cabin section in addition to the crew chief.
4. A non-DM/DACM qualified pilot may participate in DM/DACM training provided the aircraft commander is a designated DMI/DACMI. A non-DM qualified aircrew serving in the cabin section may participate in DM training provided the other aircrew serving in the cabin section is a designated DMI.
5. DM and DACM shall be conducted in day VMC in accordance with OPNAV 3710.7.
6. Pilots of FW aircraft participating in DM/DACM shall be LAT and ACM qualified. Aircrew of RW aircraft conducting DM/DACM shall be TERF qualified and proficient.
7. All DM/DACM participants must be aware of their particular aircraft's performance capabilities and limitations. Operational power checks or predictions (e.g. PFPS HOPS tool) should be conducted to assist in this awareness as required.
8. Minimum RW altitude for DM and DACM against a FW or RW threat is 100 ft AGL. Minimum RW altitude for DM against a ground-based threat is 50 ft AGL. Minimum FW altitude for DM and DACM will be in accordance with OPNAVINST 3710.7.
9. The friendly element will initiate maneuvering line numbers no closer than 200 ft between friendly aircraft. Upon first indication of the bandit the friendly element will maneuver to maintain at least 500 ft of separation from all aircraft during the engagement, including aircraft within the same element. Minimum aircraft separation during pre-briefed tail chase maneuvers in DACM is 200 ft.

3.12.3.4 DCM

DCM consists of two types of Events:

1. 2 Tiltrotor v 1 RW.
2. 2 Tiltrotor v 1 FW.

3.12.3.5 DCM Aircrew Requirements

1. When all crewmembers of a flight are DCM qualified, the flight does not require a DCMI.
2. Minimum crew requirements shall be IAW the applicable T&R syllabus.
3. A non-DCM qualified pilot may participate in DCM training, provided the Tiltrotor Aircraft Commander is a designated DCMI. A non-DCM qualified aircrew serving in the cabin section may participate in DCM training, provided the other aircrew serving in the cabin section is a designated DCMI.
4. Minimum tiltrotor altitude is 200 ft AGL APLN Mode and 50 ft AGL CONV mode.

3.13 ROC FOR FORWARD AIR CONTROL (AIRBORNE) OPERATIONS FAC(A)

3.13.1 Purpose

To standardize the training rules for all USMC aircraft conducting FAC(A) training and ensure compliance with the most recent version of the Joint Close Air Support Action Plan Memorandum of Agreement, Joint Forward Air Controller (Airborne) [As of this publication date, JCAS AP MOA 2004-02, JFAC(A); referred to as the 'JFAC(A) MOA' for brevity sake].

3.13.2 Scope

This section stipulates training criteria and ROC peculiar to FAC(A) operations.

3.13.3 Safety

Squadrons conducting FAC(A) operations shall operate within the guidelines of this chapter. Commanders shall ensure aircrew conducting FAC(A) training are properly qualified and appropriate flight leadership is represented within the flight.

3.13.4 FAC(A) Qualifications

Aircrew achieve the FAC(A) qualification by completing the specified requirements as delineated in individual T&R syllabi and the requirements delineated in the JFAC(A) MOA. Aircrew undergoing initial FAC(A) qualification training require supervision of a FAC(A) instructor [FAC(A)I].

3.13.5 Supervision of Unqualified Individuals

The supervising FAC(A)I shall be in the same section/flight element as the unqualified aircrew. The supervising FAC(A)I shall maintain a position to observe the training operation, and if required, assume control of the training operation, immediately "ABORT" the control, and/or "CHECK FIRE" supporting arms as appropriate.

3.13.6 Simulator Usage

Simulator usage for currency and proficiency will be in accordance with the JFAC(A) MOA and individual T/M/S Training and Readiness Manuals.

3.13.7 JCAS AP MOA JFAC(A)

Units conducting FAC(A) training shall comply with JFAC(A) MOA requirements. Refer to the current JFAC(A) MOA.

3.13.8 FAC(A) Documentation

1. Units shall maintain aircrew FAC(A) qualification letters, FAC(A)I designation letters, FAC(A) event ATFs, and FAC(A) academic training courses completed in Individual Performance Records per Chapter 2.

2. Units shall maintain a record of controls in M-SHARP for all aircrew conducting FAC(A) training. At a minimum, the following information shall be included in the record of controls:

- a. Date of controls
- b. Number of controls
- c. Type of control
- d. Day or night
- e. Ordnance used or simulated
- f. Type of aircraft controlled (fixed or rotary wing)
- g. If an airborne laser designator or IR pointer was used
- h. In support of a JTAC
- i. Permissive or non-permissive environment.

CHAPTER 4 - AVIATION FLYING SQUADRON TRAINING
CORE INTRODUCTION TRAINING

4.00 CORE INTRODUCTION/FRS TRAINING OVERVIEW

4.00.1 Definitions

1. Core Introduction training consists of 1000 Phase T&R training.
 - a. Core Introduction Basic POI. This training includes system/equipment operation familiarization, initial crew procedures, and initial exposure to Core Introduction events.
 - b. Core Introduction Refresher POI. This POI includes fundamental aircraft/system re-familiarization training.
 - (1) Core Introduction Modified Refresher POI. This POI is a subset of the Refresher POI.
 - (2) Core Introduction Safe for Solo POI. This POI is a subset of the Refresher POI.
 - c. Core Introduction Series Conversion POI. This POI includes fundamental training required to fly/operate a new model/series aircraft/system that has significantly different aircraft or weapons systems characteristics.
 - d. Core Introduction Transition POI. This POI includes fundamental training required to fly/operate a new type aircraft/system.
 - e. Core Introduction Foreign POI. This training includes system/equipment operation familiarization, initial crew procedures, and initial exposure to Core Introduction events for the foreign student.
 - f. Core Introduction Other Service POI. This training includes system/equipment operation familiarization, initial crew procedures, and initial exposure to Core Introduction events for the student from another service (Air Force and Navy for MV-22B).
2. Marine Corps Fleet Replacement Squadrons (FRS), Aviation Training Units (ATU), Transition Training Units (TTU), Fleet Replacement Detachments (FRD), aviation ground formal schools, civilian aviation schools, and CMC-designated operational commands conduct Core Introduction training per community T&R manuals.
3. Personnel should be scheduled to complete 1000 Phase T&R Events in sequential order to the greatest extent possible.
4. Commands responsible for overseeing Core Introduction training shall provide a training environment where other billet responsibilities do not detract from that training.
5. Aviation Production Management (APM), a section within Training Command (TRNGCMD) G-3, is responsible for the management and oversight of USMC aviation production.

4.00.2 Core Introduction Training Waivers/Deferments

4.00.2.1 Waived Syllabus Events

A commanding officer of an FRS/Core Introduction training unit may waive one event for Transition/Model Conversion/Series Conversion individuals or individuals assigned to Refresher POIs when, in the CO's judgment, the previous experience or performance of an individual satisfies the requirement of the particular event. Basic T&R Events shall not be waived for initial accession personnel. Waived Events must be annotated in the PR/APR. Waivers for multiple Events or complete stages of training shall be submitted via message to CG TECOM MTESD for review and authorization.

4.00.2.2 Deferred Syllabus Events

A commanding officer of an FRS/Core Introduction training unit may defer one event for a student to operational units when, in the CO's judgment, a lack of a logistic support or training assets requires temporary exemption. Deferral of multiple Events and/or complete stages of training require authorization from CG TECOM MTESD. Gaining operational units must complete deferred training Events in strict compliance with T&R event requirements. Training or NATOPS Officers shall annotate all deferred Events in the PR/APR prior to the individual's transfer.

NOTE

The remaining paragraphs of this chapter pertain only to aircrew (remaining chapter policy is not applicable to aviation ground personnel).

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4.00.2.3 Syllabus deviation approval authority

Syllabus deviations not covered above shall be submitted via message to CG TECOM MTESD for review and authorization.

4.01 AIRCREW CORE INTRODUCTION PRODUCTION PROCESS

4.01.1 Annual Core Introduction Production Cycle

1. Training Capacity. Training squadrons calculate and submit estimated annual training capacities (via WebbPPF) for subsequent fiscal years to APM, Training Command (CG TRNGCMD) NLT 30 June. CG TRNGCMD G-3 validates training capacity estimates.
2. Training Requirements. CG TRNGCMD G-3 consolidates all Marine Corps annual Core Introduction training requirements from appropriate agencies and submits them to DC Aviation Manpower and Support (ASM) and the Office of the Chief of Naval Operations (OPNAV N88) NLT 15 July. OPNAV publishes Navy and Marine Corps aviation training production requirements in the Naval Aviation Training Requirements Letter (TRL) NLT 31 July.
3. Aviator Production Plan. Chief of Naval Aviation Training (CNATRA), FRSs, CG TRNGCMD G-3, OPNAV, and BUPERS work together to develop the Integrated Production Plan (IPP) which defines the planned monthly input and output for every phase of Naval Aviator and Enlisted Aircrew production, API through FRS. The IPP is released NLT 1 October and is updated throughout the year.
4. Execution. The training units execute Core Introduction training IAW the IPP throughout the fiscal year.
5. Assessment. CNATRA, CG TRNGCMD G-3, and Task Groups (Tactical, NFO, Rotary, Multi-Engine, Primary, and Enlisted Aircrew) conduct analysis of how the production process at each phase of Naval Aviator training is progressing via monthly, quarterly, and semi-annual meetings and conferences throughout the year.

4.01.2 Naval Aviation Production Process

1. The Naval Aviation Production Process (NAPP) is a Chief of Naval Operations (CNO) initiated program designed to improve the process of producing first tour Naval Aviators (NA), Naval Flight Officers (NFO), and Naval Aircrew (NAC) by targeting extended Time-To-Train (TTT) and identifying and removing barriers to production. NAPP is established and defined in OPNAVINST 3500.31 and in the NAPP SOP.
2. CG TRNGCMD G-3 NAPP Representation. CG TRNGCMD G-3 shall remain actively engaged in the NAPP providing USMC representation in all Task Groups (TGs). CG TRNGCMD G-3 provides a unified USMC position to Commander, Naval Air Forces (CNAF) and CNATRA regarding NAPP issues.
3. Wing NAPP Representation. Respective Wing Commanders shall appoint an officer as the Wing NAPP Representative to serve as a liaison between CG TRNGCMD G-3 and the FRS and to serve in the Production Planning Factor (PPF) validation/approval chain.
4. Squadron NAPP Representation. Each FRS or designated Core Introduction training unit will appoint both an officer and an enlisted aircrew (as appropriate) as squadron NAPP Representatives. Squadron NAPP representatives are responsible for: NAPP Integrated Production Data Repository (NIPDR) inputs; PPF development and submission; representation at monthly TG meetings and semi-annual Production Alignment Conferences (PAC); and other issues relating to the NAPP.
5. NAPP Analyst Representation. Designated units shall incorporate contract NAPP Analysts (as appropriate) into the production process. Specifically, NAPP Analysts will support their respective FRS Commanding officers in the following:
 - a. Command PPF Annual validation and submission.
 - b. Command annual flight hour budget planning, monthly allocation, and variance analysis.
 - c. Command Barriers to Production analysis and submission.
 - d. Command PAC alignment load sheets and IPP generation submissions in accordance with the Training Requirements Letter and Task Group Guidance.
 - e. Maintain and update current MCTIMS data bases for assigned FRS.
 - f. Command student training quality metric generation and variance analysis.
 - g. Provide Command analysis and recommendations regarding NAPP NIPDR charts and cost-wise metrics.

- h. Coordinate with appropriate facility personnel for NAPP briefs.
- i. Compile any necessary briefing products in the appropriate format for NAPP briefs.
- j. Develop Command production plans, NAPP centric briefs and resource entitlements submissions.
- k. Provide HQMC, TECOM, Training Command, Wing, MAG, CNAF, and CNATRA with supporting NAPP centric analysis.

6. The Naval Aviation Production Team (NAPT) is chartered by CNAF and chaired by CNATRA to oversee NAPP efforts that cover the entire process from “street to Fleet.” The NAPT consists of all stakeholders that contribute to the production of Naval Aviators and Naval Aircrew; stakeholders include Navy Headquarters representatives, OPNAV, CG TRNGCMD G-3, MATSGs, and TGs representing each aviation community (primary, rotary, multi-engine, tactical, NFO, and Naval Aircrew). The FRSs play a key role in the NAPT as members of their respective TGs.

4.01.3 Command Relationships

1. CMC allocates aircraft, material, and personnel to meet current and anticipated long range USMC training requirements. CMC (MMOA-2) will staff FRS flight instructor billets per the Planning Production Factors (PPF). The optimum tour for a flight instructor is 36 months. CMC (MMOA-2) regards all tour lengths shorter than 24 months as an exception to this policy.

2. CG TECOM is responsible for managing training and education requirements of the Total Force.

a. CG TRNGCMD G-3 is responsible for managing Core Introduction training policy and requirements, tasking FRSs with training requirements, coordinating class schedules and seats in Marine Corps Training Information Management System (MCTIMS), and monitoring Core Introduction training progression. CG TRNGCMD G-3 is the approval authority for FRS training. Operational units shall submit requests for Core Introduction training by message. CG TRNGCMD G-3 serves as an advocate for FRSs, aviation ground/MACCS schools, and CMC designated operational commands conducting Core Introduction training. As such, FRSs have been granted DIRLAUTH with CG TRNGCMD G-3 regarding all training matters.

b. MATSGs support CG TRNGCMD G-3 by locally monitoring issues affecting USMC aviation training and providing face-to-face liaison with CNATRA. Responsibilities include promoting Marine Corps Aviation interests as representatives to CNATRA, serving as Marine Corps advocates at Navy FRSs, monitoring CNATRA production to meet FRS requirements, and acting as the conduit for FRS inputs to CNATRA Curriculum Review Boards.

3. MARFOR commanders support CG TECOM (ASB) and CG TRNGCMD G-3 for Core Introduction training.

4. Wing Commanders have OPCON of subordinate FRSs and are responsible directly to their respective MARFOR commanders for execution of Core Introduction training responsibilities.

a. Wing Commanders are responsible for ensuring FRSs and designated operational commands under their authority receive the necessary support and assets to accomplish their training mission.

b. Wing Commanders shall not task FRSs with flights/requirements that do not contribute to student training. Examples of these types of flights include the following: demonstration flights, staff flight time, static displays, VIP/administrative/logistic flights, and certain wing FRAGs. Any additional tasking that could impact an FRS’s ability to make its annual training mission shall be requested via DMS message to CG TRNGCMD G-3.

5. Group Commanders shall provide FRSs with local maintenance and supply support on an equal basis with co-located operational squadrons.

a. Commands responsible for overseeing Core Introduction training shall provide a training environment where other billet responsibilities do not detract from that training. Individuals undergoing 1000 phase training should not be assigned unit T/O billet responsibilities or collateral duties until such training is complete.

b. Commanders of operational squadrons conducting Core Introduction training shall balance 1000 phase training responsibilities with operational responsibilities. Core Introduction training will normally receive priority during peacetime operations.

c. CMC designated operational commands authorized to conduct aircrew Core Introduction training are as follows:

(1) HMLA-773. HMLA-773 is authorized to conduct AH-1W Refresher Core Introduction training per the AH-1W T&R Manual.

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(2) VMFT-401. VMFT-401 is authorized to conduct F-5 Basic (Conversion) and Refresher Core Introduction training per the F-5 T&R Manual.

(3) VMGR-152, VMGR-252, VMGR-352, VMGR-234. VMGR-152, VMGR-252, VMGR-352, and VMGR-234 are authorized to conduct KC-130J Basic, Series Conversion, and Refresher Core Introduction training per the KC-130J T&R Manual.

(4) VMGR-452. VMGR-452 is authorized to conduct KC-130T Basic, Series Conversion, and Refresher Core Introduction training per the KC-130T T&R Manual.

(5) VMX-22. VMX-22 is authorized to conduct MV-22B Basic, Transition, and Refresher Core Introduction training per the MV-22B T&R Manual.

(6) MAG-16. The MAG-16 MV-22 Transition Training Unit (TTU) is authorized to conduct MV-22B Basic, Transition, and Refresher Core Introduction training per the MV-22B T&R Manual.

(7) HMX-1. HMX-1 is authorized to conduct Basic and Refresher Core Introduction training for VH-3D/VH-60N/VH-92A personnel assigned to HMX-1 and MV-22B Refresher Core Introduction Training per applicable T&R manuals.

(8) VMR-1. VMR-1 is authorized to conduct HH-46E Core Introduction Training per the HH-46E T&R Manual.

(9) H&HS Yuma. H&HS Yuma is authorized to conduct HH-1N Core Introduction Training per the HH-1N T&R Manual.

(10) VMFAT-501/VMFA-121. VMFAT-501 is authorized to conduct F-35B Core Introduction training for Events designated per the F-35B T&R Manual. For initial cadre, VMFA-121 is authorized to conduct F-35B Core Introduction training for events designated per the F-35B T&R Manual.

(11) MAG-14. MAG-14 is authorized to conduct MQ-21A Basic, Series Conversion, and Refresher Core Introduction training per the MQ-21A T&R Manual.

6. CMC has authorized contract vendors to conduct Operational Support Airlift (OSA) aircrew Core Introduction training.

7. Operational Support Airlift (OSA) Core Introduction Training

a. CMC has approved Command Aircraft Crew Training (CACT) for CSII training.

b. The Syllabus Sponsor shall not approve CACT Contract Simulator Instructor (CSI) personnel to conduct Model NATOPS evaluations. Marine Corps OSA aircrew NATOPS and Instrument Flight evaluations may be administered by Marine Corps OSA unit ANIs/NIs in CACT simulators supported by CSI operators, as long as the evaluatees have completed all required training, and the NATOPS open and closed book examinations prior to executing the NATOPS or Instrument evaluation.

4.02 FRS TRAINING CAPACITY

Proper management of Marine Corps aviation production requires that CG TRNGCMD G-3 continually reconcile FRS training requirements with FRS training capacity. Total training capacity of a squadron is calculated in terms of total numbers of Basic POI students a squadron can train per year, assuming the squadron only has to produce Basic POI students. CG TRNGCMD G-3 utilizes Production Planning Factors (PPFs) to calculate training capacity at an FRS.

4.02.1 Production Planning Factors (PPF)

PPFs calculate capacity based on actual unit training days available, instructor manning and availability, daily aircraft availability, and simulator availability. The PPF system can also calculate backwards to facilitate identification of resource requirements in terms of instructors, aircraft, simulators, and flight hours needed to accomplish annual training requirements. PPFs provide the individual FRS, the Wing Commander and HQMC with a more detailed program planning and resource requirement determination process. PPFs are replacing the previously described RAC equivalency model as the primary tool for estimating capacity and resource shortfalls.

4.02.2 Reporting Instructions

OPNAVINST 3500.31 governs the utilization of PPFs with the exception of USMC planning assumption values. USMC FRSs shall use Table 4-1 when submitting annual calculations:

Table 4-1: USMC FRS PPF Planning Values

Planned Annual Training/Fly Days	198 Days/Yr
Average Instructor Workday	8 Hrs/Day
Average Aircraft Workday	12 Hrs/Day
Pilot & NFO Instructor Availability	66 Percent
Flight Overhead Rates (Percent)	OPNAV ltr 3500 Ser N882B
Schedule Efficiency Index (Peacetime)	100 percent

1. FRS NAPP representatives shall submit squadron PPFs annually via WebPPF (www.nipdr.net/) through their USMC chain of command to CG TRNGCMD G-3 no later than 30 June. Submissions shall cover a three year period.
2. Marine Corps FRSs will utilize PPFs as a source document to identify current and projected training requirement shortfalls to Wing (resource sponsor), CG TRNGCMD G-3 (FRS advocate), and CMC (resource provider).
3. CG TRNGCMD G-3 shall provide validation and approval of Marine Corps FRS PPF submissions.

4.03 FRS TRAINING REQUIREMENTS

1. Marine Corps Aviation production requirements are developed based on Fleet requirements and are independent of FRS capacities.
2. CG TRNGCMD G-3 is responsible for consolidating MPP-30, ASM, MMOA-2, Security Cooperation Education and Training Center (SCETC), and 4th MAW inputs and submitting annual USMC FRS training requirements to OPNAV per MCO 1520.29.
3. OPNAV consolidates all Navy and Marine Corps aviation training requirements in the annually released (NLT 30 September) Training Requirements Letter (TRL). The TRL provides an eight year outlook and serves three primary purposes:
 - a. As a long term budget planning document to ensure effective budget planning and resource allocation during the development of resource sponsors Program Objective Memorandums (POM) or Program Reviews (PR).
 - b. Provides an updated production requirement for the execution year. Adjustments are necessary due to the dynamic nature of the pilot, flight officer and enlisted aircrew end strength requirement.
 - c. Provides the USMC Fleet requirement to the NAPP. The Fleet requirement is the foundation for development of the Integrated Production Plan.
4. The annual Pilot Training Requirement (PTR), NFO Training Requirement (NFOTR) and Aircrew Training Requirement (ACTR) are grouped by types of students (listed below), indicating the source where the student came from. The category listed in parenthesis correlates the type of student to the training syllabus length. Training requirements for each type are obtained from the agencies listed.
 - a. Initial Accession. Initial accession (Category I) aviator and NAC production requirements are generated by MPP-30 based upon the existing Authorized Strength Report (ASR)/Grade Adjusted Recapitulation (GAR) and the Year-Group-Steady-State (YGSS) model.
 - b. Transition. Transition (Category I) aviator and NAC production requirements are generated by ASM-2 based on needs of the Fleet or as directed by HQMC (DC AVN). Candidates submit applications for NA/NFO Transition training per MCO 1331.2, Transition/Conversion Training for Naval Aviators and Naval Flight Officers.
 - c. Conversion. Conversion (Category II) aviator and NAC production requirements are generated by ASM-2 based on needs of the Fleet or as directed by HQMC (DC AVN). Candidates submit applications for NA/NFO Conversion training per MCO 1331.2, Transition/Conversion Training for Naval Aviators and Naval Flight Officers.
 - d. Refresher. Refresher (Category III) aviator production requirements are generated by MMOA-2 based on planned assignments and time out of the cockpit.
 - e. Modified Refresher. Modified Refresher (Category IV) aviator production requirements are generated by MMOA-2 based on planned assignments and time out of the cockpit.
 - f. Safe-for-Solo Programs. Safe-for-Solo programs (USN Category V) pilot production requirements are generated by MMOA-2 based on planned assignments and time out of the cockpit.
 - g. Foreign. Foreign aircrew are based on Foreign Military Sales (FMS) requirements. Foreign student POI requirements may be anything from a Category I to a Category V, but are usually classified as a Category V on the TRL for tracking purposes. Annual training requirements are generated by the SCETC under CG TECOM.

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5. CG 4th MAW shall submit an estimate of FRS training requirements by T/M/S and POI for the next 3 fiscal years to CG TRNGCMD G-3 by 30 May annually.
6. FRS production requirements are programmed by CG TRNGCMD G-3 and submitted to OPNAV via the TRL. FRS flight hours are derived from the annual TRL, syllabus flight hours, and overhead data. CG TRNGCMD APM shall ensure OPNAV has accurate syllabus flight hours and overhead data to compute FRS flight hour requirements. Flight hour management is the responsibility of the respective wing commanders.
7. Assigning flight hours for CAT III and IV refresher training requires both MMOA input and the application of historical usage data. In order to correctly project required flight hours, FRS Commanding officers will provide updated historical usage data annually, by 15 February.

4.04 AVIATOR PRODUCTION PLAN

4.04.1 Fleet Replacement Squadron Summit (FRSS)

1. The purpose of the FRSS is to provide Marine Corps FRSs a forum to address training issues and raise awareness of all participants to issues impacting Marine Corps aviation training. It is an opportunity for Marine Corps Aviation to address their barriers to production prior to the PAC.
2. Attendees should include the Commanding Officer and NAPP Analyst for each FRS or equivalent training unit that produces Marine Corps aviators, the MATSGs, HQMC agencies, MAGs, WINGs, OPNAV, and senior Marines from CNATRA and CNATT.
3. CG TRNGCMD G-3 hosts a an FRSS each year prior to the Production Alignment Conference hosted by CNATRA.
 - a. Focus of the FRSS is to assess current fiscal year aviation production, confirm plans to meet the next fiscal year's aviation production requirements, address training issues impacting aviation production, develop or modify mitigation strategies, and solidify an overall Marine Corps aviation production course of action before attending the Fall PAC.
 - b. Prior to the FRSS, FRSs will use the next fiscal year's training production requirements to develop a Fiscal Year Load Plan and any training requirement conflicts with FRS capacity will be documented and prepared for brief at the FRSS.
4. Results of the FRSS are released by CG TRNGCMD G-3 in an After Action message which lists issues and mitigation strategies and identifies tasks for specific agencies.

4.04.2 Production Alignment Conference (PAC)

1. CNATRA hosts a PAC once per year. The PAC provides a forum for CG TRNGCMD G-3, FRS, Task Group (Primary, Tactical, Rotary, Multi-Engine, NFO, and Enlisted Aircrew), CNATRA production managers, HQMC, CNAF, CNAL, and BUPERS representatives to assess and resolve Integrated Production Plan issues or discrepancies.
2. Attendees include the NAPP Officers from each FRS, CNATRA and CNATT staff, and representatives from CG TRNGCMD G-3, MATSGs, HQMC, CNAF, CNAL, OPNAV, and BUPERS.
3. Focus of the Fall PAC is to assess current fiscal year aviation production, coordinate as Task Groups on plans to make up any current year shortfalls/meet the next fiscal year's aviation production requirements, and to finalize the FRS level Integrated Production Plan.
 - a. Prior to the Fall PAC, Task Group and FRS production managers develop a draft of the FRS-level IPP which is submitted to CNATRA. The intent is for CNATRA to have enough time to develop an initial draft of the entire IPP before the PAC.
 - b. During the PAC, issue resolution and changes to the higher levels of the IPP may occur. Any changes can take time to reconcile down through API, so the IPP may or may not be completed during the PAC.
4. The result of the PAC is a finalized IPP that is published by CNATRA on its website.

4.04.3 Marine Corps Training Information Management System (MCTIMS)

1. MCTIMS is a web-based training management system that consolidates the functions of and replaces the Training Requirements and Resource Management System (TRRMS) and By-Name-Assignment (BNA). It is the user interface that allows all training schools to program dates to respective classes and seats.
2. Manpower/training managers at all levels in the Marine Corps can log into MCTIMS, look up courses and dates, and assign Marines to training seats in order to generate orders. If a course is funded by TECOM Financial Management (FM),

name assignment in MCTIMS must be completed before appropriation data can be requested. Course seat management, including schedule building and name assignment, can be accessed via the Student Registrar menu in MCTIMS. All schoolhouses that train Marine Corps students are required to use Student Registrar per MCO 1553.2. For setting up access to the Student Registrar or for assistance using it, contact TECOM Formal Schools Training Branch (C4611) at 703-432-0071 or DSN 378-0071.

3. Per the AIRS checklist, each FRS or equivalent Marine Corps training unit is responsible for maintaining a MCTIMS account and shall appoint a MCTIMS account manager to build and update the unit's schedule. The subsequent fiscal year's class schedules are due into MCTIMS NLT 31 July each year. Class schedules are subject to change and dates can be updated in MCTIMS at any time, but preliminary schedules must be entered by 31 July in order for manpower/training managers to be able to assign students and generate orders in September for October classes. Once the official IPP is released after the Fall PAC, MCTIMS managers shall ensure class schedules in MCTIMS are updated to match the IPP.

4. Refresher students shall be registered in MCTIMS by their sponsoring unit (e.g. MMOA or MAG) in order to be scheduled for training. Prioritization of available class seats is the responsibility of the gaining MAG or MAW. Any requests to add class seats shall be made through CG TRNGCMD G-3 copy to DC AVN, ASM-52. FRSs shall ensure that all students are registered in MCTIMS prior to start and that the student's status is updated to reflect the completion of their training when applicable.

4.05 AIRCREW CORE INTRODUCTION REFRESHER TRAINING

1. Pilots and NFOs who have not flown the model aircraft within the prescribed time intervals defined below in Table 4-2, shall complete the appropriate Core Introduction Refresher training program.

2. CMC designated FRSs and operational commands shall conduct Core Introduction Refresher training; such training shall be specified in individual T&R manuals. Upon completion of Core Introduction Refresher training, pilots and NFOs are normally assigned to the Refresher POI conducted at the tactical squadron.

3. Pilots and NFOs who have been selected for Transition/Model Conversion/Series Conversion shall be assigned to the appropriate Basic, Transition, or Series Conversion POI per Chapter 2, regardless of time out of cockpit.

4.05.1 Aircrew Core Introduction Refresher Training Programs

4.05.1.1 Full Refresher Programs

Full Refresher programs (USN CAT III syllabi) consist of appropriate ground school, simulator and training Events, plus a NATOPS check in model. Pilots and NFOs returning to a DIFOP billet, who have been DIFDEN or DIFOP (out of type) for greater than 730 days shall receive Refresher/CAT III training.

4.05.1.2 Modified Refresher (MRF) Programs

MRF Programs (USN CAT IV syllabi) consist of appropriate ground school/simulator training plus 10 hours of flight time and a NATOPS check in model. CG TECOM ASB will consider additional training for individuals in this program on a case-by-case basis when requested by the unit commander.

1. Pilots and NFOs returning to a DIFOP billet, having previously held an MOS, having flown their type but not model aircraft within the past 485 days shall receive MRF or CAT IV training at an FRS. (Examples of this type of Refresher training are: MOS 7523 NATC T-45 instructor returning to fly an F/A-18; MOS 7565 NATC TH-57 instructor returning to an AH-1 billet; MOS 7557 NATC T-44 instructor returning to fly a KC-130.)

2. Pilots and NFOs assigned to "Dual Control Aircraft" who have been DIFDEN or DIFOP (out of type) longer than 485 days but less than or equal to 730 days will receive MRF or CAT IV training at an FRS.

3. Pilots and NFOs assigned to "Single Control Aircraft" who have been DIFDEN or DIFOP (out of type) for 486-730 days will receive a MRF program.

4. Pilots and NFOs destined for PCS to 1st MAW may receive a MRF upon approval by CG TRNGCMD G-3. CG 1st MAW may request other tactical jet training for inbound pilots or NFOs from CMC (MMOA).

4.05.1.3 Safe-for-Solo Programs

1. Safe-for-Solo programs (USN CAT V) apply only to "Single Control Aircraft" pilots and consist of ground school, simulator training plus a NATOPS check in model. Pilots assigned to "Single Control Aircraft" who have been DIFDEN or DIFOP (out of type) longer than 365 days but less than or equal to 485 days shall receive FRS Safe-for-Solo training.

2. Commands may request Core Introduction Refresher training for aircrew not covered by the previous Refresher training programs. Requesting units should make requests to CG TRNGCMD G-3 via the chain of command and should include at a minimum the reasons for the Refresher training, time out of model/type, periods of availability, and type training desired.

3. CG 4th MAW may request authorization via MCTIMS for FRS instructors to designate and annually certify 4th MAW squadron instructor pilots to provide appropriate Refresher training for SMCR aircrew on a case-by-case basis. CG 4th MAW shall coordinate such requests with HQMC [DC AVN (ASM)] and CG TRNGCMD G-3 via message.

Table 4-2: Aircrew Refresher Training Matrix

Aircrew Returning from:	Time out of Model:	Training Required:	Training Conducted at:
DUAL CONTROL ACFT DIFDEN or DIFOP (Out of Type)	< 485 days	Per T/M/S T&R Manual	Tactical Unit
	486-730 days	Modified Refresher CAT IV	FRS *
	> 730 days	Refresher CAT III	FRS *
SINGLE CONTROL ACFT DIFDEN or DIFOP (Out of Type)	< 365 days	Per T/M/S T&R Manual	Tactical Unit
	> 365 days but < 485 days	Safe-for-Solo (Pilots Only)	FRS *
	486-730 days	Modified Refresher CAT IV	FRS *
	> 730 days	Refresher CAT III	FRS *
DIFOP (In Type)	< 485 days	Per T/M/S T&R Manual	Tactical Unit
	> 485 days	Modified Refresher CAT IV	FRS *

* Or CMC designated operational command authorized to conduct 1000 Phase Refresher training.

NOTE

CG TECOM ASB is approval authority for deviations from above matrix.

4.06 ASSESSMENT AND REPORTING

Proper management of Marine Corps aviation resources requires that CG TECOM ASB continually evaluate FRS training requirements and resources to make short range and long range adjustments to maintain a balance between requirements and capacity.

4.06.1 FRS Reporting

1. Many unforeseeable factors affect the training requirements and capacity during the execution of the annual NA/NFO Training Plan via the IPP. The monthly FRS planning and reporting cycle allows adjustments to maintain alignment of training requirements and capacity.

a. Assessments of actual training production compared to the IPP are conducted via teleconference, VTC, or face-to-face briefs monthly. The system utilized to capture monthly data and generate cockpit charts for briefing and assessment is the NAPP Integrated Production Data Repository (NIPDR). The NIPDR cockpit charts are a useful tool in evaluating FRS production performance and capability.

b. Each FRS or equivalent training unit is responsible for submitting unit production data into NIPDR by the 6th of each month. CNATRA will then generate cockpit charts from the data for briefs later in the month.

(1) Pools. The FRS reports two pools to NIPDR: Preload and Students-In-Training (SIT). The FRS Preload is an entitlement (7 weeks) defined as the number of CAT I winged pilots and NFOs that have not commenced their FRS class. This includes personnel conducting PCS moves, training enroute (SERE, etc.), and at the FRS awaiting class start. The SIT pool includes all students who have started a POI. A POI includes any ground training.

(2) Joint FRS Reporting. FRSs that train both Navy and Marine Corps students will report both Navy and Marine Corps student numbers into NIPDR each month.

c. Task Group (TG) meetings take place monthly via teleconference, VTC, or face-to-face meetings. Task Groups include the Commodore in charge, TG production managers, and all FRSs and equivalent training units associated with the Task Group. The focus of the meetings is to assess current production to date, identify any problems associated with meeting fiscal year training requirements, develop mitigation strategies, update long term plans, and prepare for the NAPT meeting later in the month.

(1) TG Tactical (TGTAC)/TG Naval Flight Officer (TGNFO). TGTAC includes all Navy and Marine Corps units associated with jet aircraft pilot production. TGNFO is directly associated with jet training units and attends the same meetings, but has a separate Training Wing and Commodore in CNATRA.

(2) TG Rotary. TG Rotary includes all Navy and Marine Corps units associated with rotary wing and tilt rotor pilot production.

(3) Multi-Engine TG (METG). METG includes all Navy, Marine Corps, and Air Force units associated with Multi-Engine fixed wing pilot production as well as intermediate level flight training for tilt-rotor pilots.

(4) Primary Production TG (PPTG). PPTG includes all Navy and Marine Corps units associated with API and Primary pilot flight training production.

(5) TG Naval Aircrew (TGNAC). TGNAC includes all Navy and Marine Corps units associated with aircrew production.

d. The NAPT (described in paragraph 4.01.2) meets monthly via VTC with a teleconference dial-in capability. The monthly meeting focuses on assessing current production to date, informing CNATRA and CNAF on problems associated with meeting fiscal year training requirements, describing mitigation strategies, and updating long term plans.

(1) CG TRNGCMD G-3 attends the NAPT to represent Marine Corps FRSs and Marine Corps Aviation interests. MATSGs, FRSs, and HQMC agencies are welcome to attend.

(2) Actions-In-Progress (AIPs) generated by the NAPT involving Marine Corps production will be staffed through CG TRNGCMD G-3.

4.06.2 Attrition/Training Delay Notification

FRSs and equivalent training units training Marine aircrew are responsible for notifying CG TRNGCMD G-3 of RAC attrition/delay issues that occur. CG TRNGCMD G-3 needs to be informed of any student attrition or delays due to medical, legal, or performance issues. Notification shall be accomplished through the comments section in the monthly NIPDR submissions and discussion in Task Group meetings.

4.06.3 Mishap Notification

1. FRSs and equivalent training units training Marine aircrew are responsible for notifying CG TRNGCMD G-3 of any mishaps that occur involving RACs or impacting training production. The following PLADS shall be included on OPREP3s and MDRs: CG TECOM QUANTICO VA G3; CG TECOM QUANTICO VA ASB.

2. CG TRNGCMD G-3 shall not be included in the privileged investigation messages. Neither TECOM ASB nor TRNGCMD G-3 have a permanent ASO billet on its T/O.

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CHAPTER 5 - AVIATION T&R ADMINISTRATION

5.00 PURPOSE

To provide a process for developing, updating, and staffing T&R manuals.

5.01 SYLLABUS SPONSOR

A syllabus sponsor is a unit responsible for coordinating T&R changes on behalf of the applicable community in cooperation with CG TECOM MTESD ASB. Syllabus sponsors shall maintain close liaison with their respective communities. CG TECOM assigns syllabus sponsor responsibilities.

5.02 T&R MANUAL DIRECTORY

Aviation T&R Manuals are produced as Navy Marine Corps (NAVMC) Publications. Table 5-1 contains a list of aviation T&R syllabus sponsors:

Table 5-1: Aviation T&R Syllabus Sponsors

CATEGORY	AVIATION T&R MANUALS	SPONSOR
Policy and Procedures		
Aviation T&R Program (Overarching Policy)	MCO 3500.14	ASB
Aviation T&R Program Manual (Procedures)	NAVMC 3500.14	ASB
Tactical Fixed Wing		
AV-8B	NAVMC 3500.51	MAWTS-1
EA-6B	NAVMC 3500.1	MAWTS-1
FA-18A/C/D	NAVMC 3500.50	MAWTS-1
KC-130T	NAVMC 3500.52	MAWTS-1
KC-130J	NAVMC 3500.53	MAWTS-1
F-35B (1000 Phase)	NAVMC 3500.111	VMFAT-501/MAWTS-1
F-35B (2000 – 8000 Phases)	NAVMC 3500.118	VMFA-121/MAWTS-1
Tiltrotor		
MV-22B	NAVMC 3500.11	MAWTS-1
Tactical Rotary Wing		
CH-53E	NAVMC 3500.47	MAWTS-1
AH-1W	NAVMC 3500.48	MAWTS-1
UH-1N	NAVMC 3500.49	MAG-49
UH-1Y	NAVMC 3500.20	MAWTS-1
AH-1Z	NAVMC 3500.104	MAWTS-1
Tactical UAS Communities		
RQ-7B	NAVMC 3500.34	MAWTS-1
MQ-21A	NAVMC 3500.122	MAWTS-1
Group 1 UAS T&R Manual	NAVMC 3500.107	MARSOC
Support Aircraft		
C-9	NAVMC 3500.31	VMR-1, MCAS Cherry Point
UC-12F	NAVMC 3500.30	MCAS New River
UC-12W	NAVMC 3500.102	VMR Belle Chasse
HH-1N (SAR)	NAVMC 3500.91	H&HS SAR, MCAS Yuma
UC-35	NAVMC 3500.92	VMR Det Andrews
C-20	NAVMC 3500.93	MCAF Kaneohe Bay, HI
F-5E/N	NAVMC 3500.83	VMFT-401
Aviation Ground Communities		
Tactical Air Command Center (TACC)	NAVMC 3500.53	MAWTS-1
Tactical Air Operations Center (TAOC)	NAVMC 3500.119	MAWTS-1
Marine Air Traffic Control (MATC)	NAVMC 3500.94	MAWTS-1
Direct Air Support Center (DASC)	NAVMC 3500.120	MAWTS-1
Low Altitude Air Defense (LAAD)	NAVMC 3500.57	MAWTS-1
Meteorological Oceanographic (METOC)	NAVMC 3500.38	MAWTS-1
Expeditionary Airfield Services	NAVMC 3500.113	MATSG-21, AMS-1, NAS PENSACOLA, FL
Aircraft Rescue and Firefighting	NAVMC 3500.114	MARCORDET, GOODFELLOW, SAN ANGELO, TX
EAF/ARFF Officer	NAVMC 3500.115	MAWTS-1
Aviation Operations Specialist (AOS)	NAVMC 3500.96	MATSS-1

For an up-to-date listing of T&R manuals, the ASB website is listed at the following URL:
<https://vcepub.tecom.usmc.mil/sites/directorates/mtesd/asb/default.aspx>.

5.03 T&R CHANGES

5.03.1 T&R Working Groups (WG)

The formal T&R WG may be conducted as an in-person forum or may be conducted in a virtual forum to comprehensively revise a T&R manual and results in the production of a new version of the manual (e.g., NAVMC 3500.XX“B”). Formal WGs normally convene on a triennial schedule. However, they may be convened as needed or when higher headquarters directs. Optimally, T&R WGs and Training Management Team (TMT) Working Groups should be conducted back-to-back in the interest of fiscal efficiencies.

5.03.2 T&R Pre-Working Groups (PWG)

1. In advance of the formal Working Group, PWGs are conducted at least 3 months prior to the WG. There are 3 required deliverables produced at a PWG:

- a. Review and validate MCTs to include Conditions and Standards and reach consensus of same.
- b. Review and validate the Mission Statement.
- c. Produce a draft Chapter 1 for the formal Working Group and reach consensus of same.

2. PWGs are normally conducted via electronic means (i.e., Defense Collaboration Services, teleconference, Video Teleconference, etc.).

5.03.3 Provisional T&R Changes

A provisional change is a change to an existing T&R manual occurring between T&R formal WGs. This type of change is more limited in scope as compared to a formal WG. T&R provisional changes are staffed and adjudicated via electronic means and produce changes to T&R manuals as follows: NAVMC 3500.XX, “Ch 1”.

5.04 T&R WORKING GROUP PROCEDURES

5.04.1 PWG Procedures

5.04.1.1 ASB Responsibilities

1. PWG Date(s). Coordinate with the syllabus sponsor to determine availability and establish dates and times. Duration of PWGs varies and generally depends on the amount of revision being proposed to the T&R. The last PWG to be conducted should occur more than 90 days prior to the formal Working Group.

2. Participants. Coordinate with the syllabus sponsor in order to request DC AVN readiness and community SMEs, MARFOR reps, TFSD reps, and other SMEs as required.

3. Announcement Message. Prepare and release a message to appropriate commands, the syllabus sponsor, and an information copy to CMC (DC AVN), (CD&I) and TFSD. This message announces, at a minimum, the purpose of the PWG, including convening location/date, the required METL review POA&M, review of the Mission Statement, production of a draft Chapter 1 (as required), and if required, requests the submission of agenda items in “Item, Discussion, Recommendation” format. This message should be released 60 days prior to the PWG convening date.

- a. Draft a Chapter 1 template (as required and as applicable to the community).
- b. Provide copy of METL worksheets (Appendix A of Chapter 1).
- c. Provide a copy of the Mission Statement.

5.04.1.2 Syllabus Sponsor Responsibilities (As applicable)

1. Research and consolidate a list of formal courses (i.e. MSTC, Marine Net, etc.) applicable to the community.
2. Evaluate applicability of training Events from other community T&Rs.
3. Verify references.
4. Ensure device nomenclature is accurate.
5. Gather training governing directives applicable to the community.

5.04.1.3 Small Unmanned Aircraft Systems (Group 1 UAS) T&R Manuals - Syllabus Sponsor and ASB Responsibilities

In the case of Group 1 UAS T&R Manuals, ASB and the Syllabus Sponsor will task organize as required to ensure the tasks per paragraph 504.1.2 below are accomplished.

5.04.1.4 PWG Agenda

The following items will be addressed at the PWG:

1. How to run a T&R Working Group

Program Manual Brief

What is directed by DC AVN and TECOM

Core Model Brief

T&R Rules and M-SHARP implementation - (prerequisite, chaining, POI updating, attain, maintain tables)

Determine tasks to be completed and assign who is to complete them, and due dates per Chapter 5

Review importance of matrix vs narrative reconciliation.

Review of agenda items.

2. Review of Chapter 1

Review and validate MCTs including Conditions and Standards

Review Mission Statement per TFSD

Core Skills &/or CMTS

Mission Skills & CMMR

Core Plus (Skills & Missions) MET to Core/Mission/Core Plus matrix

Combat Leadership & CMMR

Instructor & CMMR

Resource Requirements as applicable

3. Review of the Core Model

POIs (Basic, Conversion, Series Conversion, Transition, and Refresher

Flight Leadership and Maintain

Training Progression Model

Attain Rules

Maintain Rules

Prerequisite Rules

POI updating Rules

Chaining Rules

Requirements, Certifications, Qualifications, and Designations

Syllabus Matrix

Attain & Maintain Tables

Ordnance Matrix

4. Deliverables at the conclusion of the PWG

METL worksheet (as required)

Draft Chapter 1

Mission Statement (as required)

Draft message to MARFORS.

Staffing of the METL worksheet, Mission Statement, and draft Chapter 1 will be fully vetted through the MARFORS and DC AVN prior to convening the Working Group. If there is a change to the METL worksheet, it shall also be vetted with HQMC CD&I.

5.04.2 Formal T&R Working Group Procedures And Responsibilities

5.04.2.1 Syllabus Sponsor and ASB

1. WG Date. Coordinate a date. The WG occurs 90 days after the PWG. Duration is normally 3 to 5 days.

2. Announcement Message. This message will be sent to the appropriate commands with an information copy to CMC (DC AVN). It announces the purpose and includes results of the PWG. In addition, the message announces the convening

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location/date, identifies units required to nominate voting members, and requests a follow-on submission of agenda items in “Item, Discussion/Recommendation” format. ASB will release the announcement message 3 months before the convening date.

3. Working Group Agenda Message. If a formal list of agenda items is required, consolidate agenda items and release a message to MARFORs/MCIs as required, MAWTS-1, DC AVN, and all appropriate commands operating/implementing the applicable syllabus. ASB will release the agenda items message 30 days before the convening date.

5.04.2.2 ASB

1. Release announcement and agenda items messages.

2. Working Group Funding. CG TECOM ASB shall provide appropriation funding data to voting representatives per MCO P7100.8. Additional conference representatives are encouraged to attend, but must be unit funded. Intelligence battalions are encouraged to fund their METOC personnel to attend T&R Working Groups.

5.04.2.3 Syllabus Sponsor

Facilitate and ensure each attendee has access to a draft version of the T&R if available at completion or as soon as possible thereafter.

5.04.2.4 Commands Providing Working Group Representatives

1. Nominate representatives to CG TECOM ASB via message to CG TECOM MTESD NLT 45 days prior to the Working Group. Commands responsible for nominating voting representatives include MCCDC, COMMARFORCOM, COMMARFORPAC, COMMARFORRES, and MAW Commanding Generals; in addition, MCI EAST, MCI WEST, and COMMARCORBASESJAPAN for ATC, METOC, ARFF, EAF, OSA, SAR and AOS T&R manuals. Other commands, to include appropriate schools, are encouraged to send SMEs as non-voting working group members. Working Group representatives shall be experienced in the day-to-day supervision of the applicable aviation training program being reviewed.

2. DC Aviation is requested to provide a readiness SME and a community/platform SME.

3. Submit agenda items to the syllabus sponsor in “Item, Discussion, Recommendation” format via message no later than 45 days prior to the Working Group convening date.

4. All attendees shall be familiar with agenda items and review the applicable T&R syllabus prior to the Working Group. Voting members shall staff agenda items and have established command positions prior to attending a Working Group. As front-end agenda staffing facilitates the T&R update process, syllabus sponsors should not accept additional agenda items during T&R Working Groups.

5.04.2.5 Voting Member Procedures

1. Any Working Group attendee may recommend a specific position; however, it is the voting representatives listed below in Table 5-2 that decide on the content to be recommended for command approval.

Table 5-2: Voting Membership

VOTING MEMBERSHIP (AVIATION TACTICAL FLYING)				
MCCDC (ASB)	MARFORCOM	MARFORPAC	MARFORRES	1 ST MAW
2 ND MAW	3 RD MAW	4 TH MAW		
VOTING MEMBERSHIP (AVIATION OSA FLYING)				
MCCDC (ASB)	MARFORCOM	MARFORPAC	MARFORRES	MCI EAST
COMMARCORBASESJAPAN	MCI WEST			
VOTING MEMBERSHIP (Group 1 UAS)				
MCCDC (ASB)	MARFORCOM	MARFORPAC	MARFORRES	4 TH MARDIV
MARSOC	1 ST MARDIV	2D MARDIV	3D MARDIV	
VOTING MEMBERSHIP (AVIATION GROUND)				
MCCDC (ASB)	MARFORCOM	MARFORPAC	MARFORRES	1 ST MAW
	(II MEF – METOC)	(I & III MEF – METOC)		
2D MAW	3D MAW	4 TH MAW		
MCI EAST, MCI WEST, MCI PAC (ATC/ARFF/EAF/METOC/AOS)				

2. At the Working Group, voting members and attendees shall complete, at a minimum the following tasks:

- a. Review, discuss and vote on agenda items.
- b. Review/validate/modify the following:

- (1) Unit Core Competency Information (Mission Statement/ METL/Output Standards/CMMR/Attain and Maintain table, Certification, Qualification & Designation tables/Training Progression Models)
 - (2) Programs of Instruction
 - (3) Phase/Stage/event information
 - (4) Training resource requirements
 - (5) Required T&R matrices/tables
 - (6) T&R syllabus evaluation forms
- c. Ensure their respective T&R manual is formatted in compliance with Chapter 6
 - d. Coordinate syllabus requirements with other aircraft/ aviation ground communities, as required
3. T&R Working Group Outline and Schedule of Events Model. This model serves as a guide and template for the conduct of a T&R WG. It may be tailored as required to meet the needs of the applicable community.

Activity	Responsibility
Day 1	
Welcome – Provide a synopsis of MAB, OAG and TMT pertinent issues – Syllabus Sponsor	Syllabus Sponsor
Program Manual	ASB
Core Model	ASB
Attain/Maintain	ASB
Prerequisites	ASB
Chaining	ASB
External Resources	ASB
Goals of T&R review	Syllabus Sponsor
Agenda items – Review, discuss, vote	Syllabus Sponsor
Assignment of breakout groups (as needed).	
Day 2	
Construction of new stages or Events	
Concentration on event specific requirements	
Ground/Academic	
POI assignment	
Equipment (aircraft/PEIs/simulator)	
Mirror codes	
Certifications/Qualifications/Designations	
Events:	
Goal	
Requirement	
Performance Standard	
Prerequisite	
Instructor	
Ordnance	
Ranges	
External syllabus support	
Chaining	
Day 3-5	
Continuation of day 2 activities until complete	
How to review T&R (syllabus matrix against event narrative)	
Assignment of deliverables with specific due date(s)	
Out brief	
Summary message that serves as a record of proceedings that addresses key issues discussed during the conference, and list of attendees (Required for Aviation Ground communities).	

5.04.2.6 Post Working Group Responsibilities

1. Syllabus Sponsor

a. Coordinate with CG TECOM ASB to prepare a report message to the MARFORs. CG TECOM ASB shall release the report message within 60 days of WG completion. WG report messages shall delineate significant change recommendations.

b. Submit the draft T&R Manual to CG TECOM ASB in the format prescribed in Chapter 6. The syllabus sponsor is responsible for all content (text and tables), to include accuracy and reconciliation between the T&R matrices and the event descriptions to ensure alignment.

- c. Provide a summary of changes in either PowerPoint or Word. This summary of changes will become a part of the staffing package to facilitate concurrence of the draft T&R manual by the MARFORS, DC AVN, and CG TECOM.
- d. Coordinate with CG TECOM ASB to prepare a MARFOR concurrence message for the completed draft T&R manual.

Note: Both the WG report and the request for concurrence messages can be combined if the draft T&R is complete.

2. ASB

- a. Coordinate with the syllabus sponsor to prepare and release Working Group report message(s) to the MARFORS in accordance with the timeline listed in paragraph 5.05 below.
- b. Upon receipt of the draft T&R Manual from the syllabus sponsor, conduct a quality assurance check to ensure the draft complies with the provisions of this Manual, particularly Chapters 2 and 6.
- c. Staff the draft to M-SHARP representatives prior to release to the MARFORS for concurrence.
- d. Submit MARFOR concurrence request message. MARFORS will concur or not concur with justification via message within 30 days upon receipt of the message.
- e. Forward the consolidated MARFOR comments, the draft T&R manual and any other documentation to CMC (DC AVN). Unresolved issues shall be forwarded, with a recommended course of action by ASB, to CMC (DC AVN) for decision. DC AVN is requested to respond within 30 days upon receipt of an ASB request for T&R manual concurrence.
- f. Upon MARFOR and DC AVN concurrence, release a message approving the T&R syllabus for interim use. Post the interim approved T&R manual to the CG TECOM ASB website; the interim T&R manual supersedes all previous versions of the subject T&R.
- g. Attach DC AVN and MARFOR comments and forward the interim approved T&R manual to CG TECOM for signature.
- h. When the NAVMC (Interim approved T&R manual) is signed by CG TECOM, release a message announcing that the NAVMC has been signed and now replaces the interim T&R manual. Post the NAVMC to the CG TECOM ASB website. Coordinate with CMC (ARDE) to coordinate posting to the HQMC website.

3. Voting Members. T&R voting representatives shall brief their respective commands on post WG results.

4. MARFORs. Consolidate comments from subordinate units and provide concurrence to CG TECOM ASB via message NLT 30 days from receiving a request.

5. CMC (DC AVN). Review the proposed draft T&R Manual and concur to CG TECOM ASB via message NLT 30 days after receipt of draft T&R manual from ASB.

6. Oversight. ASB will maintain contact with syllabus sponsors to ensure the timeline for the process outlined for Post Working Group Responsibilities is closely adhered to in order to provide updated T&R manuals to the Total Force as soon as practicable.

5.05 T&R WORKING GROUP MATRIX

Table 5-3 below outlines and summarizes T&R Working Group milestones and tasks:

Table 5-3: T&R Working Group Milestones

PWG	Unit(s)Tasks	By-Date
Release Convening Message	Syllabus Sponsor & ASB (releases msg.)	NLT 60 days prior to PWG date
ASB provides draft template Chapter 1 to Syllabus Sponsor	ASB	NLT 30 days prior to PWG
Forward draft Chapter 1, Mission Statement and METL to MARFORS	Syllabus Sponsor & ASB (releases msg.)	ASAP following PWG
Forward draft Chapter 1, Mission Statement and METL to DC AVN	ASB (releases msg.)	ASAP following concurrence by MARFORS

Working Group	Unit(s)Tasks	By-Date
Coordinate Date & Release Convening Msg	Syllabus Sponsor ASB (releases msg.)	NLT 90 days prior to Working Group date
Nominate Voting Reps to ASB via msg.	Voting Commands (MARFORs MAWS etc.)	NLT 45 days prior to Working Group
Submit Agenda Items to Syllabus Sponsor	All Units (As Desired)	NLT 45 days prior to Working Group
Publish Agenda Items	Syllabus Sponsor ASB (releases msg.)	NLT 30 days prior to Working Group
Post-Working Group Requirement	Unit(s)	By-Date
Provide Smooth Draft T&R Manual To ASB	Syllabus Sponsor	ASAP after Working Group completion
Working Group Report msg.	Syllabus Sponsor ASB (releases msg.)	NLT 30 days after Working Group completion or when draft T&R is complete
Provide Concurrence with T&R draft to ASB	MARFORs	NLT 30 days after receipt of draft T&R manual.
Forward MARFOR Comments to DC AVN	ASB	ASAP after MARFOR concurrence
Provide Concurrence with T&R draft to ASB	DC AVN	NLT 30 days after receipt of draft T&R manual ASB.
Announce Interim Approval	ASB	ASAP Upon MARFOR & DC AVN Concurrence
Administrative Review	ASB	ASAP Upon MARFOR & DC AVN Concurrence
Obtain CG TECOM Signature & Publish as NAVMC	ASB	ASAP Upon DC AVN Concurrence

5.06 T&R PROVISIONAL CHANGES

1. Units may recommend T&R changes outside of the triennial cycle via a T&R Provisional change. Units shall submit proposed changes in message format via the respective MAW to the syllabus sponsor. Correspondence must include rationale for the change.
2. The syllabus sponsor shall review and forward the proposed change recommendations to all units in the respective community and CG TECOM ASB within 5 working days of receipt of the correspondence. If the proposed change requires coordination with another community, the originating syllabus sponsor shall also submit it to the appropriate related syllabus sponsor.
3. All units concerned shall submit their comments and recommendations to the syllabus sponsor, via the respective parent command/MAW, within 30 days of the date of the syllabus sponsor's request for comments.
4. The syllabus sponsor shall:
 - a. Consolidate comments and provide CG TECOM ASB a smooth draft of proposed T&R changes (include update of the T&R event matrix.).
 - b. Coordinate with CG TECOM ASB to release a T&R change recommendation message to the MARFORs and CMC (DC AVN) within 45 days of the date of the syllabus sponsor's request for comments. CG TECOM ASB releases the message.
5. MARFORs and CMC (DC AVN) shall review the proposed T&R change and concur or non-concur with justification to CG TECOM ASB within 30 days respectively of the syllabus change recommendation message release. Unresolved issues shall be forwarded to DC AVN for decision. Upon MARFOR and DC AVN concurrence, CG TECOM ASB shall release a message approving the change for interim use and post it to the CG TECOM ASB website.
6. CG TECOM ASB shall attach CMC and MARFOR comments and forward the change for CG TECOM signature as a NAVMC change. When the NAVMC change is signed, CG TECOM ASB shall release a message announcing the NAVMC has been changed (the NAVMC change replaces the interim T&R syllabus change). CG TECOM ASB shall post the NAVMC change to the CG TECOM ASB website and coordinate with CMC (ARDE) to post the change to the HQMC website.
7. Oversight. ASB will maintain contact with syllabus sponsors to ensure the timeline for the process outlined for T&R manual Provisional changes is closely adhered to in order to provide updated T&R manuals to the Total Force as soon as practicable.

5.07 T&R PROVISIONAL CHANGE MATRIX

Table 5-4 below outlines and summarizes T&R correspondence change milestones and tasks:

Table 5-4: T&R Provisional Change Matrix

Task	Unit	By-Date
Request for T&R Change by msg to syllabus sponsor via MAW	Unit that requests T&R Change	NA
Forward proposed change to all applicable units for review/comment.	Syllabus Sponsor	NLT 5 days after receipt of change request
Submit comments to syllabus sponsor	All units concerned	NLT 30 days after request for comments
Consolidate comments & provide ASB a smooth draft of proposed changes.	Syllabus Sponsor	NLT 45 days after request for comments
Release T&R Change Recommendation msg.	ASB	NLT 45 days after request for comments
Review Proposed Change & Provide Concurrence/Non-Concurrence with justification	MARFOR DC AVN in order	NLT 30 days after release of change recommendation msg
Announce Interim Approval	ASB	ASAP Upon MARFOR & DC AVN Concurrence
Administrative Review	ASB	ASAP Upon MARFOR & DC AVN Concurrence
Obtain CG TECOM Signature & Publish as NAVMC Change "1" etc.	ASB	ASAP Upon DC AVN Concurrence

5.08 APPLICABILITY

When a T&R manual update or change is approved for use, the approved version of the manual becomes the training standard for all applicable units. Changes shall be uploaded into M-SHARP as soon as possible and will be announced via message.

CHAPTER 6 - T&R MANUAL STRUCTURE

GENERAL BACKGROUND AND REQUIREMENTS FOR CHAPTER 1 OF A T&R MANUAL

6.00 PURPOSE

1. The purpose of this Chapter is to provide guidance on the development and revision of community aviation T&R manuals. This Chapter provides standardization policy for the structure, organization, and content of community T&R manuals. Community T&Rs shall adhere to the policy, content, sequence, and format requirements delineated in this Manual when developing or updating community aviation T&R Manuals.
2. The development or revision of a T&R manual is a time-intensive and complex process that community SMEs must understand. Factors to consider when determining T&R requirements include unit and individual syllabi, event complexity, conditions, R-coding, chaining, and proficiency period, amongst others. The routine T&R Working Group procedures are to first review and/or revise unit training requirements, then do the same with individual training requirements. Specifically, SMEs should conduct a rough revision of unit CMMR and CMTS information and individual T&R requirements summarized in matrices throughout each T&R chapter. After rough revisions are completed, T&R matrices should be compared to unit CMMR and CMTS so that T&R adjustments can be made as needed. From there, SMEs should continue with revising remaining T&R required information.
3. T&R syllabi within a community may be interrelated/dependent (particularly for crewed platforms/systems). Therefore, individual T&R syllabi should always be developed in concert.
4. This Chapter consists of 2 sections as follows:
 - a. Section 1 provides general background and instructions for the content of a T&R Manual Chapter 1, Unit Requirements.
 - b. Section 2 provides instructions for the content of a T&R Manual Chapter 2 (and any additional chapters based on the number of crew positions/MOS's) for Individual Requirements.
 - c. Templates for chapters are provided as Appendix A (Chapter 1) and Appendix B (Chapter 2).

6.01 T&R STRUCTURE AND CONTENTS

1. Aviation T&R manuals shall consist of at least two chapters. The first chapter of every T&R manual delineates unit T&R information. The second and subsequent chapters delineate individual T&R requirements for each applicable MOS/crew position within the community.
2. The number of chapters depends on the number of MOSs/crew positions. For example, a CH-53 T&R manual has 3 MOS/crew positions and therefore will have 4 chapters in noted order: (1) CH-53 Training and Readiness Unit Requirements; (2) Pilot; (3) Crew Chief; and (4) Aerial Observer.

6.02 T&R UNIT REQUIREMENTS

1. This section delineates Chapter 1 training and readiness unit requirements (refer to Appendix A for a Sample Chapter 1):
 - a. A template of Chapter 1 shall be provided by ASB 30 days prior to the Pre-Working Group.
 - b. The deliverable (a completed draft Chapter 1) from the Pre-Working Group will be forwarded for MARFOR approval as soon as possible following completion of the Pre-Working Group. This event is a collaborative effort between the Syllabus Sponsor and ASB. Upon MARFOR concurrence, the draft Chapter 1 will be forwarded to DC AVN for concurrence. If there are changes to the METS, the draft will be forwarded to the Deputy Commandant for Combat Development and Integration for concurrence.
2. Chapter 1 shall contain the information in the order listed below:

- 1.0 TRAINING AND READINESS REQUIREMENTS
- 1.1 MISSION
- 1.2 TABLE OF ORGANIZATION (T/O)
- 1.3 MISSION ESSENTIAL TASK LIST (METL)
- 1.4 MISSION ESSENTIAL TASK (MET) TO SIX FUNCTIONS OF MARINE AVIATION

- 1.5 MET TO CORE/MISSION/CORE PLUS SKILL MATRIX
 - 1.6 MISSION ESSENTIAL TASKS (MET) OUTPUT STANDARDS
 - 1.7 CORE MODEL MINIMUM REQUIREMENTS (CMMR) TRAINING STANDARDS FOR READINESS REPORTING (DRRS-MC)
 - 1.8 CORE MODEL TRAINING STANDARD (CMTS)
 - 1.9 INSTRUCTOR DESIGNATIONS
 - 1.10 REQUIREMENTS, CERTIFICATIONS, QUALIFICATIONS, AND DESIGNATIONS (RCQD)
- APPENDIX A – MET WORKSHEETS
- APPENDIX B – REFERENCE SOURCES

NOTE:

At a minimum, each individual T&R chapter shall include above paragraphs in the order listed. It is understood that some communities may need to expound on information; therefore as long as the paragraphs appear in proper sequence, other paragraphs may be inserted. Just ensure all paragraphs are numbered sequentially.

1.0 TRAINING AND READINESS REQUIREMENTS. A paragraph that defines the goal of Marine Aviation and the corresponding role in Expeditionary Maneuver Warfare.

1.1 MISSION. This statement must mirror the wording in the Mission Statement as maintained by HQMC Total Force Structure Division. It contains the required capabilities the unit is expected to provide the gaining Force Commander during Combat or contingency operations. Aviation Ground communities may define the capability of each sub-unit in subparagraphs below the Mission Statement. A sample Mission Statement is provided as Appendix E.

1.2 TABLE OF ORGANIZATION (T/O)

1. Unit T/O information shall be derived from the current T/O managed by HQMC TFSD. Community T&Rs shall list authorized billet structure by MOS and organizational structure.
2. T/M/S Communities. Include number of aircraft and T/O; include FRS structure. If applicable, standardized detachments shall also be listed.
3. Aviation Ground Communities. Include total personnel for each unit and subunit per the T/O table.

1.3 MISSION ESSENTIAL TASK LIST (METL). A standardized approved list of specified tasks a unit is designed or organized to perform. Selected tasks are drawn from the Marine Corps Task List (MCTL) and are standardized by type unit. Information for this table is drawn from the data derived during the Pre-Working Group that develops the MET worksheet. The MET worksheet(s) lists METS and delineates conditions and output standards.

1.4 MET TO SIX FUNCTIONS OF MARINE AVIATION. This table depicts the relationship between the community-specific METS to the six functions of Marine Aviation.

1.5 MET TO CORE/MISSION/CORE PLUS SKILL MATRIX. Provides a correlation between the Marine Corps Tasks (MCTs) and each Core/Mission/Core Plus skill required to perform the MCT. All skills must be represented. An “X” in a block does not represent that all Events in that skill must be completed as a prerequisite for Mission Skills - a minimum of one Event can constitute a relationship. It also depicts the relationship between a MET and each Core/Mission/Core Plus/Mission Plus skill associated with the MET for readiness reporting and resource allocation purposes. There shall be a one-to-one relationship between the MET and a corresponding Mission Skill. For Aviation Ground Communities there may be a one-to-many relationship between METs and skills.

1.6 MET OUTPUT STANDARDS. This table lists the Core METL Output Standards as follows:

1. Core METL Output Standards. The required level of performance a unit must be capable of sustaining during contingency/combat operations by MET to be considered MET-ready.
2. Aviation Ground Output Standards. These are measured as collective output, vice number of sorties, as defined in the MET worksheet.

1.7 CORE MODEL MINIMUM REQUIREMENTS (CMMR) TRAINING STANDARDS FOR READINESS REPORTING (DRRS-MC). Defines the Proficiency Requirements by Crew Positions (for flying squadrons, “Crews Formed”). This table provides the crew composition requirements and objectively defines the number of crews required to

execute the output standards. Tactical aviation community T&Rs shall delineate CMMR. Operational Support Airlift community T&Rs may be required to delineate CMMR depending on mission requirements, but shall adhere to the remainder of unit T&R structure requirements.

a. CMMR numbers are determined by the community and derived only from the Mission Skill Phase, Core Plus Phase, and Combat Leadership (from the Requirements, Certification, Qualification, Designation (RCQD) Phase. Attaining CMMR is considered the minimum for training. If a unit falls short of CMMR, commanders must refocus their training, or if unable to self-correct, request assistance from higher headquarters to meet the requirement.

3. Certain crew positions may have requirements for Core Skill Proficiency vice Mission Skill Proficiency. For example, the CH-53E co-pilot requirement for all METs is to be Night Systems Low Light Level Core Skill Proficient to count towards being a MET-ready crew member.

4. The CMMR for Combat Leadership is defined in terms of minimum numbers of tactical leaders required to execute the unit METL and is delineated in the respective model/series specific T&R Manual.

5. The Combat Leadership metric (CMMR) is applicable to the entire unit Readiness assessment and is not tied specifically to individual METs. Individuals count towards this requirement upon designation in writing by the commanding officer.

1.8 CORE MODEL TRAINING STANDARD (CMTS). An objective optimum training standard by crew position that reflects the number of individuals trained to CSP/MSP/CPD and the number of instructors required to execute the Training Plan. The CMTS is for internal squadron planning only and is not utilized for readiness reporting. The numbers are determined by individual communities. CMTS may apply to 2000-6000 Phase Events. The CMTS for instructors is defined in terms of the requirement to train the cadre of Core/Mission/Core Plus Skill Proficient crews and Combat Leaders every year. Use of the CMTS is optional for aviation ground units. In the FRS, the CMTS is limited to the 5000 and 6000 Phases only.

1.9 INSTRUCTOR DESIGNATIONS. This table provides the instructor requirements and objectively defines the desired number of instructors by crew position required to train crews. For T/M/S communities that have a Fleet Replacement Squadron (FRS), a separate table for the applicable FRS instructor requirements will be provided.

1.10 REQUIREMENTS, CERTIFICATIONS, QUALIFICATIONS, AND DESIGNATIONS (RCQD). This table provides the crew composition breakdown and specifies the requirements, certifications, qualifications, and designations (includes Functional Check Pilot) for each. For T/M/S communities that have an FRS, a separate table for the applicable RCQD requirements will be provided.

APPENDIX A MET WORKSHEETS. The MET worksheets per community. These worksheets will assist in importing requirements into Task Master for Readiness Reporting. The worksheet defines the Conditions and Standards for the execution of each MET.

APPENDIX B REFERENCE SOURCES. Community T&Rs shall contain standard abbreviations as set forth in each manual and they should be subdivided by training phases. This appendix may also include an External Resource Requirements section. This section addresses any external critical training resources required (e.g., adversary support, tanker support, etc.). Training resources for MACG units may entail simulation support, aviation live fly requirements for position training and combined arms exercises. This section is optional depending upon community requirements.

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CHAPTER 6

T&R MANUAL STRUCTURE

SECTION 2: INSTRUCTIONS FOR BUILDING A T&R MANUAL CHAPTER 2, CREWMEMBER SYLLABUS

6.03 CREWMEMBER SYLLABUS T&R REQUIREMENTS

1. This section delineates crewmember training requirements for MOS/crew positions in the applicable community. Each community T&R will contain at least one chapter delineating requirements for crewmember training.
2. Aviation Ground Communities – Specific Considerations. Crewmembers typically train to multiple crew positions. Therefore, a single chapter may be composed of one primary MOS with more than one position to reflect the training requirement of each position and the resultant training progression of that MOS.

3. Set-up:

Font – Times New Roman 10 font size (Tables may be in 8 or 6 font size, if required)

1” Margin left and right

1” Top & Bottom: Header - NAVMC 3500.XX; Footer - Chapter, page and “Enclosure (1)”

Numbering convention and spacing:

The numbering convention utilized will be down to the third level as shown in example below:

2.2.3 (The first number will be the Chapter; in this example it would be Chapter 2)

4. Each crewmember syllabus T&R chapter shall contain paragraphs listed in Table 6-1:

Table 6-1: Chapter Order

Paragraph Number	Paragraph Name
2.0	CREWMEMBER SYLLABUS T&R REQUIREMENTS
2.1	TRAINING PROGRESSION MODEL
2.2	PROGRAMS OF INSTRUCTION (POI)
2.3	PROFICIENCY AND CURRENCY
2.4	REQUIREMENTS, CERTIFICATIONS, QUALIFICATIONS AND DESIGNATIONS (RCQD) TABLES
2.5	SYLLABUS NOTES
2.6	CORE INTRODUCTION PHASE (0000-1999)
2.7	CORE INTRODUCTION STAGES
2.8	CORE PHASE (2000)
2.9	CORE STAGES
2.10	MISSION PHASE (3000)
2.11	MISSION STAGES
2.12	CORE PLUS PHASE (4000-4499)
2.13	CORE PLUS STAGES
2.14	MISSION PLUS PHASE (4500-4999)
2.15	MISSION PLUS STAGES
2.16	INSTRUCTOR TRAINING PHASE (5000)
2.17	INSTRUCTOR TRAINING STAGES
2.18	REQUIREMENTS, CERTIFICATIONS, QUALIFICATIONS, DESIGNATIONS (RCQD) PHASE (6000)
2.19	REQUIREMENTS, CERTIFICATIONS, QUALIFICATIONS, DESIGNATIONS STAGES
2.20	MET ASSESSMENT PHASE (7000)
2.21	AVIATION CAREER PROGRESSION MODEL (ACPM) (8000)
2.22	T&R SYLLABUS MATRICES
2.23	TRAINING DEVICE ESSENTIAL SUBSYSTEMS MATRIX (EESM)(FLYING COMMUNITIES)
2.24	SYLLABUS EVALUATION FORMS IF REQUIRED BY SYLLABUS SPONSOR

2.0 CREWMEMBER SYLLABUS T&R REQUIREMENTS. The first paragraph of each individual MOS/crew position chapter is ASB-provided and is the same for all T&R manuals. It provides the goal of the chapter.

2.1 TRAINING PROGRESSION MODEL. A training progression model graphically depicts community recommended progression for the minimum to maximum time to train for crewmembers in terms of Core, Mission and Core Plus Skills, Certifications, Qualifications and Designations. Communities shall develop a training progression model for each MOS T&R chapter. See example located in APPENDIX B.

2.2 PROGRAMS OF INSTRUCTION. Depicts the average time to train for the 1000-3000 Phases of Instruction.

1. All Marines undergoing training are assigned to at least one POI. A POI is a training track assigned to a Marine based on their proficiency in a skill. The following POIs can be assigned:

- a. Basic (B). This POI constitutes all Events in a T&R manual by crew position (this POI includes initial accession or initial training).
- b. Refresher (R). Marines are assigned to the Refresher POI when they have not performed their primary MOS duties within a period of time as specified by the community. If used, details will be in the Chapter Syllabus Notes, section 2.7.
- c. Conversion (C). Model Conversion personnel (personnel converting from one model aircraft/system to another within the specific aircraft/unit type e.g., EA-6 to FA-18), shall be assigned to the Conversion POI in accordance with the applicable T&R.
- d. Series Conversion (S). Personnel converting from a particular series of aircraft or weapons system to a new series that has significantly different aircraft or weapons systems characteristics. Assignment will be in accordance with the applicable T&R. Examples include KC-130T/KC-130J, CH-53E/CH-53K, and AH-1W/AH-1Z.
- e. Transition (T). Personnel changing aircraft or weapon systems shall be assigned to the Transition POI in accordance with the applicable T&R. Examples include fixed wing to rotary wing and fixed wing to tilt rotor.
- f. Maintain (M). This POI is assigned when an individual completes a POI event, and the event requires proficiency to be demonstrated more than once to maintain skill proficiency. The amount of time between demonstrating Maintain Events is referred to as Proficiency Period (time in days).
- g. Contract Instructor (CI). This POI is assigned to a contractor who is going to instruct students.

2. POIs that are only used in the Fleet Replacement Squadrons (FRS).

- a. Modified Refresher (MR). The Modified Refresher POI is a subset of the Refresher POI. Guidelines for assignment are in Chapter 4 of this manual.
- b. Safe for Solo (SS). The Safe for Solo POI is a subset of the Refresher POI. Guidelines for the assignment are in Chapter 4 of this manual.
- c. Air Force (AF). The Air Force POI is assigned to Air Force students undergoing training at VMMT-204.
- d. Air Force Instructor (CV). Air Force CV-22 pilots transitioning to the MV-22B at VMMT-204.

3. The training status of a Marine while assigned to a POI is either:

- a. Attain Status. This status refers to a POI when a Marine has never demonstrated skill proficiency or is required to re-demonstrate upon losing proficiency.
- b. Maintain Status. This status applies to a POI when a Marine has demonstrated proficiency in a skill and the T&R requires proficiency to be demonstrated more than once to maintain skill proficiency.

4. Aviation Flying Communities shall identify Events in all 2000 through 4000 skills requiring a proficiency period, as a minimum.

5. Aviation Ground Communities shall identify Events in all 3000 skills requiring a proficiency period, as a minimum.

2.3 PROFICIENCY AND CURRENCY. The following rules apply when updating/developing the Attain and Maintain columns in the T&R matrix tables at the end of the chapter.

RULES FOR ATTAIN MAINTAIN (2000-4000 PHASE EVENTS)

- The Attain Maintain columns in the T&R matrix at the end of the chapter display “skill” proficiency and not Stage proficiency. A specific skill may include Events from multiple Stages and or Phases.
- All Core - 2000 Phase, Mission - 3000 Phase, and Core Plus - 4000 Phase Events shall be represented/listed.
- All Events in the Attain column that are not listed in the respective Maintain column shall be chained by event(s) in the Maintain column unless the event(s) is not assigned a Proficiency Period (one time training event: “**”).
- To attain Individual Skill Proficiency, an individual must simultaneously have a proficient status in all of the Events listed in the applicable Attain column for that Skill to move from Attain to Maintain.
- The Maintain column shall contain at least one event for each Skill.

Note

At least one event, per skill, shall have a Proficiency Period.

Note

There may be some Core Skills in the MACG and some Operational Support Airlift (OSA) communities that do not have a Proficiency Period requirement. The Core or Core Plus Skills, once attained, remain proficient.

- All Events in the Maintain column shall be R-coded (Refresher POI) Events.

Note

All Maintain Events are R-coded but not all R-coded Events have to be Maintain Events.

- All Maintain Events shall have a Proficiency Period.
- Specific Events in one Skill may chain update other Events in another Skill (Inter-Skill chaining).
- Higher phase Events such as a Mission Skill event can chain entire Core Skills. Chaining complexity varies by community.

Note

Communities shall consider the entire T&R to include Event complexity, Event conditions (day, night, ATC non-radar, or severe weather), R-coding, Event chaining, Event Proficiency Period, etc. when determining Skill Maintain requirements.

- Rules for Events within a skill that are NOT CHAINED by event(s) in the Maintain column for that skill:
Not be assigned a Proficiency Period (“*”).

or

Must be included in the Maintain column.

or

Moved to another Stage or Phase, i.e. to the 6000 Phase.

2.4 REQUIREMENTS, CERTIFICATIONS, QUALIFICATIONS AND DESIGNATIONS (RCQD) TABLES. All RCQD requirements and specific criteria to achieve them shall be delineated in community T&R manuals. Commanders may issue certification, qualification or designation letters when individual personnel complete applicable training requirements. A copy of these letters shall be included in section 4 of Performance Records per Chapter 2. Only after successfully completing certification, qualification or designation requirements and being issued a letter signed by the commanding officer will an individual be considered certified, qualified or designated. Do not confuse certifications with qualifications or designations as defined below.

1. Requirement. Requirement Events consist of recurring or one-time Events that are prescribed by governing directives applicable to a community. Examples of Requirements include flying squadron emergency procedures monthly exams, quarterly evaluations, and school codes.

2. Certification. A Certification refers to the formal endorsement of having attained a specialized skill. The evaluation process is conducted in accordance with the Certification event(s) by a designated instructor or authorized personnel (i.e. CompTIA A+ certification as a computer technician after passing the A+ certification exam). A formal Certification letter will be presented in accordance with the community T&R. Certifications may require a proficiency period.

a. A certification refers to the completion of an evaluation process conducted during syllabus event(s) by a designated instructor or authorized personnel for the purpose of ascertaining proficiency of a crewmember as a prerequisite to qualification or designation.

b. Aviation Ground Communities. Some certifications may serve to ascertain one-time proficiency evaluation for a given position. Commanders or designated representatives shall issue certification letters.

3. Qualification. Qualifications are assigned to personnel based on demonstration of proficiency in a specific skill. All qualifications are assigned one or more T&R qualification Events. When all qualification requirements are completed and proficient, the individual may be granted the respective qualification by the commanding officer or in the case of aviation ground communities, as directed in the community T&R Manual. An individual’s qualification status may be either “Qualified” or “Not Qualified.” At least one requirement/event for a qualification must have a proficiency period assigned.

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a. Not Qualified Status. If an individual goes delinquent in any associated qualification event's proficiency period, the qualification status automatically reverts to "Not Qualified." An individual may also become "Not Qualified" if, during the course of the Maintain POI, event proficiency is not re-demonstrated.

b. Re-Qualification. Re-qualification requires demonstration of proficiency in all required Events. To regain a lost qualification, the individual must demonstrate proficiency in the event(s) which are delinquent. Upon completion, the qualification status automatically reverts back to "Qualified."

4. Designation. Designations are assigned based on demonstrated instructor or combat leadership proficiency. When all training requirements are completed, the respective Designation may be granted and a formal Designation letter may be presented in accordance with the community T&R by the commanding officer. These designations are command specific and remain in effect until removed for cause or the individual is transferred to another command. Community T&Rs may stipulate re-designation criteria. If not, re-designation is at the commanding officer's discretion.

a. Designation Criteria. Aviation communities shall delineate community standardized criteria to achieve all designations in individual T&Rs. Designation criteria (to include workup/evaluation Events) shall be evaluated Events. Criteria for instructor designations shall be delineated in the 5000 phase (Instructor Training). However, if training for a specific instructor is prescribed by a formal course, then the course shall be the requirement for instructor designation. Criteria for all other designations shall be delineated in the 6000 phase or the DESG requirements table, as applicable. Community T&Rs may stipulate re-designation criteria; if re-designation criteria are not delineated, re-designation is at the discretion of the commanding officer.

b. Instructor Designations. Instructor designations are assigned to personnel based on ability to conduct ground academics, position, and/or airborne instruction. Instructor designations are designed to enhance standardization and safety while training personnel in specific skills. T&R instructor designation/re-designation requirements should be consistent with, and may reference instructor requirements listed in the MAWTS-1 Course Catalog, MAWTS-1 C3 Course Catalog, NATOPS, and other applicable directives.

2.5 SYLLABUS NOTES. This paragraph should include all notes, policies, and guidelines applicable to the syllabus. Essential information pertaining to the entire syllabus should be explained in detail in this paragraph. See Appendix B for examples of essential information.

T&R SYLLABUS STRUCTURE (PARA 2.6 CORE INTRODUCTION PHASE THROUGH 2.24 MET ASSESSMENT PHASE: (1000 THROUGH 7000 PHASES)

1. Aviation T&R manuals contain syllabi that apply to a specified aviation community. A T&R syllabus refers to all training and readiness Events for a PMOS, or in unique situations by crew position, within a community. Example: An aircrew syllabus exists for each crew position within each aircraft. For the FA-18D, there are two syllabi defined - the pilot and the WSO. Because T&R manuals are generally separated by aircraft model, all syllabi that apply to the FA-18 model aircraft (FA-18A Pilot, FA-18C Pilot, FA-18D Pilot and FA-18D WSO) will be contained in the F/A-18 T&R Manual. For Aviation Ground - within the Direct Air Support Center Community T&R Manual, Chapter 7 details the 7242 syllabus.

2. T&R syllabi are constructed using a tiered progression of increasingly challenging training Events. T&R syllabi are divided into Phases, which are subdivided into Stages and Events as described below:

PHASES: A Phase is an administrative group of Stages consisting of Events. Each Phase is numbered in increments of one thousand (0000, 1000, 2000, 3000, 4000, 5000, 6000, 7000, 8000).

STAGES: Stages are administrative groups of Events. Examples of Stages could include Low Altitude Training (LAT), Equipment (EQUIP), and Applied Meteorological Science (AMS). Stages and skills may have the same naming convention and a Stage name may be used in multiple Phases. Within a Stage, the Event prefix may vary – e.g. within the LAT Stage, there may be an ACAD, LAB, or SIM prefix.

EVENTS: A flight or ground training evolution defined or required by individual Programs of Instruction within a syllabus. Analogous to Syllabus Event.

3. Community SMEs shall update/construct T&R syllabi per the following guidelines:

a. Event. The basic building block of training in Marine Aviation is an Event. An Event delineates specific tasks/performance steps that must be successfully performed. An Event is a unique action designed to contribute a specified end result to the accomplishment of a goal. It has an identifiable beginning and end with a measureable component with a quantifiable metric.

b. Each Event is assigned a unique four-digit numeric training code (e.g., 2014) that can only be used once within a syllabus. Events are displayed along with the Event prefix (e.g., TERF-2014). The Event prefix is limited to 6 letters. Several terms are often used interchangeably to refer to an Event (e.g., 'Event,' 'Training Event,' 'T&R Code,' 'Training Code,' etc.).

c. Event completion is predicated upon demonstrated proficiency. When an individual accomplishes the requirements of an Event per the performance standards, the individual should log completion of the Event (enter the appropriate T&R code) in M-SHARP. When the Event is entered into M-SHARP, the individual's proficiency date for that Event is automatically updated to reflect the date the Event was completed. When supervising individual Events, unit instructors/leaders shall ensure that trainees demonstrate proficiency per T&R standards prior to logging successful Event completion. Evaluating individual proficiency in an Event normally requires both objective and subjective assessment. If an individual fails to accomplish the requirements of an Event per the performance standards, the individual should not log that Event and the proficiency status for that Event remains unchanged. Times indicated for each Event are for planning purposes only.

d. Stage. Each Stage is categorized and named by common attributes or skill set (e.g. Terrain Flight or TERF). Within a Stage, there may be multiple Event prefixes used. For example, within the TERF Stage, there may be ACAD, LAB, or SIM prefixes used.

(1) Phase Structure. A Phase is an administrative group of Stages consisting of Events. Each phase is numbered in increments of one thousand (0000, 1000, 2000, 3000, 4000, 5000, 6000, 7000, 8000). Events in the same Phase share the same first digit and are organized as described below.

(2) Core Introduction Phase (0000-1999). Fundamental system/equipment operation familiarization, initial individual or crew procedures, and initial exposure to future Core training. This Phase may also include aircrew specific Refresher, Series Conversion, and Transition training. CNATRA, FRSSs, and/or operational units conduct aircrew Core Introduction training. Aviation Ground personnel receive all 1000 Phase training at their respective MOS formal schools (FLCs). At the completion of this Phase, individuals are normally assigned to operational units.

(3) Core Phase (2000-2999). Fundamental, environmental, or conditional capabilities required to perform basic functions. These basic functions serve as tactical enablers that allow crews to progress to the more complex Mission Skills.

(4) Mission Phase (3000-3999). This Phase contains advanced skills training. It extends proficiency achieved in basic Core Skills and develops mission-level individuals and leaders that normally results in certifications, qualifications, and leadership designations. Individuals and crews proficient in this Phase of training should be capable of planning, managing, conducting mission essential tasks or leading crews / flights of numerous aircraft in a contingency operation.

(5) Core Plus Phase (4000-4499). This Phase contains skill training associated with a low probability of execution and/or theater specific operations. Although Core Plus training Events may provide valuable training opportunities, they are not considered essential to achieve unit Core Competency. Core Plus training is conducted at the discretion of operational commanders and allows unit training flexibility.

(6) Mission Plus (4500-4999). This Phase contains mission training associated with low probability of execution and/or theater specific operations. Although Mission Plus training Events may provide valuable training opportunities, they are not considered essential to achieve unit Core Competency. Mission Plus training is conducted at the discretion of operational commanders and allows unit training flexibility.

(7) Instructor Training (5000-5999). This Phase contains instructor workup and evaluation certification syllabus Events. This Phase will also contain instructor workup and certification syllabus Events as applicable. Instructors include:

- (a) Contract Instructors (CI) who instruct simulator Events.
- (b) Fleet Replacement Squadron (FRSI) IUT POIs.
- (c) Basic Instructor (BI) IUT POIs*
- (d) Senior Instructor (SI) IUT POIs*

*Note: * To ensure standardization across all Marine AC2 communities, BI and SI IUT POIs are maintained by the MAWTS-1 C3 Division and are located in the MAWTS-1 C3 Course Catalog.*

(8) Aviation Ground Communities only. In order to ensure training is conducted by properly trained and experienced personnel, instructor training has been developed and standardized for individuals to be designated instructors. There are community specific instructors that undergo unique training, and there are standardized instructors: Basic instructor (BI), Senior instructor (SI), and WTI. A matrix delineating which Events each instructor may instruct shall be developed and included in the 5000 Phase as depicted in Table 6-2.

Table 6-2: Instructor Events

INSTRUCTOR	Event Training, Evaluation and Approval
BI	Core Skill Events in which current and proficient
SI	Core Skill, Mission Skill, and Core Plus Events in which current and proficient. <ul style="list-style-type: none"> ▪ SID for: SO, DLC ▪ STD for: TATC ▪ SWD for: AWC, MC, AIC ▪ DAOC for: DAC ▪ SAD for: SCC, and all other crew positions qualified and current
AICI	Evaluate and recommend the following positions for qualification: <ul style="list-style-type: none"> ▪ AWC ▪ AIC <p style="text-align: right;">*This is an example of a community specific instructor</p>
WTI	Mission Skill, Core Plus, and Qualification Events. WTI: <ul style="list-style-type: none"> ▪ Evaluate and recommend for qualification ▪ Endorse recommendations for position designations
Notes	The commanding officer is the approving authority for qualifications and designations.

4. Requirements, Certifications, Qualifications, and Designations (RCQD) Phase (6000 Phase). This Phase contains all other syllabus Events and special interest tracking codes that do not neatly ‘fit’ into the above Phases and is designed to facilitate training management. The 6000 Phase contains standardized combat/flight leadership workup and evaluation Events. This Phase often contains event requirements not mandated by the T&R program such as NATOPS, instrument evaluations, and the functional check pilot syllabus. Further subdivision of like-Events is as follows:

a. RCQD tracking codes are used to facilitate community training management that may be used in the 6000 Phase if M-SHARP does not otherwise handle the specific instance that the community wishes to track. For example, RCQD codes may be established to monitor execution of specific instances of strategic air refueling (if no Strategic Air Refueling T&R Event exists), arctic weather Events, specific exercise sorties, etc.

b. M-SHARP functionality eliminates the need for tracking codes related to the possession of certifications, qualifications, designations; flight cancellation codes (no takeoff) or airborne abort cancellation codes (T&R code specific); and ordnance expenditure. All of these can be logged and reported within M-SHARP and therefore shall not be authorized as tracking codes. However, qualification or designations may be used in this Phase to reflect the completion of Events, skill sets, and operational/administrative actions required prior to approval of the qualification or designation.

5. Mission Essential Task (7000-7999). The purpose of this Phase is to:

a. Assess CMMR representative crews during the execution of the unit’s specified METs in order to ensure standardization and combat readiness.

b. Fulfill the requirements of a Marine Corps Combat Readiness Evaluation (MCCRE) as specified in MCO 3501.1_ Marine Corps Combat Readiness Evaluation.

6. Aviation Career Progression Model (ACPM) (8000-8999)

7. For Future Use (9000-9999)

T&R SYLLABUS STRUCTURE FOR PHASES AND SUBSEQUENT STAGES (PARA 2.6 CORE INTRODUCTION PHASE THROUGH 2.24. (0000 THROUGH 7000 PHASES) (CONTINUED) - CONSTRUCTION OF PHASES, STAGES, AND INDIVIDUAL EVENTS

NAME OF PHASE

1. Purpose. Required. Describe end-state training being accomplished in this phase.

2. General. The following Stages are included in the Core Introduction Phase of training.

Note

For Aviation Ground - as an alternate method, list the number and type of equipment required for training to this event in the body of the event instead of on the header line.

EVENT HEADER INFORMATION:

Event Prefix – Event Code. Required. Event prefix abbreviations in the abbreviations table or standard abbreviations shall be used, as applicable (6 letter limit). A unique numeric four-digit training code shall be assigned to each Event. The first digit of the Event code shall begin with the appropriate Phase series number (Core Introduction Events = 1XXX; Core Events = 2XXX; etc.). The second digit of a T&R code refers to the Stage. The third and fourth digits refer to the individual Events within a Stage, in sequence. Example: a hypothetical “TERF” Stage may consist of various event types, such as ACAD, TERF, LAB, STERF etc. This grouping facilitates an ordered, sequential progression of training for the student to follow. Below is an example that provides a wrap-up of Events displayed in a Stage overview for the student:

Projected Event Duration. Required. Projected event duration should reflect the average time to execute the event requirement (actual time to execute the event may vary). Transit time may be added to the event duration. Projected event durations should be listed in applicable columns in the T&R syllabus matrix (flight, live, simulator, etc.) and be stated in hours.

Proficiency Period. As applicable. Proficiency Period factors reflect the maximum time between Events and are delineated in days. If not applicable, an asterisk (*) will be used to indicate the event has no Proficiency Period – it is a one-time training requirement (unless R-coded). Refresher (R) Events may or may not have a Proficiency Period. All Maintain (M) Events shall have a Proficiency Period assigned.

Programs of Instruction (POI). Required. See the example template.

Event Conditions. See the example template. Normally used by tactical flight communities.

Device Options. See example template.

Device Number. As applicable. List the number of aircraft, system, simulator, or other device(s)/major end items (MEIs) required for the completion of the event.

Device Type. As applicable. List the type of device/MEI required for the completion of the event. For simulator Events, list the specific type(s) of trainers.

Body. The contents of the body are outlined below:

First level	<ul style="list-style-type: none"> Goal, Requirement, Performance Standard shall be underlined and left justified. In “Page Layout” choose “Spacing” – select 6 pt “Before and After.” “Line Spacing” – choose “Single”
Second level	<ul style="list-style-type: none"> Discuss, Demonstrate, Introduce etc., shall be indented at .50”. There is no requirement to underline. In “Page Layout” choose “Spacing” – select 0 pt “Before and After.” “Line Spacing” – choose “Single”
Third and subsequent levels	<ul style="list-style-type: none"> All subsequent levels shall be indented at .50” for each level. There is no requirement to underline. In “Page Layout” choose “Spacing” – select 0 pt “Before and After.” “Line Spacing” – choose “Single”

EXAMPLE FOLLOWS:

SFORM-1430 2.0 * B,T,AF,CI S 2 FFS or FTD TEN+

Goal. Introduce cruise formation during conversion and airplane modes and section landings.

Requirements

Discuss

- Cruise position and visual reference points
- Radius of turn principles
- Use of nacelles to control airspeed
- Closure rates
- Formation Transitions and Conversions
- Nr settings (84-100%)
- Nacelle rotation coordination/timing between aircraft
- Nacelle rotation rates
- Wingman responsibility for flight separation
- Formation aborts and waveoffs
- Loss of visual contact/rejoining of flight
- Intra-flight communications and responsibilities

Emergencies. Discuss inter- and intra-cockpit comm/coordination during section emergencies

Performance Standards. Conduct all maneuvers IAW MV-22 Maneuver Description Guide (MDG).

Instructor. FRSI

Prerequisite. 1410

EVENT BODY INFORMATION:

Goal. State the terminal learning objective.

Requirement

For T/M/S Communities. List specific tasks for the event; the list of tasks may be formatted to meet the needs of the applicable community. For example, the terms Introduce, Demonstrate, Practice etc. may be used.

For Aviation Ground Communities. List the specific tasks for the event; indicate what the individual must accomplish. For Aviation Ground communities this includes a condition and performance steps; for example:

“Requirement.” (condition) Given a warning order, site diagram, and applicable references:

(performance steps)

1. Determine equipment density list based on site diagram
2. Identify total crews and personnel required to support the mission.
3. Etc.

Performance Standard. Required. Describe measurable level of proficiency for the event. It must be observable or measurable and shall specify the quantity and/or quality of the performance.

Equipment. Aviation Ground communities only.

Crew Requirement. As applicable.

Instructor. Required for Aviation Ground communities. List instructors authorized to train the event.

Prerequisite. As applicable. Phases, Stages, and Events may have prerequisites that are required as a prior condition and shall be completed prior to commencing the subject training, unless it has been waived or deferred. A prerequisite may be a POI event, lecture, laboratory, academic, certification, qualification, designation, or computer based training event. Prerequisites complement and enhance the building block approach to training. Communities may use any combination or number of these prerequisites to tailor training as appropriate.

Device Prerequisite. For Events with device options, prerequisites may be specified by device type. For example, if a T&R code 2123 can be conducted in a simulator or in an aircraft, 2123 may have no prerequisite if conducted in the simulator, but if conducted in the aircraft prerequisites may apply. Events may be refined depending on conditions as follows.

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Conditional Prerequisites. Conditional prerequisites are designed for Events, stages or phases that are subject to varying conditions. Those conditions can be day or night and ordnance. Conditional prerequisites are subdivided as follows:

Automated Conditional Prerequisites. Those prerequisites that are automatically validated in M-SHARP. The tilde (~) symbol is used for the word “if” for varying conditions.

AUTOMATED CONDITIONAL PREREQUISITES “EXAMPLES”	
DAY, NIGHT, AND NIGHT SYSTEMS	
Conditional Prerequisite	MEANING
2430~D	Training code 2430 becomes a prerequisite if flown during day
2430~N	Training code 2430 becomes a prerequisite if flown during night
2430~N*	Training code 2430 becomes a prerequisite if flown during night unaided
2430~NS	Training code 2430 becomes a prerequisite if flown with Night Systems
2430~HLL	Training code 2430 becomes a prerequisite if flown under High Light Level conditions
2430~LLL	Training code 2430 becomes a prerequisite if flown under Low Light Level conditions

Non-automated Conditional Prerequisites. Those prerequisites that are not validated in M-SHARP but are important for schedule validation and logging of Events. The tilde (~) symbol is utilized for the word “if” for varying conditions.

NON-AUTOMATED CONDITIONAL PREREQUISITES “EXAMPLES”	
ORDNANCE	
Conditional Prerequisite	MEANING
2430~ORD	Training code 2430 becomes a prerequisite if flown utilizing ordnance

Certification Prerequisite. For Aviation Ground only. A certification that must be completed prior to completing another training requirement is a certification prerequisite. For example, a LAAD Platoon Commander certification is normally a prerequisite to commencing Battery/Battalion training.

External Resource Requirements

Ordnance. As applicable. Ordnance shall be specified in a table format to identify primary ordnance requirements and quantity with allowable substitutes if applicable. A list of ordnance types may be viewed at the CG TECOM MTESD website at:

<https://www.intranet.tecom.usmc.mil/hq/branches/atb1/Homepage%20Web%20Part%20Pages/NCEA%20Cockpit%20Chart.aspx>

There may be instances where a specific quantity and type of ordnance is required by POI, i.e. Attain or Refresher. In those instances the POI shall be identified in a separate column prior to the ordnance column. The Matrices are maintained in Excel format and will be exported to Word once the applicable T&R manual is approved for publication. The Excel template is available for review on the TECOM ASB SharePoint site.

Range Type. List all range/target capabilities required to complete the event, if applicable. Range/target capability acronyms, derived from a standard list, shall be used. The standard list of range/target capabilities are tailored for each community and will be provided at the Pre-Working Group.

Target. List all range/target capabilities required to complete the event, if applicable. Range/target capability acronyms, derived from a standard list, shall be used. The standard list of range/target capabilities are tailored for each community and will be provided at the Pre-Working Group.

Fuel. Aviation Ground communities.

Other. A list of additional training resources and/or external support required to complete the event, (e.g., adversary support, tanker support, HST team, etc.) if applicable. For example, CAS – FAC(A) with X number of mortar/artillery/rockets for marking; dissimilar FW adversary F-18/F-5.

Reference. Required for Aviation Ground communities. State references that are required or support accomplishment of the event.

2.20 MET ASSESSMENT PHASE (7000 PHASE). See Appendix D.

2.21 AVIATION CAREER PROGRESSION MODEL. See example in Appendix B.

2.22 T&R SYLLABUS MATRICES. The template for these matrices will initially be provided at the Pre-Working Group for familiarization purposes. They are tailored to a limited degree to meet the needs of the community, but remain compatible for M-SHARP use. These matrices are a consolidation of all elements/data fields that contribute to the make-up of Phases, Stages, Skills, and Events. They are a wrap-up of all previously listed information to serve as a

comprehensive illustration to assist Operations personnel in developing training plans. This tool is used by M-SHARP to facilitate the upload of syllabi. The Matrices are maintained in Excel format and will be exported to Word once the applicable T&R manual is approved for publication. The Excel template is available for review on the TECOM ASB SharePoint site.

The Syllabus Matrix also contains data on Conditional chaining - it is designed for updating (chaining) Events that are subject to varying conditions. Those conditions can be type of device {aircraft or simulator}, day or night, and ordnance. Conditional chaining is subdivided into two categories:

Automated Chaining. Those Events that are enforced/updated in an automated format in M-SHARP. The tilde (~) symbol is used for the word “if” for varying conditions.

AUTOMATED CHAINING “EXAMPLES”	
DAY, NIGHT, AND NIGHT SYSTEMS	
Conditional Chaining	MEANING
2430~D	Chains event 2430 if executed during the day
2430~N	Chains event 2430 if executed during night
2430~N*	Chains event 2430 if executed during night unaided
2430~NS	Chains event 2430 if executed with Night Systems
2430~HLL	Chains event 2430 if executed during High Light Level conditions
2430~LLL	Chains event 2430 if executed during Low Light Level conditions
AIRCRAFT AND SIMULATOR	
Conditional Chaining	MEANING
2430~A	Chains event 2430 if executed in the aircraft
2430~S	Chains event 2430 if executed in the simulator

Non-automated Conditional Chaining. Those chained Events that are not validated in M-SHARP but are important for schedule validation and logging of Events. The tilde (~) symbol is utilized for the word “if” for varying conditions.

NON-AUTOMATED CONDITIONAL CHAINING “EXAMPLES”	
ORDNANCE	
Conditional Chaining	MEANING
2430~ORD	Chains event 2430 if executed with ordnance*
*Additionally the type of ordnance may be specified	

2.23 TRAINING DEVICE EVENT ESSENTIAL SUBSYSTEM MATRIX (EESM). All communities that utilize training devices shall develop a training device EESM for each type or configuration of training device employed. The training device EESM will define the mandatory and preferred subsystems for each T&R event. Syllabus Sponsors and Model Managers shall coordinate with the applicable ATS agents to catalog training device configurations and associated hardware/software subsystems. Subsystems of a training device support attainment of skills for completion of specific T&R Events. The EESM will include applicable subsystems on each training device for the T/M/S, to include hardware, software, and appropriate presentation to the user. The subsystems listed below are generic and not all-encompassing.

Aerodynamic Model
After Action Review (Debrief Station/ Debrief Playback, etc)
Aircraft Survivability Equipment (CIT, current MDF, RWR, ALQ, ALE, AAR, etc)
Aural
Automatic Flight Control System (or T/M/S equivalent flight stabilization equipment)
Caution/Warning System
Cockpit Displays (HUD, UFCP, LMDI, RMDI, MPCD, ADU, IFEI, ALR-67)
Cockpit Instruments (Stby Airspeed, Rad Alt, VVI, BaroAlt, Brake Accum Pr, Stby Mag Compass, Attitude Indicator)
Cockpit Panels (Advisory/Threat Warning Ind L/R, Master Arm Panel, Jettison Select, ECM, Video Record, Landing Gear, Wing Fold Handle)
Comms/ICS (Radio, HQ, SINCGARS, KY, etc)
Copilot/Aircrew Systems (as applicable)
Flight Controls
Instructor Operator Station (HUD/OTW Repeater, Cockpit Repeater, Interactive Display (IAD 1,2,3,) Data Entry System (Keyboard))
Landing Gear System (as applicable)
Lighting System

Mechanical Diagnostics System
Miscellaneous Mission Systems (external cargo, AD, BFT, MIDS)
Miscellaneous Switches/knobs (blade fold, anti-ice)
Mission Planning Interface
Motion System
Moving Models (Ships, Aircraft, Vehicles, and associated capabilities/signatures)
Navigation systems
Operational Flight Program/SCS (current flight software)
Sensor Systems (Radar, FLIR, L-Pod, etc.)
TEN/Networking Capability
Visual System (Environmental Conditions, Database Coverage, etc)
Visual System (Projectors, NVG System, Head Tracker)
Weapons Systems (SMS, EW suite, AMRAAM, HARM, JSOW, etc.)

Subsystem Categorization. Subsystems may be categorized as mandatory or preferred.

Mandatory. A subsystem is considered mandatory for a specific T&R event if absence of that subsystem would result in negative training or otherwise prevent the achievement of training objectives as delineated in the goal, requirement or performance standard sections of the T&R event description.

Preferred. A subsystem is considered preferred for a specific T&R Event if absence of the subsystem would degrade quality of training, but not specifically prevent the achievement of training objectives.

Event Categorization. T&R Events that require the use of a training device shall only be completed in devices that are equipped with all mandatory subsystems per the EESM. For each Event, a training device is categorized as follows:

Mission Capable (MC). A training device is MC for a T&R Event if all mandatory subsystems are installed and operational.

Non-Mission Capable (NMC). A training device is NMC for a T&R Event if any one of the mandatory subsystems is not installed or non-operational. In addition, if more than 5 and more than 50 percent of preferred subsystems are not installed or operational the device is NMC for that T&R Event. A training device will be considered NMC for all Events if its configuration is greater than 6 months out of date as compared to the majority of the current operational systems at the primary location supported by the training device.

Training Device EESM Application. The matrix example in the template in Appendix B illustrates how the absence of a particular simulator subsystem or capability affects simulator status for each S-coded T&R event. All Events requiring a training device shall be completed in an MC device as determined by the instructor. MATSS shall notify squadron commanding officers of all Events that were not completed due to an NMC training device.

2.24 T&R SYLLABUS EVALUATION FORMS. Communities shall develop community standardized evaluation forms for all Events contained in their T&R syllabus. T&R syllabus evaluation forms shall be placed in T&R manuals as an appendix or maintained by the syllabus sponsor. If the syllabus sponsor maintains T&R syllabus evaluation forms, the syllabus sponsor shall ensure electronic copies are made available to fleet units. Marine Aviation Command and Control communities have standardized an evaluation form titled "MACCS Training Form (MTF)," and it is located in the MAWTS-1 C3 Course Catalog.

CHAPTER 1

APPENDIX A - SAMPLE T&R MANUAL CHAPTER 1 UNIT READINESS REQUIREMENTS

	PARAGRAPH	PAGE
TRAINING AND READINESS REQUIREMENTS.....	1.0	X-X
MISSION.....	1.1	X-X
TABLE OF ORGANIZATION (T/O)	1.2	X-X
MISSION ESSENTIAL TASK LIST (METL).....	1.3	X-X
MISSION ESSENTIAL TASK (MET) TO SIX FUNCTIONS OF MARINE AVIATION... ..	1.4	X-X
MET TO CORE/MISSION/CORE PLUS SKILL MATRIX	1.5	X-X
MISSION ESSENTIAL TASKS (MET) OUTPUT STANDARDS.....	1.6	X-X
CORE MODEL MINIMUM REQUIREMENTS (CMMR) TRAINING STANDARDS FOR READINESS REPORTING (DRRS-MC).....	1.7	X-X
CORE MODEL TRAINING STANDARD (CMTS).....	1.8	X-X
INSTRUCTOR DESIGNATIONS	1.9	X-X
REQUIREMENTS, CERTIFICATIONS, QUALIFICATIONS AND DESIGNATIONS (RCQD).....	1.10	X-X
APPENDIX A -MET WORKSHEETS		A-1
APPENDIX B -REFERENCE SOURCES		B-1

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CHAPTER 1 - UNIT OR T/M/S

1.0 TRAINING AND READINESS REQUIREMENTS. The goal of Marine Aviation is to attain and maintain combat readiness to support Expeditionary Maneuver Warfare while conserving resources. The standards established in this program are validated by subject matter experts to maximize combat capabilities for assigned METs. These standards describe and define unit capabilities and requirements necessary to maintain proficiency in mission skills and combat leadership. Training Events are based on specific requirements and performance standards to ensure a common base of training and depth of combat capability.

1.1 MISSION

1.1.1 Tactical and Reserve Squadron. The mission of the UNIT OR T/M/S is to provide....

1.2.2 Fleet Replacement Squadron. The mission of the Fleet Replacement Squadron is to....

1.2 TABLE OF ORGANIZATION (T/O) AND TASK ORGANIZATION

1.2.1 Tactical and Reserve Squadron

UNIT OR T/M/S					
Table of Organization AND TASK ORGANIZATION					
CREWMEMBER	SQUADRON 16 A/C	TEMP SQUADRON 12 A/C	TEMP SQUADRON (-) 8 A/C	DETACHMENT 4 A/C	RESERVE 6A/C
Crewmember 1	34	20	14	18	12
Crewmember 2	18	10	8	8	4

1.2.2 Fleet Replacement Squadron

UNIT OR T/M/S	
Table of Organization	
CREWMEMBER	SQUADRON 20 AIRCRAFT
Crewmember 1	20
Crewmember 2	10

1.3 MISSION ESSENTIAL TASK LIST (METL). The METL is comprised of specified capabilities-based Mission Essential Tasks (METs) which a unit is designed to execute. METs are drawn from the Marine Corps Task List (MCTL), are standardized by type unit, and defined as Core or Core Plus METs. Core METs are those tasks that a unit is expected to execute at all times, and are the only METs used in reporting the Training Level (T-Level) for the Core Mission (C-Level) in the Defense Readiness Reporting System – Marine Corps (DRRS-MC). Core Plus METs identify additional capabilities to support missions or plans which are limited in scope, theater specific, or have a lower probability of execution. Core Plus METs may be included in readiness reporting when contained within an Assigned Mission METL. An Assigned Mission METL consists of only selected METs (drawn from Core and Core Plus METs) necessary to conduct the assigned mission. MCO 3000.13 provides additional information on readiness reporting.

UNIT OR T/M/S		
MISSION ESSENTIAL TASK LIST (METL)		
CORE		
MET	ABBREVIATION	DESCRIPTION
MCT 1.3.3.2	EXP	Conduct Aviation Operations From Expeditionary-Shore Based Sites
MCT 1.3.4.1	CAT	Conduct Combat Assault Transport
CORE PLUS		
MET	ABBREVIATION	MCT DESCRIPTION
MCT 1.3.4.1.1	R/E	Conduct Airborne Rapid Insertion/Extraction
MCT 1.3.4.2.1	ADGR	Provide Aviation-Delivered Ground Refueling

1.4 MISSION ESSENTIAL TASK (MET) TO SIX FUNCTIONS OF MARINE AVIATION. As Aviation Ground units provide universal impact across all six functions of Marine Aviation, this table is optional for the Aviation Ground community.

UNIT or T/M/S							
MISSION ESSENTIAL TASK (MET) TO SIX FUNCTIONS OF MARINE AVIATION							
MET	ABBREVIATION	SIX FUNCTIONS OF MARINE AVIATION					
		OAS	ASPT	AAW	EW	CoA&M	AerRec
MCT 1.3.3.3.2	EXP		X				
MCT 1.3.4.1	CAT		X				
CORE PLUS							
MCT 1.3.4.1.1	RIE		X				
MCT 1.3.4.2.1	ADGR		X				

1.5 MET TO CORE/MISSION/CORE PLUS SKILL MATRIX. Depicts the relationship between a MET and each Core/Mission/Core Plus/Mission Plus skill associated with the MET for readiness reporting and resource allocation purposes.

1.5.1 For flying squadrons, there shall be a one-to-one relationship between the MET and a corresponding Mission Skill.

1.5.2 Aviation Ground units may have a one-to-many relationship between the MET(s) and corresponding Mission Skill(s).

UNIT or T/M/S																
MCT TO CORE/MISSION/CORE PLUS SKILL MATRIX																
MISSION ESSENTIAL TASK (MET)	CORE SKILLS (2000 PHASE)						MISSION SKILLS (3000 PHASE)		CORE PLUS (4000 PHASE)						MISSION PLUS SKILLS	
									CORE PLUS SKILLS							
	FAM	INT	FORM	CAL	TERF	EXT	EXP	CAT	HIE	TERF	EXT	GTR	DM	CBRN	RIE	ADGR
EXP	X	X	X	X	X		X					X	X	X		
CAT	X	X	X	X	X			X			X	X	X	X		
CORE PLUS																
RIE	X	X	X	X	X					X		X	X	X	X	
ADGR	X	X	X	X	X							X	X	X		X

1.6 MISSION ESSENTIAL TASK (MET) OUTPUT STANDARDS. The following MET output standards are the required level of performance a UNIT OR T/M/S must be capable of sustaining during contingency operations by MET to be considered MET-ready.

1.6.1 Output standards will be demonstrated through the incorporation of unit training Events.

1.6.2 For flying squadrons, “A core capable T/M/S Detachment is able to sustain the number of sorties listed below on a daily basis during contingency/combat operations. The sortie rates are based on X.X hour average sortie duration. It assumes >70% FMC aircraft and >90% T/O aircrew on hand. If unit FMC aircraft is <70% or T/O aircrew <90%, core capability will be degraded by a like percentage.”

UNIT or TMS															
MISSION ESSENTIAL TASK (MET) OUTPUT STANDARDS															
CORE															
MET	SKILL	OUTPUT STANDARD													
		MAXIMUM SORTIES BY MET					MAXIMUM DAILY SORTIES								
		COMPOSITION // NUMBER OF AIRCRAFT					COMPOSITION // NUMBER OF AIRCRAFT								
		SQUADRON	TEMP SQUADRON	TEMP SQUADRON (-)	DETACHMENT	RESERVE	SQUADRON	TEMP SQUADRON	TEMP SQUADRON (-)	DETACHMENT	RESERVE				
16 A/C	12 A/C	8 A/C	4 A/C	6 A/C	16 A/C	12 A/C	8 A/C	4 A/C	6 A/C						
MCT 1.3.3.3.2	EXP	21	16	12	5	11	21	16	12	5	11				
MCT 1.3.4.1	CAT	21	16	12	5	11									
CORE PLUS															
MET	SKILL	15 A/C	12 A/C	8 A/C	4 A/C	6 A/C									
MCT 1.3.4.1.1	RIE	21	16	12	5	11									
MCT 1.3.4.2.1	ADGR	4	2	2	2	2									

1.7 CORE MODEL MINIMUM REQUIREMENTS (CMMR) TRAINING STANDARDS FOR READINESS REPORTING (DRRS-MC). The paragraphs and tables below delineate the minimum crew proficiency, qualifications and designations required to execute the MET training standards and MET observed Standards of para 1.6. MCO 3000.13 Readiness Reporting provides additional guidance and a detailed description of readiness reporting using DRRS-MC.

1.7.1 The CMMR Readiness Reporting Matrix depicts the minimum crew composition (defined as a combination of qualifications and designations) reflecting the number of crews required per MET and minimum Combat Leadership requirements for readiness reporting purposes. The number of crews formed using the below minimum standards per crew capture the readiness capability of a squadron to perform the MET sortie.

UNIT or T/M/S										
CORE MODEL MINIMUM REQUIREMENTS (CMMR) FOR READINESS REPORTING										
CORE										
MET	SKILL	CREW POSITION				FORMED CREWS REQUIRED PER MET (CREW CMMR)				
		CREWMEMBER 1		CREWMEMBER 2		SQDN	TEMP SQDN	TEMP SQDN(-)	DET	RES
		16 A/C		12 A/C		8 A/C	4 A/C	6 A/C		
MCT 1.3.3.3.2	EXP	MSP,HAC		NSQ(LL),MSP		11	9	6	3	4
MCT 1.3.4.1	CAT	MSP,HAC		NSQ(LL),MSP		11	9	6	3	4
CORE PLUS										
MET	ABBR	CREWMEMBER 1		CREWMEMBER 2		SQDN	TEMP SQDN	TEMP SQDN(-)	DET	RES
MCT 1.3.4.1.1	RIE	MSP,HAC		NSQ(LL),MSP		6	5	3	2	2
MCT 1.3.4.2.1	ADGR	MSP,HAC		NSQ(LL),MSP		6	5	3	2	2
COMBAT LEADERSHIP										
DESIGNATION		SQUADRON 16 A/C	TEMP SQUADRON 12 A/C	TEMP SQUADRON(-) 8 A/C	DETACHMENT 4 A/C	RESERVE SQUADRON 6 A/C				
HELICOPTER AIRCRAFT COMMANDER		16	12	8	4	6				
SECTION LEADER		9	6	5	3	3				
DIVISION LEADER		6	4	3	2	2				
FLIGHT LEADER		4	3	2	1	2				
MISSION COMMANDER		3	2	1	1	1				

1.8 CORE MODEL TRAINING STANDARD (CMTS). The CMTS is the optimum training standard reflecting the number of crews or aircrews trained to CSP/MSP, per crew position to execute each Stage of instruction or flight as detailed below. The CMTS Matrix depicts the training goal and optimum depth of training desired for each unit or squadron as they develop their unit or squadron training plan. It is not utilized for readiness reporting (DRRS-MC) purposes. At a minimum, the CMTS shall enable a unit or squadron to form CMMR crews for Mission Skills (and Mission Plus Skills when required).

UNIT or T/M/S																				
CORE MODEL TRAINING STANDARD (CMTS)																				
CORE PHASE (2000 Phase)																				
CORE SKILL	CREWMEMBER 1					CREWMEMBER 2														
	Squadron	Temp Squadron	Squadron (-)	Detachment	Reserve Squadron	Squadron	Temp Squadron	Squadron (-)	Detachment	Reserve Squadron										
	16 A/C	12 A/C	8 A/C	4 A/C	6 A/C	16 A/C	12 A/C	8 A/C	4 A/C	6 A/C										
FAM	22	18	12	6	12															
INT						16	12	8	4	6										
FORM	22	18	12	6	12	16	12	8	4	6										
CAL	22	18	12	6	12	16	12	8	4	6										
TERF	22	18	12	6	12	16	12	8	4	6										
MISSION PHASE (3000 Phase)																				
MISSION SKILL	CREWMEMBER 1					CREWMEMBER 2														
	16 A/C	12 A/C	8 A/C	4 A/C	6 A/C	16 A/C	12 A/C	8 A/C	4 A/C	6 A/C										
	EXP	22	18	12	6	12	16	12	8	4	6									
AT	22	18	12	6	12	16	12	8	4	6										
CORE PLUS ¹ (4000 Phase)																				
MISSION PLUS SKILL	CREWMEMBER 1					CREWMEMBER 2														
	16 A/C	12 A/C	8 A/C	4 A/C	6 A/C	16 A/C	12 A/C	8 A/C	4 A/C	6 A/C										
	RIE	6	12	5	10	3	6	2	4	2	4	8	16	6	12	4	8	2	4	3
ADGR	6	12	5	10	3	6	2	4	2	4	8	16	6	12	4	8	2	4	3	6
CORE PLUS SKILLS (4000 Phase)																				
CORE PLUS SKILL	CREWMEMBER 1					CREWMEMBER 2														
	16 A/C	12 A/C	8 A/C	4 A/C	6 A/C	16 A/C	12 A/C	8 A/C	4 A/C	6 A/C										
	HIE	11	22	9	18	6	12	3	6	6	12	8	16	6	12	4	8	2	4	3
TERF EXT	6	22	5	18	3	12	2	6	3	12	4	16	3	12	3	8	2	4	3	6
GTR	6	22	5	18	3	12	2	6	3	12	4	16	3	12	3	8	2	4	3	6
DM	6	22	5	18	3	12	2	6	3	12	4	16	3	12	3	8	2	4	3	6
CBRN	22	22	18	18	12	12	6	6	12	12	16	16	12	12	8	8	4	4	6	13

Note¹: For Core Plus Mission and Skills, the first number (in blue font and highlighted in gray) represents the number of individuals the unit or squadron is expected to train at all times in order to retain a cadre of capability within the unit or squadron. The second number represents the number of MET capable individuals the unit or squadron should train if that MET becomes an Assigned/Directed Mission Set. For Core Plus Skills the commanding officer determines the number of aircrew to train. The CMTS is based upon the community's collective recommendation.

1.9 INSTRUCTOR DESIGNATIONS

1.9.1 Tactical and Reserve Squadron

UNIT or T/M/S										
INSTRUCTOR DESIGNATIONS										
DESIGNATION	CREWMEMBER 1					CREWMEMBER 2				
	Squadron	Temp Squadron	Squadron(-)	Detachment	Reserve Squadron	Squadron	Temp Squadron	Squadron(-)	Detachment	Reserve Squadron
	16 A/C	12 A/C	8 A/C	4 A/C	6 A/C	16 A/C	12 A/C	8 A/C	4 A/C	6 A/C
ARI	6	3	2	1	3					
NII	4	2	2	1	2					
BIP	16	12	8	4	8					
FLSE ¹	2	1	1	1	1					
TERFI	8	4	2	2	4	8	3	2	2	3

1.10 REQUIREMENTS, CERTIFICATIONS, QUALIFICATIONS, AND DESIGNATIONS (RCQD)

1.10.1 Tactical and Reserve Squadron

UNIT or T/M/S										
REQUIREMENTS, CERTIFICATIONS, QUALIFICATIONS, AND DESIGNATIONS (RCQD)										
R,C,Q,D	CREWMEMBER 1					CREWMEMBER 2				
	Squadron	Temp Squadron	Squadron(-)	Detachment	Reserve Squadron	Squadron	Temp Squadron	Squadron(-)	Detachment	Reserve Squadron
REQUIREMENTS	16 A/C	12 A/C	8 A/C	4 A/C	6 A/C	16 A/C	12 A/C	8 A/C	4 A/C	6 A/C
XX	8	5	4	3	4	4	3	2	1	3
CERTIFICATIONS	16 A/C	12 A/C	8 A/C	4 A/C	6 A/C	16 A/C	12 A/C	8 A/C	4 A/C	6 A/C
XXXX	4	3	2	1	2	N/A	N/A	N/A	N/A	N/A
QUALIFICATIONS	16 A/C	12 A/C	8 A/C	4 A/C	6 A/C	16 A/C	12 A/C	8 A/C	4 A/C	6 A/C
XXX	4	3	2	1	3	3	2	1	1	1
DESIGNATIONS	16 A/C	12 A/C	8 A/C	4 A/C	6 A/C	16 A/C	12 A/C	8 A/C	4 A/C	6 A/C
XXXXX	4	3	3	1	3	4	3	3	1	3
XWXX	N/A	N/A	N/A	N/A	N/A	3	2	1	1	2

1.10.2 Fleet Replacement Squadron

FLEET REPLACEMENT SQUADRON		
RCQD		
REQUIREMENT	CREWMEMBER 1	CREWMEMBER 2
XX	3	N/A
CERTIFICATIONS	CREWMEMBER 1	CREWMEMBER 2
XXXX	4	4
QUALIFICATIONS	CREWMEMBER 1	CREWMEMBER 2
XXX	3	N/A
XXXXX	3	4
DESIGNATIONS	CREWMEMBER 1	CREWMEMBER 2
X	6	N/A
XXXXXXX	6	6

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(WILL BE MARKED AS “APPENDIX A” IN THE APPLICABLE COMMUNITY T&R MANUAL)

UNIT OR T/M/S MET WORKSHEETS

VMFA (SAMPLE)

Core METL

MCT 1.3.3.3.2	Conduct Aviation Operations From Expeditionary Shore-Based Sites (EXP)
MCT 3.2.3.1.1	Conduct Close Air Support (CAS)
MCT 3.2.3.1.2.1	Conduct Air Interdiction (AI)
MCT 3.2.3.1.2.2	Conduct Armed Reconnaissance (AR)
MCT 3.2.3.1.2.3	Conduct Strike Coordination and Reconnaissance (SCAR)
MCT 3.2.3.2	Conduct Offensive Anti-air Warfare (OAAW)
MCT 3.2.3.2.1	Conduct Suppression of Enemy Air Defenses (SEAD)
MCT 6.1.1.8	Conduct Active Air Defense (AAD)

Core Plus

MCT 1.3.3.3.1	Conduct Aviation Operations From Expeditionary Sea-Based Sites (CQ)
MCT 2.2.5.2.2	Conduct Multi-sensor Imagery Reconnaissance (MIR)
MCT 3.2.5.4	Conduct Forward Air Control (Airborne) [FAC(A)]
MCT 3.2.7.5	Attack Enemy Maritime Targets (AMT)
MCT 6.1.1.11	Conduct Aerial Escort (AESC)

MCT 1.3.3.3.2 Conduct Aviation Operations From Expeditionary Shore-Based Sites (EXP)

Conditions:

C 1.3.2.1 Light

Light available to illuminate objects from natural or manmade sources.

Descriptors: Bright (sunny day); Day (overcast day); low (dusk, dawn, moonlit, streetlight lit); Negligible (overcast night)

C 2.7.2 Air Superiority

The extent to which operations in the air, over sea and/or, over land can be conducted with acceptable losses due to hostile air forces and air defense systems action. Descriptors: Full (Air Supremacy); General; Local.

Standards:

Personnel

- 17 pilots
- 90% of squadron T/O personnel MOS qualified and deployable
- And Level 2 (L2) IAW ALERTS.
- 100% critical MOS fill

Equipment

- 70% Full Mission Capable (FMC) aircraft of PAA (8 aircraft)

OR

Upon establishment, 100 percent RFT entitlement IAW T/M/S standard.

- Operational support equipment fully supports MCT

Training

- 16 pilots MET capable IAW T&R requirements

Output Standards

- 20 sorties daily sustained during contingency/combat operations

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(WILL BE MARKED AS “APPENDIX B” IN THE APPLICABLE COMMUNITY T&R MANUAL)

APPENDIX B – REFERENCE SOURCES

ABBREVIATIONS SAMPLE

VMFA SAMPLE

VMFA & VMFA(AW) ABBREVIATIONS	
CORE SKILLS (2000 Phase)	
FAM	Familiarization
AAR	Air-to-Air Refueling
AS	Air-to-Surface
NS	Night Systems
AA	Air-to-Air
LAT	Low Altitude Tactics
MISSION SKILLS (3000 Phase)	
EXP	Expeditionary Shore-Based Operations
CAS	Close Air Support
AR	Armed Reconnaissance
SCAR	Strike Coordination and Reconnaissance
AAD	Active Air Defense
SEAD	Suppression Of Enemy Air Defenses
OAAW	Offensive Anti-Air Warfare
AI	Air Interdiction
FAC(A)	Forward Air Controller (Airborne)
TAC(A)	Tactical Air Controller (Airborne)
CORE PLUS (4000 Phase)	
CORE PLUS SKILLS	
FCLP	Field Carrier Landing Practice
LFE	Large Force Exercise
NSLAT	Night Systems Low Altitude Tactics
MISSION PLUS SKILLS	
CQ	Aviation Operations From Expeditionary Sea-Based Sites
MIR	Multi-Sensory Imagery Reconnaissance
AESC	Aerial Escort
AMT	Attack Maritime Targets
FAC(A)	Forward Air Controller (Airborne)
INSTRUCTOR TRAINING (5000 Phase)	
WTI	Weapons and Tactics Instructor
FAC(A)I	Forward Air Controller (Airborne) Instructor
LATI	Low Altitude Tactics Instructor
FLSE	Flight Leadership Standardization Evaluator
TAC(A)I	Tactical Air Coordinator (Airborne) Instructor
NSLATI	Night Systems Low Altitude Tactics Instructor
NSI	Night Systems Instructor
FAI	Fighter Attack Instructor
COMBAT LEADERSHIP (6000 Phase)	
SEC LDR	Section Leader
DIV LDR	Division Leader
MSN CMDR	Mission Commander
REQUIREMENTS, QUALIFICATIONS, CERTIFICATIONS, AND DESIGNATIONS (RCQD) (6000 Phase)	
FCP	Functional Check Pilot

EXTERNAL RESOURCE REQUIREMENTS SAMPLE
HMH SAMPLE

1. The external resource requirements section captures those training resources required to support CH-53 T&R events, by stage. Additionally, Pilot Training Officers can use this section as a reference for coordination required, by stage, to execute T&R events. The items listed are those resources not resident in an HMH T/O&E but are required to make Core Competent Crews. The training resource requirements section (like the T&R itself) does not take geographic location(s) of a unit into account, rather what is required to effectively train CH-53 combat ready crews. Any training resource not available should be annotated and forwarded to TECOM, Aviation Training Division as a training resource shortfall.

2. FAM/INST Stage

a. Airport facilities that support helicopter day and night operations.

b. Facilities should include at a minimum but are not limited to; runway with a minimum of 3000 ft, helicopter specific practice hover area, practice autorotation course rules/lane, practice pattern work course rules for all FAM maneuvers, instrument facilities to include SIDs, holding, non-precision TACAN, VOR and ASR instrument approaches available for actual and practice use, precision ILS and PAR instrument approaches available for actual and practice use.

3. FORM Stage. Special use airspace/training area available day and night for Tactical Formation maneuvering.

4. CAL Stage. Confined area and/or mountain area training area with landing zones capable of supporting CH-53 single ship, section and division landings both day and night.

5. TERF Stage

a. Special use airspace/training area capable of supporting CH-53 low level and contour flight operations below 200ft both day and night.

b. Airspace shall include TERF routes with a minimum of 50nm and 6 checkpoints.

c. TERF area shall have confined area and/or mountain area landing zones capable of supporting CH-53 division landings and external operations.

6. EXT Stage

a. Special use airspace/training area capable of supporting CH-53 external, low level and contour flight operations below 200ft both day and night. Airspace shall include TERF routes with a minimum of 50nm and 6 checkpoints.

b. TERF area shall have confined area and/or mountain area landing zones capable of supporting CH-53 division landings and external operations.

c. 8 external loads, 4 SP, 4 DP. Loads should vary in size from 2,000lbs to 36,000lbs.

d. HST to support external operations for a minimum 8 hours per week.

7. GTR Stage

a. Special use EW range/airspace/training area capable of supporting CH-53 low level and contour flight operations below 200ft both day and night.

b. Airspace shall include TERF routes with a minimum of 50nm and 6 checkpoints. TERF area shall have confined area and/or mountain area landing zones capable of supporting CH-53 division landings and external operations. Flare and chaff capable range available both day and night.

c. Ground based non radar threat simulator (smokey sams, AAR-47 simulator, pyrotechnics) available 4 times per month for a minimum of 12 hours total.

d. Radar emitter with threat systems to include electromagnetic and ground based threat simulation. Emitter should be search, acquisition, and track capable. Emitter should be able to provide radar resolution cell feedback to aircrew.

8. HAAR Stage

a. KC-130 support for a minimum 4 hours a week.

b. Special use airspace capable of conducting HAAR.

9. CO/MISSION Stage. LHD/LHA shipping available a minimum 8 hours per month for both day and night Carrier Qualification operations.

10. TAC/MISSION Stage

a. Special use airspace/training area capable of supporting CH-53 low level and contour flight operations below 200ft both day and night. Airspace shall include TERF routes with a minimum of 50nm and 6 checkpoints.

b. TERF area shall have confined area and/or mountain area landing zones capable of supporting CH-53 division landings and external operations.

c. Expendable capable range.

d. Ground based non radar threat simulator (smokey sams, AAR-47 simulator, pyrotechnics) available a minimum of 4 times per month. Aerial gunnery laser safe range with SDZ approved for .50 CAL for day and night shooting. Targets should range in size from personnel targets to APC size targets.

e. KC-130 support for a minimum of 8 hours a week. f. Special use airspace capable of conducting HAAR.

11. AG Stage. Aerial gunnery laser safe range with SDZ approved for .50 CAL for day and night shooting. Targets should range in size from personnel targets to APC size targets.

12. HIE Stage. Supporting units available to conduct para ops, helocast, fast rope, rappelling, and SPIE.

13. DM Stage

a. Special use airspace/training area capable of supporting CH-53 Low level and contour flight operations below 200ft.

b. Expendable capable range.

c. Tactical fixed wing aircraft adversary available a minimum of 6 times per year for a minimum of 12 hours.

d. Tactical utility or attack helicopter adversary available a minimum of 6 times per year for a minimum of 12 hours.

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APPENDIX B - SAMPLE T&R MANUAL CHAPTER 2 CREWMEMBER SYLLABUS
THIS APPENDIX PROVIDES A TEMPLATE FOR CHAPTER 2 OF AN AVIATION T&R
MANUAL

CHAPTER 2 - SYLLABUS

	PARAGRAPH	PAGE
CREWMEMBER SYLLABUS T&R REQUIREMENTS	2.0	X-X
TRAINING PROGRESSION MODEL	2.1	X-X
PROGRAMS OF INSTRUCTION (POI).....	2.2	X-X
PROFICIENCY & CURRENCY	2.3	X-X
REQUIREMENTS, CERTIFICATIONS, QUALIFICATIONS, AND DESIGNATION (RCQD) TABLES.....	2.4	X-X
SYLLABUS NOTES	2.5	X-X
CORE INTRODUCTION PHASE (1000).....	2.6	X-X
CORE INTRODUCTION STAGES.....	2.7	X-X
CORE PHASE (2000)	2.8	X-X
CORE STAGES	2.9	X-X
MISSION PHASE (3000)	2.10	X-X
MISSION STAGES	2.11	X-X
CORE PLUS PHASE (4000-4499)	2.12	X-X
CORE PLUS STAGES	2.13	X-X
MISSION PLUS PHASE (4500-4999).....	2.14	X-X
MISSION PLUS STAGES.....	2.15	X-XX
INSTRUCTOR TRAINING PHASE (5000)	2.16	X-XX
INSTRUCTOR TRAINING STAGES.....	2.17	X-XX
REQUIREMENTS, CERTIFICATIONS, QUALIFICATIONS, DESIGNATIONS (RCQD) (6000) PHASE	2.18	X-XX
RCQD STAGES.....	2.19	X-XX
MET ASSESSMENT PHASE (7000).....	2.20	X-XX
AVIATION CAREER PROGRESSION MODEL (8000).....	2.21	X-XX
T&R SYLLABUS MATRICES	2.22	X-XX
ADDITIONAL MATRIX (RANGE/ORDNANCE).....	2.23	
ADDITIONAL CHAINING	2.24	

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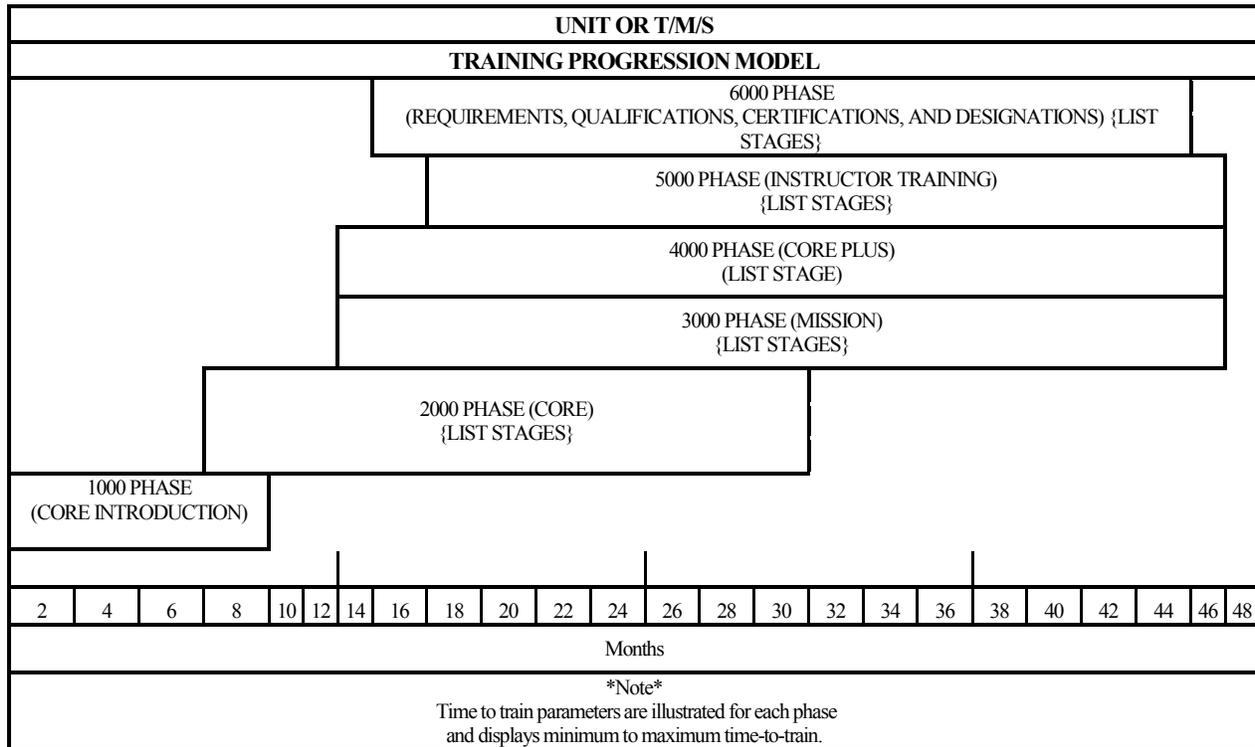
SYLLABUS EVALUATION FORMS.	2.25
TRAINING DEVICE EVENT ESSENTIAL SUBSYSTEM MATRIX	2.26

CHAPTER 2 - CREWMEMBER SYLLABUS

2.0 CREWMEMBER SYLLABUS T&R REQUIREMENTS. This T&R syllabus is based on specific goals and performance standards designed to ensure individual proficiency in Core, Mission and Core Plus Skills. The goal of this chapter is to develop individual and unit war fighting capabilities.

2.1 TRAINING PROGRESSION MODEL. Represents the recommended training progression for the UNIT OR T/M/S Crewmember. This model represents minimum to maximum time to train.

Units should use the model as a guide to generate individual training plans. Below is a sample T/M/S template:



2.2 PROGRAMS OF INSTRUCTION (POI)

2.2.1 General. Represents the average POI time-to-train by Phase. Note: Each POI built during the syllabus chapter requires a POI Table.

2.2.2 Basic (B) POI. The Basic Crewmember shall execute or fly the entire syllabus.

WEEKS	COURSE	PERFORMING ACTIVITY
3	Core Introduction Training	FRS
4	Core Training	UNIT
2	Mission Training	UNIT

2.2.3 Flying Refresher (R) POI. The Refresher Crewmember shall execute or fly those Events annotated with an R. Commanding officers/OICs will review the qualifications, previous experience, currency, and demonstrated ability of Refresher Crewmembers with a view towards combining required flights.

WEEKS	COURSE	PERFORMING ACTIVITY
2	Core Introduction Training	FRS
3	Core Training	UNIT
2	Mission Training	UNIT

2.3 PROFICIENCY & CURRENCY

2.3.1 Event Proficiency. Event proficiency is defined as successful completion of the performance standard as determined by the instructor or evaluator. Event completion is predicated upon demonstrated proficiency. Once completed, it is logged in M-SHARP by entering the appropriate event code. M-SHARP automatically updates the event proficiency date to reflect the completion date.

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2.3.2 **Skill Proficiency.** Proficiency is a measure of achievement of a specific skill. To attain Individual Skill proficiency, an individual must be simultaneously proficient in all events for that Skill. Individuals may be attaining proficiency in some skills while maintaining proficiency in others.

Maintaining Skill Proficiency. Once attained, skill proficiency is maintained by executing those events which have a Proficiency Period (Maintain events). Proficiency Periods establish the maximum time between Event demonstration. Should proficiency be lost in any maintain event, for a specific skill, that skill proficiency is temporarily lost. Skill proficiency can be re-attained by again demonstrating proficiency in the Event(s) that are not proficient. For flying communities, an individual shall complete delinquent events with a proficient instructor, crewman/flight lead as delineated by the T/M/S Syllabus Sponsor (see Chapter 3 of the Program Manual on specific instructor requirements for Low Altitude Flight, Night Systems, ACM, DM, DACM, DCM, FAC(A)).

Loss Of Individual Skill Proficiency. Should an individual lose proficiency in all maintain events in a skill, the individual will be assigned to the Refresher POI for the skill. To regain skill proficiency, the individual must demonstrate proficiency in all R-coded events for the skill.

Loss of Unit Skill Proficiency. If an entire unit loses proficiency in an Event, unit instructors shall regain proficiency by completing the Event with an instructor from a like unit. If not feasible, the instructor shall regain proficiency by completing the Event with another instructor. For flying communities, if a unit has only one instructor and cannot complete the Event with an instructor from another unit, the instructor shall regain proficiency with another aircraft commander or as designated by the commanding officer.

Proficiency Status. Proficiency is a “Yes/No” status by skill assigned to an individual. When an individual attains and maintains Core Skill Proficiency (CSP), Mission Skill Proficiency (MSP), Core Plus Skill Proficiency (CPSP), or Mission Plus Skill Proficiency (MPSP), the individual may count towards CMMR or CMTS.

2.3.3 **Skill Currency.** Currency is a control measure used to provide an additional margin of safety based on exposure frequency to a particular skill and applies to all MOS’s that must comply with NATOPS and OPNAV requirements. It is a measure of time since the last event demanding that specific skill. For example, currency determines minimum altitudes in rules of conduct based upon the most recent low altitude fly date. Specific currency requirements for aircrew individual type mission profiles can be found in Chapter 3.

2.4 **REQUIREMENTS, CERTIFICATIONS, QUALIFICATIONS, AND DESIGNATION (RCQD) TABLES.** The table below delineates T&R Events required to be proficient or waived to attain Requirements, Certifications, Qualifications, and Designations. Waiving of all Required Events leading to a Requirement, Certification, Qualification, or Designation, is not allowed.

REQUIREMENTS, CERTIFICATIONS, QUALIFICATIONS, AND DESIGNATIONS (RCQD) CREWMEMBER	
Requirements	Requirement events and prerequisites
MDTC COURSE	XXXX,XXXX,XXXX
WTI COURSE	XXXX,XXXX,XXXX,XXXX
TOPGUN COURSE	XXXX,XXXX,XXXX
TERPS COURSE	XXXX,XXXX
Certifications	Certification events and prerequisites
A++ Technician	XXXX,XXXX,XXXX,XXXX
CPR Certification	XXXX,XXXX,XXXX
HAZMAT Technician	XXXX,XXXX,XXXX,XXXX
NETWORK + Certification	XXXX,XXXX,XXXX,XXXX
Qualification	Qualification events and prerequisites
NATOPS	XXXX,XXXX,XXXX,XXXX
NSQ	XXXX,XXXX,XXXX
STANDARD INSTRUMENT	XXXX,XXXX,XXXX,XXXX
SPECIAL INSTRUMENT	XXXX,XXXX,XXXX,XXXX
CRM	XXXX,XXXX
Designation	Designation events and prerequisites
ANI	XXXX,XXXX,XXXX
NI	XXXX,XXXX,XXXX,XXXX
NSI	XXXX,XXXX,XXXX
FCF	XXXX,XXXX

2.5 SYLLABUS NOTES

2.5.1 All Events, to include simulators, shall begin with a comprehensive brief with emphasis on administrative procedures, CRM, mission performance standards and aircrew expectations.

2.5.2 All flights shall terminate with a comprehensive debrief with emphasis on aircrew performance utilizing all evaluation techniques available.

2.5.3 An ATF is required for any initial event completed by a Basic or Refresher pilot, or as recommended by the squadron Standardization Board. If the commanding officer has waived/deferred a syllabus sortie, the squadron training officer shall place a waiver/deferral letter in section 3 of the APR.

2.5.4 Event Conditions. Refer to the following table for required event conditions.

Code	Description (Environmental Condition)
D	Shall be conducted during day
N	Shall be conducted at night, aided or unaided, at least 30 minutes after official sunset.
(N)	May be conducted day or night. If at night, aided or unaided.
NS	Shall be conducted at night aided under High Light Level or Low Light Level at least 30 minutes after official sunset.
HLL	Shall be conducted at night aided under High Light Level conditions.
LLL	Shall be conducted at night aided under Low Light Level conditions.
(NS)	May be conducted day or night. If at night, shall be aided under High Light Level or Low Light Level at least 30 minutes after official sunset.
(HLL)	May be conducted day or night. If at night, shall be aided and under High Light Level conditions.
(LLL)	May be conducted day or night. If at night, shall be aided and under Low Light Level conditions.
N*	Shall be conducted at night unaided, at least 30 minutes after official sunset
(N*)	May be conducted day or night. If at night, shall be unaided.
D/NS	Shall be conducted in the simulator during day and night aided.

2.5.5 Device matrix. Only include applicable rows.

Device	
Symbol	Meaning
A	Conducted in Aircraft
A/S	Aircraft Preferred/Simulator Optional
S	Conducted in Simulator
S/A	Simulator Preferred/Aircraft Optional
L	Conducted using Unit T/E equipment.
L/S	Live Preferred/Simulator Optional.
S/L	Simulator Preferred/Live Optional.
G	Ground/academic training. May include Distance Learning, CBT, lectures, self paced.

Note – If the event is to be flown in the simulator the Simulator Instructor shall set the desired environmental conditions for the event.

2.5.6 Program of Instruction Matrix. Only include applicable rows and columns.

PROGRAM OF INSTRUCTION MATRIX			
Program of Instruction (POI)	Symbol	Aviation Flying	Aviation Ground
Basic	B	Initial MOS/Skill Training	Initial MOS Training
Transition*	T	Moving from one Type to another (Rotary-Wing to Fixed-Wing)	N/A
Conversion*	C	Moving from one Model to another (UH-1Y to CH-53E)	N/A
Series Conversion	S	Moving from one Series to another (KC-130T to KC-130J)	N/A
Refresher	R	DIFDEN to DIFOPS in same T/M/S	Return to community from non (MOS/Skill) associated tour
Maintain	M	All individuals who have attained CSP/MSP/PPP by initial POI assignment are re-assigned to the M POI to maintain proficiency.	
Modified Refresher	MR	FRS only – See Chapter 4 for specific assignment	N/A
Safe For Solo	SS	FRS only – See Chapter 4 for specific assignment	N/A
Contract Instructor	CI	Contract Instructor	Contract Instructor
Air Force	AF	Air Force student MV-22B	N/A
Air Force Instructor	CV	Air Force CV-22 Instructor to MV-22B Instructor	N/A

***Many communities will assign Transition and Conversion aircrew to the Basic POI.**

2.5.7 Event Terms. As required. Flight communities may use the below listed terms. Aviation ground communities will use verbs that best describe executable and measurable goals and performance steps. Taxonomies, such as Bloom, offer a list of verbs for various learning levels.

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EVENT TERMS	
TERM	DESCRIPTION
Discuss	An explanation of systems, procedures, or maneuvers during the brief, in flight, or post flight. Student is responsible for knowledge of procedures.
Demonstrate	The description and performance of a particular maneuver/event by the instructor, observed by the PUI/student. The PUI/student is responsible for knowledge of the procedures prior to the demonstration of a required maneuver/student.
Introduce	The instructor may demonstrate a procedure or maneuver to a student, or may coach the PUI through the maneuver without demonstration. The PUI performs the procedures or maneuver with coaching as necessary. The PUI is responsible for knowledge of the procedures.
Practice	The performance of a maneuver or procedure by the PUI/student that may have been previously introduced in order to attain a specified level of performance.
Review	Demonstrated proficiency of a maneuver by the PUI/student.
Evaluate	Any flight designed to evaluate aircrew standardization that does not fit another category such as SARCK, HACCK, T2PCK, etc.

2.6 CORE INTRODUCTION PHASE

Purpose. The purpose of this phase is to instruct the copilot in MV-22 fundamentals and introduce mission elements. At the completion of this phase the PUI will be a NATOPS qualified T2P and rate the 7532 MOS as specified in RQD-6030.

General. The following Stages are included in the Core Introduction Phase of training.

Phase Overview

CORE INTRODUCTION PHASE		
STAGE	PARAGRAPH	PAGE NUMBER
FORM	2.7.1	2-8
LAT	2.7.2	2-10

Admin Notes

Refer to paragraph 209 of the Aviation T&R Program Manual for the ACPM lectures required for this phase of training.

ROC will be per the T&R Program Manual.

All references to NTPP are directed to the NTPP 3.22.3 MV-22 (unclassified) unless otherwise noted.

Prerequisites. ACAD-0111, ACAD-0112, LAB-0223.

2.7 CORE INTRODUCTION STAGES

2.7.1 Formation (FORM)

Purpose. To develop proficiency in cruise formation, rendezvous procedures, and execution of formation maneuvers. FOE: V-22 formation fundamentals in CONV and APLN flight.

General

At the completion of this stage, the PUI will be proficient at formation takeoffs and landings, section rendezvous, lead changes, formation maneuvers, and section IIMC procedures.

Section landings are not intended to be section CALs. CONV patterns will be used and the landing area will be an improved surface or large CAL site.

All SFORM flights should be conducted in a networked environment.

FORM Overview

FORMATION (FORM)STAGE							
EVENT	TIME	PROFICIENCY PERIOD	POI	COND	DEVICE	NUM	DESCRIPTION
ACAD-1410	1.0	*	B,T,AF,CI	(N)	G		FORM INTRO
SFORM-1430	2.0	*	B,T,AF,CI	(N)	S	2	INTRO SIM FORM
SFORM-1431	2.0	*	B,T,R,AF,CI	D/N	S	2	INTRO SEC LANDINGS
FORM-1432	2.0	*	B,T,AF	D	A	2	INTRO FORM FLIGHT

Admin Notes

Utilize academic courseware as outlined in the appropriate Type/Model/Series chapter of the MAWTS-1 Course Catalog.

Prerequisites. ACAD-0191, LAB-0330.

Crew Requirements. IP/PUI/(CC for aircraft events)

ACAD-1410 1.0 * B,T,AF,CI G

Goal. FORM INTRO: To introduce the PUI to the training syllabus for the Formation phase. The following will be discussed: FORM syllabus, performance standards, CONV and APLN Cruise position, APLN parade position, and conduct of FORM flights.

Requirements

Discuss

Purpose of Formation
Syllabus description
Required readings
Performance standards

Instructor. FRSI

Prerequisite. 1049

SFORM-1430 2.0 * B,T,AF,CI S 2 FFS

Goal. Introduce cruise formation during conversion and airplane modes and section landings.

Requirements

Discuss

Cruise position and visual reference points
Radius of turn principles
Use of nacelles to control airspeed
Closure rates
Formation Transitions and Conversions
 Nr settings (84-100%)
 Nacelle rotation coordination/timing between aircraft
 Nacelle rotation rates

Wingman responsibility for flight separation
Formation aborts and waveoffs
Loss of visual contact/rejoining of flight
Intra-flight communications and responsibilities

Emergencies. Discuss inter- and intra-cockpit comm/coordination during section emergencies

Performance Standards. Conduct all maneuvers IAW MV-22 Maneuver Description Guide (MDG).

Instructor. FRSI

Prerequisite. 1410

SFORM-1431 2.0 * B,T,R,AF,CI S 2 FFS

Goal. Practice formation flight, introduce section landings to an LZ and IIMC procedures.

Requirements

Discuss

APLN Parade position and visual reference points
Considerations of close formation, closure rates and situational awareness
Energy management as Lead/Wingman
Lost Communication Procedures

Performance Standards. Conduct all maneuvers IAW MV-22 Maneuver Description Guide (MDG) and NATOPS.

Instructor. FRSI

Prerequisite. 1430

FORM-1432 2.0 * B,T,AF D A 2 MV-22

Goal. Introduce formation flight and procedures in the aircraft.

Requirements

Discuss

- Cruise position, Parade position, and visual reference points
- Energy management as Lead/Wingman
- Sun position in reference to lead aircraft
- PF and PNF duties and callouts
- Crew chief actions and callouts
- Formation aborts and waveoffs

Introduce

- Section STO
- Section takeoff
- Running/Carrier rendezvous

Performance Standards. Conduct all maneuvers IAW MV-22 Maneuver Description Guide (MDG) and NATOPS.

Instructor. FRSI

Prerequisites. 1332, 1431

2.7.2 Low Altitude Tactics (LAT)

Purpose. To develop proficiency in LAT maneuvers and navigation with emphasis on the importance of crew coordination, comfort level, common terminology and energy management. It will also serve as a progress check for CMS and JMPS. FOE: LAT maneuvers/navigation, CMS, and JMPS.

General

A designated LATI is required for all LAT instructional events. A CI that has completed SFIT-5146 and the LATI academic syllabus per the MAWTS-1 Course Catalog may instruct initial SLAT events.

Maneuver descriptions may be found in the MV-22 Naval Tactics, Techniques, and Procedures (NTTP) Manual and the MV-22 Maneuver Description Guide (MDG) (FTM), and are explained in the current MAWTS-1 Academic Support Package.

Crew Requirement. LATI/PUI/(CC for aircraft events)

LAT Overview

LOW ALTITUDE TACTICS (LAT)							
EVENT	TIME	REFLY	POI	COND	DEVICE	NUM	DESCRIPTION
ACAD-1510	1.0	*	B,T,R,AF,CI		G		LAT INTRO
ACAD-1511	0.5	*	B,T,R,AF,CI		G		LAT I LECTURE
ACAD-1512	0.5	*	B,T,R,AF,CI		G		LAT II LECTURE
ACAD-1513	0.5	*	B,T,R,AF,CI		G		LAT III LECTURE
LAB-1520	6.0	*	B,T,R,AF,CI		G		LAT MISSION PLANNING
LAB-1521	2.0	*	B,T,R,AF,CI		G		LAT CMS
SLAT-1530	2.0	*	B,T,R,AF,CI	D/N	S	1	LAT SIM
LAB-1522	4.0	*	B,T,R,AF,CI		G		JMPS PROGRESS CHECK
LAT-1531	1.5	*	B,T,R,AF	D	A	1	LAT
LAT-1532	2.0	*	B,T,R,AF	D	A	A	LAT PROGRESS CHECK

ACAD-1510 1.0 * B,T,R,AF,CI G

Goal. LAT INTRO: To prepare the PUI for the LAT stage of the curriculum.

Requirements

Discuss

Purpose of LAT
 Syllabus description (PUI expectations)
 Required readings
 Performance standards

Introduce

LAT Planning, briefing, and execution
 NTTP LAT mission planning guidance
 PF and PNF duties and callouts
 Crew actions and callouts
 CRM during LAT

Instructor. LATI

Prerequisite. 1235

ACAD-1511 0.5 * B,T,R,AF,CI G

Goal. LAT I LECTURE: The PUI will have an introductory knowledge of LAT terms and definitions.

Requirements

Introduce. LAT Philosophy, definitions, and Rules of Conduct

Required Reading. T&R Program Manual paragraphs 300, 301, 305; NTTP 4.1.1, 4.2 - 4.2.3.

Instructor. LATI

Prerequisite. 1510

ACAD-1512 0.5 * B,T,R,AF,CI G

Goal. LAT II LECTURE: The PUI will have an introductory knowledge of LAT training considerations.

Requirements

Introduce. LAT Training Considerations.

Required Reading. NTTP 4.2.4 - 4.2.7

Instructor. LATI

Prerequisite. 1511

ACAD-1513 0.5 * B,T,R,AF,CI G

Goal. LAT III LECTURE: The PUI will have an introductory knowledge of LAT maneuvers.

Requirements

Introduce. LAT Techniques and procedures

Required Reading. NTTP 4.2.8 - 4.2.11

Instructor. LATI

Prerequisite. 1512

LAB-1520 6.0 * B,T,R,AF,CI G

Goal. LAT MISSION PLANNING: Introduce JMPS functions for LAT mission planning and produce a loaded Data Transfer Module (DTM) for use on the SLAT-1530.

Requirement

Discuss. Military Training Routes (MTRs) as they relate to the AP-1/B.

Introduce

Route Study and preparation

Performance Standard. Loaded DTM with all required mission data for the SLAT-1530.

Instructor. LATI

Prerequisite. 1513

External Syllabus Support. JMPS

LAB-1521 2.0 * B,T,R,AF,CI G

Goal. LAT CMS: Introduce LAT CMS functions and manipulation.

Requirements

Discuss

Digital Terrain Elevation Data (DTED) verification
LAT CRM principles (PF/PNF).

Introduce

DDMS Threat manipulation
Threat Placement
Detection/Engagement parameters
Use of intervisibility

Instructor. LATI

Prerequisite. 1520

SLAT-1530 2.0 * B,T,R,AF,CI D/N S 1 FFS or FTD

Goal. Demonstrate/introduce LAT maneuvers and route execution using a DTM created by the PUI.

Requirements

Discuss

LAT Rules of Conduct
LAT Dive Recovery Rules
Vertical Maneuver Rules
5 Degree Rule
50 Percent Rule
Small Descent Rule

LAT Turns and Altitude Recovery

Demonstrate. LAT dive recovery to 200 ft AGL

Performance Standards

Demonstrate proper procedures for LAT maneuvers IAW the MV-22 Air Naval Tactics, Techniques, and Procedures (NTTP) Manual and the MV-22 Maneuver Description Guide (MDG) (FTM).

Execute CMS procedures in a timely manner with minimal assistance.

Maintain Rules of Conduct (ROC) IAW T&R Program Manual.

Recognize indications, execute required memory items, exercise proper crew coordination and maintain control of the aircraft during simulated Emergency Procedures.

Instructor. LATI

Prerequisite. 1520,1521

LAB-1522 4.0 * B,T,R,AF,CI G

Goal. JMPS PROGRESS CHECK: Successful completion of the JMPS progress check. Build and load a LAT mission from the AP-1/B to a DTM for use during the LAT-1531 and LAT-1532. PUI will create a digital flight brief for use in briefing the LAT-1531 and LAT-1532.

Requirements

Introduce. Digital Flight Brief

Practice

Route Study and Preparation

MTR Overlays

Route creation

Altitude Planning

Minimum Safe Altitude (MSA)

Emergency Safe Altitude (ESA)

Vertical Terrain Analysis using JMPS

Order of Battle

Performance Standards. PUI successfully generates a complete JMPS LAT mission profile and loads it to a DTM with limited assistance.

Instructor. LATI

Prerequisite. 1530

External Syllabus Support. JMPS

LAT-1531 1.5 * B,T,R,AF D A 1 MV-22

Goal. Demonstrate/introduce LAT maneuvers and aircraft performance in the LAT environment.

Requirements

Discuss

LAT Rules of Conduct

LAT Dive Recovery Rules

Aircraft performance limits and characteristics

CONV/ APLN Stall –vs- AOB considerations

RADALT use

Demonstrate. LAT dive recovery to 200 ft AGL

Performance Standards

Demonstrate proper procedures for LAT maneuvers IAW the MV-22 Air Naval Tactics, Techniques, and Procedures (NTTP) Manual and the MV-22 Maneuver Description Guide (MDG) (FTM).

Maintain Rules of Conduct (ROC) IAW T&R Program Manual.

Instructor. LATI

Prerequisite. 1522

LAT-1532 2.0 * B,T,R,AF D A 1 MV-22

Goal. Successful completion of the CMS progress check. Introduce LAT navigation, review LAT maneuvers, and evaluate the PUI's use of CMS.

Requirements

Discuss

LAT Rules of Conduct

Aircrew duties during LAT navigation

Lookout doctrine
 FLIR, DIGMAP, and INAV operations during LAT navigation
 Fuel management considerations

Performance Standards

Demonstrate proper procedures for LAT maneuvers IAW the MV-22 Air Naval Tactics, Techniques, and Procedures (NTTP) Manual and the MV-22 Maneuver Description Guide (MDG) (FTM).

Execute CMS procedures in a timely manner with minimal assistance.

Maintain Rules of Conduct (ROC) IAW T&R Program Manual.

Arrive at last checkpoint within +/- 1 minute of intended TOT.

Recognize indications, execute required memory items, exercise proper crew coordination and maintain control of the aircraft during simulated Emergency Procedures.

Instructor. LATI

Prerequisite. 1531

PARAGRAPHS 2.8 THROUGH 2.19 FOLLOW IN-KIND

2.20 MET ASSESSMENT PHASE (7000 PHASE). See Appendix D.

2.21 AVIATION CAREER PROGRESSION MODEL (8000 PHASE)

2.21.1 Purpose. To enhance professional understanding of Marine Aviation and the MAGTF and ensure individuals possess the requisite skills to fill battle command and battle staff positions in support of the ACE and the MAGTF in a joint environment. The focus of training in the Aviation Career Progression Model (ACPM) is on academic Events in the following areas:

- Marine Air Command and Control System (MACCS)
- Aviation Ground Support
- Joint Air Operations
- ACE Battle Staff
- MAGTF
- Seabased Operations
- Combatant Commander Organizations

2.21.2 All tactical T/M/S T&R manuals have ACPM training requirements embedded within the progressive training phases, including the flight leadership POI. If not already completed prior to assignment to VMR-1 or a VMR det (C-9, UC-35, C-12, or C-20), pilots assigned to an OSA platform shall complete ACPM training requirements as outlined per their original T/M/S MOS T&R manual. Refer to NAVMC 3500.14, Aviation T&R Program Manual, as a primary reference for ACPM training requirements.

2.21.3 General

The ACPM is intended to be an integrated series of academic Events contained within each phase of training. Accordingly, ACPM academic Events are like any other academic event in that they serve as pre-requisites to selected flight Events or stages. Additionally, several ACPM academic Events are integrated as prerequisites for flight leadership syllabi.

ACPM academic Events, along with their identifying prerequisite association with other training phases/stages/Events are listed below.

VMR-1 VMR Det (UC-12W)				
ACPM TO UC-12W T&R MATRIX				
STAGE	EVENT NUMBER	CLASS	ACPM DESCRIPTION	PREREQUISITE TO (PHASE/STAGE/EVENT)
ACPM	8200	(U)	MACCS AGENCIES, FUNCTIONS AND CONTROL OF AIRCRAFT AND MISSILES	2000 PHASE
ACPM	8201	(U)	MWCS BRIEF	2000 PHASE
ACPM	8202	(U)	ACA AND AIRSPACE	2000 PHASE
ACPM	8210	(U)	AVIATION GROUND SUPPORT	2000 PHASE
ACPM	8230	(U)	ACE BATTLESTAFF	2000 PHASE

ACPM	8231	(U)	BATTLE COMMAND DISPLAY	2000 PHASE
ACPM	8240	(U)	SIX FUNCTIONS OF MARINE AVIATION	2000 PHASE
ACPM	8241	(U)	JTAR/ASR INTRODUCTION AND PRACTICAL APPLICATION CLASS	2000 PHASE
ACPM	8242	(U)	SITE COMMAND PRIMER	2000 PHASE
ACPM	8250	(U)	THEATER AIR GROUND SYSTEM (TAGS)	2000 PHASE
ACPM	8300	(U)	AIR DEFENSE	3000 PHASE
ACPM	8310	(U)	FORWARD ARMING AND REFUELING POINT (FARP) OPERATIONS	3000 PHASE
ACPM	8311	(U)	MARINE CORPS TACTICAL FUEL SYSTEMS	3000 PHASE
ACPM	8320	(U)	JOINT STRUCTURE & JOINT AIR OPERATIONS	3000 PHASE
ACPM	8321	(U)	JOINT AIR TASKING CYCLE PHASE 1: STRATEGY DEVELOPMENT	3000 PHASE
ACPM	8322	(U)	JOINT AIR TASKING CYCLE PHASE 2: TARGET DEVELOPMENT	3000 PHASE
ACPM	8323	(U)	JOINT AIR TASKING CYCLE PHASE 3: WEAPONING AND ALLOCATION	3000 PHASE
ACPM	8324	(U)	JOINT AIR TASKING CYCLE PHASE 4: JOINT ATO PRODUCTION	3000 PHASE
ACPM	8325	(U)	JOINT AIR TASKING CYCLE PHASE 5:	3000 PHASE
ACPM	8326	(U)	JOINT AIR TASKING CYCLE PHASE 6: COMBAT ASSESMENT	3000 PHASE
ACPM	8340	(U)	INTEGRATING FIRES AND AIRSPACE WITHIN THE MAGTF	3000 PHASE
ACPM	8350	(U)	PHASING CONTROL ASHORE	3000 PHASE
ACPM	8351	(U)	TACRON ORGANIZATIONS AND FUNCTIONS	3000 PHASE
ACPM	8630	(U)	TACTICAL AIR COMMAND CENTER (TACC)	6000 PHASE
ACPM	8660	(U)	JOINT OPS INTRO	6000 PHASE
ACPM	8640	(U)	JOINT DATA NETWORK	6000 PHASE
ACPM	8641	(U)	MAGTF THEATER	6000 PHASE
ACPM	8620	(U)	ESG/CSG INTEGRATION	6000 PHASE

2.22 T&R SYLLABUS MATRICES

2.23 TRAINING DEVICE EVENT ESSENTIAL SUBSYSTEM MATRIX (EESM). The matrix below defines the mandatory and preferred subsystems for each simulated T&R event.

TRAINING DEVICE EVENT ESSENTIAL SUBSYSTEM MATRIX (EESM)																				
SIMULATOR TYPE: (appropriate simulator designator)																				
FAILED SUB-SYSTEM	T&R EVENT CODE (S, S/A, A/S)																			
	S1000	S1001	S1100	S2000	S2001	S/A2002	S/A2003	S2300	S3000	S3001	S3100	S3001	S4000	S4001	S4002	S5000	S/A5001	S/A5002	A/S6001	A/S6200
*AFCS Functions (DSEN, BIAS, COORD, SAS, HVR, BANK, TRIM, ATT, ALT, HDG, A/S)	M	M	M	M	M	M	M	M	M	M	M	M	M		M	M		M	M	M
AFCS Panel	M	M	M			M			P	M				M		P				P
AFCS Servos	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
Aircraft Survivability Equipment									M				P	P		M			P	P
M = Mandatory										P = Preferred										

2.24 SYLLABUS EVALUATION FORMS

APPENDIX C - MISSION ESSENTIAL TASK PHASE (7000)

2.X MISSION ESSENTIAL TASK (MET) PHASE (7000)2.X.X Purpose

To assess CMMR representative crews during the execution of the unit's specified METs in order to ensure standardization and combat readiness.

To fulfill the requirements of a Marine Corps Combat Readiness Evaluation (MCCRE) as specified in MCO 3501.1, Marine Corps Combat Readiness Evaluation.

2.X.X General

Prerequisite. Aircrew assessed during this phase shall be crews meeting the requirements of a Force Generating Order. The crews should be comprised of deploying personnel to the maximum extent practical.

Admin Notes

The Proficiency Period for conducting elements of the 7000 Phase are: Active component units – no less than once every 2 years; for Reserve component units – no less than once every 5 years.

Units not scheduled to be assessed at a service level training venue (i.e. ITX, MTNEX) shall conduct elements of the 7000 Phase as the minimum requirement for a unit to deploy.

The MAW Flight Leadership Standardization and Evaluation (FLSE) cadre is the resource used to assess Type/Model/Series units for MET capability in accordance with the MCCRE Order (for Aviation Ground Units, Weapons Tactics Instructors are the resource used). The unit assessor will be designated at the Wing level of the unit to be assessed.

Events in this Phase normally require a Force Generation Order prior to commencing the 7000 Stage. Once a unit deploys, is removed from the Force Generation Order, or completes the required 7000-Stage, 7000 Phase currency no longer needs to be maintained.

Multiple Events may be accomplished during the same sortie.

The example template for this Phase is based on an HMLA squadron configuration and can be adapted for use by any Aviation unit that is aligned under the provisions of this Manual.

Results of the MCCRE assessment shall be formatted per Appendix D and submitted to CG, MCCDC (via AMHS message attachment to CG TECOM MTESD) no later than 45 days after MCCRE completion.

2.X.X Stages. The following stages are included in the Mission Essential Task (MET) Phase of training. Only METs required per the Force Generation Order shall be evaluated.

PAR NO.	STAGE NAME
2.X.X	MISSION ESSENTIAL TASK (MET)

2.X.X MISSION ESSENTIAL TASK (MET) STAGE

Purpose. To assess squadrons or detachments executing community specific MET(s) or MET preparatory Events.

General

Prerequisite. If an event requires prerequisites in addition to those listed for the MET Phase, they will be covered in the individual event.

Crew Requirements

The participants required for the 7000 Phase are the evaluated unit and the assessor. The crew requirement is based on the specific event. The assessment shall be conducted from a crew position of the assessor's T/M/S. At the discretion of the assessor, observation of mission planning, briefing/debriefing, and execution from an OP may satisfy a portion of the assessment.

Respectively, the primary, alternate, and tertiary assessors shall be a MATSS representative, WTI (FLSE) from within the parent command designated by the owning Wing, or MAWTS-1 representative. The number of crews evaluated will be based on a percentage required to deploy per the Force Generation Order.

MET-7001 **D/(NS) E** **2 H-1**

Goal. Conduct Aviation Operations for Expeditionary Shore-Based Sites.

Requirement. Demonstrate the ability to conduct Aviation Operations for Expeditionary Shore-Based sites.

Performance Standard. Conduct Aviation Operations for Expeditionary Shore-Based Sites per MCT 1.3.3.3.2 and the T/M/S specific T&R.

Prerequisite. Per applicable T&R event.

Instructor. Unit assessor designated by the responsible Wing of the assessed unit.

Ordnance Requirement. Per applicable T&R event.

Range/Target Requirement. Per applicable T&R event.

External Syllabus Support. Actual or simulated FARP.

Crew. Per applicable T&R event.

Reference. Per applicable T&R event.

MET-7002 **D/(NS) E** **2 H-1**

Goal. Conduct Combat Assault Support.

Requirement. Demonstrate the ability to conduct Combat Assault Support.

Performance Standard. Conduct Combat Assault Support per MCT 1.3.4.1 and the T/M/S specific T&R.

Prerequisite. Per applicable T&R event.

Instructor. Unit assessor designated by the responsible Wing of the assessed unit.

Ordnance Requirement. None.

Range/Target Requirement. None.

External Syllabus Support. Actual or notional passengers or cargo.

Crew. Per applicable T&R event.

Reference. Per applicable T&R event.

MET-7003 **D/(NS) E** **2 H-1**

Goal. Conduct Close Air Support.

Requirement. Demonstrate the ability to conduct Close Air Support.

Performance Standard. Conduct Close Air Support per MCT 3.2.3.1.1 and the T/M/S specific T&R.

Prerequisite. Per applicable T&R event.

Instructor. Unit assessor designated by the responsible Wing of the assessed unit.

Ordnance Requirement. Per applicable T&R event.

Range/Target Requirement. Per applicable T&R event.

External Syllabus Support. Per applicable T&R event.

Crew. Per applicable T&R event.

Reference. Per applicable T&R event.

APPENDIX D - SAMPLE 7000 PHASE ASSESSMENT RESULTS

From: Commanding General, Wing
To: Commanding General, Marine Corps Combat Development Command (C 465)
Via: (1) Commanding General, MEF
(2) Commanding General, MARFOR
Subj: MARINE CORPS COMBAT READINESS EVALUATION: MARINE LIGHT ATTACK
HELICOPTER SQUADRON XXX (HMLA-XXX)
Ref: (a) MCO 3501.1D, Marine Corps Combat Readiness Evaluation
(b) NAVMC 3500.14D, AH-1/UH-1 Training & Readiness (T&R) Manuals
(c) MCO 3502.6, Marine Corps Force Generation Process

1. Reference (a) outlines and directs the requirements for unit evaluation based on Training and Readiness standards derived from Core and/or assigned Mission Essential Tasks to ensure standardization, combat readiness, and that units are adequately prepared for a service level assessment. HMLA-XXX completed a Marine Corps Combat Readiness Evaluation as defined by references (a) and (b), and as directed per reference (c) from 1 to 3 February 20XX.
2. (Wing) observed and assessed mission planning, briefing, execution, and debriefing and provided feedback based on mission performance standards associated with each MET, defined in reference (b). Additionally, assessors considered projected theater requirements with respect to equipment, manning, assigned tasks, and tactics when conducting training and evaluation. METL assessment results are provided as follows.
3. Marine Corps Task (MCT) 1.3.3.3.2 Conduct Aviation Operations from Expeditionary Shore-Based Sites. HMLA-XXX had the required number of crews, the required crews were appropriately trained, and the required crews met the mission performance standard.
 - a. Strengths. The squadron operated successfully from the Strategic Expeditionary Landing Field (SELF) and conducted multiple Forward Arming and Refueling Point (FARP) and Aviation Delivered Ground Refueling (ADGR) operations throughout ITX 1-13.
 - b. Weaknesses. None noted.
 - c. Recommendations. Continue to stress the danger and complexity of operating in and around a FARP. Reference the HMLA FARP Operations class for ready room discussion.
4. MCT 3.2.3.1.1 Conduct Close Air Support. HMLA-XXX had the required number of crews, the required crews were appropriately trained, and the required crews met the mission performance standard.
 - a. Strengths. HMLA-XXX focused on medium altitude tactics and ordnance delivery in preparation for their upcoming deployment. Aircrew utilized standard communications and procedures in accordance with Joint Publication 3-09.3 Close Air Support. Aircrew were methodical and efficient in obtaining timely and accurate target correlation. Specific focus on Advanced Precision Kill Weapon System (APKWS) employment and mixed section tactics were noteworthy and will greatly benefit the squadron. Additionally the utilization of video debriefs helped to validate weapons employment and section communications.
 - b. Weaknesses. None noted.
 - c. Recommendations. Continue to capture APKWS employment data and share it with the community in order to increase user and supported unit confidence in this new weapon. Continue to discuss and train toward medium altitude tactics. Be deliberate in your choice of working altitudes based upon the threat and sensor capabilities.
5. The following METs were not assessed: MCT 1.3.3.3.1, Conduct Aviation Operations From Expeditionary Sea-Based Sites (CQ), MCT 3.2.3.2, Conduct AH-1W Offensive Anti-Air Warfare (OAAW), MCT 6.1.1.8, Conduct Active Air Defense (DACM), MCT 1.3.4.1.1, Conduct UH-1 Airborne Rapid Insertion /Extraction (HIE+ (ASPT)), MCT 5.3.2.7.3, Tactical Air Coordination (Airborne) (TAC(A)).
6. HMLA-XXX used aircrew and range space wisely by conducting integrated and unit level training that was focused on brilliance in the basics and fostering solid flight leadership and decision making. The squadron instructor pilots did an excellent job of building off of the overall ITX Enemy Order of Battle (EOB) to challenge aircrew on every event that the assessor observed. Their focus on medium altitude tactics and squadron Standard Operating Procedures (SOPs) that support their upcoming deployment will greatly benefit them in the future. In conjunction with ITX, the squadron conducted classes and discussions that focused on high, hot, and heavy operations, reduced visibility landings,

NAVMC 3500.14D

5 Feb 16

professional communications, and the UH-1Y in the assault support role. The squadron also coordinated with HMLA-XXX to receive a brief on desert landings and their recent combat experience. The squadron S-2 and Aviation Safety Officer (ASO) are well integrated into every aspect of the squadron and greatly enhance their operational capability.

7. HMLA-XXX MCCRE assessment is complete in accordance with references (a) and (b).
8. The point of contact for this report is Major X, Wing FLSE at Comm (XXX) XXX-XXX or DSN XXX-XXXX.

WING CG

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- a. Maintenance. The squadron is capable of organizational (1st echelon) maintenance on all assigned Marine Corps equipment and organizational (2d echelon) maintenance on infantry weapons. Capable of performing organizational maintenance on assigned aircraft and support equipment.
 - b. Supply. None. Supply support is provided by the MALS and the MAG headquarters.
 - c. Transportation. None. Motor transport support is provided by the Marine wing support squadron (MWSS).
 - d. General Engineering. None.
 - e. Health Services. The squadron is capable of providing routine and emergency medical support.
 - f. Services. None.
 - g. Messing. None. Food service support is provided by the MWSS.
8. Command and Signal
- a. Command Relationships. The squadron will be under the operational, administrative, and tactical control of the respective MAG of each Marine aircraft wing.
 - b. Communication and Information Systems. The squadron utilizes telephones, desktop and laptop computers, and related peripherals for all information systems task, including voice mail, email, web access and access to Marine Corps administrative data processing systems.
9. Supersession. This Mission Statement supersedes the previous mission statement of 3 March 2002.

K. J. GLUECK, JR.
Deputy Commandant for
Combat Development and Integration

APPENDIX F - SAMPLE T&R WORKING GROUP PRECEPT

From: Deputy Commandant for Aviation
To: Commanding General, Training and Education Command
Via: Deputy Commandant for Combat Development and Integration
Subj: AVIATION TRAINING AND READINESS WORKING GROUP PRECEPT

1. The Marine Corps continues to produce the world's finest aviators and combat flight leaders via a rigorous and refined Training and Readiness (T&R) program within each Type/Model/Series (T/M/S) community.
2. In order to continue refining and optimizing the T&R program, the following Aviation T&R precepts are directed for each T/M/S working group beginning in Fiscal Year 20XX.
 - a. A squadron / aircrew readiness briefing, for the applicable T/M/S, will be given to all conference attendees in order to highlight any readiness, training, or other trends that will better inform T&R manual rewrite discussions or decisions.
 - b. Total flying events / flight hours in the draft T&R manual will be equal to, or less than the current T&R manual except by specifically identified requirement.
 - c. Converting flight events to simulator events will be considered for each stage of training where applicable and supportable given current simulator capabilities and capacities.
 - d. Simulator use will be considered for event re-fly currency requirements.
3. Questions or concerns pertaining to this precept will be directed to HQMC (APP).

DC AVN

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APPENDIX G - CORE COMPETENCY RESOURCE MODEL (CCRM) GUIDELINES

(At present, this Appendix applies only to Aviation Flying Units)

1. General. The Core Competency Resource Model (CCRM) identifies the external resources needed to attain and maintain a desired level of readiness for a unit. The CCRM, accredited by the Chief of Naval Operations and the Commandant of the Marine Corps was primarily developed as a Flight Hour Model to support the Flight Hour Program. It has been expanded and will include the following external resources: ordnance, indirect fire assets, ranges, targets, aggressor air, external loads, and ground assets (Helicopter Support Teams, convoys, radar support etc.). At the HQMC level the CCRM is utilized as a budgetary tool to justify the specific resources needed to support a level of readiness based upon training requirements for each platform or community. At the unit level the Adjusted Core Competency Resource Model (ACCRM) / Sortie Based Training Program (SBTP) is utilized to identify resources needed to train the unit during the execution year.

2. Core Competency Resource Model (CCRM)

a. The CCRM is a linear, bottom-up, qualitative model that identifies the resources required to attain and maintain a desired level of readiness based upon T&R Core/Mission Skill Proficiency (CSP/MSP) training requirements and the Core Model Minimum Requirement (CMMR) per unit. At the HQMC level it reflects a 12 month period (Oct-Sep) out of a normal 36 month tour for personnel. At the squadron/unit level the ACCRM/SBTP can be used to generate individual and unit requirements based upon CSP/MSP and CMMR.

b. Fixed inputs - Phases of Training. These inputs are incorporated into the models by Aviation Standards Branch (ASB). These inputs are derived from individual T/M/S T&R Manuals and only change when there is a revision to the T&R manual (normally on a triennial basis). The phases of training include:

(1) Core/Mission/Core Plus Events (2000-4000 phase). All Core, Mission, and Core Plus training Events with corresponding Proficiency Periods.

(2) Instructor Training Events (5000 phase). These include Events contained within T/M/S T&R and the MAWTS-1 Course Catalog (ASP). All work-up and certification Events are included as well as flight hours/sorties required to train and designate a WTI at MAWTS-1 during the semi-annual courses.

(3) Combat/Flight Leadership Training (6000 phase). These include both the work-up and certification Events required for Combat/Flight Leadership designations.

(4) Requirements, Qualifications, and Designations (6000 phase). These include annual training requirements contained within OPNAVINST 3710.7 (NATOPS and Instrument Evaluations) and other requirements.

c. Fixed inputs – Individual Events. These inputs are incorporated into the models by ASB. These inputs are derived from individual T/M/S T&R Manuals and only change when there is a revision to the T&R manual (normally on a triennial basis). Individual event resources required per event/occurrence include:

(1) Sortie duration – Established by HQMC (APP).

(2) Device - Includes flight in aircraft, simulator flight, or training device with Proficiency Period.

(3) Ordnance – Includes quantity and type with allowable substitutes.

(4) Ranges – Specific range requirements.

(5) Targets – Quantity and type of targets requirement.

(6) Indirect Fire Support – Quantity and type of indirect fire assets required.

(7) Aggressor Air – Quantity and type of aggressor air required.

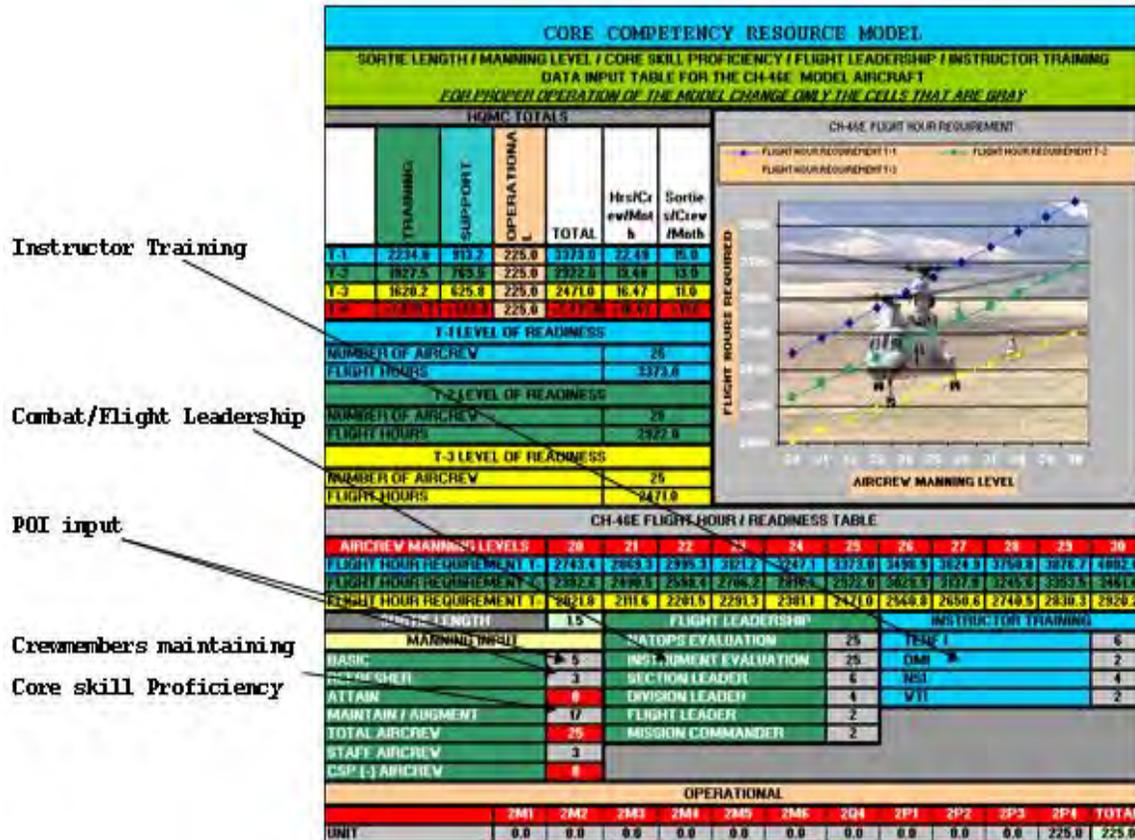
(8) External Load – Type and weight of external load required.

(9) Helicopter Support Team (HST) – Type of HST required.

(10) Convoy Support – Type of convoy support required.

(11) Other – Those other external (not organic to the unit) resources that are required to accomplish event training.

d. Variable Inputs. These inputs include the number and type of crewmembers assigned to various Programs of Instruction (POIs), the number of crewmembers that will undergo Instructor and Combat/Flight Leadership training. The inputs are completed both at the HQMC level and the unit level. Inputs at the HQMC level will identify T/M/S resource requirements and, at the unit level, inputs may assist in developing individual unit or event training requirements. See the matrix below for sample input.



APPENDIX H - MESSAGE TEMPLATES

Sample	Sample Title
1	T&R Pre-Working Group Announcement Message
2	T&R Working Group Announcement Message
3	Agenda Item Message
4	Working Group Report Message Requesting MARFOR Concurrence
5	Message Requesting DC AVN Concurrence
6	Interim Approval Message
7	Final Signature Message
8	Request for Deviation From T&R Program Manual Policy (see Paragraph 217, DEVIATIONS FROM T&R PROGRAM MANUAL POLICY.
9	Correspondence or Provisional T&R Change Message

1. T&R Pre-Working Group Announcement Message

FM CG TECOM MTESD
 TO MARFORS
 MAWS
 INFO CMC WASHINGTON DC AVN (APP, ETC.)
 MEFS
 MAWTS
 MAG/MACG/MWSG AS REQUIRED
 SQUADRONS/UNITS AS REQUIRED
 HMX-1 AS REQUIRED
 MSGID/GENADMIN/CG TECOM MTESD//
 SUBJ/PRE-WORKING GROUP ANNOUNCEMENT FOR FA-18 AND AV-8 AIRCREW TRAINING AND
 READINESS (T&R) SYLLABI//
 REF/A/NAVMC 3500.14//
 REF/B/NAVMC 3500.99//
 REF/C/NAVMC 3500.107//
 NARR/REF A IS AVIATION T&R PROGRAM MANUAL. REF B IS AV-8B T&R MANUAL. REF C IS FA-18
 T&R MANUAL.//
 POC/NAME/RANK/UNIT/DSN: 278-xxxx//EMAIL//
 RMKS/1. PER REFS, A T&R PRE-WORKING GROUP FOR STANDARDIZATION OF TRAINING SYLLABI
 FOR FA-18 AND AV-8 AIRCREW WILL TAKE PLACE AT MCAS YUMA, BLD 406 (MAWTS-1), FROM 28-
 30 JUL 10, 0800 TO 1630 DAILY.
 2. THE PURPOSE OF THIS T&R PRE-WORKING GROUP IS FOR THE SYLLABUS SPONSOR AND CG
 TECOM ASB TO COORDINATE AND BUILD A FOUNDATION AND (TEMPLATE OR DRAFT) IN
 ADVANCE OF THE FULL T&R WORKING GROUP THAT WILL BE CONDUCTED 1-5 NOV 14.
 3. AGENDA WILL BE EXECUTED IAW CHAPTER 5 OF REF A.// (Expand as required to include required
 attendees, special agenda items, etc.)

2. T&R Working Group Announcement Message

FM CG TECOM MTESD
 TO MARFORS
 MAWS

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INFO CMC WASHINGTON DC AVN (APP, ETC.)

MEFS

MAWTS

MAG/MACG/ AS REQUIRED

SQUADRONS/UNITS AS REQUIRED

HMX-1 AS REQUIRED

MSGID/GENADMIN/CG TECOM MTESD//

SUBJ/T&R WORKING GROUP ANNOUNCEMENT FOR FA-18A/C/D AND AV-8B AIRCRAFT//

REF/A/NAVMC 3500.14//

REF/B/NAVMC 3500.99//

REF/C/NAVMC 3500.107//

NARR/REF A IS AVIATION T&R PROGRAM MANUAL. REF B IS AV-8B T&R MANUAL. REF C IS FA-18 T&R MANUAL.//

POC/NAME/RANK/UNIT/DSN: 278-xxxx//EMAIL//

RMKS/1. PER REFS, A T&R WORKING GROUP FOR STANDARDIZATION OF TRAINING SYLLABI FOR FA-18 AND AV-8 AIRCREW WILL TAKE PLACE AT MCAS YUMA, BLD 406 (MAWTS-1), FROM 1-5 NOV 14, 0800 TO 1630 DAILY. TENTATIVE SCHEDULE LISTED BELOW:

1 NOV: OPENING RMKS, ADMIN INFO, DISC ITEMS, TACAIR STAN ITEMS, AGENDA ITEMS, T&R WORKING GROUP.

2-4 NOV: T&R WORKING GROUP CONTINUED.

5 NOV: TACAIR STAN ITEMS, T&R WRAP-UP.

2. T&R AGENDA TOPICS FROM UNITS OR AGENCIES ARE TO BE SUBMITTED IAW REF A (ITEM, DISCUSSION, RECOMMENDATION FORMAT) TO (APPROPRIATE SYLLABUS SPONSORS), NLT 15 SEP 14. COMMANDS OR SUBJECT MATTER EXPERTS DESIRING DISCUSSION BRIEFING TIME ON MUST CONTACT SYLLABUS SPONSORS NLT 1 OCT 14.

3. THE CURRENT VERSION OF REFS B AND C ARE ATTACHED.

4. PER REF A, VOTING MEMBERS CONSIST OF REPS FROM THE FOLLOWING ORGANIZATIONS:

4.1. COMMARFORPAC

4.2. COMMARFORCOM

4.3. COMMARFORRES

4.4. CG 1ST MAW

4.6. CG 2D MAW

4.7. CG 3D MAW

4.8. CG 4TH MAW

4.9. CG MCCDC

REPS SHOULD BE EXPERIENCED IN DAY-TO-DAY SUPERVISION OF AVIATION TRAINING PROGRAMS AND BE ABLE TO REPRESENT THEIR COMMAND ON EACH ISSUE. FAMILIARITY WITH THE REFS IS CRUCIAL TO THE SUCCESS OF THE WORKING GROUP. CG TECOM WILL FUND TWO VOTING REPRESENTATIVES (ONE AV-8 & ONE FA-18) FROM EACH OF THE ABOVE COMMANDS. REQUEST MARFORS & MAWS SUBMIT ATTENDEE NOMINATIONS NLT 1 OCT 14 VIA AMHS MESSAGE TO CG TECOM MTESD.

INFORMATION:

FULL NAME, SSN, MOS, BILLET, COMMAND, EMAIL, DSN PHONE.

5. APPROPRIATION DATA AND T&R AGENDA WILL BE PUBLISHED VIA SEPCOR.

ATTENDEES NOT LISTED IN PARA 4 WILL BE UNIT FUNDED.

6. ATTENDEES ARE RESPONSIBLE FOR TRAVEL AND BILLETING ARRANGEMENTS.

YUMA BOQ DSN: 269-3578.

7. ATTENDEES ARE RESPONSIBLE FOR COORDINATING SECURITY CLEARANCE REQUIREMENTS FOR ENTRY INTO CONF BUILDING. MAWTS-1 SECURITY CLEARANCE POC: NAME, DSN 269-xxxx; FAX 269-xxxx.

8. UNIFORM IS FLIGHT SUIT OR SERVICE EQUIVALENT.//

BT

3. Agenda Item Message

FM CG TECOM MTESD

TO MARFORS
MAWS
INFO CMC WASHINGTON DC (APP, ETC.)
MEFS
MAWTS
MAG/MACG/ AS REQUIRED
SQUADRONS/UNITS AS REQUIRED
HMX-1 AS REQUIRED
MSGID/GENADMIN/CG TECOM MTESD//
SUBJ/AGENDA ITEMS FOR FA-18 AND AV-8 T&R WORKING GROUPS//
REF/A/MSG/NAVMC 3500.14//
REF/B/MSG/NAVMC 3500.99//
REF/C/MSG/NAVMC 3500.107//
NARR/REF A IS AVIATION T&R PROGRAM MANUAL. REF B IS AV-8B T&R MANUAL. REF C IS FA-18
T&R MANUAL.//
POC/NAME/RANK/UNIT/DSN: 278-xxxx//EMAIL//
RMKS/1. PER REFS, T&R WORKING GROUPS FOR STANDARDIZATION OF TRAINING SYLLABI FOR
FA-18 AND AV-8 AIRCREW WILL TAKE PLACE AT MCAS YUMA, BLD 406 (MAWTS-1), FROM 1-5 NOV
14, 0800 TO 1630 DAILY. TENTATIVE SCHEDULE LISTED BELOW:
1 NOV: OPENING RMKS, ADMIN INFO, DISC ITEMS, TACAIR STAN ITEMS, AGENDA ITEMS, T&R
WORKING GROUPS.
2-4 NOV: T&R WORKING GROUPS CONTINUED.
5 NOV: TACAIR STAN ITEMS, T&R WRAP-UP.
2. PER REF A, WORKING GROUP VOTING MEMBERS HAVE BEEN IDENTIFIED AS
FOLLOWS:
FA-18 T&R WORKING GROUP:
2.1. COMMARFORPAC: NAMES
2.2. COMMARFORCOM:
2.3. COMMARFORRES:
2.4. CG 1ST MAW:
2.5. CG 2D MAW:
2.6. CG 3D MAW:
2.7. CG 4TH MAW:
2.8. CG MCCDC:
AV-8 T&R WORKING GROUP:
2.1. COMMARFORPAC: NAMES
2.2. COMMARFORCOM:
2.3. COMMARFORRES:
2.4. CG 1ST MAW:
2.5. CG 2D MAW:
2.6. CG 3D MAW:
2.7. CG 4TH MAW:
2.8. CG MCCDC:
3. PER REF A, SUBMITTED AGENDA ITEMS HAVE BEEN CONSOLIDATED BY THE FA-18 AND AV-8
SYLLABUS SPONSORS. WORKING GROUP AGENDA ITEMS AND CURRENT VERSION OF REFS B AND
C ARE ATTACHED. WORKING GROUP VOTING MEMBERS SHOULD ARRIVE PREPARED WITH
COMMAND POSITIONS ON AGENDA ITEMS TO FACILITATE CONDUCT OF CONFERENCES.
4. APPROPRIATION DATA AND T&R AGENDA WILL BE PUBLISHED VIA SEPCOR. ATTENDEES NOT
LISTED IN PARA 2 WILL BE UNIT FUNDED.
5. ATTENDEES ARE RESPONSIBLE FOR TRAVEL AND BILLETING ARRANGEMENTS. YUMA BOQ
DSN: 269-3578.
6. ATTENDEES ARE RESPONSIBLE FOR COORDINATING SECURITY CLEARANCE REQUIREMENTS
FOR ENTRY INTO CONF BUILDING. MAWTS-1 SECURITY CLEARANCE POC: NAME, DSN 269-xxxx;
FAX 269-xxxx.
7. UNIFORM IS FLIGHT SUIT OR SERVICE EQUIVALENT.//

NAVMC 3500.14D

5 Feb 16

4. Working Group Report Message Requesting MARFOR Concurrence

FM CG TECOM MTESD

TO MARFORS

MAWS

INFO CMC WASHINGTON DC AVN (APP, ETC.)

MEFS

MAWTS

MAG/MACG/ AS REQUIRED

SQUADRONS/UNITS AS REQUIRED

HMX-1 AS REQUIRED

MSGID/GENADMIN/CG TECOM MTESD//

SUBJ/REQUEST FOR CONCURRENCE – DRAFT FA-18 AND AV-8B T&R MANUALS//

REF/A/MSG/NAVMC 3500.14//

REF/B/MSG/NAVMC 3500.99//

REF/C/MSG/NAVMC 3500.107//

REF/D/MSG/CG TECOM MTESD/211900Z MAY 14//

NARR/REF A IS AVIATION T&R PROGRAM MANUAL. REF B IS AV-8B T&R MANUAL. REF C IS FA-18 T&R MANUAL. REF D IS T&R WORKING GROUP ANNOUNCEMENT MSG.//

POC/NAME/RANK/UNIT/DSN: 278-xxxx//EMAIL//

RMKS/1. PER THE REFS, A T&R WORKING GROUP WAS HELD AT MCAS YUMA 1-5

NOV 14 TO UPDATE F/A-18 AND AV-8B AIRCREW TRAINING SYLLABI.

2. WORKING GROUP MEMBERS REPRESENTING VOTING COMMANDS WERE AS FOLLOWS:

F/A-18 T&R CONFERENCE:

2.1. COMMARFORPAC: NAMES

2.2. COMMARFORCOM:

2.3. COMMARFORRES:

2.4. CG 1ST MAW:

2.5. CG 2D MAW:

2.6. CG 3D MAW:

2.7. CG 4TH MAW:

2.8. CG MCCDC:

AV-8B T&R WORKING GROUP:

2.1. COMMARFORPAC: NAMES

2.2. COMMARFORCOM:

2.3. COMMARFORRES:

2.4. CG 1ST MAW:

2.5. CG 2D MAW:

2.6. CG 3D MAW:

2.7. CG 4TH MAW:

2.8. CG MCCDC:

3. SIGNIFICANT CHANGE PROPOSALS TO F/A-18 AND AV-8B T&R MANUALS INCLUDE:

ALIGNMENT OF TACAIR T&R TRAINING PHILOSOPHY, STANDARDIZATION OF TACAIR NSQ METHODOLOGY, REVISION OF UNIT CORE COMPETENCY REQUIREMENTS, AND ESTABLISHMENT OF FLIGHT LEADER WORKUP & EVALUATION EVENTS IN 6000 PHASE.

4. THE DRAFT F/A-18 AND AV-8B T&R MANUALS ARE ATTACHED.

5. PER REF A, REQUEST MARFORS CONCUR WITH DRAFT FA-18 AND AV-8B T&R MANUALS VIA MSG TO CG TECOM MTESD NLT 13 JAN 15.//

5. Message Requesting DC AVN Concurrence

FM CG TECOM MTESD

TO CMC WASHINGTON DC AVN APP

INFO MARFORS

MSGID/GENADMIN/CG TECOM MTESD//

SUBJ/DRAFT FA-18 T&R MANUAL//

REF/A/DOC/NAVMC 3500.14//

REF/B/MSG/CG TECOM MTESD/151939Z FEB 14//

5 Feb 16

REF/C/MSG/COMMARFORCOM/221845Z FEB 14//

REF/D/MSG/COMMARFORPAC/242052Z FEB 14//

REF/E/MSG/COMMARFORRES/091750Z MAR 14//

NARR/REF A IS AVIATION T&R PROGRAM MANUAL. REF B IS MSG STAFFING DRAFT FA-18 T&R FOR MARFOR CONCURRENCE. REFS C-E PROVIDE MARFOR CONCURRENCE WITH DRAFT FA-18 T&R MANUAL.//

POC/NAME/RANK/UNIT/DSN: 278-xxxx//EMAIL//

RMKS/1. A T&R WORKING GROUP FOR THE FA-18 WAS CONDUCTED AT MAWTS-1 22-26 AUG 10.

2. PER REF A, REQ DC AVN APP CONCUR WITH THE ATTACHED FA-18 T&R DRAFT MANUAL.

3. REQ RESPOND VIA MSG TO CG TECOM MTESD NLT 7 NOV 14.//

6. Interim Approval Message

FM CG TECOM MTESD

TO MARFORS

MAWS

MEFS

MAG/MACG/ AS REQUIRED

SQUADRONS/UNITS AS REQUIRED

MAWTS 1

HMX 1 AS REQUIRED

INFO CMC WASHINGTON DC AVN APP ETC. AS REQUIRED

MSGID/GENADMIN/CG TECOM MTESD//

SUBJ/FA-18 T&R INTERIM APPROVAL//

REF/A/DOC/NAVMC 3500.14//

REF/B/MSG/COMMARFORCOM/221845Z FEB 14//

REF/C/MSG/COMMARFORPAC/242052Z FEB 14//

REF/D/MSG/COMMARFORRES/091750Z MAR 14//

REF/E/MSG/CMC WASHINGTON DC APP/121505Z APR 14//

NARR/REF A IS AVIATION T&R PROGRAM MANUAL. REFS B THROUGH E PROVIDE CONCURRENCE WITH DRAFT FA-18 T&R MANUAL.//

POC/NAME/RANK/UNIT/DSN: 278-xxxx//EMAIL//

RMKS/1. PER REFS, INTERIM VERSION OF THE FA-18 T&R MANUAL IS APPROVED FOR USE. THE FA-18 T&R MANUAL WILL BE PUBLISHED AS A NAVMC PUBLICATION.

2. THE MANUAL IS MARKED "INTERIM APPROVED 17 APR 14" AND IS ATTACHED.

3. THE FA-18 CORE COMPETENCY RESOURCE MODEL (CCRM)/FLIGHT HOUR MODEL IS UPDATED TO REFLECT THIS INTERIM APPROVED T&R MANUAL. IT MAY BE ACCESSED AT xxxxxxxxxxxx

//

7. Final Signature Message

FM CG TECOM MTESD

TO MARFORS

MEFS

MAWS

MAG/MACG/ AS REQUIRED

SQUADRONS/UNITS AS REQUIRED

MAWTS 1

INFO CMC WASHINGTON DC AVN APP ETC. AS REQUIRED

HMX-1 AS REQUIRED

MSGID/GENADMIN/CG TECOM MTESD//

SUBJ/FA-18 T&R MANUAL//

REF/A/DOC/NAVMC DIR 3500.14//

POC/NAME/RANK/UNIT/DSN: 278-xxxx//EMAIL//

RMKS/1. PER REF A, FA-18 T&R MANUAL HAS BEEN SIGNED AS NAVMC 3500.107 DATED 25 MAY 14.

2. IT MAY BE ACCESSED ON THE ASB WEBSITE AT:

xxxxxxxxxxx

SELECT "TRAINING & READINESS MANUALS," "FIXED WING TRAINING AND READINESS MANUALS."

NAVMC 3500.14D

5 Feb 16

3. T&R DOWNLOADS HAVE BEEN UPDATED TO REFLECT THE FOLLOWING CHANGES: AA-263 PROFICIENCY PERIOD CHANGED TO REFLECT A 365 DAY PROFICIENCY PERIOD VICE AN *; NS-253 GOAL CHANGED TO REFLECT LOW ANGLE POP-UP ADDITION, PREREQUISITE CHANGED TO AS-239 VICE AS-237, AND 3 BDU-48'S ADDED TO ORDNANCE REQUIREMENT. THE DOWNLOADS ARE LOCATED ON THE ASB WEBSITE:

xxxxxxxxxxx

4. THIS NAVMC PUBLICATION IS THE ONLY APPROVED FA-18 T&R MANUAL. ENSURE ALL PREVIOUS VERSIONS/INTERIM VERSIONS ARE REPLACED WITH THE DIRECTIVE LISTED ABOVE.

//

8. Request for Deviation From T&R Program Manual Policy

FM HMM XXX

TO MAG XX

CC:

MAW G-3

MEF G-3

COMMARFOR G-3

CG TECOM MTESD

MAWTS-1

MSGID/GENADMIN/(COMMAND)//

SUBJ/T&R DEVIATION REQUEST//

REF/A/DOC/NAVMC 3500.14//

AMPN/REF A IS AVIATION T&R PROGRAM MANUAL.//

POC/LAST NAME, INITIALS/RANK/COMMAND/PHONE/EMAIL//

RMKS/1. PER REF A, NEWLY DESIGNATED NAVAL AVIATORS, NAVAL FLIGHT OFFICERS, AND CREW CHIEFS SHALL BE ASSIGNED TO AN OPERATIONAL SQUADRON FOR A MINIMUM OF TWO YEARS AFTER COMPLETING CORE INTRODUCTION PHASE TRAINING.

2. REQUEST APPROVAL TO ASSIGN CAPT NAME, FAC ORDERS WITH LESS THAN TWO YEARS TIME IN AN OPERATIONAL SQUADRON. SNO WILL HAVE BEEN ASSIGNED TO AN OPERATIONAL SQUADRON FOR 22 MONTHS IF APPROVAL IS GRANTED.

3. JUSTIFICATION. CAPT NAME WILL HAVE 22 MONTHS ON STATION PRIOR TO HIS PROPOSED REASSIGNMENT AS A FAC. CAPT NAME VOLUNTEERED FOR A FAC BILLET AND WAS ORIGINALLY SCHEDULED TO TRANSFER AFTER 2 YEARS ON STATION. A SHORT-NOTICED PERSONNEL CHANGE HAS RESULTED IN THE NECESSITY OF HAVING HIM FILL AN EARLIER BILLET REQUIREMENT. CAPT NAME HAS COMPLETED A COMBAT DEPLOYMENT WITH HIS FLEET SQUADRON IN THE SAME THEATER HE WILL BE SUPPORTING AS A FAC.//

9. Correspondence or Provisional T&R Change Message

FM MAWTS-1

TO CG TECOM MTESD

CC:

CMC WASHINGTON DC AVN APP

CMC WASHINGTON DC AVN APW

CMC WASHINGTON DC CDI MID

COMMARFORCOM G3-5-7

COMMARFORPAC G3

CG I MEF G-3

CG II MEF G3

CG III MEF G-3

CG 2ND MAW G3

CG 3RD MAW G3

MAG 11

MAG 14

MAG 36

VMGR 152

5 Feb 16

VMGR 252
VMGR 352
VMGR 352 FWD
MAWTS 1
UNCLASSIFIED/
MSGID/GENADMIN/MAWTS 1//
SUBJ/KC-130J T&R MANUAL CORRESPONDENCE CHANGE//
REF/A/DOC/NAVMC 3500.14//
REF/B/DOC/NAVMC 3500.53B//
NARR/REF A IS AVIATION T&R PROGRAM MANUAL. REF B IS KC-130J T&R
MANUAL.//
POC/K. R. HERRMANN/CAPT/MAWTS-1/KC-130/DSN: 269-3547/
EMAIL: KEVIN.R.HERRMANN@USMC.MIL//
RMKS/1. PER REF A, A T&R CHANGE IS REQUESTED FOR REF B.
2. BACKGROUND. IT HAS BEEN DETERMINED THAT THE CMMR READINESS
REPORTING MATRIX ON PAGE 1-9 FOR THE CREWMaster POSITION CONTAINS AN ERROR FOR
THE ASSAULT TRANSPORT (AT) MCT 1.3.4.1. THE MATRIX STATES A REQUIREMENT FOR "2 X MSP."
THE CORRECT ENTRY SHOULD BE "1 X MSP." IN ADDITION, THE CMTS MATRIX ON PAGE 1-10
REQUIRES A CORRESPONDING CHANGE TO THE AT MISSION SKILL. THE CREWMaster ENTRY
FOR CREWS SHOULD BE CHANGED FROM "42/32/22/10" TO "21/16/11/5."
3. JUSTIFICATION. THIS CORRESPONDENCE CHANGE REQUEST HAS A DIRECT
EFFECT ON READINESS REPORTING AND IMPLEMENTATION OF THE CHANGE WILL ALIGN AND
CORRECT OVERALL KC-130J READINESS REPORTING.//

BLANK

APPENDIX I - GLOSSARY OF TERMS

Advanced Systems Tactics and Ordnance (ASTO) - Any flight designed to develop proficiency conducting day, night IMC system tactics and ordnance deliveries using intra-cockpit aircraft weapon systems displays.

Air Delivery (AD) - Any flight in which aircraft release parachuting personnel, sensors, equipment or supplies (other than ordnance).

Aerial Gunner/Observer (AGO) - Individual who assists the Crew Chief in the cabin of a helicopter and has been thoroughly briefed by the Aircraft Commander on lookout doctrine, obstacle clearance calls, ICS utilization and emergencies.

Air-to-Air Refueling (AAR) - Any flight designed to develop the ability of aircrews to perform tactical AAR operations, day and night, to include helicopter in-flight refueling from a ship.

Air Combat Maneuvering (ACM)- See OPNAVINST 3710.7 for definition.

Air Mission Commander (AMC) / Mission Commander (MC)- An experienced aviator or UAS commander who has in-depth knowledge of the MACCS, airspace management, fire support coordination, fixed and rotary wing operations and capabilities. The AMC is responsible for the accomplishment of the air mission.

Aircrew (AC) - A collective term that applies to all categories of personnel in a flight status. Analogous to crewmember.

Aircrew Performance Record (APR) – A standardized evaluation and training management tracking system for monitoring and recording the progress of personnel. See paragraph 218. Analogous to OPNAV 3760/32 NATOPS Flight Personnel Training/Qualification Jacket.

Air-to-Ground (AG) - Any VMC/IMC flight designed to attack surface targets with conventional unguided ordnance.

Alternate Insertion/Extraction (AIE) techniques- Any flight employing the various insertion and extraction techniques employed by the MV-22 (i.e. SPIE, FASTROPE, Rappelling.)

Assault Support Coordinator (Airborne) (ASC(A)) - An experienced aviator who operates from an aircraft to provide coordination and procedural control during assault support operations. The ASC(A) acts as an agency of the MACCS and is an airborne extension of the DASC or HDC.

Battlefield Illumination (BI) - Any flight designed to deliver aircraft parachute flares.

Brief - Conducted prior to a flight/event to discuss all aspects of the Brief item or a discussion of the evolution as a whole.

Cargo and Passenger Loading (CPL) - Any flight required to carry passengers and/or cargo.

Carrier Qualification (CQ) - Any flight designed to demonstrate the aircrew's ability to conduct shipboard landing operations day or night.

Casualty Evacuation (CASEVAC) - Any flight designed to demonstrate casualty evacuation procedures.

Categories of Training (CAT) - Conversion matrix for USN to USMC Program of Instruction (POI).

1. Category I (CAT I). This equates to the Basic POI.
2. Category II (CAT II). This equates to the Transition or Conversion POI. Additionally, this can refer to a Series Conversion.
3. Category III (CAT III). This equates to the Refresher POI.
4. Category IV (CAT IV). This equates to the Modified Refresher POI.
5. Category V (CAT V). Other POIs not described above.

Certification - A certification refers to the evaluation process conducted via syllabus event(s) by a designated instructor or authorized personnel for the purpose of assessing individual skills as a prerequisite to qualification or designation.

For Aviation Ground Communities - A certification also serves as a “one-time” assessment of proficiency for a given skill or position that does not expire; specifics shall be noted in community T&Rs. Commanders or designated representatives shall issue certification letters.

Combined Strike Tactics (CST) – Tactical training sorties in which several aircraft types join in a combined mission: Alpha Strike, Helo Assault, etc.

Command and Control Warfare (C2W) - The integrated use of operational security, military deception, psychological operations, electronic warfare, and physical destruction, mutually supported by intelligence to deny information to, influence, or destroy adversary command and control capabilities while protecting friendly command and control capabilities against such action.

Community – A collective term used to identify all aviation units and personnel associated with an individual Aviation T&R Manual (E.G. model aircraft, MACCS system, aviation ground MOS).

Confined Area Landings (CAL) - Any landing pattern work flown to sites or landing zones in which terrain/obstacle clearance techniques and cautions become the primary objective.

Core Capability - A unit-centered training readiness calculation that assists operations departments and commanding officers in determining a percentage-adjusted MET Output Standard given crew manning constraints.

Core Competency - Unit Core Competency is a collective term that entails requirements, capabilities, and information delineated in the applicable unit mission statement, METL, appropriate T/O information, Output Standards, Core Model Minimum Requirements, and supporting tables such as METL/Core Skill matrix and qualification/designation tables.

Core Model – The Core Model is the basic foundation or standardized format by which all Aviation T&Rs are constructed. The Core model provides the capability of quantifying both unit and individual training requirements and measuring readiness. This is accomplished by linking community Mission Statements, Mission Essential Task Lists, Output Standards, Proficiency Requirements and Combat Leadership.

Core Competency Resource Model (CCRM) - A qualitative analytical tool (model) that displays external resources required to attain and maintain unit proficiency. This tool objectively captures and displays the required external resources for a desired level of readiness. External resources are defined as those not organic to the unit.

Core Model Minimum Requirement (CMMR)

(1) The CMMR is an objective readiness metric derived by the community to meet the required output standards defined within a unit's core METs. This metric identifies the number of crews, composition of each crew, and the number of combat leaders required to meet the warfighting function of the unit. Each crew member is further identified within the CMMR by required skill proficiency. Attaining CMMR should be considered the minimal training objective.

(2) CMMR numbers are determined by the community and derived only from the Mission Skill Phase, Mission Plus Phase, and Combat Leadership (from the Requirements, Certification, Qualification, Designation (RCQD) Phase). Attaining CMMR is considered the minimum for training. If a unit falls short of CMMR, commanders must refocus their training, or if unable to self-correct, request assistance from higher headquarters to meet the requirement.

Core Model Training Standard (CMTS) - CMTS is a community determined standard reflecting the desired number of individuals trained to/as Core Skill Proficiency (CSP)/Mission Skill Proficiency (MSP)/Core Plus Skill Proficiency (CPSP)/Mission Plus Skill Proficiency (MPSP)/ Instructors/Combat Leaders/Flight Leaders by syllabus. The CMTS is the optimal training objective and must equal to or greater than CMMR. CMTS is only used for internal squadron planning and not utilized for readiness reporting. CMTS is required for flying communities, but optional for Aviation Ground.

Core Model Training Report (CMTR) - The CMTR is an M-SHARP tool that displays trained aircrew toward each CMTS category, including CSP/MSP, instructors, designated Combat Leaders, and MET-capable Crews. Use of the CMTR by aviation ground units is optional.

(1) The CMTR provides a color-coded display representing the level of unit training (T-1, T-2 etc.) as it relates to the specific T&R's CMTS.

(2) Individuals are "counted" in the CMTR once they have first attained and then maintained CSP/MSP/CPSP, instructor training, qualifications, and Combat Leadership designations. The CMTR will better inform commanders when considering their overall unit's training accomplished.

Core Plus – A term used to define the 4000 Phase of Events. The Core Plus Phase consists of both Mission (Mission Plus) and Skills (Core Plus Skill) training. Core Plus training is defined as training that is either Mission/Theater specific or that has a low likelihood of occurrence.

Core Plus Mission - Training Events that can be theater specific or that have a low likelihood of occurrence. They are comprised of advanced Event(s) that are focused on Core Plus MET performance and draw upon the knowledge, aeronautical abilities, and situational awareness. 4000 Phase Events.

Core Plus Skill - Training Events that can be theater specific or that have a low likelihood of occurrence. They may be Fundamental, environmental, or conditional capabilities required to perform basic functions. 4000 Phase Events.

Core Plus Skill Proficiency (CPSP) - CPSP is a measure of training completion for 4000 Phase “Skill” events. CPSP is attained by executing all events listed in the Attain Table for each Core Plus Skill. The individual must be simultaneously proficient in all events within that Core Plus Skill to attain CPSP.

Crew Resource Management (CRM) - Replaces Aircrew Coordination Training (ACT) term. CRM incorporates the use of specifically defined behavioral skills into all Navy/Marine Corps aviation operations. Standardized training strategies are used in such areas as academics, simulators, and flight training. Practicing CRM principles improves mission effectiveness and serves to prevent mishaps that result from poor crew coordination. See OPNAV Instruction 1542.7.

Core Skill – Fundamental, environmental, or conditional capabilities required to perform basic functions. These basic functions serve as tactical enablers that allow crews to progress to the more complex Mission Skills. Primarily 2000 Phase events but may be introduced in the 1000 Phase.

Core Skill Proficiency (CSP) - Applies to individuals, crews and units.

a. Individual CSP is a measure of training completion for 2000 Phase Events. CSP is attained by executing all Events listed in the Attain Table for each Core Skill. The individual must be simultaneously proficient in all Events within that Core Skill to attain CSP.

b. Crew CSP – A crew is defined by each community T&R manual for each Core Skill. A Crew CSP is a crew where each of the crew positions can be filled by individuals who have attained and maintained a “proficient” status in all T&R defined Core Skill Events.

c. Unit CSP shall be defined in terms of numbers of crews required to be proficient in each Core Skill.

Crewmember - A collective term that applies to all categories of personnel who operate an aircraft or system.

Currency - Currency is a control measure used to provide an additional margin of safety based on exposure frequency to a particular skill. It is a measure of time since the last event demanding that specific skill. Loss of currency does not affect a loss of proficiency. For example, currency determines minimum altitudes in rules of conduct based upon the most recent low altitude fly date. Specific currency requirements for individual type mission profiles can be found in Chapter 3.

Defensive Air Combat Maneuvering (DACM) - The maneuvering of attack or utility helicopters in response to an airborne threat.

Defensive Combat Maneuvers (DCM) - Flights in the MV-22 syllabus including the defensive tactics versus airborne threats.

Defensive Measures (DM) - Flights in assault support helicopters utilizing defensive tactics versus airborne threats.

Defensive Tactics (DT) - Those aircraft maneuvers performed by aircraft possessing no offensive armament in response to airborne threats. Performed as last ditch tactics when efforts to escape detection have failed.

Demonstrate - The description and performance of a particular maneuver/event by the instructor, observed by the PUI/student. The PUI/student is responsible for knowledge of the procedures prior to the demonstration of a required maneuver/student.

Designation – A designation is a status assigned to an individual based on leadership ability. Designations are command specific and remain in effect until removed for cause or the individual is transferred to another command.

Discuss - An explanation of systems, procedures, or maneuvers during the brief, in-flight/mission, or post-flight/mission.

Electronic Attack (EA) - That division of electronic warfare involving the use of electromagnetic energy, directed energy, or anti-radiation weapons to attack personnel, facilities, or equipment with the intent of degrading, neutralizing, or destroying enemy combat capability and is considered a form of fires. EA includes: 1) actions taken to prevent or reduce an enemy’s effective use of the electromagnetic spectrum, such as jamming and electromagnetic deception; and 2) employment of weapons that use either electromagnetic or directed energy as their primary destructive mechanism (lasers, radio frequency weapons, particle beams).

Electronic Protection (EP) - Division of electronic warfare involving passive and active means taken to protect personnel, facilities, and equipment from any effects of friendly or enemy employment of electronic warfare that degrade, neutralize, or destroy friendly combat capability.

Electronic Warfare (EW) - Any military action involving the use of electromagnetic and directed energy to control the electromagnetic spectrum or to attack the enemy. Also called EW. The three major subdivisions within electronic warfare are: electronic attack, electronic protection, and electronic warfare support.

Electronic Warfare Support (ES) - That division of electronic warfare involving actions tasked by, or under direct control of, an operational commander to search for, intercept, identify, and locate or localize sources of intentional and unintentional radiated electromagnetic energy for the purpose of immediate threat recognition, targeting, planning and conduct of future operations.

Emergency Safe Altitude (ESA) - An altitude that provides a minimum of 1000 ft clearance above the highest obstacle that is within 25 nm either side of course line.

Escort (ESC) - Any flight designed to escort fixed wing or assault support (Helo, KC-130) aircraft against simulated air or surface threats.

Evaluate or Evaluation (EVAL) - Any flight or T&R Event designed to evaluate aircrew standardization that does not fit another category such as SARCK, HACCK, T2PCK, etc.

Event – A flight or ground training evolution defined or required by individual POI(s) within a syllabus. Analogous to Syllabus Event.

Expeditionary Airfield (EAF) - Any flight designed to demonstrate aircrew ability to conduct day or night field arrestments and short field take-offs.

External (EXT) - Any flight in which a helicopter externally suspends and transports weights, cargo, vehicles, or aircraft.

Familiarization (FAM) - Any event in which aircrew gain basic knowledge of aircraft flight or system characteristics, limitations, emergency procedures, and crew position responsibilities.

Field Carrier Landing Practice (FCLP) - Any flight designed to prepare aircrews for operation in an EAF or carrier environment using an optical landing system and/or LSO/LSE control.

Formation (FORM) - Any flight designed to develop proficiency in basic section and/or division formation flying, day or night, and develop basic skills in tactical formations and maneuvering.

Forward Air Controller (Airborne) (FAC(A)) - A specially trained and qualified aviation officer who exercises control from the air of aircraft engaged in close air support of ground troops, as well as control of surface based supporting arms as required. The FAC(A) is normally an airborne extension of the Tactical Air Control Party.

Fragmentary Order Mission (FRAG) - Any flight in support of a designated unit for tasked airlift missions.

Instructor Under Training (IUT) - An individual undergoing instructor training. Events that are instructor focused are normally identified with the "IUT" prefix in the event code.

Instruments (INST) - Any flight involving the aircrew's ability to execute aircraft maneuvers under instrument conditions while complying with IFR procedures and using installed NAVAIDS.

Internal (INT) - Any flight in which a helicopter internally carries cargo, equipment, or weights.

Introduce - The instructor may demonstrate a procedure/maneuver to a student, or may coach the PUI/student through the procedure/maneuver without demonstration. The PUI/student performs the procedures/maneuver with coaching as necessary. The PUI/student is responsible for knowledge of the procedures.

Low Altitude Tactics (LAT) - Any flight designed to develop proficiency in low altitude tactics. The term LAT shall apply to tactical fixed wing operations conducted during day or night VMC where the briefed intent is to conduct low altitude flight below 500 ft AGL.

Master Scenario Events List (MSEL) - A master list of milestones and/or significant Events in an exercise.

Medical Evacuation (MEDEVAC) - Any flight designed to demonstrate medical evacuation procedures.

Minimum Altitude (MA) - The lowest authorized altitude for a specific syllabus requirement.

Minimum Altitude Capable (MAC) - That altitude below comfort level at which the pilot is capable of performing terrain clearance tasks only.

Minimum Safe Altitude (MSA) - An altitude that provides a minimum of 500 feet clearance above the highest obstacle that is within 5 NM either side of course line or planned course deviation for that leg of the route. MSA shall be briefed for all LAT training.

Mission Plus Skill Proficiency (MPSP) -

Mission Skill - Mission Skills enable a unit to execute a specific MET. They are comprised of advanced Event(s) that are focused on MET performance and draw upon the knowledge, aeronautical abilities, and situational awareness developed during Core Skill training. 3000 Phase events.

Mission Skill Proficiency (MSP) - Applies to individuals, crews and units.

a. Individual MSP is a measure of training completion for 3000 Phase Events. MSP is attained by executing all Events listed in the Attain Table for each Mission Skill. The individual must be simultaneously proficient in all Events within that Mission Skill to attain MSP. MSP is directly related to Training Readiness.

b. Crew MSP – A crew is defined by each community T&R manual for each Mission Skill. A Crew MSP is a crew where each of the crew positions can be filled by individuals who have attained and maintained a “proficient” status in all T&R defined Mission Skill Events.

c. Unit MSP shall be defined in terms of numbers of crews required to be proficient in each Mission Skill. A MSP Unit (T-2) maintains a minimum number of MSP Crews in each Mission Skill as set forth in the applicable T&R community manual.

NATOPS Jacket - The squadron NATOPS Officer maintains the aircrew NATOPS Flight Personnel Training/Qualification Jacket (NATOPS jacket) per OPNAVINST 3710.7.

Naval Aviator Production Process (NAPP) - A CNO-initiated program to focus on improving the process of producing first tour NAs and NFOs. See paragraph 801.

Navigation (NAV) - Any flight designated to develop aircrew ability to plan and execute navigation using aeronautical charts, visual checkpoints, RADAR, or electronic navigational systems.

Night Vision Device (NVD) - An electro-optical device used to provide a visible image using the electromagnetic energy available at night.

Night Vision Goggles (NVG) - Any night flight where helmet mounted, night imaging device flying techniques receive priority instruction.

Observer (OBS) - An individual who has satisfied the aero medical and applicable T&R requirements and is designated in writing by the commanding officer (see definition of Flight Crew in OPNAVINST 3710.7).

Performance Record – See paragraph 218. Units shall maintain performance records for all assigned individuals undergoing aviation T&R syllabi training.

a. Flight units shall utilize Aircrew Performance Record (APR) folders.

b. Aviation Ground communities shall use Performance Records as prescribed by the individual communities in coordination with the syllabus sponsor.

Phase – A phase is an administrative group of stages consisting of Events. Each phase is numbered in increments of one thousand (0000, 1000, 2000, 3000, 4000, 5000, 6000, 7000, 8000, etc).

Practice - The performance of a maneuver or procedure by the PUI/student that may have been previously introduced in order to attain a specified level of performance.

Prerequisite - A prerequisite is a requirement that must be completed prior to commencing another (generally more complex) training requirement. Prerequisites implement a building block approach to training. Omitting or skipping event prerequisites is prohibited (unless the prerequisite is waived). Prerequisites may include academics, Events, entire stages, entire phases, certifications, qualifications, and designations. Communities may use any combination or number of these prerequisites to tailor training as appropriate.

Proficiency - Proficiency is a measure of achievement of a specific skill.

Proficiency Period - establishes the maximum time between syllabus Events. Specified T&R Events have a Proficiency Period, measured in number of days/months, that indicates the period within which the event must be reflown or updated.

Events that have no Proficiency Period have a one-time training requirement and are noted by an asterisk (*) in the Events themselves and in the Proficiency Period column of the syllabus matrix.

Program of Instruction (POI) - A training track assigned to a Marine based on their proficiency in a skill.

Qualification (QUAL) - Qualifications are assigned to personnel based on demonstration of proficiency in a specific skill. All qualifications are assigned one or more T&R qualification Events. When all qualification requirements and Events are completed, the individual may be granted the respective qualification by the commanding officer or in the case of aviation ground communities, as directed in their respective T&R Manual. Proficiency status of these qualification Events are used to determine qualification status; an individual qualification status may be either "Qualified" or "Not Qualified." Specific re-qualification criteria shall be delineated in individual T&R manuals.

Rapid Ground Refueling (RGR) - Ground method of providing fuel to an aircraft utilizing another aircraft in an austere location.

Reconnaissance (RECON) - Any flight that includes the use of fixed-optical or electronic sensors.

Requirements, Certifications, Qualifications, Designations (RCQD) - All other syllabus Events and special interest tracking codes that do not neatly 'fit' into the 1000 through 5000 phases and is designed to facilitate training management. The 6000 phase contains standardized combat/flight leadership workup and evaluation Events. Events are often requirements not mandated by the T&R program such as NATOPS, instrument evaluations, and the functional check pilot syllabus.

Review - Demonstrated proficiency of a maneuver by the PUI/student.

Search and Rescue (SAR) - Any flight designed to demonstrate search and rescue procedures and techniques.

Skill - An ability required by the community and developed or enhanced through training. Individuals are trained to skill proficiency through targeted syllabi, providing proficient crews to accomplish unit assigned METs.

Stage - Events which share a singular desired outcome or trait are grouped together into stages. Examples include Low Altitude Training (LAT), Equipment (EQUIP), and Applied Meteorological Science (AMS). Stages and skills may have the same naming convention and a stage name may be used in multiple phases.

Syllabus - All training and readiness Events for a PMOS, or in unique situations by crew position, within a community. For example, within the Direct Air Support Center Community T&R Manual, Chapter 7 details the 7242 syllabus.

Tactics (TAC) - A syllabus flight including the conduct of a tactical mission using a defined threat scenario.

Terrain Flight (TERF) - Any helicopter event structured to occur below 200 ft AGL. Terrain flight employs terrain, vegetation, and man-made objects to degrade the enemy's ability to detect a helicopter. TERF includes the following basic flight techniques: low level, contour, and nap of the earth (NOE).

Threats - Air threat environments are categorized as follows:

1. Low Threat. An air threat environment that permits combat operations and support to continue without prohibitive interference. Associated tactics and techniques do not formally require extraordinary measures for preplanned or immediate support. Enhancements to target/objective engagement are effective communications, accurate target/objective identification, and re-attacks if applicable (limited only by aircraft time on-station and ordnance onboard).
2. Medium Threat. An air threat environment in which the specific aircraft performance and weapons systems capability allow acceptable exposure time to enemy air defenses. This air threat environment restricts the flexibility of tactics in the immediate target/objective area. It is an environment in which the enemy may have limited RADAR and/or electro-optical (EO) acquisition capability at medium range, but a fully integrated fire control system does not support the air defense system. Medium air threat environments normally allow medium altitude missions/attack deliveries with low probability of engagement by enemy air defenses.
3. High Threat. An air threat environment created by an opposing force possessing air defense combat power, including integrated fire control systems and electronic warfare (EW) capabilities that would seriously diminish the ability of friendly forces to provide necessary air support. This air threat environment might preclude missions such as immediate CAS, since the requirements for effective radio communications and coordination may not be possible. The high air threat environment may include, but is not limited to, command and control network; mobile and/or stationary surface-to-air missiles (SAMs); early warning radars; electronic warfare (EW); integrated (AAA) fire control systems; interceptor aircraft; and wartime reserve modes.

Unit Core Skill Proficiency (CSP) – See Core Skill Proficiency (CSP).

Weapons Training Officer (WTO) – A subject matter expert on aircraft weapons, systems, countermeasures and ordnance employment techniques.

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APPENDIX J - ACRONYM LIST

Acronym	Definition
AAD	Air Defense
AC2	Aviation Command
ACC	Aircrew Core Competency
ACE	Aviation Combat Elements
ACM	Air Combat Maneuvering
ACMI	Air Combat Maneuvering Instrumentation
ACTI	Air Combat Tactics Instructor
ACTR	Aircrew Training Requirement
AD	Air Delivery
ADGR	Aviation Delivered Ground Refueling
AESC	Aerial Escort
AF	Air Force
AGL	Altitudes
AGO	Aerial Gunner/observer
AI	Air Interdiction
AIPs	Actions-in-progress
ALZ	Assault Landing Zone
AMC	Air Mission Commanders
AMS	Applied Meteorological Science
AMT	Attack Enemy Maritime Targets
ANI	Assistant NATOPS Instructor
AOS	Aviation Operations Specialist
APKWS	Advanced Precision Kill Weapon System
APM	Aviation Production Management
APP	Aviation Plans
APR	Aircrew Performance Record
AR	Armed Reconnaissance
ARFF	Aircraft Rescue

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ASB	Aviation Standards Branch
ASM	Aviation Manpower
ASO	Aviation Safety Officer
ASPT	Airborne Rapid Insertion /extraction (hie+
ASR	Authorized Strength Report
ATC	Air Traffic Control
ATCFs	Air Traffic Control Facilities
ATI	Adversary Tactics Instructor
ATS	Aviation Training System
BI	Basic Instructor
BIP	Basic Instructor Pilot
BNA	By-name-assignment
C4611	Contact TECOM Formal Schools Training Branch
CACT	Crew Training
CALs	Confined Area Landings
CAS	Close Air Support
CCM	Concurrency Management
CCRM	Competency Resource Model
CG	Commanding General
CI	Contract Simulator Instructors
CI	Contract Instructor
CL	Comfort Level
CMMR	Core Model Minimum Requirement
CMTR	Core Model Training Report
CMTS	Core Model Training Standard
CNAF	Commander, Naval Air Forces
CNATRA	Chief Of Naval Aviation Training
CNO	Chief Of Naval Operations
CPP	Core Plus Proficiency
CPSP	Core Plus Skill Proficiency

CQ	(does not appear to be an acronym definition)
CRM	Crew Resource Management
CSI	Contract Simulator Instructor
CSP	Core Skill Proficiency
CV	(does not appear to be an acronym definition)
DACM	Defensive Air Combat Maneuvering
DACMI	Defensive Air Combat Maneuvering Instructor
DASC	Direct Air Support Center
DASC	Direct Air Support Center
DCM	Defensive Combat Maneuvers
DGSIT	Deploying Group System Integration Testing
DM	Defensive Measures
DMI	Defensive Measures Instructor
DRRS	Defense Readiness Reporting System
DT	Defensive Tactics
DTED	Data
DTI	Defensive Tactics Instructor
DTM	Data Transfer Module
EAF	Expeditionary Airfields
EC	Event Capable
EESM	Essential Subsystem Matrix
EOB	Enemy Order Of Battle
EQUIP	Equipment
ESA	Emergency Safe Altitude
EXP	Expeditionary Shore-based Sites
FAA	Federal Aviation Administration
FACSFACs	Facilities
FAI	Fighter Attack Instructor
FARP	Forward Arming And Refueling Point
FCF	Flight

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FCP	Functional Check Pilot
FHP	Flying Hour Program
FL	Flight Leadership
FLC	Formal Learning Centers
FLP	Flight Leadership Program
FLSE	Flight Leadership Standardization Evaluators
FM	Financial Management
FMC	Full Mission Capable
FMS	Foreign Military Sales
FOBS	Forward Operating Bases
FORM	Formation
FRS	Fleet Replacement Squadron
FRSI	Fleet Replacement Squadron Instructor
FRSS	Fleet Replacement Squadron Summit
FTM	(does not appear to be an acronym definition)
FTM	Ft AGL Performance Standards Demonstrate Proper Procedures
GAR	Grade Adjusted Recapitulation
HHQ	Headquarters
HLL	High Light Level
HMH	Helicopter
HST	Helicopter Support Teams
HUD	Heads Up Display
ICW	Interactive Courseware
IPP	Integrated Production Plan
KIO	Knock It Off
L2	Level 2
LAAD	Low Altitude Air Defense
LAN	Local Area Network

LAT	Low Altitude Training
LATI	Low Altitude Tactics Instructor
LLL	Light
MAC	Minimum Altitude Capability
MACCS	Marine Air Command And Control System
MACG	Marine Air Control Groups
MAG	Marine Aircraft Groups
MAGTF	Marine Air-ground Task Force
MAGTFTC	Marine Air Ground Task Force Training Command
MALS	Marine Aviation Logistics Squadron
MATC	Marine Air Traffic Control
MATSS	Marine Aviation Training System Sites
MAW	Marine Aircraft Wings
MC	Mission Capable
MCCRE	Marine Corps Combat Readiness Evaluation
MCIP	Marine Corps Interim Publications
MCT	Marine Corps Task
MCTIMS	Management System
MCTL	Marine Corps Task List
MCWP	Marine Corps Warfighting Publications
MDG	Maneuver Description Guide
MDTC	Marine Division Tactics Course
MEIs	Major End Items
MET	Mission Essential Tasks
METG	Multi-engine Tg
METL	Mission Essential Task List
METOC	Meteorological And Oceanographic
METs	Mission Essential Tasks
MIO	M-sharp Implementation Officer
MIR	Multi-sensor Imagery Reconnaissance

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MISTEX	MACCS Integrated Systems Training Exercise
MMOA	(does not appear to be an acronym definition)
MOAs	Military Operating Areas
MPS	Mission Performance Standards
MPSP	Mission Plus Skill Proficiency
MR	Modified Refresher
MRF	Modified Refresher
MSA	Minimum Safe Altitude
MSL	(does not appear to be an acronym definition)
MSP	Mission Skill Proficiency
MTESD	MAGTF Training And Education Standards Division
MTF	MACCS Training Form
MTR	Military Training Route
MWSS	Marine Wing Support Squadrons
NA	Naval Aviators
NAC	Naval Aircrew
NAPP	Naval Aviation Production Process
NAPT	Naval Aviation Production Team
NATOPS	Naval Air Training And Operating Procedures Standardization
NAVFLIR	Naval Flight Information Record
NAVMC	Navy Marine Corps
NBA	Never Been Attempted
NEC	Non-event Capable
NFO	Naval Flight Officers
NFOTR	NFO Training Requirement
NI	NATOPS Instructor
NIPDR	Napp Integrated Production Data Repository
NMC	Non-mission Capable
NOE	Nap Of The Earth
NS	Night Systems

NSFI	Night Systems Familiarization Instructor
NSI	Night Systems Instructor
NSSI	Night Systems Sar Instructor
NTTL	Navy Tactical Task List
NTTP	Naval Tactics, Techniques, And Procedures
OAAW	Offensive Anti-air Warfare
OPTIONAL	Operationally, And Strategically. The Three Types
ORM	Operational Risk Management
OSA	Operational Support Airlift
PAC	Production Alignment Conferences
PME	Professional Military Education
POI	Programs Of Instruction
POM	Program Objective Memorandums
PPF	Planning Factor
PPTG	Production Tg
PR	Performance Records
PTR	Pilot Training Requirement
PUI	Pilot Under Instruction
PWG	Pre-working Groups
RCQD	Requirements, Certification, Qualification, Designation
ROC	Rules Of Conduct
SAR	Search And Rescue
SAR	Support Aircraft
SAS	Status
SAT	Systems Approach To Training
SBTP	Sortie Based Training Program
SCAR	Strike Coordination And Reconnaissance
SCETC	Security Cooperation Education And Training Center
SEAD	Suppression Of Enemy Air Defenses
SELF	Strategic Expeditionary Landing Field

SI	Senior Instructor
SIT	Students-in-training
SLAC	Solar/lunar Almanac Calculations
SLAP	Solar/lunar Almanac Program
SME	Subject Matter Experts
SOP	Standard Operating Procedures
SPIN	Synchronization Of Portable Installation
SS	Solo
SUMO	Sun Moon
TACC	Tactical Air Command Center
TAGS	Theater Air Ground System
TAOC	Tactical Air Operations Center
TCTS	Training System
TECOM	Training And Education Command
TERF	Terrain Flight
TERFI	Terrain Flight Instructor
TFSP	Total Force Structure Process
TG	Task Group
TGNAC	Tg Naval Aircrew
TGNFO	Tg Naval Flight Officer
TGs	Task Groups
TGTAC	Tactical
TMP	Training Management Process
TMT	Team
TRAP	Tactical Recovery Of Aircraft And Personnel
TRL	Training Requirements Letter
TRNGCMD	Training Command
TRRMS	Training Requirements And Resource Management System
TTP	Techniques And Procedures
TTU	Training Units

UAS	Unmanned Aircraft System
UASC	UAS Crews
UJTL	Universal Joint Task List
UTM	Unit Training Management
WG	Working Groups
WTTP	Weapons And Tactics Training Program
YGSS	Year-Group-Steady-State

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APPENDIX K - SIX FUNCTIONS OF MARINE AVIATION

The purpose of including a recap of the six functions of Marine Aviation is to link the unit Mission Statement and associated METs to Marine Corps Doctrine (MCWP 3-2).

Table 6-3: Six Functions of Marine Aviation

SIX FUNCTIONS OF MARINE AVIATION		
FUNCTION	ABBREVIATION	DESCRIPTION
Offensive Air Support	OAS	OAS involves air operations that are conducted against enemy installations, facilities, and personnel in order to directly assist in the attainment of MAGTF objectives by destroying enemy resources or isolating enemy military forces. Its primary support of the warfighting functions is to provide fires and force protection through CAS and DAS.
Assault Support	ASPT	ASPT contributes to the warfighting functions of maneuver and logistics. Maneuver warfare demands rapid, flexible maneuverability to achieve a decision. Assault support uses aircraft to provide tactical mobility and logistic support to the MAGTF for the movement of high priority personnel and cargo within the immediate area of operations (or the evacuation of personnel and cargo).
Anti-Air Warfare	AAW	AAW is the actions used to destroy or reduce the enemy air and missile threat to an acceptable level. The primary purpose of AAW is to gain and maintain whatever degree of air superiority is required; this permits the conduct of operations without prohibitive interference by opposing air and missile forces. AAW's other purpose is force protection.
Electronic Warfare	EW	EW is any military action involving the use of electromagnetic and directed energy to control the electromagnetic spectrum or to attack the enemy. EW supports the warfighting functions of fires, command and control, and intelligence through the three major subdivisions: electronic attack, electronic protection, and electronic warfare support.
Control of Aircraft & Missiles	CoA&M	The control of aircraft and missiles supports the warfighting function of Command and Control. The ACE commander maintains centralized command, while control is decentralized and executed through the Marine Air Command and Control System (MACCS). CoA&M integrates the other five functions of Marine Aviation by providing the commander with the ability to exercise Command and Control authority over Marine Aviation assets.
Aerial Reconnaissance	AerRec	AerRec employs visual observation and/or sensors in aerial vehicles to acquire intelligence information. It supports the intelligence warfighting function and is employed tactically, operationally, and strategically. The three types of air reconnaissance are visual, multi-sensor imagery, and electronic.

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APPENDIX L - T&R CORE MODEL TERMS

T&R CORE MODEL TERMS	
TERM	DEFINITION
Core Model	The Core Model is the basic foundation or standardized format by which all Aviation T&Rs are constructed. The Core model provides the capability of quantifying both unit and individual training requirements and measuring readiness. This is accomplished by linking community Mission Statements, Mission Essential Task Lists, Output Standards, Proficiency Requirements and Combat Leadership.
Core Skill	Fundamental, environmental, or conditional capabilities required to perform basic functions. These basic functions serve as tactical enablers that allow crews to progress to the more complex Mission Skills. Primarily 2000 Phase events but may be introduced in the 1000 Phase.
Mission Skill	Mission Skills enable a unit to execute a specific MET. They are comprised of advanced Event(s) that are focused on MET performance and draw upon the knowledge, aeronautical abilities, and situational awareness developed during Core Skill training. 3000 Phase events.
Core Plus Skill	Training events that can be theater specific or that have a low likelihood of occurrence. They may be Fundamental, environmental, or conditional capabilities required to perform basic functions. 4000 Phase events.
Core Plus Mission	Training events that can be theater specific or that have a low likelihood of occurrence. They are comprised of advanced event(s) that are focused on Core Plus MET performance and draw upon the knowledge, aeronautical abilities, and situational awareness. 4000 Phase events.
Core Skill Proficiency (CSP)	CSP is a measure of training completion for 2000 Phase events. CSP is attained by executing all events listed in the Attain Table for each Core Skill. The individual must be simultaneously proficient in all events within that Core Skill to attain CSP.
Mission Skill Proficiency (MSP)	MSP is a measure of training completion for 3000 Phase events. MSP is attained by executing all events listed in the Attain Table for each Mission Skill. The individual must be simultaneously proficient in all events within that Mission Skill to attain MSP. MSP is directly related to Training Readiness.
Core Plus Skill Proficiency (CPSP)	CPSP is a measure of training completion for 4000 Phase "Skill" events. CPSP is attained by executing all events listed in the Attain Table for each Core Plus Skill. The individual must be simultaneously proficient in all events within that Core Plus Skill to attain CPSP. CPSP may contain 2000 and 3000 Events as required.
Mission Plus Skill Proficiency (MPSP)	MPSP is a measure of training completion for 4000 Phase Mission Plus Skill Events. MPSP is attained by executing all Events listed in the Attain Table for each Mission Plus Skill. The individual must be simultaneously proficient in all Events within that Mission Plus Skill to attain MPSP. MPSP may contain 2000 and 3000 Events as required.
Core Model Training Standard (CMTS)	CMTS is a community determined standard reflecting the desired number of individuals trained to/as Core Skill Proficiency (CSP)/Mission Skill Proficiency (MSP)/Core Plus Skill Proficiency (CPSP)/Mission Plus Skill Proficiency (MPSP)/ Instructors/Combat Leaders/Flight Leaders by syllabus. The CMTS is the optimal training objective and must equal to or greater than CMMR. CMTS is only used for internal squadron planning and not utilized for readiness reporting. CMTS is required for flying communities, but optional for Aviation Ground.
Core Model Minimum Requirement (CMMR)	The CMMR is an objective readiness metric derived by the community to meet the required output standards defined within a unit's core METs. This metric identifies the number of crews, composition of each crew, and the number of combat leaders required to meet the warfighting function of the unit. Each crew member is further identified within the CMMR by required skill proficiency. Attaining CMMR should be considered the minimal training objective. CMMR numbers are determined by the community and derived only from the Mission Skill Phase, Mission Plus Phase, and Combat Leadership (from the Requirements, Certification, Qualification, Designation (RCQD) Phase. Attaining CMMR is considered the minimum for training. If a unit falls short of CMMR, commanders must refocus their training, or if unable to self-correct, request assistance from higher headquarters to meet the requirement.



DEPARTMENT OF THE NAVY
HEADQUARTERS UNITED STATES MARINE CORPS
3000 MARINE CORPS PENTAGON
WASHINGTON, DC 20350-3000

NAVMC 3500.47B
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11 APR 2014

NAVMC 3500.47B

From: Commandant of the Marine Corps
To: Distribution List

Subj: CH-53E TRAINING AND READINESS MANUAL

Ref: (a) NAVMC 3500.14C

Encl: (1) CH-53E T&R Manual

1. Purpose. In accordance with reference (a), this Training and Readiness (T&R) Manual, contained in enclosure (1), contains revised standards and regulations regarding the training of CH-53E aircrew.

2. Cancellation. NAVMC 3500.47A

3. Scope. Highlights of major T&R planning considerations included in this CH-53E T&R Manual are as follows:

a. A new Aerial Observer chapter has been added, composed of Programs of Instruction (POI) extracted from the Crew Chief chapter.

b. The CH-53D POI has been deleted.

c. Some events in the 2000 Phase have been moved into the 3000 and 4000 Phases in order to provide a more accurate measure of proficiency in the required skill sets to accomplish the assigned Mission Essential Task(s).

d. Addition of a new table - Core Model Training Standard; applies to the optimum training proficiency for Core, Mission, Core Plus skills, and Instructor Training.

DISTRIBUTION STATEMENT A: Approved for public release;
distribution is unlimited.

4. Information. Recommended changes to this manual should be submitted via the syllabus sponsor and the appropriate chain of command to: Commanding General (CG), Training and Education Command (TECOM), Marine Air Ground Task Force Training and Education Standards Division (MTESD), Aviation Standards Branch, Quantico, Virginia 22134 using standard Naval correspondence or the Automated Message Handling System plain language address: CG TECOM MTESD.

5. Command. This manual is applicable to the Marine Corps Total Force.

6. Certification. Reviewed and approved this date.



T. M. MURRAY
By direction

DISTRIBUTION: PCN 10033194700



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HEADQUARTERS UNITED STATES MARINE CORPS
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WASHINGTON, DC 20350-3000

NAVMC 3500.47B Ch 1
C 466
08 SEP 2015

NAVMC 3500.47B Ch 1

From: Commandant of the Marine Corps
To: Distribution List

Subj: CH-53E TRAINING AND READINESS MANUAL

Ref: (a) NAVMC 3500.14C

Encl: (1) Revised page inserts to NAVMC 3500.47B

1. Purpose. To transmit revised pages to the basic manual.
2. Action. Chapter 1 of the basic Manual has been revised per the reference.
3. Summary of Changes. Significant changes include the following:

a. The Primary Mission Aircraft Inventory is temporarily reduced from 16 to 12 aircraft.

b. The pilot Table of Organization is temporarily and incrementally being reduced from 38 to 30.

c. Revised values have been applied to the following metrics:

- (1) Core Model Minimum Requirement
- (2) Core Model Training Standard
- (3) Instructor Designations
- (4) Requirements, Certifications, Qualifications and Designations
- (5) Mission Essential Task Worksheets
- (6) Table of Organization

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5. Command. This Manual is applicable to the Marine Corps Total Force.

6. Certification. Reviewed and approved this date.


J. W. LUKEMAN
By direction

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CHAPTER 1

CH-53E TRAINING AND REDINESS UNIT REQUIREMENT

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CHAPTER 1

CH-53E TRAINING AND READINESS UNIT REQUIREMENTS

1.0 TRAINING AND READINESS REQUIREMENTS. The Marine Aviation Training and Readiness (T&R) Program provides the Marine Air-Ground Task Force (MAGTF) commander with an Aviation Combat Element (ACE) capable of executing the six functions of Marine Aviation. The T&R Program is the fundamental tool used by commanders to construct, attain, and maintain effective training programs. The standards established in this program are validated by subject matter experts to maximize combat capabilities for assigned METs while conserving resources. These standards describe and define unit capabilities and requirements necessary to maintain proficiency in mission skills and combat leadership. Training events are based on specific requirements and performance standards to ensure a common base of training and depth of combat capability.

1.1 HMH MISSION

1.1.1 Tactical and Reserve Squadron. Support the MAGTF Commander by providing assault support transport of heavy equipment, combat troops, and supplies, day or night under all weather conditions during expeditionary, joint, or combined operations.

1.1.2 Fleet Replacement Squadron HMHT-302. Conduct Core Skill Introduction assault support heavy lift helicopter training for selected aircrews in the CH-53E aircraft and provide technical training for aviation maintenance personnel.

1.2 HMH TABLE OF ORGANIZATION (T/O). Refer to Table of Organization managed by Total Force Structure, MCCDC, for current authorized organizational structure and personnel strength for CH-53E squadrons. As of this publication date, a HMH Squadron is authorized:

HMH Squadron Table of Organization						
Unit	Sqdn***	Temp Sqdn	Temp Sqdn (-)	Detachment	Reserve	HMHT-302
Aircraft	16	12	8	4	8	12
Pilots	38	30	22	8	10	24**
Crew Chiefs	26	26	20	6	13	11**/24
AO/AG*	26	26	20	6	13	24
*Aerial Observer / Aerial Gunner						
** 24 Instructor Pilots // 11 Crew Chief Instructors of 24 Crew Chiefs total						
*** Future Echo/Kilo Squadron						

1.3 SIX FUNCTIONS OF MARINE AVIATION

SIX FUNCTIONS OF MARINE AVIATION		
FUNCTION	ABBREVIATION	DESCRIPTION
Offensive Air Support	OAS	OAS involves air operations that are conducted against enemy installations, facilities, and personnel in order to directly assist in the attainment of MAGTF objectives by destroying enemy resources or isolating enemy military forces. Its primary support of the warfighting functions is to provide fires and force protection through CAS and DAS.
Assault Support	ASPT	ASPT contributes to the warfighting functions of maneuver and logistics. Maneuver warfare demands rapid, flexible maneuverability to achieve a decision. Assault support uses aircraft to provide tactical mobility and logistic support to the MAGTF for the movement of high priority personnel and cargo within the immediate area of operations (or the evacuation of personnel and cargo).
Anti-Air Warfare	AAW	AAW is the actions used to destroy or reduce the enemy air and missile threat to an acceptable level. The primary purpose of AAW is to gain and maintain whatever degree of air superiority is required; this permits the conduct of operations without prohibitive interference by opposing air and missile forces. AAW's other purpose is force protection.
Electronic Warfare	EW	EW is any military action involving the use of electromagnetic and directed energy to control the electromagnetic spectrum or to attack the enemy. EW supports the warfighting functions of fires, command and control, and intelligence through the three major subdivisions: electronic attack, electronic protection, and electronic warfare support.

Control of Aircraft & Missiles	CoA&M	The control of aircraft and missiles supports the warfighting function of Command and Control. The ACE commander maintains centralized command, while control is decentralized and executed through the Marine Air Command and Control System (MACCS). CoA&M integrates the other five functions of Marine Aviation by providing the commander with the ability to exercise Command and Control authority over Marine Aviation assets.
Aerial Reconnaissance	AerRec	AerRec employs visual observation and/or sensors in aerial vehicles to acquire intelligence information. It supports the intelligence warfighting function and is employed tactically, operationally, and strategically. The three types of air reconnaissance are visual, multi-sensor imagery, and electronic.

1.4 ABBREVIATIONS

CORE SKILLS (2000 Phase)	
FAM/INST	Familiarization / Instrument
INT	Internal Loading
FORM	Formation
CAL	Confined Area Landing
TERF	Terrain Flight
EXT	External Operations
HAAR	Aerial Refueling
FCLP	Field Carrier Landing Practice
AG	Aerial Gunnery
GAUAG	GAU-21 Aerial Gunnery
GTR	Ground Threat Reaction
TAC	Tactics
NS HLL	Night Systems High Light Level
NS LLL	Night Systems Low Light Level
MISSION SKILLS (3000 Phase)	
EXP	Expeditionary Operations Shore Based
AT	Assault Transport
AD	Aerial Delivery
TRAP	Tactical Recovery of Aircraft and Personnel
AE	Air Evacuation
CORE PLUS SKILLS (4000 Phase)	
HIE	Helicopter Insertion Extraction
TERF EXT	Terrain Flight External
GTR	Ground Threat Reaction
DM	Defensive Measures
CBRN	Chemical, Biological, Radiological and Nuclear
MTG	Moving Target Gunnery
TG	Tail Gunnery
CQ	Carrier Qualification
TAC	Tactics
MISSION PLUS SKILLS (4000 Phase)	
RIE	Raid Insertion/Extraction
ADGR	Aviation-Delivered Ground Refueling
SEA	Expeditionary Operations Sea Based

1.5 DEFINITIONS

TERM	DEFINITION
Core Model	The Core Model is the basic foundation or standardized format by which all T&Rs are constructed. The Core model provides the capability of quantifying both unit and individual training requirements and measuring readiness. This is accomplished by linking community Mission Statements, Mission Essential Task Lists, Output Standards, Core Skill Proficiency Requirements and Combat Leadership Matrices
Core Skill	Fundamental, environmental, or conditional capabilities required to perform basic functions. These basic functions serve as tactical enablers that allow crews to progress to the more complex Mission Skills. Primarily 2000 Phase events but may be introduced in the 1000 Phase.
Mission Skill	Mission Skills enable a unit to execute a specific MET. They are comprised of advanced event(s) that are focused on MET performance and draw upon the knowledge, aeronautical abilities, and situational awareness developed during Core Skill training. 3000 Phase events.

Core Plus Skill	Training events that can be theater specific or that have a low likelihood of occurrence. They may be Fundamental, environmental, or conditional capabilities required to perform basic functions. 4000 Phase events.
Core Plus Mission	Training events that can be theater specific or that have a low likelihood of occurrence. They are comprised of advanced event(s) that are focused on Core Plus MET performance and draw upon the knowledge, aeronautical abilities, and situational awareness.
Core Skill Proficiency (CSP)	CSP is a measure of training completion for 2000 Phase events. CSP is attained by executing all events listed in the Attain Table for each Core Skill. The individual must be simultaneously proficient in all events within that Core Skill to attain CSP.
Mission Skill Proficiency (MSP)	MSP is a measure of training completion for 3000 Phase events. MSP is attained by executing all events listed in the Attain Table for each Mission Skill. The individual must be simultaneously proficient in all events within that Mission Skill to attain MSP. MSP is directly related to Training Readiness.
Core Plus Skill Proficiency (CPSP)	CPSP is a measure of training completion for 4000 Phase "Skill" events. CPSP is attained by executing all events listed in the Attain Table for each Core Plus Skill. The individual must be simultaneously proficient in all events within that Core Plus Skill to attain CPSP.
Core Plus Mission Proficiency (CPMP)	CPMP is a measure of training completion for 4000 Phase "Mission" events. CPMP is attained by executing all events listed in the Attain Table for each Core Plus Mission. The individual must be simultaneously proficient in all events within that Core Plus Mission to attain CPMP.
Core Model Training Standard (CMTS)	CMTS is an objective optimum training standard used by squadrons that reflects the number of individuals trained to CSP/MSP, per crew position. The CMTS is for internal squadron planning only and is not utilized for readiness reporting. The numbers are determined by individual communities.
Core Model Minimum Requirement (CMMR)	CMMR represents the minimum crew definition qualifications and designations, the number of crews required per MET, and minimum Combat Leadership requirements for readiness reporting purposes.

1.6 MISSION ESSENTIAL TASK LIST (METL). The METL is comprised of specified capabilities-based Mission Essential Tasks (METs) which a unit is designed to execute. METs are drawn from the Marine Corps Task List (MCTL), are standardized by type unit, and defined as Core or Core Plus METs. Core METs are those tasks that a unit is expected to execute at all times, and are the only METs used in reporting the Training Level (T-Level) for the Core Mission (C-Level) in the Defense Readiness Reporting System - Marine Corps (DRRS-MC). Core Plus METs identify additional capabilities to support missions or plans which are limited in scope, theater specific, or have a lower probability of execution. Core Plus METs may be included in readiness reporting when contained within an Assigned Mission METL. An Assigned Mission METL consists of only selected METs (drawn from Core and Core Plus METs) necessary to conduct the assigned mission. MCO 3000.13 Readiness Reporting and Chapter 7 of the Aviation T&R Program Manual provide additional information on Aviation Training readiness reporting.

HMH CH-53E		
MISSION ESSENTIAL TASK LIST (METL)		
CORE		
MET	ABBREVIATION	DESCRIPTION
MCT 1.3.3.3.2	EXP	Conduct Aviation Operations from Expeditionary Shore-Based Sites
MCT 1.3.4.1	AT	Conduct Combat Assault Transport
MCT 4.3.4	AD	Conduct Air Delivery
MCT 6.2.1.1	TRAP	Conduct Aviation Support of Tactical Recovery of Aircraft and Personnel (TRAP)
MCT 6.2.2	AE	Conduct Air Evacuation
CORE PLUS		
MET	ABBREVIATION	DESCRIPTION
MCT 1.3.4.1.1	RIE	Conduct Airborne Rapid Insertion/Extraction
MCT 1.3.4.2.1	ADGR	Provide Aviation-Delivered Ground Refueling
MCT 1.3.3.3.1	SEA	Conduct Aviation Operations From Expeditionary Sea-Based Sites

1.7 MISSION ESSENTIAL TASK (MET) TO SIX FUNCTIONS OF MARINE AVIATION

HMH CH-53E							
MISSION ESSENTIAL TASK (MET) TO SIX FUNCTIONS OF MARINE AVIATION							
CORE							
MET	ABBREVIATION	SIX FUNCTIONS OF MARINE AVIATION					
		OAS	ASPT	AAW	EW	CoA&M	AerRec
MCT 1.3.3.3.2	EXP		X				
MCT 1.3.4.1	AT		X				
MCT 4.3.4	AD		X				
MCT 6.2.1.1	TRAP		X				
MCT 6.2.2	AE		X				
CORE PLUS							
MCT 1.3.4.1.1	RIE		X				
MCT 1.3.4.2.1	ADGR		X				
MCT 1.3.3.3.1	SEA		X				

1.8 MET TO CORE/MISSION/CORE PLUS SKILL MATRIX. Depicts the relationship between a MET and each Core/Mission/Core Plus/Mission Plus skill associated with the MET for readiness reporting and resource allocation purposes. There shall be a one-to-one relationship between the MET and a corresponding Mission Skill. For example: the MET for EXP shows a one-to-one relationship with the EXP Mission Skill. Shading indicates Core Plus.

CH-53E																														
MCT TO CORE/MISSION/CORE PLUS SKILL MATRIX																														
MISSION ESSENTIAL TASK (MET)	CORE SKILLS (2000 PHASE)												MISSION SKILLS (3000 PHASE)		CORE PLUS (4000 PHASE)															
															CORE PLUS SKILLS							MISSION PLUS SKILLS								
	FAM	INT	FORM	CAL	TERF	EXT	HAAR	FCLP	AG	GTR	TAC	NS HLL	NS LLL	EXP	AT	AD	TRAP	AE	HIE	TERF EXT	GTR	DM	CBRN	MTG	CQ	TG	TAC	RIE	ADGR	SEA
MCT 1.3.3.3.2 EXP	X	X	X	X	X			X	X	X	X	X	X								X	X	X	X		X	X			
MCT 1.3.4.1 AT	X	X	X	X	X			X	X	X	X	X		X						X	X	X	X	X		X	X			
MCT 4.3.4 AD	X	X	X	X	X	X		X	X	X	X	X			X			X		X	X	X	X		X	X				
MCT 6.2.1.1 TRAP	X	X	X	X	X	X	X	X	X	X	X	X				X					X	X	X	X		X	X			
MCT 6.2.2 AE	X	X	X	X	X			X	X	X	X	X					X				X	X	X	X		X	X			
CORE PLUS																														
MCT 1.3.4.1.1 RIE	X	X	X	X	X			X	X	X	X	X						X		X	X	X	X		X	X	X			
MCT 1.3.4.2.1 ADGR	X	X	X	X	X			X	X	X	X	X									X	X	X	X		X	X		X	
MCT 1.3.3.3.1 SEA	X	X	X	X	X			X	X	X	X	X									X	X	X	X	X	X	X			X

1.9 MISSION ESSENTIAL TASK (MET) OUTPUT STANDARDS. The following MET output standards are the required level of performance a HMH squadron must be capable of sustaining during contingency/combat operations by MET to be considered MET-ready. Output standards will be demonstrated through the incorporation of unit training events. A core capable HMH squadron is able to sustain the number of sorties listed below on a daily basis during contingency/combat operations. The sortie rates are based on 1.5 hour average sortie duration. It assumes >70% FMC aircraft and >90% T/O aircrew on hand. If unit FMC aircraft is <70% or T/O aircrew <90%, core capability will be degraded by a like percentage.

HMH MET Output Standards					
CH-53E Sqdn/Temp Sqdn/Temp Sqdn (-)/Detachment/Reserve Squadron (16/12/8/4/6) Aircraft					
CORE					
MET	SKILL	DESCRIPTION	OUTPUT STANDARD		
			MAXIMUM MCT SORTIES	MAXIMUM DAILY SORTIES*	
MCT 1.3.3.3.2	EXP	Conduct Aviation Operations From Expeditionary Shore-Based Sites	21/16/12/5/11	21/16/12/5/11	
MCT 1.3.4.1	AT	Conduct Combat Assault Transport	21/16/12/5/11		
MCT 4.3.4	AD	Conduct Air Delivery	21/16/12/5/11		
MCT 6.2.1.1	TRAP	Conduct Aviation Support of Tactical Recovery of Aircraft and Personnel (TRAP)	21/16/12/5/11		
MCT 6.2.2	AE	Conduct Air Evacuation	21/16/12/5/11		
CORE PLUS					
MET	SKILL	DESCRIPTION	MAXIMUM MCT SORTIES		
MCT 1.3.4.1.1	RIE	Conduct Airborne Rapid Insertion/Extraction	21/16/12/5/11		
MCT 1.3.4.2.1	ADGR	Provide Aviation-Delivered Ground Refueling	4/2/2/2/2 points		
MCT 1.3.3.3.1	SEA	Conduct Aviation Operations From Expeditionary Sea-Based Sites	21/16/12/5/11		

*A 16/12/8/4/8 plane Mission Capable HMH Squadron/Temp Sqdn/Temp Sqdn (-) /Detachment/Reserve Squadron is able to execute 21/16/12/5/11 total overall sorties on a daily (24 hour period) basis during contingency/combat operations.

1.10 CORE MODEL MINIMUM REQUIREMENTS (CMMR) TRAINING STANDARDS FOR READINESS REPORTING (DRRS-MC). The paragraphs and tables below delineate the minimum aircrew qualifications and designations required to execute the MET training standards and MET observed standards of para 1.9. MCO 3000.13 Readiness Reporting and Chapter 7 of the Aviation T&R Program Manual provide additional guidance and a detailed description of readiness reporting using the Defense Readiness Reporting System - Marine Corps (DRRS-MC).

1.10.1 The CMMR Readiness Reporting Matrix depicts the minimum crew composition (defined as a combination of qualifications and designations) reflecting the number of crews required per MET and minimum Combat Leadership requirements for readiness reporting purposes. The number of crews formed using the below minimum standards per crew capture the readiness capability of a squadron to perform the MET sortie under all light levels.

HMH CH-53E CMMR for READINESS REPORTING										
CREW POSITION						FORMED CREWS REQUIRED PER MET (CREW CMMR)				
CORE						SQDN 16 A/C	TEMP SQDN 12 A/C	TEMP SQDN(-) 8 A/C	DET 4 A/C	RES 6 A/C
MET	ABBR	PILOT	COPILOT*	CC	CC/AO*					
MCT 1.3.3.3.2	EXP	MSP, HAC	NSQ(LLL), MSP*	MSP	NSQ(LLL), MSP*	11	9	6	3	4
MCT 1.3.4.1	AT	MSP, HAC	NSQ(LLL), MSP*	MSP	NSQ(LLL), MSP*	11	9	6	3	4
MCT 4.3.4	AD	MSP, HAC	NSQ(LLL), MSP*	MSP	NSQ(LLL), MSP*	11	9	6	3	4
MCT 6.2.1.1	TRAP	MSP, HAC	NSQ(LLL), MSP*	MSP	NSQ(LLL), MSP*	7	6	4	2	2
MCT 6.2.2	AE	MSP, HAC	NSQ(LLL), MSP*	MSP	NSQ(LLL), MSP*	11	9	6	3	4
CORE PLUS										
MET	ABBR	PILOT	COPILOT	CC	CC/AO*	SQDN	TEMP	TEMP	DET	RES
						16 A/C	SQDN 12 A/C	SQDN(-) 8 A/C	4 A/C	6 A/C
MCT 1.3.4.1.1	RIE	MSP, HAC	NSQ(LLL), MSP*	MSP	NSQ(LLL), MSP*	6	5	3	2	2
MCT 1.3.4.2.1	ADGR	MSP, HAC	NSQ(LLL), MSP*	MSP	NSQ(LLL), MSP*	6	5	3	2	2
MCT 1.3.3.3.1	SEA	MSP, HAC	NSQ(LLL), MSP*	MSP	NSQ(LLL), MSP*	6	5	3	2	2
COMBAT LEADERSHIP										
DESIGNATION			SQUADRON 16 A/C	TEMP SQUADRON 12 A/C	TEMP SQUADRON(-) 8 A/C	DETACHMENT 4 A/C	RESERVE SQUADRON 6 A/C			
HELICOPTER AIRCRAFT COMMANDER			16	12	8	4	6			
SECTION LEADER			9	6	5	3	3			
DIVISION LEADER			6	4	3	2	2			
FLIGHT LEADER			4	3	2	1	2			
MISSION COMMANDER			3	2	1	1	1			

*An NSQ (LLL) copilot/CC/AO that is not mission skill proficient must be paired with a qualified instructor for the mission skill and associated prerequisites in order to meet the minimum crew requirement for a particular MET.

1.11 CORE MODEL TRAINING STANDARD (CMTS). The CMTS is the optimum training standard reflecting the number of aircrews trained to CSP/MSP, per crew position to execute each stage of flight as detailed below. The CMTS Matrix depicts the training goal and optimum depth of training desired for each squadron as they develop their squadron training plan. It is not utilized for readiness reporting (DRRS-MC) purposes. At a minimum, the CMTS shall enable a squadron to form Core Model Minimum Requirement (CMMR) crews for Mission Skills (and Mission Plus Skills when required). For single-seat aircraft, the number of aircrews trained to MSP standards in the CMTS Matrix and CMMR may be the same.

HMH CH-53E CMTS			
CH-53E SQUADRON/TEMP SQUADRON/TEMP SQUADRON (-)/DETACHMENT/RESERVE SQUADRON (16/12/8/4/6 Aircraft)			
CORE SKILLS (2000 Phase)			
CORE SKILL	PILOTS	CREW CHIEFS	AO/G
FAM	22/18/12/6/12	N/A	N/A
INT	N/A	16/12/8/4/6	16/12/8/4/6
FORM	22/18/12/6/12	16/12/8/4/6	16/12/8/4/6
CAL	22/18/12/6/12	16/12/8/4/6	16/12/8/4/6
TERF	22/18/12/6/12	16/12/8/4/6	16/12/8/4/6
EXT	22/18/12/6/12	16/12/8/4/6	16/12/8/4/6
HAAR	14/12/8/4/4	N/A	N/A
FCLP	22/18/12/6/12	16/12/8/4/6	16/12/8/4/6
AG	22/18/12/6/1	16/12/8/4/4	16/12/8/4/4
GTR	22/18/12/6/12	16/12/8/4/6	16/12/8/4/6
TAC	22/18/12/6/1	16/12/8/4/4	16/12/8/4/4
NS HLL	22/18/12/6/12	16/12/8/4/6	16/12/8/4/6
NS LLL	22/18/12/6/1	16/12/8/4/4	16/12/8/4/4
MISSION SKILLS (3000 Phase)			
MISSION SKILL	PILOTS	CREW CHIEFS	AO/G
EXP	22/18/12/6/12	16/12/8/4/6	16/12/8/4/6
AT	22/18/12/6/12	16/12/8/4/6	16/12/8/4/6
AD	22/18/12/6/12	16/12/8/4/6	16/12/8/4/6
TRAP	22/18/12/6/12	16/12/8/4/6	16/12/8/4/6
AE	22/18/12/6/12	16/12/8/4/6	16/12/8/4/6
CORE PLUS (4000 Phase)			
CORE+ SKILL	PILOTS ¹	CREW CHIEFS ¹	AO/G ¹
HIE	(11)22/(9)18/(6)12/(3)6/(6)12	(8)16/(6)12/(4)8/(2)4/(3)6	(8)16/(6)12/(4)8/(2)4/(3)6
TERF EXT	(6)22/(5)18/(3)12/(2)6/(3)12	(4)16/(3)12/(3)8/(2)4/(3)6	(4)16/(3)12/(2)8/(2)4/(3)6
GTR	(6)22/(5)18/(3)12/(2)6/(3)12	(4)16/(3)12/(3)8/(2)4/(3)6	(4)16/(3)12/(2)8/(2)4/(3)6
DM	(6)22/(5)18/(3)12/(2)6/(6)12	(4)16/(3)12/(3)8/(2)4/(3)6	(4)16/(3)12/(2)8/(2)4/(3)6
CBRN	(22)22/(18)18/(12)12/(6)6/(12)1	(16)16/(12)12/(8)8/(4)4/(6)13	(16)16/(12)12/(8)8/(4)4/(6)13
MTG	N/A	(4)16/(3)12/(3)8/(2)4/(3)6	(4)16/(3)12/(2)8/(2)4/(3)6
CQ	(11)22/(5)18/(4)12/(6)6/(5)12	(8)16/(4)12/(3)8/(4)4/(4)9	(8)16/(4)12/(3)8/(4)4/(4)9
TG	N/A	(4)16/(3)12/(3)8/(2)4/(3)6	(4)16/(3)12/(2)8/(2)4/(3)6
TAC	(16)32/(12)24/(8)16/(8)8/(6)12	(8)16/(6)12/(4)8/(4)4/(3)6	(8)16/(6)12/(4)8/(4)4/(3)6
MISSION PLUS (4000 Phase)			
MISSION+ SKILL	PILOTS ¹	CREW CHIEFS ¹	AO/G ¹
RIE	(6)12/(5)10/(3)6/(2)4/(2)4	(8)16/(6)12/(4)8/(2)4/(3)6	(8)16/(6)12/(4)8/(2)4/(3)6
ADGR	((6)12/(5)10/(3)6/(2)4/(2)4	(8)16/(6)12/(4)8/(2)4/(3)6	(8)16/(6)12/(4)8/(2)4/(3)6
SEA	(6)12/(3)10/(1)6/(4)4/(2)4	(8)16/(4)12/(3)8/(4)4/(3)6	(8)16/(4)12/(3)8/(4)4/(3)6

Note¹: For Core Plus Skills, the first number represents the number of individuals the squadron is expected to train at all times in order to retain a cadre of capability within the squadron. The second number represents the number of MET capable individuals the squadron should train if that MET becomes required within an Assigned Mission/Directed Mission Set.

1.12 INSTRUCTOR DESIGNATIONS (5000 Phase). Squadron requests for instructor designations in excess of those authorized per NAVMC 3500.50B shall be requested in writing to Marine Air Group Commanding Officers.

1.12.1 Tactical and Reserve Squadron

HMHT-302 FRS INSTRUCTOR DESIGNATIONS (5000 Phase)			
17 Aircraft/Temp PTAA 12 Aircraft			
DESIGNATIONS	PILOTS	CREW CHIEFS	AO/AG
TERFI	8/4/2/2/4	8/3/2/2/3	N/A
DMI	4/2/1/1/2	4/2/2/1/2	N/A
NSI	6/4/2/1/3	6/4/3/2/3	N/A
WTI	3/3/2/1/2	3/3/2/1/2	N/A
ARI	6/3/2/1/3		N/A
AGI	N/A	6/3/2/2/3**	
TGI	N/A	3/1/1/1/2**	
BIP	16/12/8/4/8		N/A
NI	1/1/1/1/1	1/1/1/1/1	N/A
ANI	3/1/1/0/1	3/1/1/0/1	N/A
NII	4/2/2/1/2		N/A
FLSE*	2/1/1/1/1		N/A

*FLSEs are Designated by the Group CO
**AO/AG designated as AGIs and TGIs may be used to fulfill this requirement

1.12.2 HMHT-302 Fleet Replacement Squadron

HMHT-302 FRS INSTRUCTOR DESIGNATIONS (5000 PHASE)			
17 Aircraft/Temp PTAA 12 Aircraft			
DESIGNATIONS	PILOTS	CREW CHIEFS	AO/AG
FRSI	24		N/A
TERFI	24	12	N/A
DMI	0	0	N/A
NSI	2	6	N/A
NSFI***	8	4	N/A
WTI	1	2	N/A
ARI	0		N/A
AGI	N/A	8**	
TGI	N/A	2**	
BIP	21		N/A
NI	1	1	N/A
ANI	2	1	N/A
NII	3	N/A	N/A
FLSE*	2	N/A	N/A

*FLSEs are Designated by the Group CO
**AO/AG designated as AGIs and TGIs may be used to fulfill this requirement
*** NSIs may be used to fulfill NSFI requirement

1.13 REQUIREMENTS, CERTIFICATIONS, QUALIFICATIONS, AND DESIGNATIONS (RCQD)

1.13.1 Tactical and Reserve Squadron

HMHT-302 FRS INSTRUCTOR DESIGNATIONS (5000 PHASE)	
17 Aircraft/Temp PTAA 12 Aircraft	
DESIGNATIONS	PI
FCP	8/5/4/3/4

1.13.2 HMHT-302 FRS R,C,Q,D

HMHT-302 R,C,Q,D(6000 Phase)	
17 Aircraft/Temporary PTAA 12 Aircraft	
DESIGNATIONS	PILOTS
HAC	24
SECTION LEADER	24
DIVISION LEADER	4
FLIGHT LEADER	2
MISSION COMMANDER	0
FCP	12

1.14 CH-53E TRAINING RESOURCE REQUIREMENTS. The training resource requirements section captures those training resources required to support CH-53 T&R events, by stage. Additionally, Pilot Training Officers can use this section as a reference for coordination required, by stage, to execute T&R events. The items listed are those resources not resident in an HMH T/O&E but are required to make Core Competent Crews. The training resource requirements section (like the T&R itself) does not take geographic location(s) of a unit into account, rather what is required to effectively train CH-53 combat ready crews. Any training resource not available should be annotated and forwarded to TECOM, Aviation Training Division as a training resource shortfall.

1.14.1 FAM/INST Stage

- a. Airport facilities that support helicopter day and night operations.
- b. Facilities should include at a minimum but are not limited to; runway with a minimum of 3000 ft, helicopter specific practice hover area, practice autorotation course rules/lane, practice pattern work course rules for all FAM maneuvers, instrument facilities to include SIDs, holding, non-precision TACAN, VOR and ASR instrument approaches available for actual and practice use, precision ILS and PAR instrument approaches available for actual and practice use.

1.14.2 FORM Stage. Special use airspace/training area available day and night for Tactical Formation maneuvering.

1.14.3 CAL Stage. Confined area and/or mountain area training area with landing zones capable of supporting CH-53 single ship, section and division landings both day and night.

1.14.4 TERF Stage

- a. Special use airspace/training area capable of supporting CH-53 low level and contour flight operations below 200ft both day and night.
- b. Airspace shall include TERF routes with a minimum of 50nm and 6 checkpoints.
- c. TERF area shall have confined area and/or mountain area landing zones capable of supporting CH-53 division landings and external operations.

1.14.5 EXT Stage

- a. Special use airspace/training area capable of supporting CH-53 external, low level and contour flight operations below 200ft both day and night. Airspace shall include TERF routes with a minimum of 50nm and 6 checkpoints.
- b. TERF area shall have confined area and/or mountain area landing zones capable of supporting CH-53 division landings and external operations.
- c. 8 external loads, 4 SP, 4 DP. Loads should vary in size from 2,000lbs to 36,000lbs.
- d. HST to support external operations for a minimum 8 hours per week.

1.14.6 GTR Stage

- a. Special use EW range/airspace/training area capable of supporting CH-53 low level and contour flight operations below 200ft both day and night.
- b. Airspace shall include TERF routes with a minimum of 50nm and 6 checkpoints. TERF area shall have confined area and/or mountain area landing zones capable of supporting CH-53 division landings and external operations. Flare and chaff capable range available both day and night.
- c. Ground based non radar threat simulator (smokey sams, AAR-47 simulator, pyrotechnics) available 4 times per month for a minimum of 12 hours total.
- d. Radar emitter with threat systems to include electromagnetic and ground based

threat simulation. Emitter should be search, acquisition, and track capable. Emitter should be able to provide radar resolution cell feedback to aircrew.

1.14.7 HAAR Stage

- a. KC-130 support for a minimum 4 hours a week.
- b. Special use airspace capable of conducting HAAR.

1.14.8 CQ/MISSION Stage. LHD/LHA shipping available a minimum 8 hours per month for both day and night Carrier Qualification operations.

1.14.9 TAC/MISSION Stage

- a. Special use airspace/training area capable of supporting CH-53 low level and contour flight operations below 200ft both day and night. Airspace shall include TERF routes with a minimum of 50nm and 6 checkpoints.
- b. TERF area shall have confined area and/or mountain area landing zones capable of supporting CH-53 division landings and external operations.
- c. Expendable capable range.
- d. Ground based non radar threat simulator (smokey sams, AAR-47 simulator, pyrotechnics) available a minimum of 4 times per month. Aerial gunnery laser safe range with SDZ approved for .50 CAL for day and night shooting. Targets should range in size from personnel targets to APC size targets.
- e. KC-130 support for a minimum of 8 hours a week. f. Special use airspace capable of conducting HAAR.

1.14.10 AG Stage. Aerial gunnery laser safe range with SDZ approved for .50 CAL for day and night shooting. Targets should range in size from personnel targets to APC size targets.

1.14.11 HIE Stage. Supporting units available to conduct para ops, helocast, fast rope, rappelling, and SPIE.

1.14.12 DM Stage

- a. Special use airspace/training area capable of supporting CH-53 Low level and contour flight operations below 200ft.
- b. Expendable capable range.
- c. Tactical fixed wing aircraft adversary available a minimum of 6 times per year for a minimum of 12 hours.
- d. Tactical utility or attack helicopter adversary available a minimum of 6 times per year for a minimum of 12 hours.

APPENDIX A
HMH (CH-53E) MET WORKSHEET

CORE

MCT 1.3.3.3.2 Conduct Aviation Operations from Expeditionary Shore-Based Sites
MCT 1.3.4.1 Conduct Combat Assault Transport
MCT 4.3.4 Conduct Air Delivery
MCT 6.2.1.1 Conduct Aviation Support of Tactical Recovery of Aircraft and
Personnel (TRAP)
MCT 6.2.2 Conduct Air Evacuation

CORE Plus

MCT 1.3.4.1.1 Conduct Airborne Rapid Insertion/Extraction
MCT 1.3.4.2.1 Provide Aviation-Delivered Ground Refueling
MCT 1.3.3.3.1 Conduct Aviation Operations from Expeditionary Sea-Based Sites

MCT 1.3.3.3.2 Conduct Aviation Operations From Expeditionary Shore-Based Sites

Conditions:

C 1.1.1.2 Terrain Elevation.

Height of immediate terrain in reference to sea level. Descriptors: Very high (> 10,000 ft); High (6,000 to 10,000 ft); Moderately high (3,000 to 6,000 ft); Moderately low (1,000 to 3,000 ft); Low (500 to 1,000 ft); Very low (< 500 ft).

C 1.3.2.1 Light

Light available to illuminate objects from natural or manmade sources. Descriptors: Bright (sunny day); Day (overcast day); low (dusk, dawn, moonlit, streetlight lit); Negligible (overcast night)

C 1.3.1.3.1 Air Temperature

Atmospheric temperature at ground level (degrees Fahrenheit). Descriptors: Hot (> 85 F); Temperate (40 to 85 F); Cold (10 to 39 F); Very cold (< 10 F).

C 2.7.2 Air Superiority

The extent to which operations in the air, over sea and/or, over land can be conducted with acceptable losses due to hostile air forces and air defense systems action. Descriptors: Full (Air Supremacy); General; Local.

Standards: {Squadron (16 A/C)/Temp Sqdn (12 A/C)/Temp Sqdn (-) (8A/C)/Det (4 A/C) /Reserve Sqdn (6 A/C)}:

Personnel:

- 11/9/6/3/4 aircrews formed
- 90% of squadron T/O personnel MOS qualified and deployable. Level 2 (L2) IAW ALERTS.
- 100% critical MOS fill

Equipment:

- 70% Full Mission Capable (FMC) aircraft of PAA (11/8/5/2/4 aircraft) OR Upon establishment, 100 percent RFT entitlement IAW T/M/S standard.
- Operational support equipment fully supports MCT

Training:

- 11/9/6/3/4 Crews NS LLL Core Skill Proficient
- 11/9/6/3/4 Crews Aerial Gunnery Core Skill Proficient
- 11/9/6/3/4 Crews GTR Core Skill Proficient

Output Standards:

- 21/16/12/5/11 Sorties daily sustained during contingency/combat operations

MCT 1.3.4.1 Conduct Combat Assault Transport

Conditions:

C 1.3.2.1 Light

Light available to illuminate objects from natural or manmade sources. Descriptors: Bright (sunny day); Day (overcast day); low (dusk, dawn, moonlit, streetlight lit); Negligible (overcast night)

C.1.3.2.3 Aviation Meteorological Conditions

Current weather/flight conditions affecting flight rules next 24 hours. Descriptors: VMC (Conditions that permit flight using external cues and a distinguishable horizon.)

C 1.1.1.2 Terrain Elevation.

Height of immediate terrain in reference to sea level. Descriptors: Very high (> 10,000 ft); High (6,000 to 10,000 ft); Moderately high (3,000 to 6,000 ft); Moderately low (1,000 to 3,000 ft); Low (500 to 1,000 ft); Very low (< 500 ft).

C 2.7.2 Air Superiority

The extent to which operations in the air, over sea and/or, over land can be conducted with acceptable losses due to hostile air forces and air defense systems action. Descriptors: Full (Air Supremacy); General; Local.

Standards: {Squadron (16 A/C)/Temp Sqdn (12 A/C)/Temp Sqdn (-) (8A/C)/Det (4 A/C) /Reserve Sqdn (6 A/C)}:

Personnel:

- 11/9/6/3/4 aircrews formed
- 90% of squadron T/O personnel MOS qualified and deployable. Level 2 (L2) IAW ALERTS.
- 100% critical MOS fill

Equipment:

- 70% Full Mission Capable (FMC) aircraft of PAA (11/8/5/2/4 aircraft) OR upon establishment, 100 percent RFT entitlement IAW T/M/S standard.
- Operational support equipment fully supports MCT

Training:

- 11/9/6/3/4 Crews NS LLL Core Skill Proficient
- 11/9/6/3/4 Crews GTR Core Skill Proficient
- 11/9/6/3/4 Crews Aerial Gunnery Core Skill Proficient

Output Standards:

- 21/16/12/5/11 Sorties daily sustained during contingency/combat operations

MCT 4.3.4 Conduct Air Delivery

Conditions:

C 1.3.2.1 Light

Light available to illuminate objects from natural or manmade sources. Descriptors: Bright (sunny day); Day (overcast day); low (dusk, dawn, moonlit, streetlight lit); Negligible (overcast night)

C.1.3.2.3 Aviation Meteorological Conditions

Current weather/flight conditions affecting flight rules next 24 hours. Descriptors: VMC (Conditions that permit flight using external cues and a distinguishable horizon.)

C 1.1.1.2 Terrain Elevation.

Height of immediate terrain in reference to sea level. Descriptors: Very high (> 10,000 ft); High (6,000 to 10,000 ft); Moderately high (3,000 to 6,000 ft); Moderately low (1,000 to 3,000 ft); Low (500 to 1,000 ft); Very low (< 500 ft).

C 2.7.2 Air Superiority

The extent to which operations in the air, over sea and/or, over land can be conducted with acceptable losses due to hostile air forces and air defense systems action. Descriptors: Full (Air Supremacy); General; Local.

Standards: {Squadron (16 A/C)/Temp Sqdn (12 A/C)/Temp Sqdn (-) (8A/C)/Det (4 A/C) /Reserve Sqdn (6 A/C)}:

Personnel:

- 11/9/6/3/4 aircrews formed
- 90% of squadron T/O personnel MOS qualified and deployable. Level 2 (L2) IAW ALERTS.
- 100% critical MOS fill

Equipment:

- 70% Full Mission Capable (FMC) aircraft of PAA (11/8/5/2/4 aircraft) OR upon establishment, 100 percent RFT entitlement IAW T/M/S standard.
- Operational support equipment fully supports MCT

Training:

- 11/9/6/3/4 Crews NS LLL Core Skill Proficient
- 11/9/6/3/4 Crews GTR Core Skill Proficient
- 11/9/6/3/4 Crews Aerial Gunnery Core Skill Proficient
- 11/9/6/3/4 Crews External Core Skill Proficient

Output Standards:

- 21/16/12/5/11 Sorties daily sustained during contingency/combat operations

MCT 6.2.1.1 Conduct Aviation Support of Tactical Recovery of Aircraft and Personnel (TRAP)

Conditions:

C 1.3.2.1 Light

Light available to illuminate objects from natural or manmade sources. Descriptors: Bright (sunny day); Day (overcast day); low (dusk, dawn, moonlit, streetlight lit); Negligible (overcast night)

C.1.3.2.3 Aviation Meteorological Conditions

Current weather/flight conditions affecting flight rules next 24 hours. Descriptors: VMC (Conditions that permit flight using external cues and a distinguishable horizon.)

C 1.1.1.2 Terrain Elevation.

Height of immediate terrain in reference to sea level. Descriptors: Very high (> 10,000 ft); High (6,000 to 10,000 ft); Moderately high (3,000 to 6,000 ft); Moderately low (1,000 to 3,000 ft); Low (500 to 1,000 ft); Very low (< 500 ft).

C 2.7.2 Air Superiority

The extent to which operations in the air, over sea and/or, over land can be conducted with acceptable losses due to hostile air forces and air defense systems action. Descriptors: Full (Air Supremacy); General; Local.

Standards: {Squadron (16 A/C)/Temp Sqdn (12 A/C)/Temp Sqdn (-) (8A/C)/Det (4 A/C) /Reserve Sqdn (6 A/C)}:

Personnel:

- 7/6/4/2/2 aircrews formed
- 90% of squadron T/O personnel MOS qualified and deployable and Level 2 (L2) IAW ALERTS.
- 100% critical MOS fill

Equipment:

- 70% Full Mission Capable (FMC) aircraft of PAA (11/8/5/2/4 aircraft) OR Upon establishment, 100 percent RFT entitlement IAW T/M/S standard.
- Operational support equipment fully supports MCT

Training:

- 7/6/4/2/2 Crews NS LLL Core Skill Proficient
- 7/6/4/2/2 Crews GTR Core Skill Proficient
- 7/6/4/2/2 Crews Aerial Gunnery Core Skill Proficient
- 7/6/4/2/2 Crews External Core Skill Proficient
- 7/6/4/2/2 Crews HAAR Core Skill Proficient

Output Standards:

- 21/16/12/5/11 Sorties daily sustained during contingency/combat operations

MCT 6.2.2 **Conduct Air Evacuation**

Conditions:

C 1.3.2.1 Light

Light available to illuminate objects from natural or manmade sources. Descriptors: Bright (sunny day); Day (overcast day); low (dusk, dawn, moonlit, streetlight lit); Negligible (overcast night)

C.1.3.2.3 Aviation Meteorological Conditions

Current weather/flight conditions affecting flight rules next 24 hours. Descriptors: VMC (Conditions that permit flight using external cues and a distinguishable horizon.)

C 1.1.1.2 Terrain Elevation.

Height of immediate terrain in reference to sea level. Descriptors: Very high (> 10,000 ft); High (6,000 to 10,000 ft); Moderately high (3,000 to 6,000 ft); Moderately low (1,000 to 3,000 ft); Low (500 to 1,000 ft); Very low (< 500 ft).

C 2.7.2 Air Superiority

The extent to which operations in the air, over sea and/or, over land can be conducted with acceptable losses due to hostile air forces and air defense systems action. Descriptors: Full (Air Supremacy); General; Local.

Standards: {Squadron (16 A/C)/Temp Sqdn (12 A/C)/Temp Sqdn (-) (8A/C)/Det (4 A/C) /Reserve Sqdn (6 A/C)}:

Personnel:

- 11/9/6/3/4 aircrews formed
- 90% of squadron T/O personnel MOS qualified and deployable. Level 2 (L2) IAW ALERTS.
- 100% critical MOS fill

Equipment:

- 70% Full Mission Capable (FMC) aircraft of PAA (11/8/5/2/4 aircraft) OR upon establishment, 100 percent RFT entitlement IAW T/M/S standard.
- Operational support equipment fully supports MCT

Training:

- 11/9/6/3/4 Crews NS LLL Core Skill Proficient
- 11/9/6/3/4 Crews GTR Core Skill Proficient
- 11/9/6/3/4 Crews Aerial Gunnery Core Skill Proficient

Output Standards:

- 21/16/12/5/11 Sorties daily sustained during contingency/combat operations

Core Plus

MCT 1.3.3.3.1 Conduct Aviation Operations From Expeditionary Sea-Based Sites

Conditions:

C 1.3.2.1 Light

Light available to illuminate objects from natural or manmade sources. Descriptors: Bright (sunny day); Day (overcast day); low (dusk, dawn, moonlit, streetlight lit); Negligible (overcast night)

C 1.3.1.3.1 Air Temperature

Atmospheric temperature at ground level (degrees Fahrenheit). Descriptors: Hot (> 85 F); Temperate (40 to 85 F); Cold (10 to 39 F); Very cold (< 10 F).

C 2.1.4.5 Intratheater Distance

Mileage between two locations (e.g., airfield to the FEBA). Descriptors: Very short (< 10 NM); Short (10 to 50 NM); Moderate (50 to 150 NM); Long (150 to 500 NM); Very long (> 500 NM).

Standards: {Squadron (16 A/C)/Temp Sqdn (12 A/C)/Temp Sqdn (-) (8A/C)/Det (4 A/C) /Reserve Sqdn (6 A/C)}:

Personnel:

- 6/5/3/2/2 aircrews formed
- 90% of squadron T/O personnel MOS qualified and deployable. Level 2 (L2) IAW ALERTS.
- 100% critical MOS fill

Equipment:

- 70% Full Mission Capable (FMC) aircraft of PAA (11/8/5/2/4 aircraft) OR upon establishment, 100 percent RFT entitlement IAW T/M/S standard.
- Operational support equipment fully supports MCT

Training:

- 6/5/3/2/2 Crews NS LLL Core Skill Proficient
- 6/5/3/2/2 Crews GTR Core Skill Proficient
- 6/5/3/2/2 Crews Aerial Gunnery Core Skill Proficient
- 6/5/3/2/2 Crews Carrier Qualified

Output Standards:

- 21/16/12/5/11 Sorties daily sustained during contingency/combat operations

MCT 1.3.4.1.1 Conduct Airborne Rapid Insertion/Extraction

Conditions:

C 1.3.2.1 Light

Light available to illuminate objects from natural or manmade sources. Descriptors: Bright (sunny day); Day (overcast day); low (dusk, dawn, moonlit, streetlight lit); Negligible (overcast night)

C.1.3.2.3 Aviation Meteorological Conditions

Current weather/flight conditions affecting flight rules next 24 hours. Descriptors: VMC (Conditions that permit flight using external cues and a distinguishable horizon.)

C 1.1.1.2 Terrain Elevation.

Height of immediate terrain in reference to sea level. Descriptors: Very high (> 10,000 ft); High (6,000 to 10,000 ft); Moderately high (3,000 to 6,000 ft); Moderately low (1,000 to 3,000 ft); Low (500 to 1,000 ft); Very low (< 500 ft).

C 2.7.2 Air Superiority

The extent to which operations in the air, over sea and/or, over land can be conducted with acceptable losses due to hostile air forces and air defense systems action. Descriptors: Full (Air Supremacy); General; Local.

Standards: {Squadron (16 A/C)/Temp Sqdn (12 A/C)/Temp Sqdn (-) (8A/C)/Det (4 A/C) /Reserve Sqdn (6 A/C)}:

Personnel:

- 6/5/3/2/2 aircrews formed
- 90% of squadron T/O personnel MOS qualified and deployable o And Level 2 (L2) IAW ALERTS.
- 100% critical MOS fill

Equipment:

- 70% Full Mission Capable (FMC) aircraft of PAA (11/8/5/2/4 aircraft) OR Upon establishment, 100 percent RFT entitlement IAW T/M/S standard.
- Operational support equipment fully supports MCT

Training:

- 6/5/3/2/2 Crews NS LLL Core Skill Proficient
- 6/5/3/2/2 Crews GTR Core Skill Proficient
- 6/5/3/2/2 Crews Aerial Gunnery Core Skill Proficient
- 6/5/3/2/2 Crews HIE Core Plus Skill Proficient

Output Standards:

- 21/16/12/5/11 Sorties daily sustained during contingency/combat operations

MCT 1.3.4.2.1 Provide Aviation-Delivered Ground Refueling

Conditions:

C 1.3.2.1 Light

Light available to illuminate objects from natural or manmade sources. Descriptors: Bright (sunny day); Day (overcast day); low (dusk, dawn, moonlit, streetlight lit); Negligible (overcast night)

C 2.7.2 Air Superiority

The extent to which operations in the air, over sea and/or, over land can be conducted with acceptable losses due to hostile air forces and air defense systems action. Descriptors: Full (Air Supremacy); General; Local.

Standards: {Squadron (16 A/C)/Temp Sqdn (12 A/C)/Temp Sqdn (-) (8A/C)/Det (4 A/C) /Reserve Sqdn (6 A/C)}:

Personnel:

- 6/5/3/2/2 aircrews formed
- 90% of squadron T/O personnel MOS qualified and deployable and Level 2 (L2) IAW ALERTS.
- 100% critical MOS fill

Equipment:

- 70% Full Mission Capable (FMC) aircraft of PAA (11/8/5/2/4 aircraft) OR Upon establishment, 100 percent RFT entitlement IAW T/M/S standard.
- Operational support equipment fully supports MCT

Training:

- 6/5/3/2/2 Crews NS LLL Core Skill Proficient
- 6/5/3/2/2 Crews GTR Core Skill Proficient
- 6/5/3/2/2 Crews Aerial Gunnery Core Skill Proficient

Output Standards:

- Provide (4/2/2/2/2) refueling point capable of transferring 45gpm

CHAPTER 2

CH-53E PILOT (MOS 7566)

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NAVMC 3500.47B
11 Apr 14

CHAPTER 2

CH-53 PILOT 7566

2.0 INDIVIDUAL TRAINING AND READINESS REQUIREMENTS. This T&R Syllabus is based on specific goals and performance standards designed to ensure individual proficiency in Core and Mission Skills. The goal of this chapter is to develop individual and unit war fighting capabilities.

2.1 TRAINING PROGRESSION MODEL. This model represents the recommended training progression for the average 7566 crewmember. Units should use the model as a point of departure to generate individual training plans.

CH-53 PILOT TRAINING PROGRESSION MODEL																							
6000 PHASE (FLIGHT LEADERSHIP) NATOPS, INST, HAC, SEC LDR, DIV LDR, FLT LDR, MSN CMDR, FCF																							
5000 PHASE (INSTRUCTOR TRAINING) BIP, TERFI, ARI, NSI, DMI, FLSE, WTI, CI																							
4000 PHASE (CORE PLUS SKILLS) CBRN, HIE, TERF EXT, GTR, DM, TAC, CQ 4000 PHASE (MISSION PLUS) RIE, ADGR, SEA																							
3000 PHASE (MISSION SKILLS) EXP, AT, AD, TRAP, AE																							
2000 PHASE (CORE SKILLS) FAM, FORM, CAL, TERF, EXT, GTR, HAAR, AG, FCLP, TAC, NS HLL, NS LLL																							
1000 PHASE (CORE SKILL INTRODUCTION)																							
2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48
Months (Min to Max)																							

2.2 PROFICIENCY & CURRENCY

2.2.1 Proficiency. Proficiency is a measure of achievement of a specific skill. Refly factors establish the maximum time between demonstration of those particular skills. To regain proficiency, an individual shall complete the delinquent events with a proficient crewman/flight lead. If an entire unit loses proficiency, unit instructors shall regain proficiency by completing an event with an instructor from a like unit. If not feasible, the instructor shall regain proficiency by completing the event with another instructor. If a unit has only one instructor and cannot complete the event with an instructor from another unit, the instructor shall regain proficiency with another aircraft commander or as designated by the commanding officer.

2.2.2 Currency. A control measure used to provide an additional margin of safety based on exposure frequency to a particular skill. It is a measure of time since the last event demanding that specific skill. For example, currency determines minimum altitudes in rules of conduct based upon the most recent low altitude fly date. Specific currency requirements for individual type mission profiles can be found in Chapter 3 of the Aviation T&R Program Manual.

2.3 INDIVIDUAL CORE SKILL PROFICIENCY REQUIREMENTS

2.3.1 Management of individual CSP serves as the foundation for developing proficiency requirements.

2.3.2 Individual CSP is a "Yes/No" status assigned to an individual by Core Skill. When an individual attains and maintains CSP in a Core Skill, the individual counts towards CMMR Unit CSP requirements for that Core Skill.

2.3.3 Proficiency is attained by individual Core Skill where the training events for each skill are determined by POI assignment.

2.3.4 Once proficiency has been attained by Core Skill (by any POI assignment) then the individual maintains proficiency by executing those events noted in the maintain table and in the Maintain POI column of the Attain and Maintain Table. An individual maintains proficiency by individual Core Skill.

Note

Individuals may be attaining proficiency in some Core Skills while maintaining proficiency in other Core Skills.

2.3.5 Once proficiency has been attained, should one lose proficiency in an event in the "Maintain POI" column, proficiency can be re-attained by demonstrating proficiency in the delinquent event. Should an individual lose proficiency in all events in the "Maintain POI" column by Core Skill, the individual will be assigned to the Refresher POI for that Skill. To regain proficiency for that Core Skill the individual must demonstrate proficiency in all R-coded events for that Skill.

CH-53E PILOT ATTAIN AND MAINTAIN CORE SKILL PROFICIENCY (2000 Phase)						
SKILL	STAGE	T&R DESCRIPTION	ATTAIN PROFICIENCY			MAINTAIN POI
			BASIC POI	REFRESHER POI	SC POI	
FAM	ACAD	ARC-210	2001	2001		2001
	ACAD	AN/AYK-28	2002			
	ACAD	CH-53 INTERNAL CARGO	2003			
	ACAD	CH-53 AAR/ALE-47 (*)	2004	2004		2004
	ACAD	CH-53 PFPS TECHNIQUES	2006			
	SFAM	SIM FAM, INSTR, EP	2100	2100		2100
	FAM	DAY HUD FAM/CAL	2101	2101	2101	
	FAM	FAM, INSTR, EP	2105	2105		2105
FORM	ACAD	CH-53 TACFORM	2005			
	FORM	DAY FORM	2110	2110		2110
CAL	ACAD	DESERT OPERATIONS (*)	2007	2007		2007
	ACAD	MOUNTAIN OPERATIONS (CAL)	2008	2008		2008
	ACAD	CREW COORDINATION	2009			
	ACAD	HUD	2010			
	CAL	CALS	2210	2210		
	CAL	SECTION CALS	2211	2211	2211	2211
TERF	ACAD	ASD TERRAIN FLIGHT (TERF)	2011			
	ACAD	CH-53 APR-39 (*)	2012	2012		2012
	ACAD	SURFACE TO AIR THREAT	2013			
	TERF	TERF	2310			
	TERF	SECTION TERF	2311	2311	2311	2311

CH-53E PILOT ATTAIN AND MAINTAIN CORE SKILL PROFICIENCY (2000 Phase)						
SKILL	STAGE	T&R DESCRIPTION	ATTAIN PROFICIENCY			MAINTAIN POI
			BASIC POI	REFRESHER POI	SC POI	
EXT	ACAD	HEAVY LIFT OPERATIONS	2014	2014		2014
	ACAD	ASSLT SUPPORT ARTILLERY	2015			
	SEXT	HEAVY LIFT EXTERNALS SIM	2400	2400		
	EXT	SINGLE POINT EXTERNALS	2410	2410	2410	
	EXT	DUAL POINT EXTERNALS	2411	2411	2411	2411
	EXT	HLL SINGLE POINT EXTERNALS	2420	2420	2420	
	EXT	HLL DUAL POINT EXTERNALS	2421	2421	2421	2421
	EXT	LLL EXTERNAL	2430	2430	2430	2430
GTR	EXT	HEAVY LIFT EXTERNALS	2441	2441		2441
	ACAD	CH-53 DM/GTR I (GTR)	2016			
	ACAD	IR SAM THREAT	2017	2017		2017
	ACAD	AAQ-24 (*)	2019	2019		2019
	ACAD	AAA THREAT	2020			
	ACAD	EVASIVE MANEUVERS	2021			
	SGTR	GTR & ASE FAM SIM	2500			
HAAR	GTR	NON RADAR GTR	2540	2540		2540
	ACAD	HAAR(*) (AR)	2022	2022	2022	2022
	SHAAR	DAY HAAR SIM	2600		2600	
	SHAAR	NS HAAR SIM	2601		2601	
	HAAR	DAY HAAR LEFT HOSE PREF	2610		2610	
	HAAR	DAY HAAR LEFT&RIGHT HOSE	2611	2611	2611	2611
	HAAR	NS HAAR	2640	2640	2640	2640
FCLP	SFCLP	SIM CQ	2700			
	FCLP	DAY FCLP	2710	2710	2710	2710
	FCLP	NS FCLP	2742	2742	2742	2742
AG	ACAD	CH-53 WEAPONS SYSTEMS (AG)	2023			
	ACAD	WEAPONS EMPLOYMENT	2024			
	ACAD	INTRO TO LASER SYSTEMS	2025			
	ACAD	MAGTF FSCMS	2026	2026		2026
	AG	AERIAL GUNNERY	2810			
	AG	NS GUNNERY	2840	2840		2840
TAC	ACAD	OBJECTIVE AREA PLANNING	2027	2027		2027
	ACAD	ROE	2028			
	ACAD	EXECUTION CHECKLIST	2029			
	ACAD	MISSION ANALYSIS (*)	2030	2030		2030
	TAC	LOW THREAT LEVEL TACTICS	2910			
	TAC	MED THREAT LEVEL TACTICS	2911	2911		2911
NS HLL	ACAD	NVG PREFLIGHT AND ADJUST	2031			
	ACAD	NVG SYS AND IMAGE CHAR	2032			
	ACAD	THE NIGHT ENV (HLL)	2033			
	ACAD	MISPERCEPTIONS & ILLUSIONS	2034			
	ACAD	NIGHT ROUTE PLANNING	2035			
	ACAD	NIGHT OPS AND PLANNING AIDS	2036			
	SHLL	OPERATIONS OF AIRCRAFT NS	2102	2102		
	HLL	HLL FORM	2120	2120		
	HLL	HLL CALS	2220			
	HLL	HLL SECTION CALS	2221	2221	2221	2221
	HLL	HLL TERF	2320			
	HLL	HLL SECTION TERF	2321	2321	2321	2321
	HLL	HLL CHECK/LOW THREAT TAC	2920	2920		2920

CH-53E PILOT ATTAIN AND MAINTAIN CORE SKILL PROFICIENCY (2000 Phase)						
SKILL	STAGE	T&R DESCRIPTION	ATTAIN PROFICIENCY			MAINTAIN POI
			BASIC POI	REFRESHER POI	SC POI	
NS LLL	ACAD	HUMAN FACTORS	2037			
	ACAD	FLIR TRAINING COURSE	2038			
	ACAD	CH-53 HNVS FLIR (LLL)	2039			
	ACAD	AS ESCORT TACTICS	2040			
	ACAD	BATTLEFIELD ILLUMINATION	2041			
	LLL	LLL CALS	2230			
	LLL	LLL SECTION CALS	2231	2231	2231	2231
	LLL	LLL TERF	2330			
	LLL	LLL SECTION TERF	2331	2331	2331	2331
	LLL	LLL CHECK/MED THREAT TAC	2930	2930	2930	2930

NOTE

Specific Maintain events are selected by community SMEs to update corresponding skills in the Attain table. Maintaining proficiency in these select events will ensure the individual will never go delinquent in that corresponding skill in the Attain table.

2.4 INDIVIDUAL MISSION SKILL PROFICIENCY REQUIREMENTS

2.4.1 Management of individual MSP serves as the foundation for developing proficiency requirements in DRRS-MC.

2.4.2 Individual MSP is a "Yes/No" status assigned to an individual by Mission Skill. When an individual attains and maintains MSP in a Mission Skill, the individual counts towards CMMR Unit MSP requirements for that Mission Skill.

2.4.3 Proficiency is attained by individual Mission Skill where the training events for each skill are determined by POI assignment.

2.4.4 Once proficiency has been attained by Mission Skill (by any POI assignment) then the individual maintains proficiency by executing those events noted in the Maintain table and in the Maintain POI column of the Attain and Maintain Table. An individual maintains proficiency by individual Mission Skill.

Note

Individuals may be attaining proficiency in some Mission Skills while maintaining proficiency in other Mission Skills.

2.4.5 Once proficiency has been attained, should one lose proficiency in an event in the "Maintain POI" column, proficiency can be re-attained by demonstrating proficiency in the delinquent event. Should an individual lose proficiency in all events in the "Maintain POI" column by Mission Skill, the individual will be assigned to the Refresher POI for that Skill. To regain proficiency for that Mission Skill the individual must demonstrate proficiency in all R-coded events for that Skill.

CH-53E PILOT ATTAIN AND MAINTAIN MISSION SKILL PROFICIENCY (3000 Phase)						
SKILL	STAGE	T&R DESCRIPTION	ATTAIN PROFICIENCY			MAINTAIN POI
			BASIC POI	REFRESHER POI	SC POI	
EXP	ACAD	RAPID RESPONSE PLANNING	3000			
	ACAD	REC THREAT TO THE MAGTF	3001			
	LLL	LLL SECTION CALS	2231	2231	2231	2231
	LLL	LLL SECTION TERF	2331	2331	2331	2331
	GTR	NON RADAR GTR	2540	2540		2540
	AG	NS GUNNERY	2840	2840		2840
	EXP	EXPEDITIONARY SHORE BASED TAC	3140	3140		3140
AT	ACAD	NEO EXECUTION	3002			
	ACAD	INTELL PREP OF BATTLESPACE	3003			
	LLL	LLL SECTION CALS	2231	2231	2231	2231
	LLL	LLL SECTION TERF	2331	2331	2331	2331
	GTR	NON RADAR GTR	2540	2540		2540
	AG	NS GUNNERY	2840	2840		2840
	AT	ASSAULT TRANSPORT TACTICS	3240	3240		3240
AD	LLL	LLL SECTION CALS	2231	2231	2231	2231
	LLL	LLL SECTION TERF	2331	2331	2331	2331
	EXT	LLL EXTERNAL	2430	2430	2430	2430
	EXT	HEAVY LIFT EXTERNALS	2441	2441		2441
	GTR	NON RADAR GTR	2540	2540		2540
	AG	NS GUNNERY	2840	2840		2840
	AD	AERIAL DELIVERY TACTICS	3340	3340		3340
TRAP	ACAD	PERSONNEL RECOVERY	3004			
	ACAD	CH-53 SPECIFIC TRAP TTPs	3005			
	LLL	LLL SECTION CALS	2231	2231	2231	2231
	LLL	LLL SECTION TERF	2331	2331	2331	2331
	EXT	LLL EXTERNAL	2430	2430	2430	2430
	EXT	HEAVY LIFT EXTERNALS	2441	2441		2441
	GTR	NON RADAR GTR	2540	2540		2540
	HAAR	NS HAAR	2640	2640	2640	2640
	AG	NS GUNNERY	2840	2840		2840
TRAP	TRAP TACTICS	3440	3440		3440	
AE	ACAD	CASEVAC	3006			
	ACAD	CIRCADIAN RHYTHM & FATIGUE	3007			
	ACAD	INTRO NVG TAC EMPLOYMENT	3008			
	LLL	LLL SECTION CALS	2231	2231	2231	2231
	LLL	LLL SECTION TERF	2331	2331	2331	2331
	GTR	NON RADAR GTR	2540	2540		2540
	AG	NS GUNNERY	2840	2840		2840
	AE	AERIAL EVACUATION TACTICS	3540	3540		3540

NOTE

Specific Maintain events are selected by community SMEs to update corresponding skills in the Attain table. Maintaining proficiency in these select events will ensure the individual will never go delinquent in that corresponding skill in the Attain table.

2.5 INDIVIDUAL CORE PLUS SKILL PROFICIENCY REQUIREMENTS

2.5.1 Management of individual CPSP serves as the foundation for developing proficiency requirements.

2.5.2 Individual CPSP is a "Yes/No" status assigned to an individual by Core Plus Skill. When an individual attains and maintains CPSP in a Core Plus Skill, the individual counts towards CMMR Unit CPSP requirements for that Core Plus Skill.

2.5.3 Proficiency is attained by individual Core Plus Skill where the training events for each skill are determined by POI assignment.

2.5.4 Once proficiency has been attained by Core Plus Skill (by any POI assignment) then the individual maintains proficiency by executing those events noted in the Maintain table and in the Maintain POI column of the Attain and Maintain Table. An individual maintains proficiency by individual Core Plus Skill.

Note

Individuals may be attaining proficiency in some Core Plus Skills while maintaining proficiency in other Core Plus Skills.

2.5.5 Once proficiency has been attained, should one lose proficiency in an event in the "Maintain POI" column, proficiency can be re-attained by demonstrating proficiency in the delinquent event. Should an individual lose proficiency in all events in the "Maintain POI" column by Core Plus Skill, the individual will be assigned to the Refresher POI for that Skill. To regain proficiency for that Core Plus Skill the individual must demonstrate proficiency in all R-coded events for that Skill.

CH-53E PILOT ATTAIN AND MAINTAIN CORE PLUS PROFICIENCY (4000 Phase)						
SKILL	STAGE	DESCRIPTION	ATTAIN PROFICIENCY			MAINTAIN POI
			BASIC POI	REFRESHER POI	SC POI	
HIE	HIE	HELOCAST	4110	4110		4110
	HIE	FASTROPE/SPIE/RAPEL	4140		4140	
	HIE	PARA OPS	4141			
TERF EXT	SEXT	DAY TERF EXTERNALS	4412	4412	4412	
	SEXT	NS TERF EXTERNALS	4440	4440	4440	4440
GTR	ACAD	RF SAM	4000			
	GTR	RADAR GTR	4540	4540		4540
DM	ACAD	DM GAME PLANNING	4001			
	ACAD	CH-53 DM/GTR II	4002			
	ACAD	HELICOPTER PS AND EM	4003			
	ACAD	FW THREAT TO AS	4004			
	ACAD	ATTACK HELO THREAT TO AS	4005			
	DM	RW DM	4510	4510		4510
	DM	FW DM	4511	4511		4511
CBRN	SCBRN	CBRN FAM	4600			
CQ	CQ	DAY CQ	4711	4711	4711	
	CQ	NS CQ	4743	4743	4743	4743
TAC	GTR	NON RADAR GTR	2540	2540		2540
	AG	NS GUNNERY	2840	2840		2840
	ACAD	RGR	4006			
	ACAD	MOUT	4007			
	TAC	DIV TACTICS	4940	4940		4940
	TAC	URBAN TACTICS	4941	4941		4941
RIE	TAC	LONG RANGE TACTICS	4942	4942		4942
	GTR	NON RADAR GTR	2540	2540		2540
	AG	NS GUNNERY	2840	2840		2840
	ACAD	JCAS	4008			
	ACAD	GCE RAID PLANNING	4009			
	ACAD	TARGETING AND FIRE SUPPORT	4010			
ADGR	RAID	RIE TACTICS	4980	4980		4980
	GTR	NON RADAR GTR	2540	2540		2540
	AG	NS GUNNERY	2840	2840		2840
	ACAD	TBFDS/MK-105	4011			
	ADGR	ADGR TACTICS	4981	4981		4981
SEA	GTR	NON RADAR GTR	2540	2540		2540
	AG	NS GUNNERY	2840	2840		2840
	SEA	SEA BASED TACTICS	4982	4982		4982

NOTE

Specific Maintain events are selected by community SMEs to update corresponding skills in the Attain table. Maintaining proficiency in these select events will ensure the individual will never go delinquent in that corresponding skill in the Attain table.

2.6 REQUIREMENTS, QUALIFICATIONS, AND DESIGNATION TABLES. The tables below delineate T&R events required to be completed to attain proficiency, and initial qualifications and designations. In addition to event requirements, all stage lectures, briefs, squadron training, prerequisites and other criteria shall be completed prior to completing final events. Qualification and designation letters signed by the commanding officer shall be placed in Aircrew Performance Records (APR) and NATOPS jackets. Loss of proficiency in all qualification events causes the associated qualification to be lost. Regaining a qualification requires completing all R-coded syllabus events associated with that qualification.

INDIVIDUAL QUALIFICATION REQUIREMENTS for 7566	
Qualification	Event Requirements
NATOPS	6000,6001,6002,6003,6100,6101 and IAW OPNAV 3710.7.
Instrument	6005,6006,6102 and IAW OPNAV 3710.7.
TERF	2011,2310,2311R
NSQ HLL	2031,S2102,2120R,2220,2221R,2320,2321R,2920R
NSQ-LLL*	NSQ HLL,2230,2231R,2330,2331R,2930R
DM	2016,2021,4001-4005,4510R,4511R

INDIVIDUAL DESIGNATION REQUIREMENT FOR 7566	
Designation	Event Requirements
H2P	Core Skill Introduction complete,1902
HAC	Core Skill and Mission Skill complete,S5100,S5101,5110,6120,6121,6122R
BIP	Core Skill and Mission Skill Complete,S5100,S5101,5110,6120,6121,6122R
SEC LDR	6200,6201,6202,6203R
DIV LDR	6300,6301 6302R
FLT LDR	6400
AIR MSN CDR	6500
FLSE	Per MAWTS-1 WTI Course Catalog
TERFI	5200,5201,5202; Per MAWTS-1 WTI Course Catalog
ARI	5300,5301; Per MAWTS-1 WTI Course Catalog
DMI	5700,5701,5702; Per MAWTS-1 WTI Course Catalog
NSI	5800,5801,5802,5803,5804,5805; Per MAWTS-1 WTI Course Catalog
WTI	Per MAWTS-1 WTI Course Catalog
FRSI-E	5500, 5502,5503,5504,5505,5506
NI/ANI	6100 given by Model Manager / 6100 given by a NATOPS Instructor
NII	Designated by Squadron CO
FCP	6610-6617, IAW OPNAVINST 4790 and command specific directives

2.7 PROGRAMS OF INSTRUCTION (POI).

2.7.1 Basic/Transition (B/T) POI. Basic, Transition, and Model Conversion pilots shall be assigned to the Basic POI. Full or Modified Refresher pilots will fly those flights designated by an MR or R in the flight description IAW the Program Manual NAVMC 3500.14. Those pilots previously designated 7566, returning to a 7566 billet (and have not been out of T/M for greater than 485 days) shall complete a squadron refresher syllabus IAW with paragraph 2.7.4. The squadron training officer shall ensure all Aircrew Training Forms (ATFs) are entered in section 3 of the Aircrew Performance

Record (APR) for all initial or refresher events designated by R or MR in the event description. These ATFs will replace ATFs previously entered in section 3.

WEEKS	COURSE	PERFORMING ACTIVITY
1-24	CH-53E Core Skill Intro	USMC CH-53E FRS
25-68	Core Skill Training	Tactical Squadron
68+	Mission Skill Training	Tactical Squadron
68+	Core Plus Skill Training	Tactical Squadron

2.7.2 CH-53E FRS Refresher/ Modified Refresher Training. CH-53E pilots requiring FRS Refresher Training IAW NAVMC 3500.14, Aviation T&R Program Manual shall fly the appropriate 1000 level MR or R-coded events per this manual at the FRS.

WEEKS	COURSE	PERFORMING ACTIVITY
1-4	CH-53E Core Skill Intro	USMC CH-53E FRS
5-26	Core Skill Training	Tactical Squadron
27+	Mission Skill Training	Tactical Squadron
27+	Core Plus Skill Training	Tactical Squadron

2.7.3 Model Conversion. Pilots selected for model conversion to the CH-53E shall be assigned to the Basic POI. The following Basic POI events shall be waived at the FRS: 1101, 1102, 1103, 1104, 1107, 1113, 1115, 1117, 1119, 1300, 1303, 1304, 1400, 1502, 1600, 1602, 1604 and 1800. Upon completion of the HAC syllabus, model conversions may be re-designated with their highest previous flight leadership designation at the discretion of the Squadron Commanding Officer.

2.7.4 Tactical Squadron Refresher/Conversion Syllabus (2000-8000). The Squadron Refresher and Conversion Syllabus is predicated on the experience of the refresher and/or conversion pilot. A pilot in the squadron refresher syllabus should fly all R coded events. The Squadron Commanding Officer may tailor the squadron refresher or conversion syllabus to fit the experience of the refresher or conversion pilot per the squadron standardization board recommendations and NAVMC 3500.14, Aviation T&R Program Manual. When the R coded events within a stage of training are complete, the pilot may be credited with the entire stage of training. This assumes the Refresher pilot has previous proficiency in a stage of training. If the Refresher pilot has no previous proficiency in a stage or particular event (i.e. event Never Been Attempted (NBA)), then the Refresher shall fly the entire stage or all events not previously attempted.

2.7.5 POI Fleet Replacement Squadron Instructor Echo Pilot

WEEKS	COURSE	PERFORMING ACTIVITY
1-4	CH-53E INSTRUCTOR PILOT FLT TRNG	USMC CH-53E FRS

2.8 ACADEMIC TRAINING

2.8.1 General. The Academic syllabus is designed to ensure pilots receive the proper academic training prior to starting a new phase and stage of training. Within each phase of training (1000-8000) there are corresponding stages, each stage has an academic syllabus. The required academic syllabus for each stage of training is further delineated in the beginning paragraphs of each phase. Each phase and stage contain specific academic requirements which must be completed either prior to phase and/or stage initiation or prior to phase and/or stage completion. Academic/ground training events can either be accomplished by an individual utilizing self paced courseware or presented by a qualified instructor. The PUI and PTO shall ensure that the appropriate academic/ground training event is manually updated in MSHARP and logged in the APR.

2.8.2 Requirements. The purpose of the academic syllabus is to ensure that required academic courses for each phase/stage of training are completed and logged in M-SHARP for each Crew Member. A summary of academic classes that is required for all of the phases of training (0000-8000) are listed below with their corresponding T&R code. Where indicated, standardized academic training materials exist and may be obtained from the sponsoring activity.

2.8.3 The academic/ground training shall be complete IAW the phase and/or stage requirements and prerequisites. Upon completion, the PUI shall report to the appropriate Operations Department (S-3) representative (typically the PTO) or designated representative(s), who will then manually update the training code in MSHARP and log the academic/ground training event in the appropriate section APR, using the format listed in enclosure (1) of this document.

2.8.4 Annual academic/ground training events shall be updated in MSHARP each time they are completed IAW the refly interval.

2.8.5 Additionally, academic/ground training classes not listed as requirements in the T&R should be logged in the appropriate section of the APR using enclosure (1).

2.8.6 Upon signature of this manual, the squadron operations department will manually update and baseline all academic requirements, in both MSHARP and APR(s) for all phases and stages that aircrew have previously completed, at the discretion of the Squadron Commanding Officer.

T&R CODE	ACADEMIC SYLLABUS
	FRS ACADEMIC PHASE (0000-0999)
CBT-0001	INTRO TO THE CH-53
CBT-0002	THE AUXILLARY POWER PLANT
CBT-0003	THE ELECTRICAL SYSTEM
CBT-0004	HYDRAULIC SYSTEM
CBT-0005	FUEL SYSTEM
CBT-0006	ENGINES
CBT-0007	DRIVE TRAIN
CBT-0008	CHIP DETECTING SYSTEM
CBT-0009	ROTOR SYSTEM
CBT-0010	FLIGHT CONTROL SYSTEM
CBT-0011	AUTOMATED FLIGHT CONTROL SYSTEM (AFCS)
CBT-0012	BLADE/PYLON FOLD AND ROTOR BRAKE SYSTEM
CBT-0013	LANDING GEAR AND WHEEL BRAKE SYSTEM
CBT-0014	MISCELLANEOUS SYSTEM
CBT-0015	COMMUNICATION AND NAVIGATION SYSTEMS
CBT-0016	AIRCRAFT SURVIVABILITY EQUIPMENT
CBT-0017	PREFLIGHT PLANNING AND PROCEDURES
CBT-0018	INTRODUCTION TO THE FLIGHT PHASE
CBT-0019	NIGHT FLIGHT
CBT-0020	INSTRUMENT FLIGHT AND NAVIGATION
CBT-0021	VER NAVIGATION, GPS AND HELICOPTER NIGHT VISION SYSTEMS (HNVS)
CBT-0022	FORMATION FLIGHT
CBT-0023	CONFINED AREA LANDINGS

CBT-0024	EXTERNAL CARGO OPERATIONS
ACAD-0100	GROUND SCHOOL INTRO IN-BRIEF
ACAD-0101	ELECTRICAL SYSTEM
ACAD-0102	HYDRAULIC SYSTEM
ACAD-0103	FUEL SYSTEM
ACAD-0104	ENGINES AND THE AUXILIARY POWER PLANT
ACAD-0105	DRIVE TRAIN AND ROTOR SYSTEM
ACAD-0106	FLIGHT CONTROL SYSTEM
ACAD-0107	AUTOMATED FLIGHT CONTROL SYSTEM (AFCS)
ACAD-0108	COMMUNICATION AND NAVIGATION SYSTEMS
ACAD-0109	CREW RESOURCE MANAGEMENT (CRM) INITIAL
LAB-0110	INTRODUCE PREFLIGHT INSPECTION PROCEDURES
LAB-0111	PRACTICE PREFLIGHT INSPECTION PROCEDURES
LAB-0112	REVIEW PREFLIGHT INSPECTION PROCEDURES
T&R CODE	ACADEMIC SYLLABUS
	CORE SKILL PHASE (2000-2999)
FAM STAGE	
ACAD-2000	(U) CH-53 GPS
ACAD-2001	(U) ARC-210/HAVEQUICK/SINGARS (*)
ACAD-2002	(U) AN/AYK-28
ACAD-2003	(U) CH-53 INTERNAL CARGO OPERATIONS
ACAD-2004	(S) CH-53 AAR/ALE-47 (*)
ACAD-2005	(U) CH-53 TACFORM
ACAD-2006	(U) CH-53 PFPS TECHNIQUES
CAL STAGE	
ACAD-2007	(U) DESERT OPERATIONS (*)
ACAD-2008	(U) MOUNTAIN OPERATIONS (*)
ACAD-2009	(U) COMBAT AIRCREW COORDINATION
ACAD-2010	(U) HUD
TERF STAGE	
ACAD-2011	(U) ASD TERRAIN FLIGHT
ACAD-2012	(S) CH-53 APR-39 (*)
ACAD-2013	(S) SURFACE TO AIR THREAT TO THE MAGTF
EXT STAGE	
ACAD-2014	(U) HEAVY LIFT OPERATIONS (*)
ACAD-2015	(U) ASSAULT SUPPORT TO ARTILLERY
GTR STAGE	
ACAD-2016	(U) CH-53 DM/GTR I
ACAD-2017	(S) IR SAM THREAT TO ASSAULT SUPPORT (*)
ACAD-2019	(S) AAQ-24 (*)
ACAD-2020	(S) ADA THREAT TO ASSAULT SUPPORT
ACAD-2021	(S) EVASIVE MANEUVERS
HAAR STAGE	
ACAD-2022	(U) HAAR (*)
AG STAGE	
ACAD-2023	(U) CH-53 WEAPONS SYSTEMS AND TRAINING
ACAD-2024	(U) WEAPONS EMPLOYMENT TECHNIQUES
ACAD-2025	(U) INTRO TO LASER SYSTEMS AND SAFETY
ACAD-2026	(U) FSCMS (*)
TAC STAGE	
ACAD-2027	(U) OBJECTIVE AREA PLANNING (*)
ACAD-2028	(S) ROE
ACAD-2029	(U) EXECUTION CHECKLIST
ACAD-2030	(U) PROBLEM FRAMING (*)
HLL STAGE	
ACAD-2031	(U) ASSAULT NVG PREFLIGHT AND ADJUSTMENT PROCEDURES
ACAD-2032	(U) NVG SYSTEMS AND IMAGE CHARACTERISTICS
ACAD-2033	(U) THE NIGHT ENVIRONMENT
ACAD-2034	(U) MISPERCEPTIONS AND ILLUSIONS
ACAD-2035	(U) NIGHT ROUTE PLANNING CONSIDERATIONS
ACAD-2036	(U) NIGHT OPERATIONS AND PLANNING AIDS

LLL STAGE	
ACAD-2037	(U) HUMAN FACTORS
ACAD-2038	(U) FLIR TRAINING COURSE
ACAD-2039	(U) CH-53 HNVS FLIR
ACAD-2040	(S) ASSAULT SUPPORT ESCORT TACTICS
ACAD-2041	(U) BATTLEFIELD ILLUMINATION AND ITG PLANNING CONSIDERATIONS

* Denotes annual academic training requirements.

T&R CODE	ACADEMIC SYLLABUS	
	MISSION SKILL PHASE (3000)	
EXP STAGE		
ACAD-3000	(U)	RAPID RESPONSE PLANNING
ACAD-3001	(S)	REC THREAT TO THE MAGTF
AT STAGE		
ACAD-3002	(U)	NEO EXECUTION
ACAD-3003	(U)	INTELLIGENCE PREPARATION OF THE BATTLE SPACE

TRAP STAGE	
ACAD-3004	(S) PERSONNEL RECOVERY
ACAD-3005	(S) CH-53 SPECIFIC TRAP TTPS
AE STAGE	
ACAD-3006	(U) CASEVAC
ACAD-3007	(U) CIRCADIAN RHYTHM AND FATIGUE
ACAD-3008	(U) INTRO TO NVG TACTICAL EMPLOYMENT

* Denotes annual academic training requirements.

T&R CODE	ACADEMIC SYLLABUS	
	CORE PLUS SKILL PHASE (4000)	
GTR STAGE		
ACAD-4000	(S)	RF SAM
DM STAGE		
ACAD-4001	(S)	DM GAME PLANNING
ACAD-4002	(U)	CH-53 DM/GTR II
ACAD-4003	(U)	HELICOPTER PS AND EM
ACAD-4004	(S)	FW THREAT TO ASSAULT SUPPORT
ACAD-4005	(S)	ATTACK HELICOPTER THREAT TO ASSAULT SUPPORT
TAC STAGE		
ACAD-4006	(U)	RGR
ACAD-4007	(S)	MOUT
RAID STAGE		
ACAD-4008	(U)	JCAS
ACAD-4009	(S)	GCE RAID PLANNING
ACAD-4010	(U)	MAGTF TARGETING AND FIRE SUPPORT PLANNING
ADGR STAGE		
ACAD-4011	(U)	TBFDS/MK-105

T&R CODE	ACADEMIC SYLLABUS	
	INSTRUCTOR TRAINING PHASE (5000)	
ACAD-5000	(U)	INSTRUCTIONAL TECHNIQUES

T&R CODE	ACADEMIC SYLLABUS	
	FLIGHT LEADERSHIP TRAINING PHASE (6000)	
ACAD-6010	(U)	TACTICAL FLIGHT BRIEFING
ACAD-6011	(U)	AMC

T&R CODE	ACADEMIC SYLLABUS	
	AVIATION CAREER PROGRESSION MODEL PHASE (8000)	
CORE SKILL PHASE		
ACPM-8200	(U)	MACCS AGENCIES, FUNCTIONS, AND CONTROL OF AIRCRAFT AND MISSILES
ACPM-8201	(U)	MWCS BRIEF
ACPM-8202	(U)	ACA AND AIRSPACE
ACPM-8210	(U)	AVIATION GROUND SUPPORT
ACPM-8230	(U)	ACE BATTLESTAFF
ACPM-8231	(U)	BATTLE COMMAND DISPLAY
ACPM-8240	(U)	SIX FUNCTIONS OF MARINE AVIATION(*)
ACPM-8241	(U)	JTAR/ASR INTRODUCTION AND PRACTICAL APPLICATION
ACPM-8242	(U)	SITE COMMAND PRIMER
ACPM-8250	(U)	THEATER AIR GROUND SYSTEM (TAGS)
MISSION SKILL PHASE		
ACPM-8300	(U)	AIR DEFENSE
ACPM-8310	(U)	FORWARD ARMING AND REFUELING POINT (FARP) OPERATIONS
ACPM-8311	(U)	MARINE CORPS TACTICAL FUEL SYSTEMS
ACPM-8320	(U)	JOINT STRUCTURE AND JOINT AIR OPERATIONS
ACPM-8321	(U)	JOINT AIR TASKING CYCLE PHASE 1: STRATEGY DEVELOPMENT
ACPM-8322	(U)	JOINT AIR TASKING CYCLE PHASE 2: TARGET DEVELOPMENT
ACPM-8323	(U)	JOINT AIR TASKING CYCLE PHASE 3: WEAPONING AND ALLOCATION
ACPM-8324	(U)	JOINT AIR TASKING CYCLE PHASE 4: JOINT ATO PRODUCTION
ACPM-8325	(U)	JOINT AIR TASKING CYCLE PHASE 5: FORCE EXECUTION
ACPM-8326	(U)	JOINT AIR TASKING CYCLE PHASE 6: COMBAT ASSESSMENT
ACPM-8340	(U)	INTEGRATING FIRES AND AIRSPACE WITHIN THE MAGTF
ACPM-8350	(U)	PHASING CONTROL ASHORE
ACPM-8351	(U)	TACRON ORGANIZATIONS AND FUNCTIONS
SECTION LEAD SYLLABUS		
ACPM-8630	(U)	TACTICAL AIR COMMAND CENTER (TACC)
ACPM-8660	(U)	JOINT OPERATIONS INTRODUCTION
DIVISION LEAD SYLLABUS		
ACPM-8640	(U)	JOINT DATA NETWORK
ACPM-8641	(S)	MAGTF THEATER AND NATIONAL ISR EMPLOYMENT
FLIGHT LEAD SYLLABUS		
ACPM-8620	(U)	ESG/CSG INTEGRATION

* Denotes annual academic training requirements.

2.9 EVENT REQUIREMENTS

2.9.1 General. The MAWTS-1 Course Catalog contains a summary matrix of all Ground, Academic, Simulator, and Flight requirements for each stage of the T&R. This matrix shall be placed in the Aircrew Performance Record (APR) of all aircrew to thoroughly track training progression. As each training event is completed, the PTO will input the date of completion.

2.9.1.1 All events, to include simulators, shall begin with a comprehensive brief with emphasis on administrative procedures, CRM, tactical procedures, mission performance standards and aircrew expectations.

2.9.1.2 All flights shall terminate with a comprehensive debrief with emphasis on aircrew performance utilizing all evaluation techniques available (e.g. video, participating aircrews, external support personnel).

2.9.1.3 An ATF is required for any initial event completed by a Basic/Transition or Refresher pilot, or as recommended by the squadron Standardization Board. If the commanding officer has waived/deferred a syllabus sortie, the squadron training officer shall place a waiver/deferral letter in section 3 of the APR. Standardized ATFs are maintained by the T&R sponsor, MAWTS-1, on the MAWTS-1 TECOM website:

<https://vcepub.tecom.usmc.mil/sites/msc/magtftc/mawts1/departments1/ASD/CH-53%20Division.aspx>

2.9.1.4 All pilots will have an APR. The squadron training officer shall ensure each ATF is entered in section 3 of the APR.

2.9.1.5 When operational commanders assign HMM squadrons to prolonged commitments where specific T&R training is not available (e.g., MEU deployments, sustained combat deployments), it is expected that degradation in some mission areas will occur. Commanding officers are authorized to defer training in specific missions that are not relevant to their current deployment situation. Once the squadron or detachment has returned from the deployment, every effort should be made to achieve the deferred training for the affected pilots.

2.9.1.6 Compliance with the written flight description is mandatory for syllabus event completion. In the absence of a flight simulator, completion of a syllabus event is not required to complete that stage. Completion of those events should be accomplished as soon as practical upon simulator availability. Should the command desire, in the absence of a flight simulator, simulator events can be flown in the aircraft for T&R credit.

2.9.1.7 Training should be accomplished by flying events within a stage in sequence and stages in sequence when practical. As an example, prerequisites allow a PUI to fly events in other stages while waiting for the next HLL or LLL period.

2.9.1.8 Specific rules of conduct requirements for individual type missions (NVG training, CQs, DM, etc.) can be found in chapter 3 of the Aviation T&R Program Manual.

2.9.2 Event Header

2.9.2.1 Sortie Duration. Times indicated for each event are recommendations. When scheduling sorties, training officers are allowed to schedule additional training codes based on anticipated mission sets if the performance standards are met for the sortie, and sufficient time is available during the flight to accomplish those sorties (e.g. 3 hour flight scheduled to conduct two sorties with flight time requirement of 1.5 hours each). If multiple syllabus events are to be accomplished during a single flight evolution, appropriate planning, briefing, and debriefing time shall be allotted to ensure that requisite training objectives can be met.

2.9.2.2 Refly Factor. Refly (proficiency interval) factors reflect the maximum time between syllabus events. Refly factors are delineated in days. If not applicable, an asterisk (*) will be used to indicate the event has no refly interval - it is a one-time training requirement (unless R-coded).

2.9.2.3 Programs of Instruction. Delineates event requirements for specific syllabi.

2.9.2.4 Event Conditions. Refer to the following table for required event conditions:

Code	Environmental Condition
D	Shall be flown or conducted during day
N	Shall be flown or conducted at night (using available night vision devices or flown unaided) at least 30 minutes after official sunset.
(N)	May be flown or conducted day or night; if at night, available night vision devices may be used or flown unaided
D/NS	Shall be flown both day and night conditions, unless flown in the aircraft, in which case the event may be flown during day or night conditions
NS	Shall be flown or conducted at night using available night vision devices at least 30 minutes after official sunset
(NS)	May be flown or conducted day or night; if at night, available night vision devices shall be used
N*	Event Shall be flown or conducted at night unaided
(N*)	Event may be flown or conducted at night; if at night, shall be flown unaided

2.9.2.5 "E"-Coded Events. Delineates a special event that requires an evaluation. The "E"-coded event also requires an ATF upon execution of every occurrence.

2.9.2.6 Device Codes. Refer to the following table for device codes:

Symbol	Device
A	Event performed in aircraft
S	Event performed in simulator or a simulated practical application
A/S	Event performed in aircraft preferred/simulator optional
S/A	Event performed in simulator preferred/aircraft optional
TEN	Tactical Environment Network
TEN +	Tactical Environment Network and at least one networked, man-in-the-loop simulator

2.9.2.6.1 Tactical Environment Network (TEN) simulator requirements are identified for each simulator event. TEN has been used to identify that the simulator must have the ability to link to the network. TEN+ has been used to identify that at least one networked, man-in-the-loop simulator is required for that event. Linked simulator events require an approved Tactical Environment Network simulation and at least one additional, networked, man-in-the-loop simulator to meet the training objectives. A moving model controlled from the operator station does not satisfy the man-in-the-loop requirement.

2.9.3 Event Body

2.9.3.1 Requirement. The requirement lists specific tasks for the event and indicates what the individual should accomplish.

2.9.3.1.1 Discuss. The IP shall discuss a procedure or maneuver during the brief, in flight, or debrief. The PUI is responsible for knowledge of the applicable procedures prior to the brief.

2.9.3.1.2 Demonstrate. The IP performs the maneuver with accompanying description. The PUI observes the maneuver and is responsible for the knowledge of the procedures prior to the sortie.

2.9.3.1.3 Introduce. The IP may perform the maneuver with an accompanying description, or the IP may coach the PUI through the maneuver without demonstration. The PUI shall perform the maneuver with coaching, as necessary, and is responsible for knowledge of the procedures prior to the sortie.

2.9.3.1.4 Review. The IP observes and grades the maneuver without coaching the PUI. An airborne critique of PUI performance is at the option of the

instructor. The PUI is expected to perform the maneuver without coaching and devoid of procedural error at a level acceptable to warrant progress into the next stage of training.

2.9.3.2 Performance Standards. Performance standards are listed for each T&R event description. These are training standards for individual aircrew performance and shall be utilized by the evaluator as a guideline to determine the satisfactory completion of each event. If the aircrew did not successfully attain the performance standards, the training code shall not be logged as a completed flight.

2.9.3.2.1 Grading Standards

2.9.3.2.1.1 Complete. The PUI has demonstrated sufficient grasp of the concepts and skills to proceed to the next training evolution or be designated appropriately.

2.9.3.2.1.2 Incomplete. Describes a training event that is not declared 'Complete' due to circumstances beyond the control of the aircrew. Examples may include, but are not limited to: WX, time constraints, aircraft or simulator maintenance, external support inadequate. 'Incomplete' shall not be used to obscure reporting of a substandard performance.

2.9.3.2.1.3 Requires Additional Training (RAT). A RAT is used when the PUI has not yet demonstrated sufficient grasp of the required skills and concepts to progress in the syllabus. A RAT is not derogatory in nature. Instructor remediation recommendations should specifically identify the deficient area(s) for addressing shortcomings in terms of reading assignments, courseware, additional flight, simulator, or other appropriate training. The instructor assigning a R.A.T. synopsis is responsible for ensuring the recommendation has been endorsed by Squadron leadership and adhered to by the student unless a higher authority intervenes with additional guidance. A RAT shall not be used for E coded events.

2.9.3.2.1.4 Unsatisfactory. Identifies a condition where the PUI has proven unable to meet performance standards due to a lack of preparation, lack of effort, consistent inability to demonstrate improvement or resistance to instruction. Significant safety of flight incidents that are of a direct result of the pilot under training actions should be considered unsatisfactory. The instructor assigning this event synopsis is responsible for ensuring recommendations for remediation, if applicable, are proposed through the DSS & Operations Department.

2.9.3.3 Prerequisites. Events (academic or flight/simulator) that must be completed prior to the initiation of the event.

2.9.3.4 Ordnance/Range/Target/External Syllabus Support. Items required to successfully complete the required training.

2.9.3.5 Crew Requirements. The crew requirements listed at the end of each event are requirements for initial stage training flights. For operational flights the minimum crew requirements are defined by OPNAVINST, NATOPS, and NAVMC 3500.14. When not clearly defined by higher directives, the squadron commanding officer, DSS, or local SOPs may dictate the minimum crew requirements.

2.10 CORE SKILL INTRODUCTION PHASE (1000)

2.10.1 Purpose. To introduce the basic flight skills required in the CH-53.

2.10.2 General

2.10.3 Stages. Core Skill Introduction stages are as follows:

CORE SKILL INTRODUCTION PHASE	
PAR NO.	STAGE NAME
2.10.4	Academics (ACAD)
2.10.5	Familiarization (FAM)
2.10.6	Night Familiarization (NFAM)
2.10.7	Instrument (INST)
2.10.8	Navigation (NAV)
2.10.9	Formation (FORM)
2.10.10	Confined Area Landings (CAL)
2.10.11	Externals (EXT)
2.10.12	Terrain Flight (TERF)
2.10.13	Review (REV)
2.10.14	Core Skill Introduction Check (CSIX)

2.10.4 Academic/Ground Training. The following Core Skill Introduction academic/ground training shall be complete IAW the POI requirements and prerequisites. Upon completion, the PUI shall report to the Student Control Officer or designated representative(s), who will then manually update the training code in MSHARP and log the academic/ground training event in section 2, FRS Aircrew Evaluation Forms of the APR, using the format listed in Enclosure 1 of this document.

2.10.4.1 Ground school is set up in two parts: CBTs and ACAD classes.

2.10.4.2 The Commanding Officer of the HMHT-302 FRS has the responsibility to define the required content, conduct reviews, forward required changes and approve the content for his/her Ground School events, as applicable.

2.10.4.3 The CO of HMHT-302 has waiver authority over any event within Ground School for the respective syllabus.

2.10.4.4 Crew Requirement. IP/RAC/CC. AO required for FAM-1201 and FAM-1202.

CBT-0001 1.0 * R,MR,CIUT CBT Introduction to the CH-53

Goal. The PUI has completed all introduction modules with a basic understanding of the CH-53.

Requirement

Modules:

H-53 Series Historical Data and Publications
General Aircraft Information - Exterior
General Aircraft Information - Interior

CBT-0002 1.0 * R,MR,CIUT CBT The Auxiliary Power Plant

Goal. The PUI has completed all Auxiliary Power Plant (APP) modules with a basic understanding of the system.

Requirement

Modules:

APP System Overview and Components
APP System Operation

Prerequisite. CBT-0001

CBT-0003 2.0 * R,MR,CIUT CBT The Electrical System

Goal. The PUI has completed all Electrical System modules with a basic understanding of the system.

Requirement

Modules:

Basic Electrical Theory and Symbology
Electrical Power System

Prerequisite. CBT-0001

CBT-0004 2.0 * R,MR,CIUT CBT Hydraulic System

Goal. The PUI has completed all Hydraulic System modules with a basic understanding of the CH-53E electrical system.

Requirement

Modules:

Basic Hydraulic Theory and Symbology
Hydraulic Systems Overview
Flight Control Hydraulics
Utility Hydraulics
In-flight Hydraulic Replenishment System*

Prerequisite. CBT-0001

CBT-0005 1.5 * R,MR,CIUT CBT Fuel System

Goal. The PUI has completed all Fuel System modules with a basic understanding of the CH-53E system.

Requirement

Modules:

Airframe Fuel System Overview and Components
Refuel and Defuel Systems
Dump and Purge* Systems
Auxiliary Fuel Tank System
Fuel Indicating and Low Level Warning Systems

Prerequisite. CBT-0001

CBT-0006 2.5 * R,MR,CIUT CBT Engines

Goal. The PUI has completed all Engine modules with a basic understanding of the system.

Requirement

Modules:

Engine Overview Components and Controls
Engine Lubrication System
Engine Fuel Supply System
Engine Start and Operation
Engine Air Particle Separator (EAPS)
Engine Anti-Ice
Engine Torque Indicating System
Engine Overtorque Warning System
Engine Overspeed Protection System
Engine Fire Protection

Prerequisite. CBT-0001

CBT-0007 2.5 * R,MR,CIUT CBT Drive Train

Goal. The PUI has completed all modules with a basic understanding of the CH-53E drive train.

Requirement

Modules:

Powertrain Overview
Accessory and Nose Gear Boxes
Main Gear Box
Intermediate and Tail Gear Boxes
Drive Shaft and Disconnect Couplings

Prerequisite. CBT-0001

CBT-0008 1.0 * R,MR,CIUT CBT Chip Detecting System

Goal. The PUI has completed the module with a basic understanding of the CH-53E chip detecting system, to include the engines and all gearboxes.

Requirement

Modules: Chip Detecting System

Prerequisite. CBT-0006 and CBT-0007

CBT-0009 1.0 * R,MR,CIUT CBT Rotor System

Goal. The PUI has completed the modules with a basic understanding of the CH-53E rotor system.

Requirement

Modules:

Main Rotor System
In-flight Blade Inspection System
Tail Rotor System

Prerequisite. CBT-0001

CBT-0010 3.0 * R,MR,CIUT CBT Flight Control System

Goal. The PUI has completed the flight control system modules with a basic understanding of the CH-53E flight control system.

Requirement

Modules:

Basic Helicopter Aerodynamics*
Mechanical Flight Controls
Hydraulic Flight Controls

Prerequisite. CBT-0004 and CBT-0009

CBT-0011 2.0 * R,MR,CIUT CBT Automatic Flight Control System (AFCS)

Goal. The PUI has completed the modules with a basic understanding of the CH-53E AFCS system.

Requirement

Modules:

DAFCS Overview and Channel Philosophy
AFCS Servo Interface and Modes of Operations*
Engagement Control
Malfunction Indications*

Prerequisite. CBT-0004 and CBT-0010

CBT-0012 2.5 * R,MR,CIUT CBT Blade/Pylon Fold and Rotor Brake System

Goal. The PUI has completed the modules with a basic understanding of the systems.

Requirement

Modules:

Rotor Brake and Gust Lock Systems
Main Rotor Head Positioning System
Stick Position Indicating System
Blade Fold/Spread System
Pylon Fold/Spread System

Prerequisite. CBT-0004

CBT-0013 1.5 * R,MR,CIUT CBT Landing Gear and Wheel Brake System

Goal. The PUI has completed all Landing Gear and Wheel Brake System modules with a basic understanding of the systems.

Requirement

Modules:

Landing Gear
Wheel Brake System
Tail Skid System
Landing Gear and Altitude Warning System

Prerequisite. CBT-0004

CBT-0014 3.0 * R,MR,CIUT CBT Miscellaneous Systems

Goal. The PUI has completed the modules with a basic understanding of miscellaneous systems of the CH-53.

Requirement

Modules:

Exterior and Interior Lighting Systems
Cabin Heater System
Ice Detector System
Windshield Anti-Ice system
Ramp and Door System
Utility/Rescue Hoist System*
Cargo Winch System
Single Point Hook System
Two Point Hook System

Prerequisite. CBT-0001

CBT-0015 2.0 * R,MR,CIUT CBT Communication and Navigation Systems

Goal. The PUI has completed the modules with a basic understanding of communication and navigation systems of the CH-53.

Requirement

Modules:

Communication Systems
Navigation Displays and VGI
Navigation I: Compass System
Navigation II: Global Positioning System (GPS)
IFF, Radar Altimeter
Forward Looking Infrared (FLIR)

Prerequisite. CBT-0001

CBT-0016 2.5 * R,MR,CIUT CBT Aircraft Survivability Equipment

Goal. The PUI has completed the modules with a basic understanding of aircraft survivability equipment of the CH-53.

Requirement

Modules:

ALE-47v2
APR-39*
AAR-47v2

Prerequisite. CBT-0001

CBT-0017 2.0 * CIUT CBT Preflight Planning and Procedures

Goal. The PUI has completed the modules with a basic understanding of preflight planning and procedures.

Requirement

Modules:

Weight and Balance
Helicopter Preflight
Brief and Prestart I
Prestart II and Post-Flight
Pre-taxi Safety, EPs, & CRM

Prerequisite. CBT 0001-0016

CBT-0018 3.0 * CIUT CBT Introduction to the Flight Phase

Goal. The PUI has completed the modules with a basic understanding of the flight phase.

Requirement

Modules:

Taxi, Takeoff, Hover, & Departure
Takeoff, Transition, Cruise, Approach, & Landing
Descent, Approach, Landing Takeoff, & Departure
Crosswind Takeoff & Landing
Post Flight
Rearward Flight, Autorotations, Engine Failures, Debriefing,
Enroute
Takeoffs, Approach, Quick Stop, & Landings
AFCS, trim, Servo Malfunctions, Postflight, EPs & CRM
Single Point Performance Check
Integrated Maintenance Diagnostic System (IMDS)

Prerequisite. CBT-0017

CBT-0019 1.5 * CIUT CBT Night Flight

Goal. The PUI has completed the modules with a basic understanding of the night flight.

Requirement

Modules:

Night Flying
Aircraft Lighting

Prerequisite. CBT-0017

CBT-0020 2.5 * CIUT CBT Instrument Flight and Navigation

Goal. The PUI has completed the modules with a basic understanding of instrument flight and navigation.

Requirement

Modules:

- Basic Instrument Maneuvers
- IFR Navigation I
- IFR Navigation II
- IFR Navigation III

Prerequisite. CBT-0017

CBT-0021 2.5 * CIUT CBT VFR Navigation, GPS and Helicopter
Night Vision Systems (HNVS)

Goal. The PUI has completed the modules with a basic understanding of VFR navigation, GPS and HNVS.

Requirement

Modules:

- Enroute Requirements, Procedures, & VFR Navigation I
- HNVS Introduction
- GPS Introduction
- HNVS Operating Procedures
- GPS Operating Procedures

Prerequisite. CBT-0017

CBT-0022 1.0 * CIUT CBT Formation Flight

Goal. The PUI has completed the modules with a basic understanding of formation flight.

Requirement

Modules:

- Basic Formation I
- Basic Formation II

Prerequisite. CBT-0017

CBT-0023 1.0 * CIUT CBT Confined Area Landings

Goal. The PUI has completed the modules with a basic understanding of Confined Area Landings (CAL).

Requirement

Module:

- Confined Area Landings

Prerequisite. CBT-0017

CBT-0024 2.0 * CIUT CBT External Cargo Operations

Goal. The PUI has completed the modules with a basic understanding of single- and two-point external cargo operations.

Requirement

Modules:

- Single-Point External Lift Procedures, Day & Night
- Two-Point Ext Lift Prelaunch, Preflight, Pre-takeoff, & Departure
- Two-Point Ext Lift Enroute, Approach, Descent, & Load Release
- Two-Point External Lift Safety, EPs, and CRM

Prerequisite. CBT-0017

ACAD-0100 1.0 * CIUT CLSRM Ground School Intro In-Brief

Goal. The PUI understands the expectations during Ground School and has the requisite knowledge of the course and where all the necessary references can be accessed to complete the Core Skill Introduction Phase.

Requirement

Discuss:

Overall Course Design for Ground School
The Core Skill Introduction Phase
Welcome Aboard Package
Class Schedule
Systems reference material
List, locate, and access to all appropriate references that will be required through the Core Skill Introduction Phase
Expectations of PUI during Ground School to include work schedule, CBT preparation, and event prerequisites
Squadron and MATSS processes, particularly scheduling

Demonstrate:

Computer based training access
Basic operation of CBTs

Prerequisite. CBT 0001-0016

ACAD-0101 3.0 * CIUT CLSRM Electrical System

Goal. The PUI has an in-depth knowledge of the CH-53E electrical system, aircrew interaction and related EPs.

Requirement

Reading:

Applicable excerpts from CH-53 NATOPS and Systems Guide.

Discuss:

Basic architecture and major components
Recognition of component failures
Impact of component failures
Correct response to any component failure

Prerequisite. CBT 0001-0016

ACAD-0102 3.0 * CIUT CLSRM Hydraulic System

Goal. The PUI has an introductory knowledge of the CH-53E hydraulic, landing gear, and wheel brake systems, aircrew interaction, and related EPs.

Requirement

Reading: Applicable excerpts from the CH-53E NATOPS and Systems Guide

Discuss:

Basic architecture and major components
Normal operation of the hydraulic system
Normal operation of the landing gear system
Normal operation of the wheel brake system
Hydraulic system indicators
Associated caution and advisory lights
Correct response to any component failure

Prerequisite. CBT 0001-0016

ACAD-0103 2.0 * CIUT CLSRM Fuel System

Goal. The PUI has an introductory knowledge of the CH-53E fuel system architecture, major components, aircrew interaction, and fuel system EPs.

Requirement

Reading: Fuel system Student Guide chapter

Discuss:

Basic architecture and major components
Operation of the fuel system
Cautions and advisories associated with the system
Indications and impact of malfunctions
Response to malfunctions

Prerequisite. CBT 0001-0016

ACAD-0104 3.0 * CIUT CLSRM Engines and the Auxiliary Power Plant

Goal. The PUI has an in-depth knowledge of the CH-53E APP, engine, and associated components and systems.

Requirement

Reading: Applicable excerpts from CH-53E NATOPS and Systems Guide

Discuss:

Basic architecture and major components
Associated cautions and advisories
Indications and recognition of component failures
Impact of component failures
Correct response to component failures

Prerequisite. CBT 0001-0016

ACAD-0105 3.0 * CIUT CLSRM Drive Train and Rotor System

Goal. The PUI has an in-depth knowledge of the CH-53E drive train.

Requirement

Reading: Applicable excerpts from CH-53E NATOPS and Systems Guide.

Discuss:

Basic architecture and major components of the drive train
Drive system cautions and advisories
Indications and recognition of drive train component failures
Impact of drive train component failures
Response to drive train component failures
Basic architecture and major components of the rotor system
Rotor system cautions and advisories
Indications and recognition of rotor system component failures
Impact of rotor system component failures
Response to rotor system component failures

Prerequisite. CBT 0001-0016

ACAD-0106 3.0 * CIUT CLSRM Flight Control System

Goal. The PUI has an in-depth knowledge of the CH-53E flight control system, major components, aircrew interaction, and associated emergency procedures.

Requirement

Reading: Applicable excerpts from CH-53E NATOPS and Systems Guide

Discuss:

Flight control system basic architecture and major components
Flight control system cautions and advisories
Indications and recognition of flight control system component failures
Impact of flight control system component failures
Response to flight control system component failures

Prerequisite. CBT 0001-0016

ACAD-0107 2.0 * CIUT CLSRM Automatic Flight Control System (AFCS)

Goal. The PUI has an in-depth knowledge of the architecture, major components and emergency procedures associated with the CH-53E AFCS.

Requirement

Reading: Applicable excerpts from CH-53E NATOPS and Systems Guide

Discuss:

Basic architecture and major components of the AFCS
Operation of the AFCS
Identify malfunctions associated with the AFCS
Identify the proper response to AFCS malfunctions

Prerequisite. CBT 0001-0016

ACAD-0108 1.5 * CIUT CLSRM Communication and Nav Systems

Goal. The PUI has an in-depth knowledge of the architecture, major components and procedures associated with the CH-53 communication and navigation systems.

Requirement

Reading: Applicable excerpts from CH-53E NATOPS and Systems Guide

Discuss

Basic architecture and major components
Operation of the systems
Identify malfunctions associated with the systems

Prerequisite. CBT 0001-0016

ACAD-0109 2.5 * CIUT CLSRM Crew Resource Management (CRM) Initial

Goal. The PUI understands CRM, the processes, and seven principles, and how they apply to the CH-53.

Requirement

Discuss:

Seven principles of Crew Resource Management
Crew Resource Management in the CH-53

LAB-1000 2.0 * R,MR A 1 CH-53 (STATIC)

Goal. Introduce preflight inspection procedures.

Requirement

Instructor: FAM-1115 complete RAC

Discuss:

Component identification/nomenclature
Aircraft systems functionality

Introduce:

Before Interior Inspection
Exterior Inspection
Post Exterior Inspection
Interior Inspection

Performance Standards. Per CH-53 NATOPS and Standardization Manual.

External Syllabus Support. 1 Static CH-53

Prerequisite. ACAD 0100-0108

LAB-1001 2.0 * R,MR A 1 CH-53 (STATIC)

Goal. Practice preflight inspection procedures.

Requirement

Instructor: Crew Chief, (Crew Chief Instructor preferred)

Discuss:

Component identification/nomenclature
Aircraft systems functionality

Practice:

Before Interior Inspection
Exterior Inspection
Post Exterior Inspection
Interior Inspection

Performance Standards. Per CH-53 NATOPS and Standardization Manual.

External Syllabus Support. 1 Static CH-53

Prerequisite. LAB-1000

LAB-1002 2.0 * R,MR A 1 CH-53 (STATIC)

Goal. Review preflight inspection procedures. At the completion of FAM-1002, PUI shall be proficient in preflight procedures. At completion of FAM-1002, PUI shall turn in FAM-1002 ATF to the Safety and Operations Departments.

Requirement

Instructor: FRS IP

Demonstrate:

Maintenance Control procedures
Flight Equipment procedures
NATOPS preflight briefing

Discuss:

Preflight planning requirements (Weight and Power, Flight Schedule, ODO brief, Read and Initial Board)
Local SOPs
T&R Manual

Introduce: Emergency Egress

Review:

Before Interior Inspection
Exterior Inspection
Post Exterior Inspection
Interior Inspection
Component Identification/Nomenclature
Aircraft Systems Functionality

Performance Standards. Per CH-53 NATOPS and Standardization Manual.

Prerequisites. LAB-1001

External Syllabus Support. 1 Static CH-53

2.10.5 Familiarization (FAM) (1100)

2.10.5.1 Purpose. To develop preliminary flight skills in the CH-53 and become familiar with aircraft characteristics, limitations, and emergency procedures; to develop proficiency in all maneuvers contained in the familiarization stage, and to develop proficiency to conduct safe operations during the day.

2.10.5.2 General. FAM-1110 through FAM-1115 will normally be completed prior to flying higher stage events. Discuss and become thoroughly familiar with all aspects of CRM applicable to familiarization stage maneuvers as described in the appropriate CH-53 NATOPS Flight Manual(s) and Standardization Manual(s).

SFAM-1100 1.0 * R,MR S WST/APT

Goal. Introduce normal cockpit procedures, start procedures, and shutdown procedures.

Requirement

Introduce:

- Pre-start checklist
- Post APP start checklist
- Starting engines/rotors checklist
- Pre-taxi checklist
- Cargo ramp and door procedures checklist
- Operation of engine trim switches
- Cruise checklist
- Fuel transfer checklist
- Monitoring of instruments (fuel gauges)
- Operation of the ICS and radios
- Fuel management
- Pre-landing checklist
- Shutdown checklist

Performance Standards. Per CH-53 NATOPS and Standardization Manual.

Prerequisites. CBT-0017

External Syllabus Support. WST/APT.

SFAM-1101 1.0 * S WST/APT

Goal. Introduce aircraft emergencies, normal ground and flight procedures. Review start/shutdown procedures.

Requirement

Introduce:

- Aircrew brief
- External fuel tank jettison
- Cargo ramp/door operation
- Engine start emergencies
- Vertical takeoff to a hover
- Transition to forward flight
- Normal approaches to a hover and normal vertical landing Engine compartment fire on the ground
- Single and/or dual engine compartment fires in-flight
- Simultaneous engine compartment fires in-flight

APP or cabin heater fire
Fuselage fire
Fuel dump

Practice: Start/shutdown procedures

Performance Standards. Per CH-53 NATOPS and Standardization Manual.

Prerequisites. CBT-0018, FAM-1100

External Syllabus Support. WST/APT

SFAM-1102 1.0 * S WST/APT

Goal. Introduce engine malfunctions. Practice cockpit and flight procedures, start/shutdown checklist and all previously introduced emergencies.

Requirement

Introduce:

Blade/pylon fold system switchology
CH-53 NATOPS brief/CH-53 NATOPS debrief
Maximum performance takeoff
Straight-in approach
Engine restarts during flight
Crosswind landing
Single engine failure (hover and takeoff)
Effects of gross weight on single and/or dual engine performance
Single and/or dual engine failure at altitude
Engine shutdown in-flight
Compressor stall
Engine power loss
Engine post-shutdown fire

Practice:

Cockpit and flight procedures
Start/shutdown checklist
All previously introduced emergencies

Performance Standards. Per CH-53 NATOPS and Standardization Manual.

Prerequisites. FAM-1101

External Syllabus Support. WST/APT

SFAM-1103 1.0 * S WST/APT

Goal. Introduce running landings and autorotations. Practice aircraft emergencies, previously introduced flight procedures and normal cockpit procedures.

Requirement

Introduce:

Running takeoff/landing
Wave-off
Single and/or dual engine wave-off/landing
Power recovery autorotation
High angle of bank maneuvering and the effects of variables (angle of bank, power required, descent rate, gross weight, temperature, density altitude, etc.) on the performance of the aircraft
Dual engine failure at altitude
Engine overspeed

Single and/or dual engine failure (hover/takeoff)
Nf flex shaft failure

Practice:

Aircraft emergencies
Previously introduced flight procedures
Normal cockpit procedures

Performance Standards. Per CH-53 NATOPS and Standardization Manual.

Prerequisites. FAM-1102

External Syllabus Support. WST/APT

SFAM-1104 1.0 * S WST/APT

Goal. Introduce gearbox malfunctions. Introduce basic CRM concept.
Practice previously introduced emergency and flight procedures.

Requirement

Introduce:

Engine chip detector light
Control linkage failure
Power deterioration
Engine oil pressure high caution light, high oil temperature,
engine oil quantity low
Nose gearbox chip detector light/failure
Accessory gearbox oil system failure
Accessory gearbox chip detector light/failure
Main gearbox oil system failures
Main gearbox chip locator light/failure
Power train failures
Tail rotor drive system failure, tail rotor gearbox or
intermediate gearbox failure, and tail rotor or intermediate
gearbox chip detector light

Practice:

Previously introduced emergencies
Flight procedures

Performance Standards. Per CH-53 NATOPS and Standardization Manual.

Prerequisites. FAM-1103

External Syllabus Support. WST/APT

SFAM-1105 1.5 * R,MR S WST/APT

Goal. Introduce communication skills IAW CRM techniques. Practice all
ground, flight, and aircraft emergency procedures.

Requirement

Introduce:

Obstacle takeoff and approach
Smoke and fume elimination
AFCS computer malfunctions/mode failures , total AFCS failure
BIM/Blade Pressure caution light (in-flight)
Approach and landing with tail rotor control system failure
Tail rotor tandem servo malfunction
Fuel filter bypass light
Hydraulic fire in main rotor pylon
Use of GPS system

Sender/receiver responsibilities and overcoming communication barriers

Discuss: ICS switchology and techniques, visual and standard terminology

Practice: Ground, flight, and aircraft emergency procedures

Performance Standards. Per CH-53 NATOPS and Standardization Manual.

Prerequisites. FAM-1104

External Syllabus Support. WST/APT

SFAM-1106 1.0 * R,MR S WST/APT

Goal. Conduct Progress Check. Introduce communication skills IAW CRM techniques.

Requirement

Introduce:

- Ground resonance procedure
- Power settling (vortex ring state)
- Settling with power
- Dynamic rollover
- Electrical fire
- Alternating/Direct current system failures
- Rotor damper failure
- Lightning strike
- Most conservative response rule, the two-challenge rule, and task saturation with compound emergencies

Performance Standards. Per CH-53 NATOPS and Standardization Manual.

Prerequisites. FAM-1105

External Syllabus Support. WST/APT

SFAM-1107 1.0 * NS S WST/APT

Goal. Introduce NS adaptation.

Requirement

Introduce:

- NS set-up/operation
- Cockpit lighting
- Blind cockpit drills
- NS malfunctions
- NS goggle/degoggle procedures
- NS scan techniques
- Basic FAM pattern and approaches utilizing NS
- Emergencies while wearing NS
- NS failure

Performance Standards. Per CH-53 NATOPS and Standardization Manual.

Prerequisites. The Night Imaging and Threat Evaluation (NITE) Lab syllabus, CBT-0102, CBT-0019, FAM-1106

External Syllabus Support. WST/APT

FAM-1110 1.5 * D A 1 CH-53E

Goal. Introduce start, normal ground, and flight procedures including low work and normal approaches.

Performance Standards. Per CH-53E NATOPS and FRS Standardization Manual.

Prerequisites. FAM-1110

FAM-1112 1.5 * MR D A 1 CH-53E

Goal. Introduce engine failure(s) at altitude, running takeoffs and landings, precision approaches.

Requirement

Discuss:

- Engine system/limitations
- Engine overspeed/Nf flex shaft failure
- Compressor stall
- Engine power loss
- Engine high/low oil pressure
- Engine high oil temperature
- Engine chip detector light
- Control linkage failure
- Effects of gross weight on single and/or dual engine performance
- Engine shutdown in flight/fuel siphoning
- Engine restart in flight

Introduce:

- Simulated single and/or dual engine failure at altitude
- Running takeoffs and landings
- Precision approaches to a hover

Practice:

- Cockpit procedures
- Hover/low work
- Previously introduced FAM maneuvers

Performance Standards. Per CH-53 NATOPS and Standardization Manual.

Prerequisites. FAM-1111

FAM-1113 1.5 * D A 1 CH-53E

Goal. Introduce no hover landings. Practice previously introduced FAM maneuvers and simulated emergency procedures.

Requirement

Discuss:

- The effects of aircraft gross weight on single and/or dual engine performance capability
- Single/dual engine wave-off
- Fire detection/extinguishing system
- Engine compartment fire on the ground
- Engine compartment fires in flight
- APP or cabin heater fire
- Fuselage fire
- Hydraulic fire in main rotor pylon
- Engine post shutdown fire
- Electrical fire
- Smoke and fume elimination
- Fire during ground refueling

Introduce:

- No hover landings
- Single and/or dual engine wave-offs

Simulated single and/or dual engine failure during takeoff
Simulated single and/or dual engine approaches and landings
(running and to a spot)
Simulated single and/or dual engine failure above 50 feet AGL

Practice:

Previously introduced FAM maneuvers
Simulated emergency procedures

Performance Standards. Per CH-53E NATOPS and FRS Standardization Manual.

Prerequisites. FAM-1112

FAM-1114	1.5	*	R,MR	D	A	1 CH-53E
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Goal. Introduce simulated partial/total AFCS failure. Practice FAM and previously introduced simulated emergency procedures.

Requirement

Discuss:

AFCS system/functions
Inner/outer loop
AFCS servo functions
AFCS servo hardover
Longitudinal bias actuator
FAS functions
Trim functions
Desensitizer failure
AFCS computer malfunctions/mode failures
Total AFCS failure
Ground resonance

Introduce:

Obstacle takeoff, approach
Partial/total AFCS failure
Practice autorotations (Refreshers, Modified Refreshers, and Series Conversions only)

Practice:

Previously introduced FAM maneuvers
Simulated emergency procedures

Performance Standards. Per CH-53 NATOPS and Standardization Manual.

Prerequisites. FAM-1113

FAM-1115	1.5	*		D	A	1 CH-53E
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Goal. Introduce high AOB maneuvers and practice autorotations. Practice all FAM and simulated emergency procedures.

Requirement

Discuss:

BIM/IBIS blade systems
BIM/Blade pressure caution light in flight
Flight control system
Control couplings
Damper system/failure
Primary tandem servos operation/malfunction
Approach and landing with a tail rotor control system malfunction.

Introduce:
High AOB maneuvers
Autorotations with power recovery

Practice:
All FAM maneuvers
Simulated emergency procedures

Performance Standards. Per CH-53E NATOPS and FRS Standardization Manual.

Prerequisites. FAM-1114

FAM-1116 1.5 * R,MR D A 1 CH-53E

Goal. Practice all FAM maneuvers, and simulated emergency procedures.

Requirement

Discuss:

Transmission system/limitations
Chip detection system
Nose gearbox chip location light
Nose gearbox failure
Accessory gearbox oil system failure
Accessory gearbox chip locator light
Accessory gearbox failure
Main gearbox chip locator light
Main gearbox oil system failure
Loss of main gearbox lubrication
Power train failure
Tail rotor or intermediate gearbox chip detector light
Tail rotor gearbox or intermediate gearbox failure
Tail rotor drive system failure
Pylon unsafe for flight light

Practice:

All FAM maneuvers
Simulated emergency procedures

Performance Standards. Per CH-53 NATOPS and Standardization Manual.

Prerequisites. FAM-1115

FAM-1117 1.5 * D A 1 CH-53E

Goal. Practice all FAM maneuvers and simulated emergency procedures.

Requirement

Discuss:

Rotor brake system
APP
Hydraulic power supply systems
Hydraulic power supply system failures
Utility hydraulic subsystems

Practice:

All FAM maneuvers
Simulated emergency procedures

Performance Standards. Per CH-53E NATOPS and FRS Standardization Manual.

Prerequisites. FAM-1116

FAM-1118 1.5 * R,MR D A 1 CH-53E

Goal. Review all FAM maneuvers and simulated emergency procedures.

Requirement

Discuss:

- Ground cushion and ground effect
- Effect of wind on translational lift
- Effect of temperature and pressure altitude on power available
- Power required for flight at various airspeeds (hover to V_{MAX})
- Effects of gross weight, altitude, temperature, turbulence, and wind on power required for hover both in and out of ground effect
- Effects of gross weight, altitude, temperature, and turbulence on blade stall
- Maximum speed level flight with turns for existing ambient conditions
- Conditions leading to power settling and settling with power
- Landing gear system
- Landing gear system failure
- Bearing Monitor System
- Bearing VIB or TEMP DETECT and LIMIT
- BMS fault isolation

Practice:

- All FAM maneuvers
- Simulated emergency procedures

Performance Standards. IAW CH-53 NATOPS and Standardization Manual.

Prerequisites. FAM-1117

FAM-1119 1.5 * D A 1 CH-53E

Goal. Conduct Progress Check.

Requirement

Practice:

- All FAM maneuvers
- Simulated emergency procedures

Performance Standards. Demonstrate proficiency of FAM maneuvers IAW CH-53E NATOPS and FRS Standardization Manual.

Prerequisites. FAM-1118, CH-53E NATOPS open book exam.

2.10.6 Night Familiarization (NFAM)

2.10.6.1 Purpose. To develop preliminary flight skills in the CH-53 and become familiar with aircraft characteristics, limitations, and emergency procedures; to develop proficiency in all maneuvers contained in the familiarization stage, and to develop proficiency to conduct safe operations during the night.

2.10.6.2 General. Pilots shall conduct Core Skill Introduction Night Systems (NS) phase flights under High Light Level (HLL) ambient conditions with an NS FAM Instructor (NSFI) or NS Instructor (NSI).

FAM-1201 1.5 * NS A 1 CH-53E

Goal. Introduce NS low work and pattern work.

Requirement

Discuss:

- Aircraft lighting systems
- Electrical failures
- Electrical power supply system
- Single and multiple generator failure
- Single and dual rectifier failure
- Minimum aircraft equipment required for night flight
- NS operations/failures
- Cockpit lighting
- Crew coordination
- Comfort level
- Low altitude emergencies
- Inadvertent IMC procedures
- Aircraft external lighting
- NS visual characteristics and limitations
- Scan techniques

Introduce:

- Tip path plane awareness
- HNVS operation
- Use of NS while performing taxi, basic low work, hover, and vertical takeoffs/landings at an unlit field or packed surface

Performance Standards. Per CH-53E NATOPS, FRS Standardization Manual, and MAWTS-1 NVD manual.

Prerequisites. FAM-1600, the Night Imaging and Threat Evaluation (NITE) Lab syllabus, and based on simulator availability, FAM-1107

FAM-1202 1.5 * R,MR NS A 1 CH-53E

Goal. Practice low work, takeoffs/landings and pattern work while using NS.

Requirement

Discuss:

- Solar Lunar Almanac Program (SLAP)
- Light Interference Filters (LIFS)
- Effects of shadowing on NS operations
- Effects of atmospheric conditions on NS performance
- Blooming/de-gaining
- Approach pattern
- External aircraft lighting
- Spectrum viewed by NS (FLIR/NS)

Practice:

- HNVS operation
- Use of NS while performing taxi, basic low work, hover, and vertical takeoffs/landings at an unlit field or packed surface

Performance Standards. Per CH-53 NATOPS, Standardization Manual, and MAWTS-1 NVD manual.

Prerequisites. FAM-1201

2.10.7 Instruments (INST)

2.10.7.1 Purpose. To develop proficiency in instrument flight procedures while using all installed navigation aids.

2.10.7.2 General. All instrument stage flights should terminate with an instrument approach, when possible. Pilots may use the simulator for any instrument flight requirement; however, they may use it for no more than 50 percent of the total instrument syllabus requirements. The simulator will not satisfy the OPNAV night minimums requirement.

2.10.7.3 Crew Requirement. IP/RAC/CC (AO required for NS events).

SINST-1300 1.0 * S WST/APT

Goal. Introduce basic instruments, TACAN approaches, and decision making IAW CRM techniques.

Requirement

Introduce:

- Instrument flight checklist
- Instrument takeoff
- Level speed change
- Standard rate timed turns
- Vertical S-1 pattern
- Oscar pattern
- Turn pattern.
- TACAN approach
- Point-to-point navigation
- Holding
- Decision making in the CH-53 IAW CRM techniques
- Troubleshooting strategies for degraded aircraft systems in IMC

Performance Standards. IAW CH-53 NATOPS, Instrument NATOPS, FLIP publications and Standardization Manual.

Prerequisites. CBT-0020

External Syllabus Support. WST/APT

SINST-1301 1.0 * R S WST/APT

Goal. Introduce partial panel flight, VOR/ADF procedures and adaptability/flexibility per CRM techniques.

Requirement

Introduce:

- Partial panel flight
- VOR/ADF approach
- Holding
- Adaptability/flexibility in the CH-53E per CRM techniques

Discuss:

- Changes in mission from the briefing, crew-member incapacitation, and overcoming personality differences within the cockpit and cabin

Practice: TACAN procedures

Performance Standards. Per CH-53 NATOPS, Instrument NATOPS, FLIP publications and Standardization Manual.

Prerequisites. INST-1300

External Syllabus Support. WST/APT

SINST-1302 1.0 * R S WST/APT

Goal. Introduce ILS/localizer approaches and mission analysis per CRM

techniques. Practice aircraft emergency procedures.

Requirement

Introduce:

ILS and localizer approaches
Mission analysis in the CH-53 per CRM techniques

Discuss: The three stages of mission analysis, and standardized procedures

Practice:

TACAN and VOR approaches
Previously introduced emergency procedures

Performance Standards. Per CH-53 NATOPS, Instrument NATOPS, FLIP publications and Standardization Manual.

Prerequisites. INST-1301

External Syllabus Support. WST/APT

SINST-1303 1.0 * R S WST/APT

Goal. Introduce unusual attitudes and recovery procedures, PAR, ASR approaches and situational awareness considerations in the CH-53 per CRM techniques. Practice aircraft emergency procedures.

Requirement

Introduce:

Unusual attitudes and recovery procedures
PAR and ASR approaches
Situational awareness considerations in the CH-53 per CRM techniques
Task fixation during an instrument approach with an emergency or degraded system

Practice: Aircraft emergency procedures

Performance Standards. Per CH-53 NATOPS, Instrument NATOPS, FLIP publications and Standardization Manual.

Prerequisites. INST-1302

External Syllabus Support. WST/APT

SINST-1304 1.0 * S WST/APT

Goal. Introduce radio failure, ATC procedures in IMC conditions and leadership principles per CRM techniques.

Requirement

Introduce:

HF Radio
IFR departure
COMM/NAV failure under IMC
Single and/or dual engine missed approach
IFR canned route (Flight planning)
Leadership principles in the CH-53E per CRM techniques
Command authority, crewmember relationships in the cockpit and cabin, and division of tasks

Performance Standards. Per CH-53E NATOPS, Instrument NATOPS, FLIP publications and FRS Standardization Manual.

Prerequisites. INST-1303

External Syllabus Support. WST/APT

INST-1305 2.0 * R,MR (N) A 1 CH-53E

Goal. Introduce basic instrument, precision, and non-precision procedures.

Requirement

Discuss:

Approach minimums and helicopter-only approaches
BDHI/course indicator switches
ILS/LOC and LOC back course approaches
Instrument checklist
Inadvertent entry into IMC conditions
Lost plane procedures
Lighting strike
Emergency descent
Use/Failure of AFCS functions in IMC conditions

Introduce:

Time-distance checks
ADF procedures
Operation of the transponder modes
VOR procedures
TACAN procedures
Point-to-point navigation
ILS/LOC procedures
PAR procedures

Performance Standards. Per CH-53 NATOPS, Instrument NATOPS, FLIP publications and Standardization Manual.

Prerequisites. INST-1304

INST-1306 1.5 * R (N) A 1 CH-53E

Goal. Conduct IFR flight to an outlying airfield. Instrument progress check.

Requirement. Plan, file, brief, and fly an IFR flight away from home field.

Discuss: Range performance charts in the CH-53 NATOPS Manual.

Performance Standards. Per CH-53 NATOPS, Instrument NATOPS, FLIP publications and Standardization Manual.

Prerequisites. INST-1305.

2.10.8 Navigation (NAV)

2.10.8.1 Purpose. To navigate without radio navigational aids and identify positions by using charts and maps. Day and NVG navigation training in the aircraft is introduced during the formation (FORM) stage of training

2.10.8.2 Crew Requirement. N/A

NAV-1400 1.0 * S APT/WST

Goal. Introduce use of flight planning software, GPS and HNVS.

Requirement. Utilize flight planning software to develop a route card and load the GPS Mission Data Loader with a minimum of six waypoints.

Discuss: GPS set-up, programming, operation, and use

Introduce: Use of Global Positioning System (GPS) and HNVS operation

Performance Standards. Per CH-53E NATOPS and FRS Standardization Manual.

Prerequisites. CBT-0021

External Syllabus Support. WST/APT

2.10.9 Formation (FORM)

2.10.9.1 Purpose. To develop parade and cruise formation principles and techniques.

2.10.9.2 Crew Requirement. 1501: IP/RAC/CC. 1502: IP/RAC/CC/AO.

SFORM-1500 1.0 * R,MR S WST/APT

Goal. Introduce day formation principles.

Requirement

Discuss: Aircraft lighting, closure rate, recovery from unusual attitudes, CRM, and comfort level

Introduce: Section takeoffs, cruise principles, crossovers, and section approaches

Performance Standards. Per CH-53 NATOPS and Standardization Manual.

Prerequisites. CBT-0022

External Syllabus Support. WST/APT

FORM-1501 2.0 * R,MR D A 2 CH-53E

Goal. Introduce parade, cruise formation and section landings. Introduce visual and GPS navigation.

Requirement: As lead, use 1:250,000 and 1:50,000 maps to navigate to a minimum of six terrain features using approved flight planning software. Pilots should conduct this flight between 200 and 500 feet AGL.

Discuss:

- Visual checkpoints for formation position
- Formation considerations
- Parade and Cruise formations
- Cruise turn principles
- Loss of visual contact
- Break-up and rendezvous
- Over-run procedures
- Navigation techniques
- Map preparation
- Checkpoint selection
- Boundaries/limiting features

Use of flight planning software
GPS operation/use

Introduce:

Section takeoffs, parade position, crossovers, breakups,
rendezvous, lead changes, landings, cruise formations, and IMC
break-up

Performance Standards. Per CH-53 NATOPS and Standardization Manual.

Prerequisite. NAV-1400, FORM-1500, CAL-1601 if conducted to a CAL site

Range Requirements. Approved CAL/MAL site, if conducted to a CAL site

FORM-1502 2.0 * NS A 2 CH-53E

Goal. Introduce NS formation procedures and section CAL landings. Practice visual and GPS navigation

Requirement: As lead, use 1:250,000 and 1:50,000 maps to navigate to a minimum of six terrain features using approved flight planning software. Pilots should conduct this flight between 200 and 500 feet AGL.

Discuss:

Aircraft lighting
Closure rate
CRM and comfort level
NS visual checkpoints for formation position
Use of the FLIR
Low level hazards
Dead reckoning techniques

Introduce:

Night section takeoffs
Cruise principles
Crossover
Lead changes
Section landings

Performance Standards. Per CH-53E NATOPS, MAWTS-1 NVD Manual, and FRS Standardization Manual.

Prerequisite. FAM-1202, FORM-1501, CAL-1602 and CAL-1603.

Range Requirements. Approved CAL/MAL site.

2.10.10 Confined Area Landings (CAL) (1600)

2.10.10.1 Purpose. Develop takeoff and landing skills in confined areas.

2.10.10.2 Crew Requirement. 1601/1602: IP/RAC/CC. 1603/1604: IP/RAC/CC/AO.

SCAL-1600 1.5 * NS S WST/APT

Goal. Introduce night systems CAL approaches.

Requirement

Discuss:

Instrument scan requirements
Crew coordination

Introduce:

FLIR system, operation and utilization

NS HUD operation and utilization

Performance Standards. Per CH-53 NATOPS, MAWTS-1 NVD Manual and Standardization Manual.

Prerequisite. CBT-0019, FAM-1107.

External Syllabus Support. WST/APT.

CAL-1601 1.5 * R,MR D A 1 CH-53E

Goal. Practice precision approaches and introduce their application to CALs.

Requirement

Discuss:

Landing gear system/limitations
Dynamic rollover
Slope landing technique/limitations
Loss of visual reference during landing
Power settling (Vortex Ring State)
Settling with power ($P_r > P_a$)
Main and tail rotor clearance factors over sloping or uneven terrain
LZ considerations

Practice: Precision approaches to confined areas.

Performance Standards. Per CH-53 NATOPS and Standardization Manual.

Prerequisite. FAM-1111

Range Requirements. Approved CAL/MAL site.

CAL-1602 1.5 * D A 2 CH-53E

Goal. Introduce section CAL approaches and landings.

Requirement

Discuss:

Hazards associated with section CAL landings
CRM
Section Waveoffs

Introduce:

Day Section CAL approaches and landings

Performance Standards. Per CH-53 NATOPS and Standardization Manual.

Prerequisite. FORM-1501 and CAL-1601. CAL-1602 may be flown in conjunction with FORM-1501

Range Requirements. Approved CAL/MAL site

CAL-1603 1.5 * NS A 1 CH-53E

Goal. Introduce NS confined area landings.

Requirement

Discuss:

Precision obstacle approaches
CRM/comfort level
Aircraft lighting

Practice: Night CAL approaches and takeoffs with NS

EXT-1701 1.5 * R,MR D A 1 CH-53E

Goal. Introduce single point external cargo operations.

Requirement

Discuss:

- Precision hover
- Flight envelopes with external loads
- Weight and balance calculations
- Nr requirements
- Power settling/settling with power
- Operational power checks
- Single point performance checks
- Single point suspension system/operations
- Cargo pickup and delivery procedures
- Power available/required considerations
- Cargo release modes
- Cargo jettison procedures
- Hook open advisory light in flight
- DSEN failure

Introduce:

- Cargo pickup and release procedures
- CRM
- Voice signals/standardized terminology

Performance Standards. Perform five hookups and releases, or until proficiency is demonstrated per CH-53 NATOPS, MCRP 4-23E and Multi-Service Helicopter Sling Load Manual, and Standardization Manual.

Prerequisite. CAL-1601 and EXT-1700

Range Requirements. Approved CAL/MAL site

External Syllabus Support. HST and single point load

EXT-1702 1.5 * R NS A 1 CH-53

Goal. Introduce single point external cargo operations utilizing NS.

Requirement

Discuss:

- CRM
- Comfort level
- NS scan techniques
- Aircraft emergencies
- Cargo jettison procedures
- Power requirements
- Aircraft lighting
- Landing zone markings

Introduce: External cargo pickup and delivery utilizing NS

Performance Standards. Perform five hookups and releases, or until proficiency is demonstrated per CH-53 NATOPS, MCRP 4-23E and Multi-Service Helicopter Sling Load Manual, and Standardization Manual.

Prerequisite. CAL-1603 and EXT-1701

Range Requirements. CAL/MAL site

External Syllabus Support. HST single point load

EXT-1703 1.5 * R,MR D A 1 CH-53E

Goal. Introduce dual point procedures.

Requirement

Discuss:

Dual point suspension system
Dual point suspension system operations/limitations
CRM
Emergencies encountered during external operations
Forward/Aft hook open advisory light in flight
Pilot induced/assisted oscillations
Cargo jettison
CG load indicator system

Introduce:

External cargo pickup and release procedures utilizing the dual point external system

Performance Standards. Perform 5 hookups and releases, or until proficiency is demonstrated per CH-53E NATOPS, MCRP 4-23E and Multi-Service Helicopter Sling Load Manual, and FRS Standardization Manual.

Prerequisite. EXT-1701

Range Requirements. CAL/MAL site

External Syllabus Support. HST and dual point load

EXT-1704 1.5 * R NS A 1 CH-53E

Goal. Introduce dual point procedures at night utilizing NS.

Requirement

Discuss:

NS considerations
CRM
Comfort level
Scan techniques
Aircraft emergencies
Cargo jettison procedures
Aircraft lighting
Landing zone markings

Introduce: External cargo pickup and release NS procedures

Performance Standards. Perform 5 hookups and releases or until proficiency is demonstrated per CH-53E NATOPS, MCRP4-23E and Multi-Service Helicopter Sling Load Manual, and FRS Standardization Manual.

Prerequisite. EXT-1702 and EXT-1703

Range Requirements. CAL/MAL site

External Syllabus Support. HST and dual point load

2.10.12 Terrain Flight (TERF)

2.10.12.1 Purpose. To introduce skills necessary to perform TERF maneuvers safely. Emphasize the importance of crew coordination, comfort level, and standard terminology.

2.10.12.2 General

- 2.10.12.2.1 T&R Program Manual requires a designated TERF instructor for all initial TERF flights.
- 2.10.12.2.2 ANTPP 3-22.3-CH53 Tactical Employment contains all maneuver descriptions, and ACAD-2011 explains all maneuvers.
- 2.10.12.2.3 T&R Program Manual establishes all currency requirements/TERF altitude limitations.
- 2.10.12.2.4 The RAC shall complete academic training prior to commencing the TERF flight syllabus.
- 2.10.12.3 Crew Requirement. IP/RAC/CC/AO.
- 2.10.12.4 Ground Training. Pilots shall complete ACAD-2011 "ASD TERRAIN Flight."

STERF-1800 1.0 * R S WST/APT

Goal. Introduce TERF maneuvers and demonstrate TERF navigation.

Requirement

Discuss:

TERF maneuvers
CRM
Comfort level
Reduced reaction time
Emergency procedures at low altitudes
Climb-to-cope
Standardized terminology
Common mistakes
Hazard maps
Currency requirements
Blade walk-around

Introduce:

Operational power checks
Masking and unmasking
TERF turns
Rolls, bunts
Quick stops
Low level/contour profiles
Using a 1:50,000 scale map, demonstrate TERF navigation

Performance Standards. Per CH-53 NATOPS, ANTPP 3-22.3-CH53, and Standardization Manual.

Prerequisites. ACAD-2011 (TERF class)

Range Requirements. TERF maneuver area/route and CAL/MAL site

TERF-1801 1.5 * R D A 1 CH-53E

Goal. Introduce TERF navigation. Practice TERF maneuvers.

Requirement

Discuss:

TERF maneuvers
CRM
Comfort level
Reduced reaction time
Emergency procedures at low altitudes
Climb-to-cope
Standardized terminology

- Common mistakes
- Hazard maps
- Currency requirements
- Blade walk-around
- Common terms
- Obstacle clearance
- Low altitude emergencies
- AOB limits and principles
- Aircrew responsibilities

Introduce:

- Operational power checks
- Masking and unmasking
- TERF turns
- Rolls, bunts
- Quick stops
- Low level/contour profiles
- Using a 1:50,000 scale map, demonstrate TERF navigation

Performance Standards. Per CH-53 NATOPS, ANTPP 3-22.3-CH53, ANTPP 3-22.5 Tactical Pocket Guide and Standardization Manual.

Range Requirements. TERF maneuver area/route and CAL/MAL site

Prerequisite. CAL-1601 and TERF-1800

2.10.13 Review (REV)

2.10.13.1 Purpose. To demonstrate proficiency in performing duties as a core skill introduction complete copilot per CH-53 NATOPS and appropriate pubs.

2.10.13.2 Crew Requirement. IP/RAC/CC.

2.10.13.3 Ground Training. RACs should complete CH-53 NATOPS open and closed book examination prior to the flight.

SREV-1900 1.5 * R S WST/APT

Goal. Review Core Skill Introduction training.

Requirement

Practice:

- All FAM stage maneuvers
- Instrument stage maneuvers
- Confined area landings
- External cargo procedures
- If possible, formation flight

Performance Standards. Per CH-53E NATOPS and FRS Standardization Manual. RAC is responsible for all emergency procedures in the NATOPS Manual.

Prerequisite. FAM-1119

Range Requirements. CAL/MAL site

REV-1901 1.5 * R D A 1 CH-53E

Goal. Review Core Skill Introduction training.

Requirement

Practice:

- All FAM stage maneuvers

Instrument stage maneuvers
Confined area landings
External cargo procedures
If possible, formation flight

Performance Standards. Per CH-53 NATOPS and Standardization Manual.
RAC is responsible for all emergency procedures in the NATOPS Manual.

Prerequisite. SREV-1900

Range Requirements. CAL/MAL site.

2.10.14 Core Skill Introduction Check (CSIX)

2.10.14.1 Purpose. To demonstrate proficiency in performing the duties as a core skill introduction copilot per CH-53 NATOPS and appropriate pubs.

2.10.14.2 General

2.10.14.2.1 The RAC is responsible for all maneuvers and emergency procedures in the Core Skill Introduction phase.

2.10.14.2.2 A CH-53 NATOPS qualified instructor shall evaluate this flight.

2.10.14.3 Crew Requirement. IP/RAC/CC.

2.10.14.4 Ground Training. Per the CH-53 NATOPS Flight Manual and OPNAVINST 3710.7, all RACs shall successfully complete an open and closed book test prior to CSIX. Upon completion of this flight, the RAC will be CH-53 NATOPS qualified in model as a Helicopter 2nd Pilot (H2P).

CSIX-1902 2.0 * R,MR D E A 1 CH-53E

Goal. Evaluate systems knowledge of the CH-53 and the capability to perform maneuvers in the Core Skill Introduction phase, including high AOB maneuvers.

Requirements

Evaluate:

Systems knowledge of the CH-53 to include external lift systems
Brief and demonstrate proficiency of all aircraft emergency
procedures per the CH-53 NATOPS Flight Manual

Demonstrate proficiency and capability to perform Core Skill
Introduction maneuvers, to include takeoffs, approaches,
instrument procedures, emergency procedures, CALs, high AOB
maneuvers, and landings

Performance Standards. Per CH-53 NATOPS and Standardization Manual.

Prerequisite. Open and Closed book NATOPS exams

Range Requirements. CAL/MAL site

2.11 CORE SKILL PHASE (2000)

2.11.1 Purpose. To introduce and develop proficiency in the execution of Core Skills required as a pilot within a Marine Heavy Helicopter Squadron (HMH). The Core Skill Phase represents the basic skill sets required to conduct Mission Skills (3000 Phase). These basic functions serve as tactical enablers that allow crews to progress to the more complex Mission Phase. This phase encompasses a combination of academic and flight events to train the individual pilot to the level required to conduct assigned Mission Skills.

2.11.2 General

2.11.2.1 The following events within this phase requires a Basic Instructor Pilot (BIP) for all initial or refresher flights:

FAM-2100 & 2105

FORM-2110

CAL-2210 & 2211

EXT-2400, 2410, 2411, 2441

FCLP-2710 & 2742

TAC-2910 & 2911

2.11.2.2 All initial and refresher 2000-6000 level simulated events require a uniformed IP with appropriate designations. Any subsequent attempts at that event may be done single piloted.

2.11.2.1 Stages. The following stages are included in the Core Skill Phase of training:

CORE SKILL PHASE	
PAR NO.	STAGE NAME
2.11.3	Familiarization/Formation/Instruments (FAM/FORM/INST)
2.11.4	Confined/Mountainous Area Landings (CAL/MAL)
2.11.5	Terrain Flight (TERF)
2.11.6	Externals (EXT)
2.11.7	Ground Threat Reaction (GTR)
2.11.8	Helicopter Air to Air Refueling (HAAR)
2.11.9	Field Carrier Landing Practice (FCLP)
2.11.10	Aerial Gunnery (AG)
2.11.11	Tactics (TAC)
2.11.12	NS HLL (HLL) (Contained within other stages)
2.11.13	NS LLL (LLL) (Contained within other stages)

2.11.2.2 Conditions. Within the stages all training codes are further broken down according to ambient conditions.

(XX00) Sim

(XX10) Daylight

(XX20) High Light Level

(XX30) Low Light Level

(XX40) Can be done High or Low Light Level

2.11.2.3 Ground/Academic Training

2.11.2.3.1 Purpose. Within the Core Skill Phase the required academic syllabus shall be completed in accordance with this Manual and the MAWTS-1 CH-53 Course Catalog.

2.11.2.3.2 The Core Skill academic/ground training shall be complete IAW the POI requirements and prerequisites and IAW paragraph 2.8 of this manual. Upon completion, the PUI shall report to the PTO or designated representative(s), who will then manually update the training code in MSHARP and log the academic/ground training event in section 3, Aircrew Ground School Training of the APR, using the format listed in Enclosure 1 of this document.

2.11.2.3.3 2000-6000 classes are located at the MAWTS-1 NIPR website under ASD, CH-53, T&R:

<https://vcepub.tecom.usmc.mil/sites/msc/magtftc/mawts1/>

2.11.2.3.4 SIPR 2000-6000 classes are located at the MAWTS-1 SIPR website under ASD, CH-53, T&R:

<http://www.mawts1.usmc.smil.mil/>

2.11.2.4 Prerequisites. The following events/designations are prerequisites prior to the commencement of the Core Skill Phase.

Academic: See event

Flight: CSIX-1902

Designation/Qualification: H2P

2.11.3 Familiarization/Formation/Instruments (FAM/FORM/INST)

2.11.3.1 Purpose. To review familiarization, formation, navigation and instrument procedures in the daytime environment.

2.11.3.2 General

2.11.3.2.1 Pilots will find familiarization, formations and maneuver descriptions in the NATOPS, Standardization Manual and ANTPP 3-22.3 CH-53.

2.11.3.2.2 The NATOPS Instrument Flight Manual defines basic instrument procedures. All instrument stage flights should terminate with an instrument approach when possible.

2.11.3.2.3 BIP required for all initial or refresher flights.

2.11.3.3 Crew Requirement. FAM/INST-2100: P/P. DAY HUD/FAM/CAL: P/P. FAM/INST-2105: P/P/CC/AO FORM 2110: P/P/CC/AO.

2.11.3.4 Academic Training. The MAWTS-1 CH-53 Course Catalog contains the required readings, chalk talks, and lectures which shall be completed IAW the FAM/FORM/INST event descriptions.

2.11.3.5 Prerequisites. The following events/designations are prerequisites prior to the commencement of the familiarization/formation/instrument stage:

Academic: N/A

Flight: CSIX-1902

Designation/Qualification: H2P

SFAM-2100 1.5 90 R,M (N) S/A WST/APT

Goal. Review normal, emergency, and instrument procedures. This event fulfills the NAVMC 3500.14 Aviation T&R Program manual Chapter 2 NATOPS quarterly emergency procedure event.

Requirements

Discuss:

- Basic FAM maneuvers
- Emergency procedures
- Operating limitations
- Basic instrument procedures
- Precision and non-precision approaches
- If flown at night, discuss night lighting and use, night scan, and fixation

Review:

- Basic FAM maneuvers
- Emergency procedures
- Operating limitations
- Basic instrument procedures
- Precision and non-precision approaches

Performance Standards. Per CH-53 NATOPS, Standardization and

Instrument Flight Manual.
External Syllabus Support. WST/APT
Prerequisites. CSIX-1902

SFAM-2101 1.5 * R D S/A 1 CH-53E/WST/APT

Goal. Introduce and develop proficiency ANVIS-24 day (HUD).

Requirement

Instructor: BIP required for initial flights or refreshers

Discuss:

Same as FAM/INST-2100
CRM utilizing ANVIS-24 day (HUD)
ANVIS-24 Heads-Up Display Operation
Limitations
Switchology
Functionality/Image
HNVS

Introduce:

Same as FAM/INST-2100
ANVIS-24 (HUD)
Low Work with HUD
Pattern work with HUD

Review:

Same as FAM/INST-2100
Low work
Pattern work CAL/MAL
CAL-2101 and HLL-2220

Performance Standards. Same as FAM/INST-2100.

Prerequisite. Same as FAM/INST-2100

Range Requirements. CAL/MAL site

FAM-2105 1.5 365 R,M (N) A 1 CH-53E

Goal. Review normal, emergency, and instrument procedures.

Requirements

Discuss: Same as FAM/INST-2100

Review: Same as FAM/INST-2100.

Performance Standards. Same as FAM/INST-2100.

Prerequisites. FAM-2100

FORM-2110 1.5 365 R,M D A 2 CH-53E

Goal. Conduct day formation and introduce tactical formation maneuvering.

Requirements

Discuss:

CRM
Comfort level
Closure rates
Formation maneuvers; Break turns, center turns, pinch/dig,
cover, tac turns, in-place turns, split turns, and cross turns

Combat spread, combat cruise, and parade positions
Cruise Turn principles
Recovery from unusual attitudes
Loss of visual contact
Lost communications
Inadvertent IMC procedures
High density altitude
High AOB turns/aerodynamics performance
Inter- and intra-aircraft communications
Lead changes; include EMCON lead change

Introduce:

Inadvertent IMC breakup and rendezvous
Break turns, center turns, pinch/dig, cover, tac turns, in-place
turns, split turns, and cross turns
Combat spread and combat cruise formations

Review:

Parade position
Cruise principles
Crossovers
Full COMM and no COMM lead changes

Performance Standards. Successfully execute all TACFORM maneuvers as lead and wingman IAW ANTTP 3-22.3-CH53. Successfully execute inadvertent IMC breakup and rendezvous IAW ASTACSOP.

Prerequisite. ACAD-2005, FAM-2105

2.11.4 Confined/Mountainous Area Landings (CAL/MAL)

2.11.4.1 Purpose. To conduct takeoffs and landings in confined/mountainous areas in the daytime environment.

2.11.4.2 General

2.11.4.2.1 Pilots may find a description of these maneuvers in the CH-53 NATOPS, Standardization Manual and ANTTP 3-22.3-CH53.

2.11.4.2.2 BIP required for all initial or refresher flights.

2.11.4.3 Crew Requirement. CAL-2210-2112: P/P/CC.

2.11.4.4 Academic Training. The MAWTS-1 CH-53 Course Catalog contains the required readings, lectures and chalk talks which shall be completed IAW the event descriptions in the Confined/Mountainous Area Landing stage.

2.11.4.5 Prerequisites. The following events/designations are prerequisites prior to the commencement of the Confined/Mountainous Area Landing stage:

Academic: N/A

Flight: FAM-2105

Designation/Qualification: H2P

CAL-2210 1.5 365 R D A 1 CH-53E

Goal. Conduct single-ship confined area approaches, landings, and departures and introduce tactical approaches to confined areas/mountainous terrain.

Requirements

Discuss:

- CRM
- Dynamic rollover
- Crosswind approaches
- Limitations on landing on unprepared and uneven surfaces
- Power settling
- Settling with power
- Low altitude emergencies
- Loss of visual reference during landing and takeoff
- Engine emergencies
- Obstacle clearance
- High gross weight takeoffs/landings
- Maneuvering at high gross weight/density altitude (GW/DA)
- High AOB turns/aerodynamic performance
- HNVS capabilities and limitations
- LZ Diagram briefing and planning considerations

Introduce:

- Crosswind approaches
- Loss of visual reference during landing and takeoff
- Obstacle takeoffs and approaches
- High gross weight takeoffs/landings
- LZ Diagrams
- Landing and departures to/from a CAL/MAL site

Review:

- Normal approaches
- Precision approaches
- Hover and no hover landings
- Low altitude emergencies

Performance Standards. Pilot shall fly pattern within 50' and 10 kts of briefed altitude/airspeed. Land within 2 rotors of designated landing point. Conduct a minimum of 5 landings which shall consist of a precision approach, a normal approach, a hover and a no hover landing, and a max gross weight takeoff and landing. Simulated high GW takeoffs and landings power shall be limited to 5 percent above 10' hover power. Maintain safe obstacle clearance.

Prerequisites. FAM/INST-2105

Range Requirements. CAL/MAL site

CAL-2211	1.5	365	R,M	D	A	2 CH-53E
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Goal. Conduct section confined area approaches, landings, and departures and introduce tactical approaches to confined areas/mountainous terrain.

Requirements

Discuss:

- CRM
- Obstacle clearance
- Full COMM and no COMM lead changes
- Tactical formations
- Reduced visibility section landings
- Cruise turn principles (radius of turn)
- Cross cockpit landings

Review:

FORM-2110 and CAL-2210

LZ diagrams, planning and briefing considerations

Performance Standards. Pilot shall fly pattern within 50' and 10 kts of briefed altitude/airspeed. Land within 2 rotors of designated landing point (lead) and maintain section integrity during approach and landing (wingman). Conduct a minimum of 5 landings as lead and 5 landings as wingman. Maintain safe obstacle clearance.

Prerequisites. FORM-2110 and CAL-2210

Range Requirements. CAL/MAL site.

2.11.5 Terrain Flight (TERF)

2.11.5.1 Purpose. To conduct TERF maneuvers, navigation, approaches and section maneuvering in the daytime TERF environment.

2.11.5.2 General

2.11.5.2.1 TERF rules of conduct are IAW T&R Program Manual and local SOPs. A description of all TERF maneuvers can be found in ANTPP 3-22.3-CH53.

2.11.5.2.1 A PUI is TERF qualified when the following flights have been completed: ACAD-2011-2013, TERF-2310 and TERF-2311.

2.11.5.2.2 TERFI is required for all initial, refreshers or if not TERF qualified.

2.11.5.3 Crew Requirement. P/P/CC/AO.

2.11.5.4 Academic Training. The MAWTS-1 CH-53 Course Catalog contains the required readings, lectures and chalk talks which shall be IAW the Terrain Flight stage event descriptions.

2.11.5.5 The following events/designations are prerequisites prior to the commencement of the Terrain Flight stage:

Academic: ACAD-2011

Flight: FAM-2105

Designation/Qualification: H2P

TERF-2310 1.5 * D A 1 CH-53E

Goal. Conduct single ship TERF maneuvers and navigation.

Requirements

Instructor: TERFI required for initial flights, refreshers or if not TERF qualified

Discuss:

- TERF profiles and maneuvers IAW ANTPP 3-22.3-CH53
- TERF rules of conduct IAW T&R Program Manual and local SOPs
- Operational power checks
- Comfort levels
- CRM
- Common terminology
- Route and checkpoint selection
- Route planning tools (N-PFPS)
- Orientation techniques
- Map preparation
- Maneuvering at low altitude and high gross weight/high density altitude
- High AOB turns/aerodynamic performance
- Low altitude emergencies
- Obstacle clearance

Aircraft navigation system

Introduce:

Plan and brief a TERF route
Masking/unmasking
Quick stop
TERF turn and roll
Bunts
Low level and contour profiles
Tactical approaches
Operational Power Checks (OPCs)
Single Point Performance Checks (SPPCs)

Performance Standards. Understand OPC and SPPC procedures IAW CH-53 NATOPS. Safely control aircraft in the TERF environment. Remain oriented IAW AS TACSOP Magellan criteria while navigating to a minimum of 6 checkpoints while using 1:250,000 and 1:50,000 scale maps at or below 200' AGL. To the maximum extent possible TERF should be conducted for a total of 50 nm. Demonstrate correct procedure and usage of each TERF maneuver and approach. Demonstrate proficiency with aircraft navigation systems. Conduct at least 1 full COMM and 1 no COMM lead change.

Prerequisites. ACAD-2011, FAM-2105

Range Requirements. Approved TERF maneuver area/route

TERF-2311 1.5 365 R,M D A 2 CH-53E

Goal. Conduct section TERF maneuvers and navigation.

Requirements

Instructor: TERFI required for initial flights, refreshers or if not TERF qualified

Discuss:

Same items as in TERF-2310, as it applies to section TERF concepts
Tactical flight considerations per ANTP 3-22.3-CH53
Tactical formation maneuvers in a TERF environment per ANTP 3-22.3-CH53

Review: FORM-2110 and TERF-2310

Performance Standards. Same as TERF-2310 and incorporate tactical formation maneuvering in the navigation of the route. Perform 1 full COMM and 1 no COMM lead change.

Prerequisites. FORM-2110 and TERF-2310.

Range Requirements. Approved TERF maneuver area/route.

2.11.6 External Loads (EXT) (2400)

2.11.6.1 Purpose. To develop skills necessary for operating with external loads in all ambient conditions and flight regimes.

2.11.6.2 General

2.11.6.2.1 Review operational and safety considerations discussed in the appropriate NATOPS Flight Manual, ANTP series and MCRP 4-11.3E and Multi-Service Helicopter Sling Load Manual.

2.11.6.2.2 BIP required for EXT-2400, 2410-11, and 2441 initial or refresher flights.

2.11.6.2.3 NSI required for EXT-2420, 2421, 2430 and 2441 (if conducted at night) initial, refresher or when not NS qualified in light level event is conducted.

2.11.6.3 Crew Requirement. P/P/CC/AO.

2.11.6.4 Academic Training. The MAWTS-1 CH-53 Course Catalog contains the required readings, lectures and chalk talks which shall be completed IAW the External stage event descriptions.

2.11.6.5 The following events/designations are prerequisites prior to the commencement of the External stage:

Academic: ACAD-2014

Flight: CSIX-1902 for sims or FAM-2210 for flights

Designation/Qualification: H2P

SEXT-2400 1.5 * R D S WST/APT

Goal. Conduct heavy external lift operations.

Requirements

Discuss: Same as EXT-2410

Introduce:

- Techniques for heavy external lift operations
- Emergency procedures during external operations

Performance Standards. Demonstrate a working knowledge of MSHSL Manual WRT basic equipment rigging procedures, load inspection, and airspeeds. Execute 5 pickups and deliveries (or demonstrate proficiency) as defined by the ability to fly within 50' and 10 kts of briefed altitude and airspeed, and deliver load within 5 meters of intended point of delivery while maintaining +/- 10 degrees of assigned heading. Flight should be conducted while operating in conditions approaching aircraft maximum gross weight or a performance limit, within the boundaries of existing safety considerations. Demonstrate the ability to plan and compute power requirements based on weight and power, OPCs, SPPCs (if required) and in zone power computations using actual ambient conditions.

Prerequisites. CSIX-1902, ACAD-2014

External Syllabus Support. WST/APT

EXT-2410 1.5 * R D A 1 CH-53E

Goal. Conduct single point external operations.

Requirement

Discuss:

- CRM
- Comfort level
- Preflight planning to include power computations, weight and balance considerations, Operational Power Checks, and Single Point Performance Checks
- External load information/characteristics
- Hook preflight/Hook checks
- Fuel Dump procedures/Aux tank jettison
- Form F

- Power settling
- Emergency procedures during external operations
- Cargo jettison procedures
- Switchology
- Inadvertent hook release
- Pilot Induced Oscillations (PIO)
- HST operation and safety brief
- Wave-off with the load
- Reduced visibility conditions
- Precision approach techniques

Introduce:

- Single point system preflight
- Single point external operations to a confined area
- External lift procedures
- In-flight weight and power computations
- Operational Power Checks (OPCs)
- Single Point Performance Checks (SPPCs)
- In-zone weight and power computations

Performance Standards. Demonstrate a working knowledge of MSHSL Manual WRT basic equipment rigging procedures, load inspection, and airspeeds. Execute 5 pickups and deliveries or demonstrate proficiency as defined by the ability to fly within 50' and 10 kts of briefed altitude and airspeed, and deliver load within 5 meters of intended point of delivery while maintaining +/- 10 degrees of assigned heading. Demonstrate the ability to plan and compute power requirements based on weight and power, OPCs, SPPCs (if required) and in zone power computations using actual ambient conditions.

Prerequisites. ACAD-2014, CAL-2210

Range Requirements. Approved CAL/MAL site.

External Syllabus Support. HST, single point loads.

EXT-2411	1.5	365	R,M	D	A	1	CH-53E
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Goal. Conduct dual point external operations (53E).

Requirements

Discuss: Same as EXT-2410.

Introduce:

- Dual point system preflight
- Dual point external operations to a confined area
- External lift procedures
- In-flight weight and power computations
- Operational Power Checks (OPCs)
- Single Point Performance Checks (SPPCs)
- In-zone weight and power computations

Performance Standards. Same as EXT-2410.

Prerequisites. ACAD-2014, CAL-2210

Range Requirements. Approved CAL/MAL site

External Syllabus Support. HST, dual point load

EXT-2420 1.5 * R NS A 1 CH-53E

Goal. Conduct NS HLL single point external operations.

Requirements

Instructor: NSI required for initial flights, refresher or when not NS qualified in HLL conditions.

Discuss: Same as HLL-2220 and EXT-2410

Introduce: NS HLL single point externals to a confined area

Review: EXT-2410 and HLL-2220

Performance Standards. Same as EXT-2410.

Prerequisites. HLL-2220 and EXT-2410

Range Requirements. Approved CAL/MAL site

External Syllabus Support. HST, single point load

EXT-2421 1.5 180 R,M NS A 1 CH-53E

Goal. Conduct NS HLL dual point externals (53E).

Requirements

Instructor: NSI required for initial flights, refresher or when not NS qualified in HLL conditions.

Discuss: Same as EXT-2220 and EXT-2411

Introduce: NS HLL dual point externals to a confined area

Review: Same as EXT-2220 and EXT-2411

Performance Standards. Same as EXT-2411.

Prerequisite. HLL-2220 and EXT-2411

Range Requirements. CAL/MAL site

External Syllabus Support. HST, dual point load

EXT-2430 1.5 180 R,M NS A 1 CH-53E

Goal. Conduct LLL NS external operations, dual point preferred.

Requirements

Instructor: NSI required for initial flights, refresher or when not NS qualified in LLL conditions.

Discuss: Same as EXT-2420 (single point) and EXT-2421 (dual point)

Introduce: LLL NS externals

Review: EXT-2420 (single point) and EXT-2421 (dual point)

Performance Standards. Execute 5 pickups and deliveries or demonstrate proficiency as defined by the ability to fly within 50' and 10 kts of briefed altitude and airspeed, and deliver load within 5 meters of intended point of delivery and +/- 10 degrees of assigned heading.

Prerequisites. NSQ-HLL, EXT-2420 and 2421, CAL-2230

Range Requirements. CAL/MAL site

External Syllabus Support. HST and single or dual point load

Goal. Introduce ground threat reactions and ASE.

Requirements

Instructor: WTI or DMI required for initial flights

Discuss:

Operation of the ALE-47, APR-39, AAQ-24, and AAR-47
The strengths and weaknesses of each ASE system versus ground-to-air threats
Backplate settings
Magazine IDs
MDF and OFP
CRM
Tactical EW/IR countermeasures
TACFORM
Tactical maneuvering to counter surface to air threat
Inter- and intra-aircraft communications and standard terminology
Threat identification and rules of engagement
5 axioms of survival
High, medium and low altitude tactics

Introduce:

Search, acquisition, track, and missile alert signals of all applicable threat systems on APR-39 and AAR-47
Tactical maneuvering and ASE employment to counter the threat
Inter- and intra-aircraft communications and standard terminology
High and medium altitude break maneuvers

Performance Standards. Effectively maneuver aircraft against various ground-based threats. Utilize standard terminology in inter- and intra-aircraft communications. Demonstrate working knowledge of ASE. Execution of at least 1 line number should be accomplished using high or medium altitude tactics.

Prerequisites. 2016-2021, 2311

External Syllabus Support. WST/APT with operable ASE

GTR-2540 1.5 365 R,M (NS) A 2 CH-53E

Goal. Conduct ground threat reactions and ASE familiarization.

Requirements

Instructor: WTI or DMI required for initial flights, refreshers or when not NS qualified in the light level event is conducted.

Discuss:

Operation of the ALE-47, AAQ-24 and AAR-47
The strengths and weaknesses of each ASE system versus non-radar ground-based threats
Backplate settings
Magazine IDs
MDF AND OFP
CRM
IR countermeasures
Tactical maneuvering to counter surface to air threat
Inter- and intra-aircraft communications and standard terminology
Threat identification and rules of engagement
5 axioms of survival
High, medium and low altitude tactics

Introduce:

Tactical maneuvering and ASE employment to counter the threat
Inter- and intra-aircraft communications and standard terminology

Review:

GTR-2500
TACFORM maneuvering
TERF

Performance Standards. Effectively maneuver aircraft against various non-radar ground-based threats. Utilize standard terminology in inter- and intra-aircraft communications. Demonstrate working knowledge of ASE. Execution of at least 1 line number should be accomplished using high or medium altitude tactics.

Prerequisites. TERF-2311 and GTR-2500. If flown under HLL conditions, TERF-2321. If flown under LLL conditions, NSQ-HLL, TERF-2331. AG-2810 (if .50 cal to be employed)

Ordnance. 60 flares

Range Requirements. Live Fire Range (as required), Expendable capable range. Approved TERF maneuver area/route

External Syllabus Support. Ground-based non-radar threat simulators required for initial qualification (e.g., Smokey SAMs, AAR-47 stimulator, handheld pyrotechnics, target lights).

2.11.8 Helicopter Air to Air Refueling (HAAR)

2.11.8.1 Purpose. To introduce HAAR.

2.11.8.2 General.

2.11.8.2.1 KC-130 support required for all HAAR training evolutions.

2.11.8.2.2 Discuss and become thoroughly familiar with all HAAR procedures and aspects of CRM as described in the CH-53E NATOPS Manual, ANTPP 3-22.3 CH-53 and the ATP-56B.

2.11.8.2.3 ARI required for initial flights and refreshers.

2.11.8.2.4 ARI must be an NSI for HAAR-2640 if PUI is not NSQ for the appropriate light level.

2.11.8.2.5 Successful completion of each initial or refresher flight requires a minimum of 3 contacts with demonstrated proficiency and movement to the refueling position. The ARI shall ensure PUI's ATF is annotated with seat, hose position and number of contacts for each flight.

2.11.8.3 Crew Requirement. P/P/CC/AO.

2.11.8.4 Academic Training. The MAWTS-1 CH-53 Course Catalog contains the required readings, lectures and chalk talks which shall be completed IAW Helicopter Air to Air Refueling stage event descriptions.

2.11.8.5 Prerequisites. The following events/designations are prerequisites prior to the commencement of the Helicopter Air to Air Refueling stage:

Academic: ACAD-2022

Flight: FAM-2105

Designation/Qualification: H2P

SHAAR-2600 1.5 * D S 1 WST/APT

Goal. Conduct day HAAR.

Requirements

Instructor: ARI required for initial flights.

Discuss:

- ATP-56B
- CRM
- Comfort level
- Rendezvous procedures, both VMC and IMC
- Voice procedures
- Join-up procedures
- Airspeeds/altitudes
- Crossovers
- Hose response/markings
- Inadvertent disconnects
- HAAR emergencies
- Control inputs and tip path awareness
- Blade stall
- NATOPS HAAR envelope chart

Introduce:

- Rendezvous/join-up
- Observation/astern/contact/refuel/disconnect positions
- Aircraft movement around the tanker
- Post HAAR procedures

Performance Standards. Demonstrate the ability to perform a successful join-up and movement to the observation position. Movement to a stable astern, refueling and disconnect position.

Prerequisite. ACAD-2022, 2100

External Syllabus Support. WST/APT

SHAAR-2601 1.5 * NS S 1 WST/APT

Goal. Conduct NS HAAR.

Requirements

Instructor:

ARI is required for initial flights. NSI/ARI required if not NS qualified in the light level event is conducted.

Discuss:

- Same as HAAR-2600
- Night fixation and scan techniques
- NS failures
- Inadvertent IMC
- Vertigo/disorientation
- Night HAAR lighting
- NS/HNVS considerations
- Light Level Planning considerations
- Night movement around tanker
- Multiple receiver conduct at night
- Closure rates
- Depth perception
- Receiver/tanker lighting
- Visual illusions
- Inadvertent IMC

EMCON visual signals
NS emergencies

Introduce: NS helicopter air to air refueling.

Review: HAAR-2600.

Performance Standards. Demonstrate the ability to perform a successful join-up and movement to the observation position. Movement to a stable astern, refueling and disconnect position.

Prerequisite. HAAR-2600

External Syllabus Support. WST/APT

HAAR-2610 1.5 * D A 1 CH-53E

Goal. Conduct day HAAR, left hose preferred.

Requirements

Instructor: ARI required for initial flights.

Discuss: Same as HAAR-2600

Review: HAAR-2600

Performance Standards. Demonstrate the ability to perform a successful join-up and movement to the observation position; movement to a stable astern, refueling and disconnect position. Initial qualification shall be performed right seat, left hose is preferred.

Prerequisite. FAM-2110, HAAR-2600

Range Requirements. Special use airspace

External Syllabus Support. 1 KC-130 tanker

HAAR-2611 1.5 180 R,M D A 1 CH-53E

Goal. Conduct day HAAR, left and right hose preferred.

Requirements

Instructor: ARI required for initial flights and refreshers

Discuss:

Same as HAAR-2600

Types of tanker rendezvous (per ATP-56B)

Introduce:

Refueling from both sides of the tanker if available

No COMM procedures

Review: HAAR-2610

Performance Standards. Same as AR-2610. Demonstrate the ability to perform all 5 positions from right seat, both left and right hose (if available).

Prerequisite. HAAR-2610

Range Requirements. Special use airspace

External Syllabus Support. 1 KC-130 tanker.

HAAR-2640 1.5 180 R,M NS A 1 CH-53E

Goal. Conduct night HAAR with NS.

Requirements

Instructor:

ARI required for initial flights and refreshers.

NSI/ARI is required if not NS qualified in light level event is conducted.

Discuss: Same as HAAR-2601

Introduce: NS HAAR.

Performance Standards. Same as HAAR-2610. For initial qualification, demonstrate the ability to perform all 5 positions from right seat, both left and right hose (if available).

Prerequisites. HAAR-2601 and 2611. If flown under HLL conditions: HLL-2101 and 2120. If flown under LLL conditions: NSQ HLL.

Range Requirements. Special use airspace.

External Syllabus Support. KC-130 tanker.

2.11.9 Field Carrier Landing Practice (FCLP)

2.11.9.1 Purpose. To qualify pilots in day and NS FCLP operations.

2.11.9.2 General

2.11.9.2.1 Discuss and become familiar with all aspects of shipboard operations and CRM applicable to the Field Carrier Landing Practice and Carrier Qualification stage as described in the appropriate NATOPS Flight Manual, NAVMC 3500.14, NWP-42, LHA/LHD NATOPS, and OPNAVINST 3710.7.

2.11.9.2.2 Each initial or refresher instructional flight requires a minimum of 5 FCLPs; additional FCLPs as required to demonstrate proficiency. Refer to CH-53E NATOPS, Chapter 8, Shipboard Procedures.

2.11.9.2.3 Initial Night Systems Field Carrier Landing Practice training shall be accomplished under High Light Level conditions. Requalification and proficiency training may be accomplished under any light level condition. CQ-2742 requires an NSI when not NS qualified in light level event is conducted.

2.11.9.2.4 FCLP-2710 and FCLP-2742 shall be conducted to a suitable FCLP pad.

2.11.9.3 Crew Requirement. FCLP-2700: P/P. FCLP-2710: P/P/CC. FCLP 2742 P/P/CC/AO.

2.11.9.4 Academic Training. The MAWTS-1 CH-53 Course Catalog contains the required readings, lectures and chalk talks which shall be completed IAW the Field Carrier Landing Practice stage event descriptions.

2.11.9.5 Prerequisites. The following events/designations are prerequisites prior to the commencement of the Field Carrier Landing Practice stage:

Academic: N/A

Flight: SFAM-2100

Designation/Qualification: H2P

SFCLP-2700 1.5 * (N) 2 WST/APT

Goal. Conduct day and NS simulated shipboard flight operations.

Requirements

Discuss:

CRM
Terminology
Shipboard day and night landing patterns
Shipboard instrument procedures
Shipboard emergency procedures
Blade/pylon fold procedures

Introduce:

The LHA and LHD day and night VFR landing patterns
TACAN and CCA approaches in IMC or night conditions

Performance Standards. Conduct all communications with HDC and Tower. Execute proper cockpit switchology. Remain oriented around the landing pattern relative to the BRC. Pilot shall fly pattern within 50' and 10 kts of briefed altitude/airspeed. Conduct a minimum of 5 landings. Initial qualification shall be performed from the right seat.

Prerequisite. SFAM-2100

External Syllabus Support. WST/APT

FCLP-2710 1.5 365 R,M D A 1 CH-53E

Goal. Conduct day FCLP.

Requirements

Discuss: Same as FCLP-2700

Introduce: FCLPs

Review: FCLP-2700

Performance Standards. Conduct all communications with HDC and Tower. Execute proper cockpit switchology. Remain oriented around the landing pattern relative to the BRC. Pilot shall fly pattern within 50' and 10 kts of briefed altitude/airspeed. Conduct a minimum of 5 landings. Initial qualification shall be performed from the right seat. Conduct a minimum of 2 landings for refresher qualification.

Prerequisite. CAL-2210 and FCLP-2700

Range Requirements. FCLP pad

External Syllabus Support. FCLP pad

FCLP-2742 1.5 365 R,M NS A 1 CH-53E

Goal. Conduct NS FCLPs.

Requirements

Instructor: NSI required when not NS qualified in light level event is conducted

Discuss:

Same as FCLP-2740
NS landing techniques
NS emergencies
Introduce:
NS FCLP

Performance Standards. Conduct all communications with HDC and Tower. Execute proper cockpit switchology. Remain oriented around the landing

pattern relative to the BRC. Pilot shall fly pattern within 50' and 10 kts of briefed altitude/airspeed. Conduct a minimum of 5 landings. Initial qualification shall be performed from the right seat.

Conduct a minimum of 2 landings for refresher qualification.

Prerequisites. FCLP-2710. If conducted under HLL conditions: CAL-2220. If conducted under LLL conditions: CAL-2230

Range Requirements. FCLP pad

External Syllabus Support. FCLP pad

2.11.10 Aerial Gunnery (AG)

2.11.10.1 Purpose. To introduce AG employment.

2.11.10.2 General. Discuss and become familiar with all aspects of AG as described in NTRP 3-22.4-CH-53, Fundamentals of AG, the ANTPP 3-22.3-CH53, and appropriate NATOPS flight manual.

2.11.10.2.1 Crew Requirements. P/P/CC/AO/G.

2.11.10.2.2 Academic Training. The MAWTS-1 CH-53 Course Catalog contains the required readings, lectures and chalk talks which shall be completed IAW the Aerial Gunnery stage event descriptions.

2.11.10.2.3 Prerequisites. The following events/designations are prerequisites prior to the commencement of the Aerial Gunnery stage:

Academic: N/A

Flight: FAM-2105

Designation/Qualification: H2P

AG-2810 1.5 * D A 1 CH-53E

Goal. Introduce day weapons employment.

Requirements

Discuss:

- Door gun and tail gun nomenclature, capabilities, and limitations
- Types of ammunition and ballistic effects
- Safety considerations, malfunction procedures, jams, and hung ordnance procedures
- Range procedures and course rules
- Weapons conditions, fire control voice commands, and fire discipline
- Range estimation and target engagement procedures
- Flight profiles and weapons engagement per the ANTPP 3-22.3-CH53
- Platform left, Platform right
- Firing in approach, landing, and departure profiles
- Landing profile with tail gun installed

Introduce:

- Ordnance loading, weapons preflight and operations, and post-flight
- Implementation of fire control voice commands, and fire discipline
- Range estimation and target engagement
- Flight profiles and weapons engagement per the ANTPP 3-22.3-CH53
- Landing profile with tail gun installed

Performance Standards. Demonstrate effective fire control voice commands and fire discipline. Maintain briefed flight profiles IAW

ANTTP 3-22.3-CH53. Demonstrate appropriate target engagement IAW ANTPP 3-22.3-CH53.

Prerequisites. FAM-2105, 2023-2026

Ordnance. Minimum of 2 .50 Cal (TG optional), and appropriate .50 CAL ammo

Range Requirements. Live fire AG(.50 cal) approved and laser safe range.

AG-2840 1.5 365 R,M NS A 1 CH-53E

Goal. To introduce NS AG employment.

Requirements

Instructor: NSI required if not NS qualified in light level event is conducted

Discuss:

Same as AG-2810

Night adaptation and muzzle flash awareness

Types of lasers, laser operations and safety per the ANTPP 3-22.3-CH53

Introduce: Same as AG-2810 in night environment

Prerequisites. AG-2810, if flown HLL, HLL-2101, if flown LLL, HLL-NSQ.

Performance Standards. Same as AG-2810

Ordnance. Minimum of 2 .50 Cal (TG optional) and appropriate .50 CAL ammo

Range Requirements. Live fire AG range (.50 cal). Laser-capable range

2.11.11 Tactics (TAC)

2.11.11.1 Purpose. To plan, brief, execute, and debrief a tactical mission in a low to medium threat environment.

2.11.11.2 General

2.11.11.2.1 All Tactics events shall be based on at least one of the Marine Corps Tasks (MCTs) of an HMH squadron. The PUI will log the TAC code and the instructor will log both the TAC code and the Mission Skill Code(s) that applies. Initial TAC codes shall be accomplished as a section or higher; subsequent evolutions (when logged in conjunction with a Mission Skill) may be done single ship, based on the tactical scenario. The total number of aircraft, as specified, may be a dissimilar mix of aviation assets.

2.11.11.2.2 The PUI will assist in the planning, briefing, and debriefing of each flight. Pilots shall use the ANTPP 3-22.3-CH53 and CH-53 TPG / ASTACSOP 3-22.5 as source documents for planning and developing proficiency in planning, briefing, execution, and debriefing.

2.11.11.2.3 TAC events shall be flown with operational ASE, door guns (as required for the tactical scenario) installed at a minimum (rounds and expendables optional), whenever practical.

2.11.11.3 Crew Requirement. P/P/CC/AO.

2.11.11.4 Academic Training. The MAWTS-1 CH-53 Course Catalog contains the required readings, lectures chalk talks, and lectures which shall be completed IAW the Tactics stage event descriptions.

2.11.11.5 Prerequisites. The following events/designations are prerequisites prior to the commencement of the Tactics stage:
Academic: N/A
Flight: CAL-2211
Designation/Qualification: H2P

TAC-2910 2.0 * D A 2 CH-53E

Goal. Conduct assault support tactical missions in a low threat environment.

Requirements

Discuss:

CRM
Planning based on METT-TSL
Route planning
Objective area planning
Air and ground unit coordination
Marine Aviation Command and Control System (MACCS)
Emissions control (EMCON), Transmission Security (TRANSEC), and
Communication Security (COMSEC)
L-Hour (event versus time-driven)
ASE considerations

Introduce:

Tactical mission analysis, planning, briefing, execution, and
debriefing in support of assigned tasks
Objective area planning
MACCS
EMCON, TRANSEC, and COMSEC
Mission smartpack

Performance Standards. Plan and brief a tactical mission IAW ASTACSOP and ANTPP 3-22.3-CH53. Demonstrate an understanding of the MACCS. Remain oriented IAW ASTACSOP Magellan criteria while navigating to a minimum of 6 checkpoints while using 1:250,000 and 1:50,000 scale maps. To the maximum extent possible route should be a minimum of 50 nm. Demonstrate proficiency with aircraft navigation systems. Arrive in LZ within \pm 30 sec of L-Hour and within 2 rotors of prebriefed landing point.

Prerequisite. CAL-2211, TERF-2311 (if flown in TERF regime), AG-2810 (~.50 cal employed), 2027-2730

Ordnance. 2 .50 cal and appropriate rounds, and Chaff and Flare as required, to the max extent possible

Range Requirements. Approved Live fire AG (.50 cal) range. Expendable approved range. CAL/MAL site. Approved TERF maneuver area/route

TAC-2911 2.0 365 R,M D A 2 CH-53E

Goal. Conduct assault support tactical missions in a medium threat environment.

Requirements

Discuss:

Same as TAC-2920
Flight leadership
ITG considerations
Embark and debark of troops and equipment

Sectors of fire
Escort considerations
Fire Support Coordination considerations
Weapons preflight, control, and employment

Review:

TAC-2910

Performance Standards. Plan and brief a tactical mission IAW ASTACSOP and ANTPP 3-22.3-CH53. Demonstrate an understanding of the MACCS. Remain oriented IAW ASTACSOP Magellan criteria while navigating to a minimum of 6 checkpoints while using 1:250,000 and 1:50,000 scale maps. To the maximum extent possible route should be a minimum of 50 nm. Demonstrate proficiency with aircraft navigation systems. Arrive in LZ within \pm 30 sec of L-Hour and within 2 rotors of prebriefed landing point.

Prerequisites. TAC-2910

Ordnance. 2 .50 cal and appropriate rounds, and Chaff and Flare as required, to the max extent possible

Range Requirements. Approved Live fire AG (.50 cal) range. Expendable approved range. CAL/MAL site. Approved TERF maneuver area/route

2.11.12 NS High Light Level (HLL)

2.11.12.1 Purpose. To develop skill in the use of NS under light levels greater than or equal to .0022 lux (HLL) as predicted by the Solar Lunar Almanac Prediction (SLAP) data and to qualify the PUI in NS HLL operations.

2.11.12.2 General

2.11.12.2.1 Aircrew not NSQ HLL require supervision of an NSI for all events flown with NS.

2.11.12.2.2 A PUI is NSQ HLL (qualified to transport troops in HLL conditions) when the following flights have been completed: SHLL-2101, HLL-2120, HLL-2220, HLL-2221, HLL-2320, HLL-2321, and HLL-2920. Pilots shall fly the above listed flights, HLL-2420 and HLL-2421 under ambient light conditions greater than or equal to .0022 lux.

2.11.12.2.3 Successful completion of ACAD 2031-2036 and HLL-2920 constitutes Night Systems Qualified (NSQ) HLL. A qualification letter signed by the Squadron Commanding Officer is required, stating the pilot is NSQ HLL to carry troops under HLL conditions. The original letter shall be placed in the pilot's NATOPS jacket, and a copy in the APR with a corresponding logbook entry.

2.11.12.3 Minimum Crew Requirements for all NS HLL flights. P/P/CC/AG/O.

2.11.12.4 Academic Training. The MAWTS-1 CH-53 Course Catalog contains the required readings, lectures and chalk talks which shall be completed IAW the High Light Level stage event descriptions.

2.11.12.5 Prerequisites. The following events/designations are prerequisites prior to the commencement of the High Light Level stage:

Academic: ACAD-2031

Flight: FAM-2100 for HLL-2101, FORM-2110 for all others

Designation/Qualification: H2P

SHLL-2102 1.5 * R NS S/A WST/APT/CH-53E

Goal. Introduce the operation and capabilities of aircraft NS.

Requirements

Instructor: NSI required for initial flights

Discuss:

CRM utilizing NS
NS emergency procedures
Night scan and fixation
Aircraft lighting
NS preflight, donning, and adjustment procedures
ANVIS-7 Heads-Up Display (HUD)
HUD operation, limitations, switchology, functionality/ image.
HNVS FLIR AAQ-29 & AAQ-16

Introduce:

CRM utilizing NS
NS emergency procedures
Night scan and fixation
Aircraft lighting
NS preflight, donning, and adjustment procedures
ANVIS-7 Heads-Up Display (HUD)
HUD operation, limitations, switchology, functionality/image
FLIR operation, limitations, switchology, functionality/image.

Performance Standards. Demonstrate basic proficiency, knowledge and the operation of all NS.

Prerequisites. ACAD-2031, FAM-2100.

External Syllabus Support. WST/APT. If WST/APT unavailable, a static aircraft with APP power is acceptable.

HLL-2120 1.5 180 R NS A 2 CH-53E

Goal. Conduct NS formation flight and navigation.

Requirements

Instructor: NSI required for initial flights, refreshers or when not HLL qualified

Discuss:

Aircraft lighting
Night tactical formation
Closure rate
Recovery from unusual attitudes
CRM
Comfort level
NS emergencies
Inadvertent IMC
Dead reckoning techniques
Low level hazards
N-PFPS Mission Planning
HNVS considerations

Introduce:

NS formation flight
NS tactical formation maneuvers
NS navigation to include GPS and HNVS checkpoint identification

Review: Combat Spread/Combat Cruise Formation principles

Performance Standards. Per ANTPP 3-22.3-CH53 and MAWTS-1 NVD Manual. Remain oriented IAW ASTACSOP Magellan criteria while navigating to a minimum of 6 checkpoints while using 1:250,000 and 1:50,000 scale maps. Minimum altitude 200 feet AGL. Conduct at least 1 full COMM and 1 no COMM lead change.

Prerequisites. FORM-2110 and SHLL-2102.

HLL-2220 1.5 180 NS A 1 CH-53E

Goal. Conduct single-ship confined area approaches, landings, and departures and introduce tactical approaches to confined areas/mountainous terrain utilizing NS, emphasizing low work.

Requirements

Instructor: NSI required for initial flights, refreshers or when not NS HLL qualified

Discuss:

CRM
Landing zone Lighting
Cockpit lighting
Low altitude emergencies
NS failures
Inadvertent IMC procedures
Landings with reduced visibility
Wave-offs
HNVS capabilities and limitations
Electro-Optic Tactical Decision Aid (EOTDA) data
Solar Lunar Almanac Program (SLAP)
Night fixation and scan techniques

Introduce:

NS CALs/MALs
NS low work

Review:

FAM/INST-2101
CAL-2210

Performance Standards. Same as CAL-2210.

Prerequisites. CAL-2210 and SHLL-2101.

Range Requirements. CAL/MAL site.

HLL-2221 1.5 180 R,M NS A 2 CH-53E

Goal. Conduct section confined area approaches, landings, and departures and introduce tactical approaches to confined areas/mountainous terrain utilizing NS.

Requirements

Instructor: NSI required for initial flights, refresher or when not HLL qualified

Discuss: Same as CAL-2211 and HLL-2220

Introduce:

Section takeoffs, approaches, landings, using NS
Capabilities and effects of all aircraft exterior lighting

Review: HLL-2120, CAL-2211, and HLL-2220

Performance Standards. Same as CAL-2211.

Prerequisites. CAL-2211, HLL-2120, HLL-2220

Range Requirements. CAL/MAL site

HLL-2320 1.5 180 NS A 1 CH-53E

Goal. Conduct single ship TERF maneuvers and navigation while using NS.

Requirement

Instructor: NSI required for initial flights or when not HLL qualified.

Discuss:

Same as TERF-2310.
TERF navigation considerations while using NS.
HNVS capabilities and limitations.
Cockpit lighting.
Low altitude emergencies.
NS failures.
Inadvertent IMC procedures.
Electro-Optic Tactical Decision Aid (EOTDA) data.
Solar Lunar Almanac Program (SLAP).
Night fixation and scan techniques.

Introduce: TERF navigation flight while using NS.

Review:

TERF-2310
HNVS operations

Performance Standards. Remain oriented IAW RW TACSOP Magellan criteria while navigating to a minimum of 6 checkpoints while using 1:250,000 and 1:50,000 scale maps at or below 200' AGL. To the maximum extent possible conduct TERF navigation for a minimum of 50 nm. Demonstrate proficiency with aircraft navigation systems.

Prerequisite. TERF-2310 and SHLL-2102.

Range Requirements. Approved TERF maneuver area/route.

HLL-2321 1.5 180 R,M NS A 2 CH-53E

Goal. Conduct section TERF maneuvers and navigation while utilizing NS.

Requirement

Instructor: NSI required for initial flights, refreshers or when not HLL qualified

Discuss: Same as TERF-2311 and HLL-2320

Introduce: Section TERF navigation while utilizing NS

Review: Same as TERF-2311 and HLL-2320.

Performance Standards. Same as HLL-2320.

Prerequisite. TERF-2311, HLL-2120, HLL-2320.

Range Requirements. Approved TERF maneuver area/route.

HLL-2920 2.0 365 R,M NS A 2 CH-53E

Goal. Conduct assault support tactical missions in a low threat environment at night.

Requirements

Instructor: NSI required for initial qualification, refresher or if PUI not proficient

Discuss:

Same as TAC-2910

NS planning, briefing, and execution considerations

Introduce: NS planning, briefing, and execution considerations

Review:

TAC-2910

HNVS and HUD operations

Performance Standards. Same as TAC-2910.

Prerequisite. HLL-2221 and 2222, HLL-2321, and TAC-2910 (AG-2810 if .50 cal to be employed)

Ordnance. 2 .50 cal (TG and .50 Cal rounds optional reference Chapter 2 of CH-53 T&R)

Range Requirements. Live fire AG(.50 cal) approved and laser safe range. CAL/MAL site. Approved TERF maneuver area/route

2.11.13 NS Low Light Level (LLL)

2.11.13.1 Purpose. To develop skill in the use of NS under light levels less than .0022 lux (LLL) as predicted by the Solar Lunar Almanac Prediction (SLAP) data and to qualify the PUI in NS LLL operations.

2.11.13.2 General

2.11.13.2.1 Aircrew not NSQ LLL require supervision of an NSI for all events flown with NS.

2.11.13.2.2 NS rules of conduct will be per the T&R Program Manual and this T&R; i.e. the PUI may begin the LLL syllabus when designated NSQ HLL. A PUI is NSQ LLL (qualified to transport troops in all light level conditions) at the completion of the following flights: LLL-2230, LLL-2231, LLL-2330, LLL-2331, and LLL-2930. Pilots shall fly the above listed flights and EXT-2430 under ambient light conditions of less than .0022 lux.

2.11.13.2.3 Successful completion of ACAD-2037-2041, ACPM 8200-8250, and LLL-2930 constitutes Night Systems Qualified (NSQ) LLL. A qualification letter signed by the Squadron Commanding Officer is required, stating the pilot is NSQ LLL to carry troops under LLL conditions. The original letter shall be placed in the pilot's NATOPS jacket, and a copy in the APR with a corresponding logbook entry.

2.11.13.3 Crew Requirements for all NS LLL flights. P/P/CC/AGO.

2.11.13.4 Academic Training. The MAWTS-1 CH-53 Course Catalog contains the required readings, lectures and chalk talks which shall be completed IAW the Low Light Level stage event descriptions.

2.11.13.5 Prerequisites. The following events/designations are prerequisites prior to the commencement of the Low Light Level stage:

Academic: N/A

Flight: NSQ-HLL

Designation/Qualification: H2P

LLL-2230 1.5 180 NS A 1 CH-53E

Goal. Conduct single-ship confined area approaches, landings, and departures and introduce tactical approaches to confined areas/mountainous terrain utilizing NS under LLL conditions.

Requirements

Instructor: NSI required for initial flights or when not LLL qualified

Discuss:

Same as CAL-2220
LLL planning considerations

Introduce: Same as CAL-2220 under LLL conditions

Performance Standards. Same as CAL-2220.

Prerequisites. NSQ HLL.

Range Requirements. CAL/MAL site

LLL-2231 1.5 180 R,M NS A 2 CH-53E

Goal. Conduct section confined area approaches, landings, and departures and introduce tactical approaches to confined areas/mountainous terrain utilizing NS under LLL conditions.

Requirements

Instructor: NSI required for initial flights, refreshers or when not LLL qualified

Discuss:

Same as CAL-2221
LLL planning considerations

Introduce: Same as CAL-2221 under LLL conditions

Performance Standards. Same as HLL-2221.

Prerequisites. LLL-2230.

Range Requirements. CAL/MAL site.

LLL-2330 1.5 180 NS A 1 CH-53E

Goal. Conduct single ship TERF maneuvers and navigation under LLL conditions.

Requirement

Instructor: NSI required for initial flights or when not LLL qualified

Discuss:

Same as HLL-2320
LLL planning considerations

Introduce:

Same as HLL-2320 under LLL conditions

Performance Standards. Same as HLL-2320.

Prerequisites. NSQ HLL.

Range Requirements. Approved TERF maneuver area/route.

LLL-2331 1.5 180 R,M NS A 2 CH-53E

Goal. Conduct section TERF maneuvers and navigation under LLL conditions.

Requirements

Instructor: NSI required for initial flights, refreshers or when not LLL qualified

Discuss:

Same as HLL-2321 and LLL-2330
LLL planning considerations

Introduce: Same as HLL-2321 under LLL conditions

Review: Same as TERF-2311 and HLL-2321

Performance Standards. Same as HLL-2320

Prerequisite. LLL-2330

Range Requirements. TERF maneuver area/route

LLL-2930 2.0 365 R,M NS A 2 CH-53E

Goal. Conduct assault support tactical missions in a medium threat environment during LLL conditions.

Requirements

Instructor: NSI required for initial flights, refreshers or when not LLL qualified

Discuss:

Same as TAC-2911 and TAC-2920
LLL planning considerations
Effects of ordnance delivery on NS

Review: TAC-2911 and TAC-2920

Performance Standards. Same as TAC-2911

Prerequisites. CAL-2231, TERF-2331, and TAC-2911 (AG-2810 if .50 cal to be employed)

Ordnance. 2 .50 cal (TG and .50 Cal rounds optional reference Chapter 2 of CH-53 T&R)

Range Requirements. Live fire AG(.50 cal) approved and laser safe range. CAL/MAL site. Approved TERF maneuver area/route

2.12 MISSION SKILL PHASE (3000)

2.12.1 Purpose. To introduce and develop proficiency in tactical planning, briefing and execution of a Marine Heavy Helicopter squadron's assigned Marine Corps Tasks. Mission Skills have been developed to ensure that squadrons are capable of performing the Marine Corps Tasks (MCTs) assigned to a Marine Heavy Helicopter Squadron. Core Skills are the enablers that allow crews to perform Mission Skills.

2.12.2 General

2.12.2.1 For initial, refresher, or when the aircrew under instruction are not proficient in a particular Mission Skill, training codes shall be given by an instructor pilot that is proficient in that Mission Skill code(s). Mission skill codes should be given to all those aircrew (Pilots, Crew Chief, AO) within the aircraft that meet the prerequisite. Additionally, for larger

flights, any flight lead, (SL,DL,AFL,AMC) that is proficient in that Mission Skill can give the Mission Skill code to all aircrew within the flight that meet the prerequisite.

2.12.2.2 It is the intent that all TACEX scenarios in the Core Skill and Core Plus Skill Phase be based on a minimum of one of the Mission Skills. If aircrew under instruction do not meet the prerequisite for the Mission Skill event, they will not log the Mission Skill event. However, the instructor of the Core Skill or Core Plus Skill TACEX will log both the Core Skill or Core Plus Skill event and the Mission Skill event (i.e: NSI logs a LLL-2930 and AT-3340. PUI in the LLL syllabus logs a LLL-2930). Once aircrew have been designated NSQ LLL, all subsequent TACEXs should be coded with the appropriate Core Skill or Core Plus Skill and Mission Skill event provided aircrew under instruction meet all core skill prerequisites. Aircrew that are not proficient in a Core Skill or Core Plus Skill event may update both the Core Skill or Core Plus Skill and the Mission Skill event on the same sortie.

2.12.2.3 Prior to the commencement of this phase, aircrew under instruction shall be NSQ-LLL and Aerial Gunnery Stage Complete.

2.12.2.4 The aircrew under instruction will assist in the mission analysis, planning, briefing, execution and debriefing of each flight. Aircrew shall use the ANTTP series and NATOPS as source documents for planning, briefing, execution and debriefing.

2.12.2.5 Multiple Mission Skill training events may be logged per sortie (e.g. EXP-3240, AT-3340, AD-3540) as long as the requirement(s) is(are) met for each code. Mission Skill phase training events are intended to be flown and logged in conjunction with other T&R syllabus events (e.g. for pilots: EXP-3240, AT-3340, AD-3540, LLL-2930, EXT-2430, EXT-2440, EXT-2441 and LLL-2331).

2.12.2.6 The PUI will log the TAC code and the instructor will log both the TAC code and the Mission Skill event(s) that applies. Initial TAC codes shall be accomplished as a section, subsequent evolutions (when logged in conjunction with a Mission Skill) may be done single ship, based on the tactical scenario.

2.12.2.7 Mission Skill events shall be flown with operational ASE, .50 cal (as required for the tactical scenario) installed at a minimum (rounds and expendables optional), whenever practical.

2.12.2.8 Initial attempts to complete Mission Skills should be made in the aircraft, subsequent attempts may be accomplished in the simulator.

2.12.2.9 As of the signing of this manual, the current HMH Core MCTs are as follows:

Aviation Operations from Expeditionary Shore-Based Sites (MCT 1.3.3.3.2) (EXP)

Combat Assault Transport (MCT 1.3.4.1) (AT)

Air Delivery (MCT 4.3.4) (AD)

Aviation Support of Tactical Recovery of Aircraft and Personnel (MCT 6.2.2.1) (TRAP)

Air Evacuation (MCT 6.2.2) (AE)

2.12.3 Crew Requirements. P/P/CC/AG

2.12.4 Academic Training

2.12.4.1 Purpose. Prior to commencement of each event within the Mission Skill Phase, the required academic syllabus shall be completed in accordance with this Manual and the MAWTS-1 CH-53 Course Catalog.

2.12.4.2 The Mission Skill academic/ground training shall be complete IAW the POI requirements and prerequisites. Upon completion, the PUI shall report to the PTO or designated representative(s), who will then manually update the training code in M-SHARP and log the academic/ground training event in section 3, Aircrew Ground School Training of the APR, using the format listed in Enclosure 1 of this document.

2.12.4.3 NIPR 2000-6000 classes are located at the MAWTS-1 NIPR website under ASD, CH-53, T&R:

<https://vcepub.tecom.usmc.mil/sites/msc/magtftc/mawts1/>

2.12.4.4 SIPR 2000-6000 classes are located at the MAWTS-1 SIPR website under ASD, CH-53, T&R:

<http://www.mawts1.usmc.smil.mil/>

2.12.5 Prerequisites. The following events/designations are prerequisites prior to the commencement of the Mission Skill Phase.

Academic: See event

Flight: AG-2840, External Stage Complete

Designation/Qualification: NSQ-LLL

2.12.6 Flight Events

EXP-3140	2.0	365	R,M	(N)	A/S	CH-53E/WST/APT TEN+
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Goal. Demonstrate the capability to operate from a shore-based site under a low to medium threat environment. Marine aviation units maintain the capability to operate from expeditionary shore-based sites (in line with unit/platform capabilities) to include Forward Operating Bases (FOBs), Expeditionary Airfields (EAFs), Forward Arming and Refueling Points (FARPs), austere forward operating sites, Tactical Landing Zones (TLZ), Helicopter Landing Zones (HLZs), etc. The Marine Air Traffic Control Mobile Team (MMT) can support operations at expeditionary shore-based sites by providing initial rapid response air traffic control (ATC), and command, control, and communications (C3). (JP 3-1, NDP 1, MCWP 3-2, MCWP 3-25.8)

Requirements

Instructor: NSI required when not NS qualified in light level event is conducted.

Discuss:

Same as 2920.

MMT operations.

EAF, FOB, FARP, LAAGER site operations.

Performance Standard. Plan, brief and execute a tactical mission to or from expeditionary shore-based (Airbase, EAF, FOB, COB, FARP, LAAGER site). Ensure aircrew properly plan for and demonstrate knowledge of the requirements of operating in an austere environment.

Prerequisites. 2930~LLL, GTR-2540, AG-2840, ACAD-3000-3001, ACPM 8300, 8310 and 8311

Ordnance. IAW Phase

Range Requirement. Live fire and expendable range as required

External Syllabus Support. ATC, DASC, ASLT and/or MMT for airspace control is preferred. AGS for expeditionary shore-based site setup preferred

AT-3240 2.0 365 R,M (N) A/S CH-53E/WST/APT TEN+

Goal. Demonstrate the capability to conduct assault transport operations in a low to medium threat environment. Aviation combat assault transport operations provides mobility to the MAGTF. It is used to deploy forces (air-landed or air-delivered) efficiently in offensive maneuver warfare, bypass obstacles, or quickly redeploy forces. Combat assault support allows the MAGTF Commander to build up his forces rapidly at a specific time and location, and allows him to apply and sustain combat power and strike the enemy where he is unprepared. This function comprises those actions required for the airlift of personnel, supplies and equipment into or within the battle area by helicopter, tiltrotor or fixed-wing aircraft. (JP 3-0, 4-0, MCWP 3-2, MAWTS-1).

Requirements

Instructor: NSI required when not NS qualified in light level event conducted.

Discuss: Same as 2920.

Performance Standard. Plan, brief and execute a tactical assault support mission (MARLOG, general support, NEO, resupply, insert, extract). If an L-Hour is utilized arrive in the LZ +/- 30 sec in the best position to support the ground combat element. Demonstrate a thorough understanding of objective area mechanics, command and control procedures, and fire support control measures.

Prerequisites. 2930~LLL, GTR-2540, AG-2840, ACAD-3002-3003, ACPM-8320

Ordinance. IAW Phase.

Range Requirement. Live fire and expendable range as required.

External Syllabus Support. Command and Control system if available. Escort and/or Command and Control aircraft are preferred, if available. Ground Combat Element preferred if available.

AD-3340 2.0 365 R,M (N) A/S CH-53E/WST/APT TEN+

Goal. Demonstrate the ability to conduct air delivery in a low to medium threat environment. Air delivery is in-flight transportation of equipment and supplies to remote areas or expeditionary sites [tactical landing zones, austere forward operating sites, Naval shipping, Forward Operating Bases (FOBs), Expeditionary Airfields (EAFs), Forward Arming and Refueling Points (FARPs), etc.]. Air delivery operations are performed by fixed-wing, tiltrotor or rotary-wing aircraft. Delivery can be accomplished with aircraft internal/external loads, or loads can be air dropped using specially rigged aerial delivery equipment and systems. Air drops are normally used when surface of helicopter transports cannot be used because of range, closed lines of communications, a lack of adequate airfields, a prohibitive ground tactical situation, high tonnage, or reduced response time. The Helicopter Support Team (HST) may be used during air delivery operations. Air delivery operations require detailed planning and integration at all levels and must support units in a rapidly changing

environment. (JP 1, 3-0, 4-0, MCWP 3-2, 3-11.4, 3-21.2, 4-1, 4-11, 4-11.3, NDP-4, NWP 4-01, NAVSUP PUB Series)

Requirement

Instructor: NSI required when not NS qualified in light level event is conducted.

Discuss:

Same as EXT-2430
Same as LLL-2930
Same as HIE-4110, 4140, or 4141 (as required)

Performance Standard. Plan, brief and execute a tactical aerial delivery mission (External operations, internal cargo operations, or air drop) in a low to medium threat environment. If an L-Hour is utilized arrive in the LZ +/- 30 sec.

Prerequisites. 2930~LLL, EXT-2430, GTR-2540, AG-2840, ACPM-8321-8326

Ordinance. IAW Phase

Range Requirement. Live fire range and approved drop zone as required

External Syllabus Support. HST, as required. Jump Master and ground safety personnel, as required

TRAP-3440 2.0 365 R,M (N) A/S CH-53E/WST/APT TEN+

Goal. Demonstrate the ability to conduct Tactical Recovery of Aircraft and Personnel (TRAP) in a low to medium threat environment. Tactical Recovery of Aircraft and Personnel (TRAP) is performed for the specific purpose of the recovery of personnel, equipment, and/or aircraft. TRAP is conducted to locate and extract distressed personnel and sensitive equipment from enemy controlled area during wartime or contingency operations to prevent capture. TRAP is performed by an assigned and briefed aircrew and is a subcomponent of combat search and rescue (CSAR) and/or joint combat search and rescue (JCSAR) missions, but is only executed once the location of survivors is confirmed. A TRAP mission may include personnel to conduct the search portion of CSAR or the over water portion of search and rescue missions. The composition of a tactical recovery mission may vary from a single aircraft and aircrew to an assault support mission package that consists of multiple fixed-wing and rotary-wing aircraft with an onboard compliment of security, ground search, and medical personnel. (JP 1, 3-0, 3-50.2, MCWP 2-6, 3-2, 3-11.4, 3-24, 3-25.4, NDP 1, NWP 3-05)

Requirements

Instructor: NSI required when not NS qualified in light level event is conducted.

Discuss:

TRAP template from AS TACSOP
ISR employment
Rescort considerations
Rescue Vehicle responsibilities
ISOPREP verification considerations
RMC command and control considerations
Survival Radio operation

Performance Standard. Plan, brief and execute a TRAP mission. Properly employ TRAP template. Effectively communicate with Isolated Personnel, Rescort, RMC and other supporting aircraft.

Prerequisites. 2930~LLL, EXT-2430, EXT-2441, GTR-2540, AR-2640, AG-2840, ACAD-3004, 3005, ACPM-8340

Ordnance. IAW Phase

Range Requirement. Live fire and expendable range as required

External Syllabus Support. Escort and/or Command and Control aircraft are preferred if available. Isolated personnel in the objective area is preferred. Use of survival radios is preferred. Ground combat element is preferred if available.

AE-3540 2.0 365 R,M (N) A/S CH-53/WST/APT TEN+

Goal. Demonstrate the ability to conduct an air evacuation operation in a low to medium threat environment. Air evacuation is the transportation of personnel and equipment from areas of operations to secure rear areas, to include casualty evacuations (CASEVAC), extraction of forces, or civilians. Transport helicopters, tiltrotor, and fixed-wing transport aircraft perform air evacuations. (JP 3-10.1, MCDP 1-0, MCWP 3-2, 3-11.4, 3-16, 3-24, 3-25, 3-27, 3-36)

Requirements

Instructor: NSI required when not NS qualified in light level event is conducted.

Discuss:

- Casualty priorities
- Medical facility levels
- Aircraft configuration considerations

Performance Standard. Plan, brief and execute a tactical air evacuation mission. If an L-Hour is utilized arrive in the LZ +/- 30 sec in a position to best support the ground combat element.

Prerequisites. 2930~LLL, GTR-2540, AG-2840, ACAD-3006-3008 and ACPM 8350-51

Academic training. ACAD-3002 and 3006

Ordnance. IAW Phase

Range Requirement. Live fire and expendable range as required

External Syllabus Support. Ground Combat Element and/or Logistics Combat Element is preferred if available

2.13 CORE PLUS SKILL PHASE (4000)

2.13.1 Purpose. To introduce and develop proficiency in the execution of the Core Plus Skills required as a pilot within a Marine Heavy Helicopter Squadron (HMH). Core Plus Skills have a low probability of execution or are theater specific and are not included in the unit readiness evaluation.

2.13.2 General

2.13.2.1 The following events within this phase require a Basic Instructor Pilot (BIP) for all initial/Refresher flights:

HIE-4110, 4140, 4141

CBRN-4600

TAC-4940 & 4942(if done during the day)

2.13.2.2 All Mission Plus Skill events shall follow the guideline of the Mission Skill section.

2.13.2.3 Stages. The following stages are included in the Mission Plus Skill Phase of training.

CORE PLUS SKILL PHASE	
PAR NO.	STAGE NAME
2.13.5	Helicopter Insertion and Extraction Techniques (HIE)
2.13.6	Externals (EXT)
2.13.7	Ground Threat Reaction (GTR)
2.13.8	Defensive Measures (DM)
2.13.9	Chemical, Biological, Radiation, Nuclear (CBRN)
2.13.10	Carrier Qualification (CQ)
2.13.11	Tactics & Mission Plus Skills (TAC)

2.13.2.4 Conditions. Within the stages all training codes are further broken down according to ambient conditions.

- (XX00) Sim
- (XX10) Daylight
- (XX20) High Light Level
- (XX30) Low Light Level
- (XX40) Can be done High or Low Light Level

2.13.3 Ground/Academic Training

2.13.3.1 Purpose. Within the Core Plus Skill Phase the required academic syllabus shall be completed in accordance with this Manual and the MAWTS-1 CH-53 Course Catalog.

2.13.3.2 The Core Plus Skill academic/ground training shall be complete IAW the POI requirements and prerequisites for the stage and IAW paragraph 206 of this manual. Upon completion, the PUI shall report to the PTO or designated representative(s), who will then manually update the training code in M-SHARP and log the academic/ground training event in section 3, Aircrew Ground School Training of the APR, using the format listed in Enclosure 1 of this document.

2.13.3.3 2000-6000 classes are located at the MAWTS-1 NIPR website under ASD, CH-53, T&R:

<https://vcepub.tecom.usmc.mil/sites/msc/magtftc/mawts1/>

2.13.3.4 SIPR 2000-6000 classes are located at the MAWTS-1 SIPR website under ASD, CH-53, T&R:

<http://www.mawts1.usmc.smil.mil/>

2.13.4 Prerequisites. The following events/designations are prerequisites prior to the commencement of the Core Plus Skill Phase.

Academic: See event

Flight: See event

Designation/Qualification: H2P

2.13.5 Helicopter Insertion & Extraction Techniques (HIE)

2.13.5.1 Purpose. To introduce HIE methods required in executing special operations.

2.13.5.2 General. The pilots shall conduct a brief with the supported unit.

2.13.5.3 Crew Requirements. P/P/CC/AO.

Performance Standards. Execute approach and hover within $\pm 5'$ of intended altitude and within 2 meters of intended spot.

Prerequisites. CAL-2210 for day. NSQ for appropriate light level

Range Requirements. Suitable CAL/MAL site

External Syllabus Support. HRST Master and ground safety personnel

HIE-4141 1.5 * (NS) A 1 CH-53E

Goal. Conduct tactical insertion via para ops.

Requirements

Discuss:

CRM
Safety precautions
Signals/communications with jump master
Training master procedures
Obstacle clearance
Emergency procedures to include NS emergencies

Introduce:

Techniques for inserting personnel by para ops
Signals/communications with jump master

Performance Standards. Fly within $\pm 50'$ of designated altitude and ± 5 kts of designated airspeed.

Prerequisites. CAL-2210 for day. NSQ for appropriate light level

Range Requirements. Approved drop zone

External Syllabus Support. Jump master and ground safety personnel

2.13.6 Terrain Flight External Loads (EXT)

2.13.6.1 Purpose. To develop skills necessary for operating with external loads in all ambient conditions in the terrain flight regime.

2.13.6.2 General

2.13.6.2.1 Review operational and safety considerations discussed in the appropriate NATOPS Flight Manual, ANTTTP series and MCRP 4-11.3E and Multi-Service Helicopter Sling Load Manual.

2.13.6.2.2 TERFI required for EXT-4412 initial, refresher or when not TERF qualified.

2.13.6.2.3 NSI required for EXT-4440 initial, refresher or when not NS qualified in light level event is conducted.

2.13.6.2.4 Crew Requirement. P/P/CC/AO.

2.13.6.3 Academic Training. The MAWTS-1 CH-53 Course Catalog contains the required readings, lectures and chalk talks which shall be completed IAW the External stage event descriptions.

2.13.6.4 The following events/designations are prerequisites prior to the commencement of the Terrain Flight External stage:

Academic: ACAD-2011, 2012, 2014, 2021, 4000

Flight: EXT-2400, 2210, 2310, 2410.

Designation/Qualification: H2P

SEXT-4412 1.5 365 R D S/A CH-53E/WST/APT/EAT

Goal. Conduct external flight in the TERF profile

Requirement

Instructor: TERFI required for all initial flights and refresher

Discuss: Same as EXT-2401 and EXT-2410 or EXT-2411

Introduce: TERF externals

Review:

Single and/or dual point procedures
TERF maneuvers

Performance Standards. Demonstrate a working knowledge of MSHSL Manual WRT basic equipment rigging procedures, load inspection, and airspeeds. Fly within 50' and 10 kts of briefed altitude and airspeed and deliver load within 5 meters of intended point of delivery while maintaining +/- 10 degrees of assigned heading. Maintain situational awareness with regards to load clearance and limited power considerations while conducting TERF maneuvers. Demonstrate the ability to plan and compute power requirements based on weight and power, OPCs, SPPCs (if required) and in zone power computations using actual ambient conditions. Minimum of 1 pickup and delivery required.

Prerequisite. CAL-2210, TERF-2310, and EXT-2410 or EXT-2411 (if done dual point), 2500

Range Requirements. Approved CAL/MAL site. Approved TERF maneuver area/route

External Syllabus Support. Initial events to be conducted in the aircraft. WST/APT and EAT if conducted in sim. HST, single or dual point load if conducted in the aircraft.

EXT-4440 1.5 365 R,M NS S/A CH-53E/WST/APT/EAT

Goal. Conduct external flight in the TERF profile utilizing NS.

Requirements

Instructor: NSI required for initial flights, refreshers or when not NS qualified in the light level event is conducted

Discuss:

Same as EXT-4412, EXT-2420 or EXT-2421
Terrain/obstacle clearance
Route planning considerations
Light level planning considerations

Introduce: TERF externals in the night environment

Review:

Single and/or dual point procedures
TERF maneuvers

Performance Standards. Same as EXT-4412

Prerequisite. 4412. If conducted under HLL conditions: TERF-2320, EXT-2420 (if single point), and EXT-2421 (if dual point)

If conducted under LLL conditions: NSQ-HLL, TERF-2330 and EXT-2430

Range Requirements. CAL/MAL site. TERF maneuver area/route

External Syllabus Support. Initial events to be conducted in the

aircraft. WST/APT and EAT if conducted in the sim. HST, single or dual point load if conducted in the aircraft.

2.13.7 Ground Threat Reaction (GTR)

2.13.7.1 Purpose. To introduce and develop proficiency in using ASE and tactics to defeat ground-based radar threats.

2.13.7.2 General. Pilots shall conduct this stage against an electromagnetic threat simulator. Understanding of the APR-39 and ALE-47 is essential in preparing aircrew prior to and executing the flight.

2.13.7.3 Crew Requirement. P/P/CC/AO.

2.13.7.4 Academic Training. The MAWTS-1 CH-53 Course Catalog contains the required readings, lectures and chalk talks which shall be completed IAW the Ground Threat Reaction stage event descriptions.

2.13.7.5 Prerequisites. The following events/designations are prerequisites prior to the commencement of the stage Ground Threat Reaction stage:

Academic: GTR program guide and ACAD-4000

Flight: TERF-2311

Designation/Qualification: TERF Qualified

GTR-4540	1.5	365	R,M	(NS)	A	2 CH-53E
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Goal. Conduct GTR while employing ASE against various ground-based radar threats.

Requirements. Operable APR-39

Instructor: DMI or WTI for initial flights, refreshers. NSI/DMI is required if not NS qualified in light level event is conducted

Discuss:

Operations of the ALE-47, APR-39, AAQ-24, AAR-47 Types of expendables

The strengths and weaknesses of each ASE system versus ground-to-air and air-to-air threats.

Current MDF and OFP

Backplate settings

CRM

Section tactics and tactical maneuvering against ground-based threat systems

Use of radar horizon, ground clutter, radar resolution cells, and radar masking techniques

Introduce:

Various threat signatures concentrating on threat recognition and detection

Surface fires evasive maneuvers coordinated with the dispensing of chaff.

Section maneuvering against radar guided threats on an EW range or with an emitter

Section threat avoidance, masking and the use of chaff and flares

Performance Standards. Effectively maneuver aircraft against various ground-based radar threats. Utilize standard terminology in inter- and intra-aircraft communications. Demonstrate working knowledge of ASE.

Prerequisite. TERF-2311, GTR-2500 ACAD-4000

Ordnance. 60 Chaff

Range Requirements: EW range or emitter with threat systems to include electromagnetic and ground based threat simulation. Emitter should include search, acquisition, and track capabilities. Expendables capable range as appropriate

External Syllabus Support. Emitter with various threat system simulation.

2.13.8 Defensive Measures (DM)

2.13.8.1 Purpose. To develop proficiency in evading enemy air threats incorporating ASE in a medium threat environment. Upon completion of this stage, the pilot will be able to effectively maneuver to evade, in a multi-plane flight, low altitude air-to-air threats.

2.13.8.2 General. Pilots shall conduct this stage against Fixed Wing (FW) and Rotary Wing (RW) threats. Aggressor aircraft shall simulate enemy aircraft capabilities to the max extent possible. PUI is DM qualified upon completion of DM-4520 and DM-4521.

2.13.8.3 Crew Requirements. P/P/CC/AO.

2.13.8.4 Academic Training. The MAWTS-1 CH-53 Course Catalog contains the required readings, lectures and chalk talks which shall be completed IAW the Defensive Measures stage event descriptions.

2.13.8.5 Prerequisites. The following events/designations are prerequisites prior to the commencement of the Defensive Measures stage:

Academic: DM program guide. ACAD-4000-4005

Flight: TERF-2311

Designation/Qualification: TERF Qualified

DM-4510 1.5 365 R,M D A 2 CH-53E

Goal. Conduct section DM against a rotary wing aggressor.

Requirements

Instructor: DMI required for initial flights, refreshers or when not DM qualified.

Discuss:

- CRM
- Standard terminology
- Five axioms of survival
- DM training rules
- Ps and EM
- DM game planning
- Friendly weapons employment
- ASE utilization
- Aircraft Categories
- Adversary aircraft parameters
- Adversary weapons envelopes
- Mutual support
- Section tactical maneuvers
- Pre and post merge maneuvers
- 1 circle vs 2 circle fight
- Free and engaged roles and responsibilities
- ACM against actual threats in comparison to DM training

Introduce:

Section tactical maneuvers in response to a threat helicopter
ACM

Performance Standards. Demonstrate understanding of friendly and enemy energy states. Effectively maneuver aircraft against various rotary wing threats. Utilize standard terminology in inter- and intra-aircraft communications. Demonstrate and correctly apply 5 axioms of DM. Demonstrate working knowledge of ASE.

Prerequisite. ACAD-4001-4005. TERF-2311 proficient

Ordnance. 60 flares

Range Requirements. Special use airspace. Expendable capable range. Approved TERF maneuver area

External Syllabus Support. RW aircraft to serve as aggressor

DM-4511 1.5 365 R,M D A 2 CH-53E

Goal. Conduct section DM against a fixed wing aggressor.

Requirements

Instructor: DMI required for initial flights, refreshers or when not DM qualified.

Discuss:

CRM
Standard terminology
Five axioms of survival
Ps and EM
DM game planning
Friendly weapons employment
ASE utilization
Aircraft Categories
Adversary aircraft parameters
Adversary weapons envelopes
Mutual support
Section tactical maneuvers
Pre and post merge maneuvers
1 circle vs 2 circle fight
Free and engaged roles and responsibilities
ACM against actual threats in comparison to DM training

Introduce:

Section tactical maneuvers in response to a fixed wing aircraft
ACM

Performance Standards. Demonstrate understanding of friendly and enemy energy states. Effectively maneuver aircraft against various fixed wing threats. Utilize standard terminology in inter- and intra-aircraft communications. Demonstrate and correctly apply 5 axioms of DM. Demonstrate working knowledge of ASE.

Prerequisites. ACAD-4001-4005. TERF-2311 proficient.

Ordnance. 60 flares.

Range Requirements. Special use airspace. Expendable capable range. Approved TERF maneuver area.

External Syllabus Support. FW aircraft to serve as an aggressor.

2.13.9 Chemical, Biological, Radiological and Nuclear (CBRN)

2.13.9.1 Purpose. To conduct flight operations while wearing NBC protective equipment.

2.13.9.2 General. For the safe execution of initial CBRN flights, one pilot and one air crewman shall remain unmasked.

2.13.9.3 Crew Requirement. P/P/CC if done in the aircraft.

2.13.9.4 Academic Training. The MAWTS-1 CH-53 Course Catalog contains the required readings, lectures and chalk talks which shall be completed IAW the Chemical, Biological, Radiological and Nuclear stage event descriptions.

2.13.9.5 Prerequisites. The following events/designations are prerequisites prior to the commencement of the Chemical, Biological, Radiological and Nuclear stage:

Academic:

Flight: FAM-2105

Designation/Qualification: H2P

SCBRN-4600 1.5 * (N) S/A 1 CH-53E/WST/APT TEN+

Goal. Conduct flight in a simulated CBRN environment.

Requirements

Instructor: NSI required is not NS qualified in light level event is conducted

Discuss:

CRM

Comfort level

Wearing of CBRN equipment in the aircraft

Distortion of vision

Communications

Proper use of CBRN defensive equipment

NS concerns with CBRN equipment

Introduce:

Taxi, low work, pattern work

Confined area landings

Communications

Performance Standards. Adequately taxi, hover, and fly while wearing CBRN gear. Communicate effectively while wearing CBRN gear.

Prerequisite. CAL-2105 for day, CAL-2220 for HLL, CAL-2230 for LLL

Range Requirements. CAL/MAL site

2.13.10 Carrier Qualification (CQ)

2.13.10.1 Purpose. To qualify pilots for day and NS shipboard operations. The term "carrier qualification" encompasses all shipboard landing operations.

2.13.10.2 General

2.13.10.2.1 Discuss and become familiar with all aspects of shipboard operations and CRM applicable to the Carrier Qualification stage as described in the appropriate NATOPS Flight Manual, NAVMC 3500.14, NWP-42, LHA/LHD NATOPS, and OPNAVINST 3710.7. Briefing should include patterns, altitudes, airspeeds and Helicopter director signals.

2.13.10.2.2 5 day and 5 night FCLPs shall be accomplished within 30 days prior to shipboard qualifications. Refer to CH-53E NATOPS, Chapter 8, Shipboard Procedures.

2.13.10.2.3 Initial day/night carrier qualification shall be made under ideal weather conditions to include a visible horizon.

2.13.10.2.4 Each initial or refresher instructional flight requires a minimum of 5 CQs; additional CQs as required to demonstrate proficiency.

2.13.10.2.5 At least 2 day shipboard landings must be made on the day of the night qualification. Initial Night Systems Carrier Qualification training shall be accomplished under High Light Level conditions. IAW the Aviation Program Manual, any requalification and proficiency training may be accomplished under any light level condition. CQ-2742 requires an NSI when not NS qualified in the light level event is conducted.

2.13.10.3 Crew Requirement. CQ-4711: P/P/CC/AO. CQ- 4743: P/P/CC/AO.

2.13.10.4 Academic Training. PUI should read and be familiar with topics contained in the CH-53 NATOPS, LHA/LHD NATOPS, and OPNAVINST 3710.7 regarding shipboard operations.

2.13.10.5 Prerequisites. The following events/designations are prerequisites prior to the commencement of the Carrier Qualification stage:
Academic: N/A

Flight: 5 day and 5 night FCLPs within 30 days prior to shipboard qualification. For night qualification, at least 2 day shipboard landings must be made on the day of the night qualification.

Designation/Qualification: H2P

CQ-4711 1.5 365 R D A 1 CH-53E

Goal. Introduce day CQs.

Requirements

Discuss:

- CRM
- Comfort level
- Feet wet/landing checklist
- Closure rate
- Wind envelopes
- Aircraft lighting procedures
- Deck markings
- LSE signals
- Voice procedures/Lost communication procedures
- Shipboard landing patterns
- Shipboard holding patterns
- Shipboard instrument patterns
- Shipboard emergencies
- Air space control in the shipboard environment

Introduce: Day CQ

Performance Standards. Same as FCLP-2710.

Prerequisites. FCLP-2710

External Syllabus Support. Helicopter capable ship

CQ-4743 1.5 365 R,M NS A 1 CH-53E

Goal. Conduct NS CQs.

Requirements. Initial CQ-4743 shall be conducted under HLL conditions.

Instructor: NSI required when not NS qualified in light level event is conducted.

Discuss:

- Same as FCLP-2742
- Scan techniques
- NS aircraft/deck lighting
- NS landing techniques
- NS emergencies

Introduce: NS CQs.

Performance Standards. Same as FCLP-2742.

Prerequisites. 2920~HLL, FCLP-2742 and CQ-4711

External Syllabus Support. NS compatible helicopter capable ship

2.13.11 Tactics (TAC)

2.13.11.1 Purpose. To conduct practical application exercises using skills developed throughout the syllabus. Pilots shall emphasize the integration of Marine aviation assets, threat and threat counter-tactics, and the C3 system. These exercises will include mission planning, briefing, and execution of an assault support mission in a simulated medium threat environment. The total number of aircraft, as specified, may be a dissimilar mix of aviation assets.

2.13.11.2 General. Pilots should use the ANTPP 3-22.3-CH53 and the ASTACSOP as a source document for planning. Pilots may conduct these flights in high to low threat level conditions, and/or at night if the participating pilots have completed the prerequisites and NSQ designation.

2.13.11.3 Crew Requirements. P/P/CC/AO.

2.13.11.4 Academic Training. The MAWTS-1 CH-53 Course Catalog contains the required readings, lectures and chalk talks which shall be completed in accordance with the Core Plus stage event descriptions.

2.13.11.5 Prerequisites. The following events/designations are prerequisites prior to the commencement of the Core Plus Tactics stage:

Academic: N/A

Flight: GTR-2540, AG-2840

Designation/Qualification: H2P

TAC-4940 2.0 365 R,M (NS) A 3+ ACFT

Goal. Conduct division tactics in a low-to-medium threat environment.

Requirements

Instructor: NSI required when not NS qualified in the light level event is conducted

Discuss:

- Same as TAC-2911, 2920, and 2930
- Division tactics
- Objective area analysis
- Threat analysis and counter-tactics
- Use of escort assets emphasizing responsibilities of air mission commander, assault flight leader, and escort flight leader

Introduce:

Division tactics

Use escort assets emphasizing responsibilities of the air mission commander, assault flight leader, and escort flight leader

Performance Standards. Plan and brief a tactical mission IAW AS TACSOP and ANTPP 3-22.3-CH53. Remain oriented IAW AS TACSOP Magellan criteria while navigating to a minimum of 6 checkpoints while using 1:250,000 and 1:50,000 scale maps. To the maximum extent possible TERF navigation should be conducted for a minimum of 50 nm. Demonstrate proficiency with aircraft navigation systems. Arrive in LZ within \pm 30 sec of L-Hour and within 2 rotors of prebriefed landing point.

Prerequisites. 2920~HLL, 2930~LLL, TAC-2911, GTR-2540, AG-2840

Ordnance. Two .50 cal (TG and .50 Cal rounds optional reference Chapter 2 of CH-53 T&R)

Range Requirements. Live fire AG range (.50 cal). CAL/MAL site. Approved TERF maneuver area/route

External Syllabus Support. Assault support escort aircraft if available

TAC-4941 2.0 365 R,M NS A 2 CH-53E

Goal. Develop tactical flight proficiency in urban terrain operations at night.

Requirements

Instructor: NSI required when not NS qualified in light level event is conducted.

Discuss:

Effects of ambient lighting on NS in an urban area
Urban navigation
Targeting and fire support coordination in an urban area

Introduce:

Effects of ambient lighting on NS in an urban area
Urban navigation
Targeting and fire support coordination in an urban area

Performance Standards. Plan and brief a tactical mission IAW ASTACSOP and ANTPP 3-22.3-CH53. Remain oriented IAW ASTACSOP Magellan criteria while navigating using appropriate scale maps. Demonstrate proficiency with aircraft navigation systems.

Prerequisites. 2920~HLL, 2930~LLL, TAC-2911, ACAD-4007, GTR-2540, AG-2840

Range Requirements. CAL/MAL site in urban environment

External Syllabus Support. Assault support escort aircraft if available

TAC-4942 4.0 365 R,M (NS) A 2 CH-53E

Goal. Conduct a long range mission in a low-to-medium threat environment utilizing HAAR, TFBDS, and/or FARP/RGR.

Requirements

Instructor: NSI required when not NS qualified in light level event is conducted

Discuss:

Same as TAC-2911 and TAC-2930
Refueling considerations
Detailed fuel planning
Escort/fire support coordination
Utilization of TBFDS, FARP/RGR considerations
Multiple tanker/receiver operations

Introduce:

Detailed fuel planning
Utilization of TBFDS, FARP/RGR considerations
Multiple tanker/receiver operations if available

Performance Standards. Plan and brief a tactical mission IAW AS TACSOP and ANTTP 3-22.3-CH53. Remain oriented IAW RW TACSOP Magellan criteria while navigating while using 1:250,000 and 1:50,000 scale maps. Utilize fuel from external source (TBFDS may be used). Demonstrate proficiency with aircraft navigation systems. Arrive in LZ within + 30 sec of L-Hour and within 2 rotors of prebriefed landing point.

Prerequisite. ACAD-4006, 2920~HLL, 2930~LLL, GTR-2540, AG-2840

Ordnance. Two .50 cal (TG and .50 Cal rounds optional)

Range Requirements. Live fire AG(.50 cal) approved and laser safe range. CAL/MAL site. Approved TERF maneuver area/route. Special use airspace for AR

External Syllabus Support. Assault support escort aircraft if available. KC-130 Tanker. AGS as required

2.14 MISSION PLUS SKILL PHASE

2.14.1 Purpose. To plan, brief, and execute Mission Plus events in a low to medium threat environment.

2.14.2 General

2.14.2.1 For initial, refresher, or when the aircrew under instruction are not proficient in a particular Mission Plus Skill, training codes shall be given by an instructor pilot that is proficient in that Mission Plus Skill. Mission Plus Skill events should be given to all those aircrew (Pilots, Crew Chief, AO) within the aircraft that meet the prerequisite. Additionally, for larger flights, any flight lead, (SL,DL,AFL,AMC) that is proficient in that Mission Plus Skill can give the Mission Plus Skill code to all aircrew within the flight that meet the prerequisite.

2.14.2.2 It is the intent that all TACEX scenarios in the Mission Skill and Mission Plus Skill Phase be based on a minimum of one of the Mission Skills. If aircrew under instruction do not meet the prerequisite for the Mission Skill event, they will not log the Mission Skill event. However, the instructor of the Core Skill or Core Plus Skill TACEX will log both the Core Skill or Core Plus Skill event and the Mission Skill event (EX: NSI logs a LLL-2930, AT-3340, and RAID-4980). The PUI in the LLL syllabus logs a LLL-2930). Once aircrew have been designated NSQ-LLL, all subsequent TACEXs should be coded with the appropriate Core Skill or Core Plus Skill and Mission Skill code or Mission Plus Skill. Aircrew that are not proficient in a Core Skill or Core Plus Skill event may update both the Core Skill or Core Plus Skill and the Mission Skill or Mission Plus Skill event on the same sortie.

2.14.2.3 Prior to the commencement of this phase, aircrew under instruction shall be NSQ-LLL.

2.14.2.4 The aircrew under instruction will assist in the mission analysis, planning, briefing, execution and debriefing of each flight. Aircrew shall use the ANTTP series and NATOPS as source documents for planning, briefing, execution and debriefing.

2.14.2.5 Multiple Mission Skill and Mission Plus Skill training events may be logged per sortie (e.g. EXP-3240, AT-3340, AD-3540, RAID-4980, SEA-4982) as long as the requirement(s) is met for each event. Mission and Mission Plus training events are intended to be flown and logged in conjunction with other T&R syllabus events (e.g. for pilots: EXP-3240, AT-3340, AD-3540, RAID-4980, ADGR-4981, LLL-2930, EXT-2430, EXT-2440, EXT-2441 and LLL-2331).

2.14.2.6 The PUI will log the TAC code and the instructor will log both the TAC code and the Mission Skill and/or Mission Plus Skill event(s) that applies. Initial TAC codes shall be accomplished as a section, subsequent evolutions (when logged in conjunction with a Mission Skill or Mission Plus Skill) may be done single ship, based on the tactical scenario.

2.14.2.7 Mission Plus Skill events shall be flown with operational ASE, .50 cal (as required for the tactical scenario) installed at a minimum (rounds and expendables optional), whenever practical.

2.14.2.8 Initial attempts to complete Mission Skills and Mission Plus Skills should be made in the aircraft, subsequent attempts may be accomplished in the simulator.

2.14.2.9 As of the signing of this manual, the current HMH Core MCTs are as follows:

MCT 1.3.4.1.1 Conduct Airborne Rapid Insertion/Extraction (RAID)

MCT 1.3.4.2.1 Provide Aviation-Delivered Ground Refueling (ADGR)

MCT 1.3.3.3.1 Aviation Operations from Expeditionary Sea-Based Sites (SEA)

2.14.3 Crew Requirements. P/P/CC/AG.

2.14.4 Academic Training

2.14.4.1 Prior to commencement of each event within the Mission Plus Skill Phase, the required academic syllabus shall be completed in accordance with this Manual and the MAWTS-1 CH-53 Course Catalog.

2.14.4.2 The Mission Plus Skill academic/ground training shall be completed IAW the POI requirements and prerequisites. Upon completion, the PUI shall report to the PTO or designated representative(s), who will then manually update the training code in M-SHARP and log the academic/ground training event in section 3, Aircrew Ground School Training of the APR, using the format listed in Enclosure 1 of this document.

2.14.5 Prerequisites. The following events/designations are prerequisites prior to the commencement of the Core Plus Tactics stage:

Academic: See event description

Flight: TAC-2930, GTR-2540, AG-2840

Designation/Qualification: NSQ-LLL

RIE-4980 2.0 365 R,M (N) A/S 1+ CH-53/WST/APT TEN+

Goal. Demonstrate the ability to conduct tactical airborne rapid insertion/extraction operations in a low to medium threat environment.

Helicopter Rope Suspension Techniques (HRST) provides Marines with the ability to conduct insertions and extractions where landings are impractical. Airborne rapid insertion/extraction includes methods such as rappelling, fast rope, special patrol insertion and extractions, etc. (MCWP 3-2, 3-11.4, 3-24, MCRP 3-11.4A)

Requirements. Conduct a rapid insertion/extraction operation utilizing fast rope, rappelling, paraops, helocast, or special insertion and extraction techniques.

Instructor: NSI required when not NS qualified in the light level event is conducted.

Discuss: Same as TAC-2930

Performance Standard. Plan, brief and execute a tactical airborne rapid insertion/extraction mission. If a L-Hour is utilized arrive in the LZ +/- 30 sec in the best position to support the ground combat element. Execute an approach and hover within +/- 5' of intended altitude and within 10' of intended spot and/or fly with +/- 50' of designated altitude and +/- 5 kts of designated airspeed.

Prerequisite. 2930~LLL, GTR-2540, AG-2840, ACAD-4008-4010. Proficiency in HIE-4110 if helocast is utilized, HIE-4140 if SPIE, fast rope or rappelling is utilized, or HIE-4141 if paraops are utilized.

Ordnance. Two .50 cal (TG and rounds per weapon are optional)

Range Requirement. Suitable CAL/MAL site

External Syllabus Support. HRST Master and ground safety personnel, if applicable

ADGR-4981 2.0 365 R,M (N) A 1+ CH-53E

Goal. Demonstrate the ability to provide aviation-delivered ground refueling to combat aircraft or tactical vehicles in a low to medium threat environment. Aviation-delivered ground refueling is a method of providing fuel to aircraft and tactical ground vehicles (TGV) utilizing CH-53 aircraft in austere locations, where no other source of fuel is readily available. This method of refueling permits operation of fixed- and rotary-wing aircraft and TGV without the requirement to commit the significant logistical assets necessary to operate helicopter expeditionary refueling systems (HERS), or tactical airfield fuel dispensing systems (TAFDS). ADGR can also quickly resupply established forward-arming and refueling (FARP) sites and forward-operating bases (FOB). The capability of the CH-53 to operate as a tactical ground refueler enhances MAGTF operations. (ANTTP 3-22.3-KC-130)

Requirements

Instructor: NSI required when not NS qualified in the light level event is conducted

Discuss:

- TBFDS capabilities and considerations
- LZ Markings
- Arm/De-Arm procedures and ordnance considerations
- Site security
- Aircraft sequencing and airspace considerations

Performance Standard. Plan, brief and execute a tactical TBFDS refueling evolution. Calculate accurate fuel requirements; ensure aircraft integration and FARP site security.

Prerequisite. 2930-LLL, GTR-2540, AG-2840, ACAD-4011

Ordnance. Two .50 cal (TG and 500 rounds per weapon are optional)

Range Requirement. Live fire range as required

External Syllabus Support. TBFDS system, escort, MMT and/or Command and Control aircraft are optional

SEA-4982 2.0 365 R,M (N) A/S 1+ CH-53/WST/APT TEN+

Goal. Demonstrate the capability to operate from Sea based sites. Marine aviation units maintain the capability to operate from Naval shipping (amphibious platforms, carriers, etc.) in line with platform and unit capabilities. (JP 3-0, MCWP 3-2)

Requirement

Instructor: NSI required when not NS qualified in the light level event is conducted.

Discuss:

- Same as CQ-2743
- Deck cycles
- Combat Cargo/troop loading considerations while in shipboard environments
- Airspace considerations
- IFF procedures

Performance Standard. Plan, brief and execute a tactical mission to or from sea based site or FCLP pad. Ensure aircrew properly plans for and demonstrate knowledge of the particulars of operating in the shipboard environment.

Prerequisite. 2930-LLL, 4711, 4743~HLL, GTR-2540, AG-2840 and appropriate CQ/FCLP event.

Ordnance. 2 .50 cal (TG and 500 rounds per weapon are optional).

Range Requirement. Live fire range as required.

External Syllabus Support. Ship or FCLP pad as required.

2.15 INSTRUCTOR TRAINING PHASE (5000)

2.15.1 Purpose. This phase contains instructor workup and evaluations certification syllabus events.

2.15.2 General. Upon the successful completion of the check flight, the instructor will be designated in writing by the squadron commanding officer. Copies of the designation or qualification shall be placed in the APR and NATOPS.

2.15.3 Academic/Ground Training

2.15.3.1 Purpose. Within the Instructor Training Phase the required academic syllabus shall be completed in accordance with this Manual and the MAWTS-1 CH-53 Course Catalog.

2.15.3.2 The Instructor Training Phase academic/ground training shall be complete IAW the POI requirements and prerequisites for the stage and IAW paragraph 206 of this manual. Upon completion, the PUI shall report to the PTO or designated representative(s), who will then manually update the

training code in MSHARP and log the academic/ground training event in section 3, Aircrew Ground School Training of the APR, using the format listed in Enclosure 1 of this document.

2.15.3.3 2000-6000 classes are located at the MAWTS-1 NIPR website under ASD, CH-53, T&R:

<https://vcepub.tecom.usmc.mil/sites/msc/magtftc/mawts1/>

2.15.3.4 SIPR 2000-6000 classes are located at the MAWTS-1 SIPR website under ASD, CH-53, T&R:

<http://www.mawts1.usmc.smil.mil/>

2.15.4 Prerequisites. The following events/designations are prerequisites prior to the commencement of the Instructor Training Phase.

Academic: See event

Flight: Core and Mission Skill complete

Designation/Qualification: NSQ-LLL

2.15.5 Basic Instructor Pilot (BIP)

2.15.5.1 Purpose. To develop qualified instructor pilots for single ship or wingman events in the day familiarization, instrument, CAL, or external syllabus.

2.15.5.2 General

2.15.5.2.1 In order to begin the BIP syllabus, a pilot must be recommended by the Standardization Board (in conjunction with a recommendation for HAC), have a minimum of 450 hours, be core and mission skill complete, and demonstrate the maturity, judgment, and discipline required of a pilot serving in an instructor role.

2.15.5.2.2 The BIP syllabus shall be completed in conjunction with the HAC syllabus and is a prerequisite to HAC-6122.

2.15.5.2.3 All BIP instructional flights shall be conducted by a section leader or higher. Upon successful completion of HAC-6122, the Squadron commanding officer will designate the PUI a BIP in conjunction with the HAC designation. A designation letter signed by the Squadron commanding officer stating that the pilot is a qualified BIP shall be placed in the pilot's NATOPS jacket and a copy in the pilot's APR with a corresponding logbook entry.

2.15.5.2.4 Previously designated BIPs may attain re-designation by the Squadron commanding officer, at his/her discretion, upon successful completion of HAC-6122/NATOPS-6100 (NATOPS check specifying they are aircraft commanders and BIPs). NATOPS-6100 should emphasize instructional techniques for all HACs and above.

2.15.5.2.5 If a designated BIP loses proficiency in any of the prerequisite events listed in paragraph (e), he/she may not instruct in that event until he/she regains proficiency.

2.15.5.2.6 BIP events may be combined with each other or another training event.

2.15.5.3 Crew Requirements

SBIP-5100 P/CP

SBIP-5101 P/CP

BIP-5110 P/P/CC/AO (as required)

2.15.5.4 Academic Training. The MAWTS-1 CH-53 Course Catalog contains the required readings, lectures and chalk talks which shall be completed prior to starting the Basic Instructor Pilot stage.

2.15.5.5 Prerequisites. The following events/designations are prerequisites prior to the commencement of the Basic Instructor Pilot stage:

Academic: N/A

Flight: Core and Mission Skill complete

Designation/Qualification: NSQ-LLL

SBIP-5100 1.5 * D S/A 1 CH-53E/WST/APT

Goal. Introduce general instructional techniques for FAM, CAL, and INST events.

Requirements

Discuss:

Instructor role during initial syllabus events.
Syllabus event performance standards.
Role of instructor when a student does not meet the performance standard
Instructor ATF writing responsibilities.
Proper ATF writing.
Instructor SA vs student SA
Instructor comfort level and when to intervene during student performed maneuvers.
CRM during T&R syllabus events.
Effective instruction vs non effective instruction
Preflight and postflight pilot briefings.
Cockpit procedures during initial syllabus events.
Breaking down the mechanics of an approach as an instructor.
Simulated emergency procedures during initial events.
Actual emergency procedures during initial syllabus events.
IFR planning.
Local course rules.
Squadron, Group, Wing, and/or MEU SOPs.
Techniques of instruction.

Introduce:

Techniques of instruction during FAM, CAL and INST maneuvers.
Breaking down the mechanics of an approach as an instructor.
Instrument procedures with emphasis on instruction.
Attitude instrument flight.
Recovery from unusual attitudes as an instructor.
Techniques of instruction during Precision and non-precision approaches.

Performance Standards. BIP(UI) will conform to instructional techniques set forth by the squadron Standardization Board and/or applicable SOPs/directives. BIP(UI) will be prepared to discuss the seven critical skills of CRM as applicable to each event. BIP(UI) shall fly pattern within 50' and 10 kts of briefed altitude/airspeed. Land within 2 rotors of designated landing point. BIP(UI) shall conduct one of each familiarization maneuver with emphasis on instructional techniques. Conduct a minimum of 5 landings which shall consist of a precision approach, a normal approach, a hover and a no hover landing, and a max gross weight takeoff and landing. Simulated high GW takeoffs and landings power shall be limited to 5 percent above 10' hover power. Maintain safe obstacle clearance. All of the above

should be done while emphasizing instructional techniques during the conduct of each maneuver.

Prerequisites. NSQ-LLL, Core/Mission Skill complete

External Syllabus Support. WST/APT if conducted in the sim

SBIP-5101 1.5 * D S/A 1 CH-53E/WST/APT

Goal. Introduce general instructional techniques for EXT and CQ events.

Requirements

Discuss:

- CRM during initial EXT and CQ events.
- Comfort level during externals.
- Instructor ATF writing responsibilities.
- Proper ATF writing.
- Instructor SA vs student SA
- Single and dual point operations with emphasis on instructional techniques.
- Preflight load computations, SPPC/OPC and in-zone power computations.
- Simulated emergency procedures during EXT and CQ events.
- Instructor comfort level and when to intervene during student performed maneuvers.
- Actual emergency procedures during EXT and CQ events
- Aircraft EXT and CQ limitations.
- Feet wet/landing checklist.
- Closure rate with the ship.
- Wind envelopes.
- Aircraft lighting procedures.
- Deck markings.
- LSE signals.
- Voice procedures/Lost communication procedures.
- Shipboard landing patterns.
- Shipboard holding patterns.
- Shipboard instrument patterns.
- Shipboard emergencies.
- Air space control in the shipboard environment.
- Techniques of instruction WRT to movement around the ship.

Introduce:

- Single and dual point operations with emphasis on instructional techniques.
- Breaking down the mechanics of a precision hover, pick-up and delivery of an external load.
- Day CQ with emphasis on instructional techniques.

Review: Any previously introduced maneuvers as necessary.

Performance Standards. BIP(UI) will conform to instructional techniques set forth by the squadron Standardization Board and/or applicable SOPs/directives. BIP(UI) will be prepared to discuss the seven critical skills of CRM as applicable to each event. For external operations, BIP(UI) shall execute five pickups and deliveries or demonstrate proficiency as defined by the ability to fly within 50' and 10 kts of briefed altitude and airspeed, and deliver load within 5 meters of intended point of delivery and +/- 10 degrees of assigned heading while emphasizing instructional techniques. For shipboard

flight. Emphasis on all flights is on training objectives, method of instruction, and student problem areas. At the completion of this stage of training, the Pilot will be designated an Instructor Pilot (IP) and is qualified to instruct all day and night unaided Core Skill Introduction events.

2.15.8.4 Prerequisites. The following events/designations are prerequisites prior to the commencement of the FRS instructor stage:

Academic: N/A

Flight: N/A

Designation/Qualification: Section Lead, TERFI.

FRSIE-5500 1.5 * D A 1 CH-53E

Goal. Introduce the IP brief and demonstrate standardized procedures for flight planning, preflight, and all day FAM stage maneuvers.

Requirements

Discuss:

CRM
Preflight and postflight pilot briefings
Cockpit procedures
Techniques of instruction
Local course rules

Performance Standards. Per CH-53E NATOPS and FRS Standardization Manual. Instructors shall emphasize the ability to teach using all appropriate references and SOPs, evaluate problems, and apply corrective instruction.

Prerequisite: TERF-5202 and SL-6203.

SFRSIE-5502 2.0 * (N) S/A 1 CH-53E/WST/APT

Goal. Review basic instrument maneuvers, IFR planning, filing, and airway procedures.

Requirements

Discuss:

CRM.
IFR planning.
Filing a DD-175.
Airway procedures.
Precision/non-precision approaches.

Review:

Instrument checklist.
Attitude instrument flight.
Standard rate climbing and descending turns.
Recovery from unusual attitudes.
Vertical S-1 pattern.
Oscar pattern.
Precision and non-precision approaches.

Performance Standards. Per CH-53E NATOPS and FRS Standardization Manual.

Prerequisite: TERF-5202 and SL-6203

FRSIE-5503 1.5 * D A 1 CH-53E

Goal. Review CAL instruction techniques.

Requirements

Discuss:

CRM
Comfort level

Review: All CAL stage maneuvers

Performance Standards. Per CH-53E NATOPS and FRS Standardization Manual.

Range Requirements. CAL/MAL site.

Prerequisites. FRSI-5500

FRSIE-5504 1.5 * D A 2 CH-53E

Goal. Review formation instructional techniques and formation stage maneuvers emphasizing closure rates and radius of turn.

Requirements

Discuss:

Loss of visual contact
Parade position
Cruise turn principles
Section CALs principles

Performance Standards. Per CH-53E NATOPS and FRS Standardization Manual.

Prerequisites. FRSI-5500

FRSIE-5505 1.5 * D A 1 CH-53E

Goal. Review external operation instructional techniques.

Requirements

Discuss:

CRM
Single and dual point operations
Load computations, preflight and in-flight
Emergency procedures
Aircraft limitations

Review: Single and dual point operations.

Performance Standards. Per CH-53E NATOPS and FRS Standardization Manual. Execute five pickups and deliveries or demonstrate proficiency as defined by the ability to fly within 50' and 10 kts of briefed altitude and airspeed, and deliver load within 5 meters of intended point of delivery and +/- 10 degrees of assigned heading.

Range Requirements. Approved CAL/MAL site

External Syllabus Support. HST, single point loads

Prerequisites. FRSI-5500

FRSIE-5506 1.5 * R (N) A 1 CH-53E A

Goal. Flight instructor standardization check.

Requirements

Discuss:

CRM
CH-53E limitations
Course Rules

FRS Standardization Manual
Instruction techniques

Performance Standards. Per CH-53E NATOPS and FRS Standardization Manual.

Prerequisites. FRSI-5500 through FRSI-5505

2.15.9 Advanced Instructor Events

2.15.9.1 There are 4 graduate level courses that qualify instructors for specific portions of the T&R syllabus. These courses are as follows:

NS Familiarization Instructor (NSFI).

Defensive Measures Instructor (DMI).

NS Instructor (NSI).

Weapons and Tactics Instructor (WTI).

2.15.9.2 The MAWTS-1 Course Catalog contains the POIs and the appropriate training codes, in addition to the POIs and training codes for TERFI and ARI. Additionally, the WTI course catalog contains the POI for a WTI. The community considers each particular stage of the T&R syllabus sufficient to maintain proficiency as an instructor.

NSFI-5600-5603: Refer to MAWTS-1 CH-53 Course Catalog.

DMI-5700-5702: Refer to MAWTS-1 CH-53 Course Catalog.

NSI-5800-5805: Refer to MAWTS-1 CH-53 Course Catalog.

WTI: Refer to MAWTS-1 WTI Course Catalog.

2.15.10 Flight Leadership Standardization Evaluator (FLSE)

2.15.10.1 Purpose. To designate qualified pilots as Flight Leadership Standardization Evaluators (FLSE) in accordance with the T&R Program Manual.

2.15.10.2 The MAWTS-1 FLSE Program Guide and individual T/M/S Course Catalogs contain the POI and the appropriate training codes in the FLSE syllabus.

2.15.11 Contract Instructor Training Stage (CIUT)

2.15.11.1 Purpose. To develop qualified contract instructor (CI) pilots for core skill introduction (1000 phase) day events using a standardized flight training program.

2.15.11.2 General. The below requirements shall not supersede any current contracts or legal agreements. However, this document shall be adhered to for the development and establishment of new contracts as of the signing of this manual.

2.15.11.2.1 CIs shall have at least 1000 hours total pilot time and, at a minimum, hold prior designation of aircraft commander in an H-53.

2.15.11.2.2 1000-level S, S/A, or A/S flights may be flown under the instruction of a designated CI.

2.15.11.2.3 5000-level CIUT flights shall be flown in the simulator under the instruction of a designated Standardization Pilot.

2.15.11.2.4 CIUTs should fly in the right seat.

2.15.11.2.5 Every event in the CIUT training syllabus shall be completed prior to designation as a CI.

2.15.11.2.6 While it is preferred that all CIs be qualified CRMIs, at a minimum all CIUTs shall be designated CRM(F) prior to designation as a CI.

2.15.11.2.7 All CIUTs shall complete an Instrument Evaluation, to include all prerequisites in accordance with OPNAV 3710.7 and the NATOPS Instrument POI, prior to designation as a CI.

2.15.11.2.8 Annual requirements:

2.15.11.2.8.1 CRM ground class.

2.15.11.2.8.2 Instrument minimums and requirements (all requirements able to be met in simulator) in accordance with OPNAV 3710.7 and the NATOPS Instrument POI, to include an instrument evaluation given by a uniformed NATOPS Instrument Evaluator or Instructor.

2.15.11.2.8.3 Open and closed book NATOPS tests.

2.15.11.2.8.4 Annual NATOPS evaluation given by a uniformed NATOPS Evaluator or Assistant NATOPS Instructor in accordance with the NATOPS POI.

2.15.11.2.9 All CIUT flights shall emphasize instructional techniques, briefing and debriefing, training objectives, methods of instruction, current TTPs and common student errors. The CIUT will be capable of demonstrating all training objectives listed in the T&R for the applicable syllabus flight.

2.15.11.2.10 At the completion of this stage of training, the CIUT will be designated a Contract Instructor Pilot (CI) by the MATSS OIC and is qualified to instruct day Core Skill Introduction (1000) level simulator events only.

2.15.11.2.11 All initial 2000-6000 level simulated events require a uniformed IP.

2.15.11.3 Crew Requirement. IP/CIUT.

2.15.11.4 Academic/Ground Training. CBT 0001-0024, ACAD 0100-0109.

CIUT-5900 1.0 * CIUTE D S WST/APT

Goal. Introduce normal cockpit procedures, start procedures, and shutdown procedures.

Requirement

Introduce:

- Pre-start checklist
- Post APP start checklist
- Starting engines/rotors checklist
- Pre-taxi checklist
- Cargo ramp and door procedures checklist
- Operation of engine trim switches
- Cruise checklist
- Fuel transfer checklist
- Monitoring of instruments (fuel gauges)
- Operation of the ICS and radios
- Fuel management
- Pre-landing checklist
- Shutdown checklist

Performance Standards. Per CH-53 NATOPS and Standardization Manual.

Prerequisites. CBT and ACAD complete

External Syllabus Support. WST/APT

CIUT-5901 1.0 * CIUTE D S WST/APT

Goal. Introduce aircraft emergencies, normal ground and flight procedures. Review start/shutdown procedures.

Requirement

Introduce:

Aircrew brief.
External fuel tank jettison.
Cargo ramp/door operation.
Engine start emergencies.
Vertical takeoff to a hover.
Transition to forward flight.
Normal approaches to a hover and normal vertical landing. Engine compartment fire on the ground.
Single and/or dual engine compartment fires in-flight.
Simultaneous engine compartment fires in-flight.
APP or cabin heater fire.
Fuselage fire.
Fuel dump.
Practice:
Start/shutdown procedures.

Performance Standards. Per CH-53 NATOPS and Standardization Manual.

Prerequisites. CBT-0018-CIUTE

External Syllabus Support. WST/APT

CIUT-5902 1.0 * CIUTE D S WST/APT

Goal. Introduce engine malfunctions. Practice cockpit and flight procedures, start/shutdown checklist and all previously introduced emergencies.

Requirement

Introduce:

Blade/pylon fold system switchology
CH-53 NATOPS brief/CH-53 NATOPS debrief
Maximum performance takeoff
Straight-in approach
Engine restarts during flight
Crosswind landing
Single engine failure (hover and takeoff)
Effects of gross weight on single and/or dual engine performance
Single and/or dual engine failure at altitude
Engine shutdown in-flight
Compressor stall
Engine power loss
Engine post-shutdown fire

Practice:

Cockpit and flight procedures
Start/shutdown checklist
All previously introduced emergencies

Performance Standards. Per CH-53 NATOPS and Standardization Manual.

Prerequisites. CIUT-5901

External Syllabus Support. WST/APT.

CIUT-5903 1.0 * CIUTE D S WST/APT

Goal. Introduce running landings and autorotations. Practice aircraft emergencies, previously introduced flight procedures and normal cockpit procedures.

Requirement

Introduce:

Running takeoff/landing
Wave-off
Single and/or dual engine wave-off/landing
Power recovery autorotation
High angle of bank maneuvering and the effects of variables
(angle of bank, power required, descent rate, gross weight,
temperature, density altitude, etc.) on the performance of the
aircraft
Dual engine failure at altitude
Engine overspeed
Single and/or dual engine failure (hover/takeoff)
Nf flex shaft failure

Practice:

Aircraft emergencies.
Previously introduced flight procedures.
Normal cockpit procedures.

Performance Standards. Per CH-53 NATOPS and Standardization Manual.

Prerequisites. CIUT-5902

External Syllabus Support. WST/APT.

CIUT-5904 1.0 * CIUTE D S WST/APT

Goal. Introduce gearbox malfunctions. Introduce basic CRM concept. Practice previously introduced emergency and flight procedures.

Requirement

Introduce:

Engine chip detector light.
Control linkage failure.
Power deterioration.
Engine oil pressure high caution light, high oil temperature,
engine oil quantity low.
Nose gearbox chip detector light/failure.
Accessory gearbox oil system failure.
Accessory gearbox chip detector light/failure.
Main gearbox oil system failures.
Main gearbox chip locator light/failure.
Power train failures.
Tail rotor drive system failure, tail rotor gearbox or
intermediate gearbox failure, and tail rotor or intermediate
gearbox chip detector light.

Practice:

Previously introduced emergencies.
Flight procedures.

Performance Standards. Per CH-53 NATOPS and Standardization Manual.

Prerequisites. CIUT-5903

External Syllabus Support. WST/APT

CIUT-5905 1.5 * CIUTE D S WST/APT

Goal. Introduce communication skills IAW CRM techniques. Practice all ground, flight, and aircraft emergency procedures.

Requirement

Introduce:

Obstacle takeoff and approach.
Smoke and fume elimination.
AFCS computer malfunctions/mode failures , total AFCS failure.
BIM/Blade Pressure caution light (in-flight).
Approach and landing with tail rotor control system failure.
Tail rotor tandem servo malfunction.
Fuel filter bypass light.
Hydraulic fire in main rotor pylon.
Use of GPS system.
Sender/receiver responsibilities and overcoming communication barriers. Discuss ICS switchology and techniques, visual and standard terminology.

Practice:

Ground, flight, and aircraft emergency procedures.

Performance Standards. Per CH-53 NATOPS and Standardization Manual.

Prerequisites. CIUT-5904

External Syllabus Support. WST/APT.

CIUT-5906 1.0 * CIUTE D S WST/APT

Goal. Conduct Progress Check. Introduce communication skills IAW CRM techniques.

Requirement

Introduce:

Ground resonance procedure.
Power settling (vortex ring state).
Settling with power.
Dynamic rollover.
Electrical fire.
Alternating/Direct current system failures.
Rotor damper failure.
Lightning strike.
Most conservative response rule, the two-challenge rule, and task saturation with compound emergencies.

Performance Standards. Per CH-53 NATOPS and Standardization Manual.

Prerequisites. CIUT-5905

External Syllabus Support. WST/APT.

CIUT-5907 1.5 * CIUTE D S WST/APT

Goal. Introduce engine failure(s) at altitude, running takeoffs and landings, precision approaches.

Requirement

Discuss:

Engine system/limitations.
Engine overspeed/Nf flex shaft failure.
Compressor stall.
Engine power loss.

Engine high/low oil pressure.
Engine high oil temperature.
Engine chip detector light.
Control linkage failure.
Effects of gross weight on single
and/or dual engine performance.
Engine shutdown in flight/fuel siphoning.
Engine restart in flight.
Introduce:
Simulated single and/or dual engine failure at altitude.
Running takeoffs and landings.
Precision approaches to a hover.

Practice:

Cockpit procedures.
Hover/low work.
Previously introduced FAM maneuvers.

Performance Standards. Per CH-53 NATOPS and Standardization Manual.

Prerequisites. CIUT-5906

External Syllabus Support. WST/APT.

CIUT-5908	1.5	*	CIUTE	D	S	WST/APT
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Goal. Introduce simulated partial/total AFCS failure. Practice FAM and previously introduced simulated emergency procedures.

Requirement

Discuss:

AFCS system/functions.
Inner/outer loop.
AFCS servo functions.
AFCS servo hardover.
Longitudinal bias actuator.
FAS functions.
Trim functions.
Desensitizer failure.
AFCS computer malfunctions/mode failures.
Total AFCS failure.
Ground resonance.

Introduce:

Obstacle takeoff, approach.
Partial/total AFCS failure.
Practice autorotations (Refreshers, Modified Refreshers only)
Practice:
Previously introduced FAM maneuvers.
Simulated emergency procedures.

Performance Standards. Per CH-53 NATOPS and Standardization Manual.

Prerequisites. CIUT-5907

External Syllabus Support. WST/APT.

CIUT-5909	1.5	*	CIUTE	D	S	WST/APT
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Goal. Practice all FAM maneuvers, and simulated emergency procedures.

Requirement

Discuss:

Transmission system/limitations
Chip detection system
Nose gearbox chip location light
Nose gearbox failure
Accessory gearbox oil system failure
Accessory gearbox chip locator light
Accessory gearbox failure
Main gearbox chip locator light
Main gearbox oil system failure
Loss of main gearbox lubrication
Power train failure
Tail rotor or intermediate gearbox chip detector light
Tail rotor gearbox or intermediate gearbox failure
Tail rotor drive system failure
Pylon unsafe for flight light

Practice:

All FAM maneuvers
Simulated emergency procedures

Performance Standards. Per CH-53 NATOPS and Standardization Manual.

Prerequisites. CIUT-5908

External Syllabus Support. WST/APT.

CIUT-5910	1.5	*	CIUTE	D	S	WST/APT
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Goal. Review all FAM maneuvers and simulated emergency procedures.

Requirement

Discuss:

Ground cushion and ground effect
Effect of wind on translational lift
Effect of temperature and pressure altitude on power available
Power required for flight at various airspeeds (hover to V_{MAX})
Effects of gross weight, altitude, temperature, turbulence, and wind on power required for hover both in and out of ground effect
Effects of gross weight, altitude, temperature, and turbulence on blade stall
Maximum speed level flight with turns for existing ambient conditions
Conditions leading to power settling and settling with power
Landing gear system
Landing gear system failure
Bearing Monitor System
Bearing VIB or TEMP DETECT and LIMIT
BMS fault isolation

Practice:

All FAM maneuvers.
Simulated emergency procedures.

Performance Standards. IAW CH-53 NATOPS and Standardization Manual.

Prerequisites. CIUT-5909

External Syllabus Support. WST/APT.

CIUT-5911 1.5 * CIUTE N S WST/APT

Goal. Introduce FAM maneuvers at night.

Requirement

Discuss:

Aircraft lighting systems.
Electrical failures.
Electrical power supply system.
Single and multiple generator failure.
Single and dual rectifier failure.
Minimum aircraft equipment required for night flight.

Introduce:

Normal procedures and maneuvers under conditions of darkness at a lit airfield.
Night basic airwork, low work, and landings with various light configurations.
Tip path plane awareness.
HNVS operation.

Performance Standards. Per CH-53 NATOPS and Standardization Manual.

Prerequisites. CIUT-5910

External Syllabus Support. WST/APT.

CIUT-5912 1.0 * CIUTE D S WST/APT

Goal. Introduce basic instruments, TACAN approaches, and decision making IAW CRM techniques.

Requirement

Introduce:

Instrument flight checklist.
Instrument takeoff.
Level speed change.
Standard rate timed turns.
Vertical S-1 pattern.
Oscar pattern.
Turn pattern.
TACAN approach.
Point-to-point navigation.
Holding.
Decision making in the CH-53 IAW CRM techniques.
Troubleshooting strategies for degraded aircraft systems in IMC.

Performance Standards. IAW CH-53 NATOPS, Instrument NATOPS, FLIP publications and Standardization Manual.

Prerequisites. CIUT-5911

External Syllabus Support. WST/APT

CIUT-5913 1.0 * CIUTE D S WST/APT

Goal. Introduce partial panel flight, VOR/ADF procedures and adaptability/flexibility per CRM techniques.

Requirement

Introduce:

Partial panel flight
VOR/ADF approach
Holding

Adaptability/flexibility in the CH-53E per CRM techniques

Discuss: Changes in mission from the briefing, crew-member incapacitation, and overcoming personality differences within the cockpit and cabin.

Practice: TACAN procedures.

Performance Standards. Per CH-53 NATOPS, Instrument NATOPS, FLIP publications and Standardization Manual.

Prerequisites. CIUT-5912

External Syllabus Support. WST/APT.

CIUT-5914 1.0 * CIUTE D S WST/APT

Goal. Introduce ILS/localizer approaches and mission analysis per CRM techniques. Practice aircraft emergency procedures.

Requirement

Introduce:

ILS and localizer approaches.

Mission analysis in the CH-53 per CRM techniques.

Discuss: Problem framing.

Practice:

TACAN and VOR approaches.

Previously introduced emergency procedures.

Performance Standards. Per CH-53 NATOPS, Instrument NATOPS, FLIP publications and Standardization Manual.

Prerequisites. CIUT-5913

External Syllabus Support. WST/APT.

CIUT-5915 1.0 * CIUTE D S WST/APT

Goal. Introduce unusual attitudes and recovery procedures, PAR, ASR approaches and situational awareness considerations in the CH-53 per CRM techniques. Practice aircraft emergency procedures.

Requirement

Introduce:

Unusual attitudes and recovery procedures.

PAR and ASR approaches.

Situational awareness considerations in the CH-53 per CRM techniques.

Task fixation during an instrument approach with an emergency or degraded system.

Practice: Aircraft emergency procedures.

Performance Standards. Per CH-53 NATOPS, Instrument NATOPS, FLIP publications and Standardization Manual.

Prerequisites. CIUT-5914

External Syllabus Support. WST/APT.

CIUT-5916 1.0 * CIUTE D S WST/APT

Goal. Introduce radio failure, ATC procedures in IMC conditions and leadership principles per CRM techniques.

Requirement

Introduce:

HF Radio.
IFR departure.
COMM/NAV failure under IMC.
Single and/or dual engine missed approach.
IFR canned route (Flight planning).
Leadership principles in the CH-53E per CRM techniques.
Command authority, crewmember relationships in the cockpit and cabin, and division of tasks.

Performance Standards. Per CH-53E NATOPS, Instrument NATOPS, FLIP publications and FRS Standardization Manual.

Prerequisites. CIUT-5915

External Syllabus Support. WST/APT

CIUT-5917	2.0	*	CIUTE	D	S	WST/APT
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Goal. Introduce basic instrument, precision, and non-precision procedures.

Requirement

Discuss:

Approach minimums and helicopter-only approaches
BDHI/course indicator switches
ILS/LOC and LOC back course approaches
Instrument checklist
Inadvertent entry into IMC conditions
Lost plane procedures
Lighting strike
Emergency descent
Use/Failure of AFCS functions in IMC conditions

Introduce:

Time-distance checks
ADF procedures
Operation of the transponder modes
VOR procedures
TACAN procedures
Point-to-point navigation
ILS/LOC procedures
PAR procedures

Performance Standards. Per CH-53 NATOPS, Instrument NATOPS, FLIP publications and Standardization Manual.

Prerequisites. CIUT-5916

External Syllabus Support. WST/APT

CIUT-5918	1.5	*	CIUTE	D	S	WST/APT
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Goal. Conduct IFR flight to an outlying airfield. Instrument progress check.

Requirement. Plan, file, brief, and fly an IFR flight away from home field.

Discuss: Range performance charts in the CH-53 NATOPS Manual.

Performance Standards. Per CH-53 NATOPS, Instrument NATOPS, FLIP publications and Standardization Manual.

Prerequisites. CIUT-5917

External Syllabus Support. WST/APT

CIUT-5920 1.0 * CIUTE D S WST/APT

Goal. Introduce use of flight planning software, GPS and HNVS.

Requirement. Utilize flight planning software to develop a route card and load the GPS Mission Data Loader with a minimum of six waypoints.

Discuss: GPS set-up, programming, operation, and use

Introduce: Use of Global Positioning System (GPS) and HNVS operation

Performance Standards. Per CH-53 NATOPS and FRS Standardization Manual.

Prerequisites. CIUTD-5918

External Syllabus Support. WST/APT

CIUT-5921 1.0 * CIUTE D S WST/APT

Goal. Introduce day formation principles.

Requirement

Discuss: Aircraft lighting, closure rate, recovery from unusual attitudes, CRM, and comfort level

Introduce: Section takeoffs, cruise principles, crossovers, and section approaches

Performance Standards. Per CH-53 NATOPS and Standardization Manual.

Prerequisites. CIUT-5920

External Syllabus Support. WST/APT

CIUT-5922 1.5 * CIUTE D S WST/APT

Goal. Practice precision approaches and introduce their application to CALs.

Requirement

Discuss:

- Landing gear system/limitations
- Dynamic rollover
- Slope landing technique/limitations
- Loss of visual reference during landing
- Power settling (Vortex Ring State)
- Settling with power ($P_r > P_a$)
- Main and tail rotor clearance factors over sloping or uneven terrain
- LZ considerations

Practice: Precision approaches to confined areas

Performance Standards. Per CH-53 NATOPS and Standardization Manual.

Prerequisite. CIUT-5921

External Syllabus Support. WST/APT

CIUT-5923 2.0 * CIUTE D S WST/APT

Goal. Introduce single point and dual point external cargo operations. Introduce communication skills between pilots and aircrew.

Requirement

Introduce:

- Single and dual point hook checks
- Operational Power Checks
- Single Point Performance checks
- Weight and Power calculations in the zone
- Cargo pickup and release procedures
- CRM consideration for external operations
- Voice signals/standardized terminology
- Emergency Procedures during external operations

Performance Standards. Per CH-53 NATOPS and Standardization Manual.

Prerequisite. CIUT-5922

External Syllabus Support. WST/APT with Aircrew External Trainer if available

CIUT-5924	1.0	*	CIUTE	D	S	WST/APT
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Goal. Introduce TERF maneuvers. Demonstrate TERF navigation.

Requirement

Discuss:

- TERF maneuvers
- CRM
- Comfort level
- Reduced reaction time
- Emergency procedures at low altitudes
- Climb-to-cope
- Standardized terminology
- Common mistakes
- Hazard maps
- Currency requirements
- Blade walk-around

Introduce:

- Operational power checks
- Masking and unmasking
- TERF turns
- Rolls, bunts
- Quick stops
- Low level/contour profiles
- Using a 1:50,000 scale map, demonstrate TERF navigation

Performance Standards. Per CH-53 NATOPS, ANTPP 3-22.3-CH53, and Standardization Manual.

Prerequisites. CIUT-5923

External Syllabus Support. WST/APT

CIUT-5925	2.0	*	CIUTE	D	S	WST/APT
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Goal. Review Core Skill Introduction training.

Requirement

Practice:

- All FAM stage maneuvers
- Instrument stage maneuvers
- Confined area landings
- External cargo procedures
- If possible, formation flight

Performance Standards. Per CH-53E NATOPS and FRS Standardization Manual. CIUT is responsible for all emergency procedures in the NATOPS Manual.

Prerequisite. CIUT-5900-5924

External Syllabus Support. WST/APT

CIUT-5926 2.0 * CIUTE D S WST/APT

Goal. Review Core Skill Introduction training.

Requirement

Practice:

- All FAM stage maneuvers
- Instrument stage maneuvers
- Confined area landings
- External cargo procedures
- If possible, formation flight

Performance Standards. Per CH-53 NATOPS and Standardization Manual. CIUT is responsible for all emergency procedures in the NATOPS Manual.

Prerequisite. CIUT-5925

External Syllabus Support. WST/APT

CIUT-5927 2.0 * CIUTE D S WST/APT

Goal. Evaluate systems knowledge of the CH-53 and the capability to perform maneuvers in the Core Skill Introduction phase, including high AOB maneuvers.

Requirements

Practice:

- Evaluate systems knowledge of the CH-53 to include external lift systems
- Brief and demonstrate proficiency of all aircraft emergency procedures per the CH-53 NATOPS Flight Manual
- Demonstrate proficiency and the capability to perform in the Core Skill Introduction to include takeoffs, approaches, instrument procedures, emergency procedures, CALs, high AOB maneuvers, and landings

Performance Standards. Per CH-53 NATOPS and Standardization Manual.

Prerequisite. Open and Closed book NATOPS exams; CIUT-5926

External Syllabus Support. WST/APT

CIUT-5931 1.5 * CIUTE D S WST/APT

Goal. Introduce the IP brief and demonstrate standardized procedures for flight planning, preflight, and all day FAM stage maneuvers.

Requirements

Discuss:

- CRM
- Preflight and postflight pilot briefings
- Cockpit procedures
- Techniques of instruction
- Local course rules

Performance Standards. Per CH-53E NATOPS and FRS Standardization Manual. Instructors shall emphasize the ability to teach using all

appropriate references and SOPs, evaluate problems, and apply corrective instruction.

Prerequisites. CIUT-5927

External Syllabus Support. WST/APT

CIUT-5932	1.5	*	CIUTE	D	S	WST/APT
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Goal. Review all familiarization stage maneuvers at night.

Requirements

Discuss:

CRM

The night unaided environment

Performance Standards. Per CH-53E NATOPS and FRS Standardization Manual. IUT will perform all night familiarization stage maneuvers with emphasis on the IUT's instructional technique. Instructors shall emphasize the ability to teach, evaluate problems, and apply corrective instruction of FAM maneuvers in the unaided night environment.

Prerequisites. CIUT-5931

External Syllabus Support. WST/APT

CIUT-5933	2.0	*	CIUTE	D	S	WST/APT
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Goal. Review basic instrument maneuvers, IFR planning, filing, and airway procedures.

Requirements

Discuss:

CRM

IFR planning

Filing a DD-175

Airway procedures

Precision/non-precision approaches

Review:

Instrument checklist

Attitude instrument flight

Standard rate climbing and descending turns

Recovery from unusual attitudes

Vertical S-1 pattern

Oscar pattern

Precision and non-precision approaches

Performance Standards. Per CH-53E NATOPS and FRS Standardization Manual.

Prerequisites. CIUT-5932

External Syllabus Support. WST/APT

CIUT-5934	1.5	*	CIUTE	D	S	WST/APT
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Goal. Review CAL instruction techniques.

Requirements

Discuss:

CRM

Comfort level

Review: All CAL stage maneuvers

Performance Standards. Per CH-53E NATOPS and FRS Standardization Manual.

Prerequisites. CIUT-5933

External Syllabus Support. WST/APT

CIUT-5935 1.5 * CIUTE D S WST/APT

Goal. Review formation instructional techniques and formation stage maneuvers emphasizing closure rates and radius of turn.

Requirements

Discuss:

- Loss of visual contact
- Parade position
- Cruise turn principles
- Section CALs principles

Performance Standards. Per CH-53E NATOPS and FRS Standardization Manual.

Prerequisites. CIUT-5934

External Syllabus Support. WST/APT

CIUT-5936 1.5 * CIUTE D S WST/APT

Goal. Review external operation instructional techniques.

Requirements

Discuss:

- CRM
- Single and dual point operations
- Load computations, preflight and in-flight
- Emergency procedures
- Aircraft limitations

Review: Single and dual point operations

Performance Standards. Per CH-53E NATOPS and FRS Standardization Manual. Execute five pickups and deliveries or demonstrate proficiency as defined by the ability to fly within 50' and 10 kts of briefed altitude and airspeed, and deliver load within 5 meters of intended point of delivery and +/- 10 degrees of assigned heading.

Prerequisites. CIUT-5935

External Syllabus Support. WST/APT with external aircrew trainer, if available

CIUT-5937 1.5 * CIUTE D S WST/APT

Goal. Flight instructor standardization check.

Requirements

Discuss:

- CRM
- CH-53E limitations
- Course Rules
- FRS Standardization Manual
- Instruction techniques

Performance Standards. Per CH-53E NATOPS and FRS Standardization Manual.

Prerequisites. Open and Closed Book NATOPS. CIUT-5936

External Syllabus Support. WST/APT

2.16 REQUIREMENTS, QUALIFICATIONS, DESIGNATIONS (RQD) PHASE (6000)

2.16.1 Purpose. This phase contains standardized combat/leadership workup and evaluation events.

2.16.2 General

2.16.2.1 Squadrons should use this phase of training for check flights and designations. The PUI will demonstrate sound levels of aircraft/flight leadership and judgment required in a combat environment.

2.16.2.2 Squadrons shall evaluate pilots for required flight leadership designations at the discretion of the squadron commanding officer per the criteria in the CH53 NATOPS Flight Manual, OPNAV 3710, and local SOPs.

2.16.2.3 Upon the successful completion of the check flight, the new Helicopter Aircraft Commander, Section/Division/Flight Leader, or Air Mission Commander will be designated in writing by the squadron commanding officer. Copies of the designation shall be placed in the APR and NATOPS.

2.16.2.4 Flight leadership codes do not chain other syllabus events. Log appropriate T&R syllabus events in addition to flight leadership codes. Range, ordnance, and external support will be IAW the appropriate T&R syllabus events.

2.16.2.5 Flight leadership re-designation criteria for pilots that did not require Core Skill Introduction Refresher training is at the discretion of the Squadron Commanding Officer, upon regaining core and mission skill proficiency and a NATOPS-6001. Pilots that required Core Skill Introduction Refresher shall complete those flight leadership events designated as R POI events and be redesignated at the discretion of the MAG Commanding Officer. Refresher pilots that were previous Assault Flight Leaders (AFL) and Air Mission Commanders (AMC) may be re-designated with their highest previous flight leadership designation, following successful completion of the R coded HAC, Section lead and Division lead events.

2.16.2.6 Upon completion of the HAC syllabus, model conversions may be re-designated with their highest previous flight leadership designation at the discretion of the Squadron Commanding Officer, assuming they have not been out of the cockpit for more than 485 days prior to converting. If the model conversion has been out of the cockpit 485 days or greater, they must complete the R coded flight leadership events for their previous flight leadership designations up to Division lead, to include HAC and Section lead. Upon completion of the R coded Division lead event, re-designation as AFL and AMC can occur at the discretion of the MAG commanding officer.

2.16.2.7 Flight Leadership proficiency shall be tracked in M-SHARP, when completing the NAVFLIR.

2.16.3 Academic/Ground Training

2.16.3.1 Purpose. Within the Flight Leadership Training Phase the required academic syllabus shall be completed in accordance with this Manual and the MAWTS-1 CH-53 Course Catalog.

2.16.3.2 The Flight Leadership Training Phase academic/ground training shall be complete IAW the POI requirements and prerequisites for the stage and IAW paragraph 206 of this Manual. Upon completion, the PUI shall report to the PTO or designated representative(s), who will then manually update the training code in M-SHARP and log the academic/ground training event in section 3, Aircrew Ground School Training of the APR, using the format listed

in Enclosure 1 of this document.

2.16.3.3 2000-6000 classes are located at the MAWTS-1 NIPR website under ASD, CH-53, T&R:

<http://vcepub.tecom.usmc.mil/sites/msc/magtftc/mawts1/>

2.16.3.4 SIPR 2000-6000 classes are located at the MAWTS-1 SIPR website under ASD, CH-53, T&R:

<http://www.mawts1.usmc.smil.mil/>

2.16.4 Prerequisites. The following events/designations are prerequisites prior to the commencement of the Requirements, Certifications, Qualifications, Designations, (RQD) Phase.

Academic: See event

Flight: See Event

Designation/Qualification: See Event

2.16.5 CH-53 NATOPS POI

2.16.5.1 Purpose. To evaluate the airman's knowledge of aircraft systems, performance limitations, emergency procedures, flight and ground operations IAW OPNAV 3710.7 and CH-53 NATOPS.

2.16.5.2 General

2.16.5.2.1 NATOPS Instructors/Assistant Instructor shall conduct the NATOPS evaluation in accordance with OPNAV 3710.7 series and other applicable directives, instructions, and orders.

2.16.5.2.2 The NATOPS Evaluator shall utilize the NATOPS Model Manager generated NATOPS Aviation Training Form (ATF) and the evaluation metrics required for the accomplishment and performance of the standardized criterion to determine whether the PUI completed the sortie.

2.16.5.2.3 NATOPS PUIs shall complete and have a graded Open Book and Closed Book prior to the commencement of the oral evaluation and flight event.

2.16.5.3 Crew Requirements. P/P/CC/AO (as required).

2.16.5.4 Academic Training. Open, closed book and oral evaluation IAW OPNAV 3710.7 and the CH-53 NATOPS.

NATOPS-6000 3.0 365 R,SC,M Open Book NATOPS Exam

Goal. Open book written examination to evaluate the airman's NATOPS knowledge IAW 3710.

Performance Standard. IAW OPNAV 3710.

NATOPS-6001 1.0 365 R,SC,M Closed Book NATOPS Exam

Goal. Closed book written examination to evaluate the airman's NATOPS knowledge IAW 3710 and CH-53 NATOPS.

Performance Standard. IAW OPNAV 3710 and CH-53 NATOPS.

Prerequisite. NATOPS-6000

NATOPS-6002 0.5 365 R,SC,M Oral NATOPS Exam

Goal. Oral examination to evaluate the airman's NATOPS knowledge IAW 3710 and CH-53 NATOPS.

Performance Standard. IAW OPNAV 3710 and CH-53 NATOPS.

Prerequisite. NATOPS-6001

NAVMC 3500.47B
11 Apr 14

NATOPS-6004 1.0 30 R,SC,M Monthly EP Exam

Goal. Monthly NATOPS Emergency Procedure Examination to evaluate the airman's Knowledge of Emergency Procedures.

Performance Standard. IAW OPNAV 3710 and CH-53 NATOPS.

NATOPS-6100 1.5 365 R,SC,M (N) E A/S 1 CH-53E/WST/APT

Goal. Conduct Annual NATOPS evaluation by evaluating the Marine's knowledge of mission planning, briefing, normal operating procedures (flight and ground), crew resource management, aircraft systems, performance criteria, emergency procedures, and debriefing. The focus is on normal and emergency procedures. Emphasis shall be placed on the aforementioned items with the addition of comprehensive knowledge and understanding of NATOPS, local SOPs, and local course rules. The NATOPS evaluation is intended to evaluate compliance with NATOPS procedures. The NATOPS evaluation is the means to measure the Marine's efficiency in the execution of normal operating procedures and reaction to emergencies and malfunctions. The NATOPS evaluation process should be as much a learning tool and/or experience as it is an evaluation.

Requirement. As directed in the CH-53 NATOPS Flight Manual and OPNAV 3710.7. Demonstrate comprehensive knowledge and understanding of NATOPS, local SOPs, and local course rules. The PUI shall accomplish the following criterion:

Brief/Debrief: IAW NATOPS and local SOPs.

Performance Standards. The proficiency expected by the evaluator in this flight shall be commensurate with the experience level of the pilot under evaluation.

Prerequisite. NATOPS-6002

Range Requirements. CAL/MAL site

External Syllabus Support. WST/APT as required

2.16.6 CRM Training

2.16.6.1 Purpose. To conduct annual CRM training.

2.16.6.2 General

2.16.6.2.1 CRM Flight may be flown concurrent with any operational or training flight or simulator, including NATOPS-6100 or INST-6102.

2.16.6.2.2 The CRM Flight Evaluator must be designated a CRM Facilitator or CRM Instructor.

CRM-6003 3.0 365 R,SC,M E CH-53E CRM Class

Goal. Conduct annual CH-53 CRM Ground Training IAW CH-53 NATOPS, OPNAV 3710.7 and OPNAVINST 1542.7.

Performance Standards. Per CH-53 NATOPS, OPNAV 3710.7 and OPNAVINST 1542.7.

CRM-6101 1.5 365 R,SC,M (N) E S/A 1 WST/APT/CH-53E

Goal. Practice/review CRM principles presented in the CH-53 annual CRM Ground Training.

Requirement

Discuss:

Decision making

Assertiveness
Mission analysis
Communication
Leadership
Adaptability/Flexibility
Situational awareness

Evaluate:

Decision making
Assertiveness
Mission analysis
Communication
Leadership
Adaptability/Flexibility
Situational awareness

Performance Standards. Demonstrate effective use of the 7 CRM critical skills and IAW CH-53 NATOPS, OPNAV 3710.7, OPNAVINST 1542.7.

Prerequisite. CRM-6003

2.16.7 CH-53 Instrument Evaluation

2.16.7.1 Purpose. To evaluate the airman's knowledge of instrument procedures and aircraft instrument systems.

2.16.7.2 General

2.16.7.2.1 Instrument Instructors shall conduct the Instrument evaluation in accordance with OPNAV 3710.7 series and other applicable directives, instructions, and orders.

2.16.7.2.2 The Instrument Instructor shall utilize the locally generated Instrument Aviation Training Form (ATF) and the evaluation metrics required for the accomplishment and performance of the standardized criterion to determine whether the PUI completed the sortie.

2.16.7.2.3 Instrument PUIs shall complete local instrument ground school prior to the commencement of the actual Instrument oral evaluation event.

2.16.7.3 Academic Training: Instrument Ground School IAW OPNAV 3710.7.

2.16.7.4 Prerequisites. Per OPNAV 3710 annual instrument requirements and Instrument Ground School.

INST-6005 4.0 365 R,SC,M E Instrument Ground School(IGS)

Goal. The Instrument Ground School shall be a Commander Naval Air Forces (CNAF) approved syllabus and IAW OPNAV 3710.7.

Performance Standards. Per OPNAV 3710.7

INST-6006 1.0 365 R,SC,M E Written Instrument Exam

Goal. The Instrument Written Instrument Examination shall be a Commander Naval Air Forces (CNAF) approved syllabus and IAW OPNAV 3710.7.

Performance Standards. Per OPNAV 3710.7

Prerequisite. INST-6005

INST-6102 1.5 365 R,SC,M (N) E S/A 1 WST/APT/CH-53E

Goal. Conduct annual instrument evaluation. Following completion of the ground evaluation events, an instrument flight/simulator evaluation

event shall be flown and completed with a grade of "Qualified." Conduct an objective evaluation of the Marine's knowledge of flight planning, filing, briefing, and conduct of flight under normal operating conditions, emergency procedures, closing out flight plans, and debriefing.

Requirements. As directed in the CH-53 NATOPS Flight Manual and OPNAV 3710.7.

Performance Standards. Executes flight and/or ground operations safely IAW OPNAV 3710.7 Series, Platform NATOPS, NATOPS Instrument Flight Manual, and training rules. All areas on the instrument flight evaluation are critical. An "Unsatisfactory" grade in any area shall result in an "Unsatisfactory" grade for the flight.

Prerequisites. INST-6006

External Syllabus Support. WST/APT as required

2.16.8 Helicopter Aircraft Commander (HAC)

2.16.8.1 Purpose. Demonstrate knowledge, leadership, airmanship, and judgment in all phases of flight commensurate with a Helicopter Aircraft Commander.

2.16.8.2 General

2.16.8.2.1 Squadrons shall evaluate pilots for designations at the discretion of the Commanding Officer per the criteria in the CH-53 NATOPS Flight Manual, OPNAV 3710.7, and local SOPs.

2.16.8.2.2 Upon the successful completion of the check flight the new Helicopter Aircraft Commander (HAC) will be designated in writing by the Squadron Commanding Officer.

2.16.8.2.3 Prerequisite requirements may be waived at the discretion of the Squadron Commanding Officer and details of the waiver will be annotated in the APR.

2.16.8.2.4 Flight leadership codes do not chain other syllabus events. Log the appropriate T&R syllabus event in addition to the flight leadership code. Range, ordnance, and external support will be IAW the appropriate T&R syllabus event.

2.16.8.3 Academic Training. The MAWTS-1 CH-53 Course Catalog contains the required readings, lectures and chalk talks which shall be completed prior to starting the Helicopter Aircraft Commander Syllabus.

2.16.8.4 Prerequisites. NSQ-LLL, Core and Mission Skill complete. 450 total hours to start the syllabus and be recommend by Squadron Standardization Board. PUI must have 500 total hours prior to designation.

HAC-6120 1.5 * D E A/S 1 CH-53E/WST/APT

Goal. Conduct day HAC review.

Requirements. As directed in the CH-53 NATOPS and OPNAV 3710.7, to include but not limited to all practicable operations and procedures contained in the T&R syllabus.

Performance Standards. Demonstrate proficiency, leadership and instructional techniques in all phases of CH-53 operations as appropriate. Emphasize NATOPS, ANTPP 3-22.3-CH53, ASTACSOP, MAG and squadron SOPs, and the Instrument Flight Manual.

Prerequisites. NSQ-LLL, Core and Mission Skill complete.

Range Requirements. CAL/MAL site.

HAC-6121 1.5 * NS E A/S 1 CH-53E/WST/APT

Goal. Conduct NS HAC review.

Requirements. Same as HAC-6120 with emphasis on NS planning and considerations.

Performance Standards. Demonstrate proficiency and leadership in all phases of CH-53 operations as appropriate. Emphasize NATOPS, ANTPP 3-22.3-CH-53, MAWTS-1 NVD Manual, MAG and squadron SOPs, and the Instrument Flight Manual.

Prerequisites. NSQ-LLL, Core and Mission Skill complete

Range Requirements. CAL/MAL site

HAC-6122 2.0 * R,SC (N) A 1 CH-53E

Goal. Conduct day into night HAC check.

Requirements. As directed in the CH-53 NATOPS and OPNAV 3710.7, to include but not limited to all practicable operations and procedures contained in the T&R syllabus.

Instructor: NATOPS Instructor or Assistant NATOPS Instructor.

Performance Standards. Squadrons shall evaluate pilots for HAC designation at the discretion of the Commanding Officer per the criteria in the CH-53 NATOPS, OPNAV 3710.7, and local SOPs. This flight will cover all practicable operations and procedures contained in the T&R syllabus.

Prerequisites. BIP-5110, HAC-6120 and HAC-6121, NATOPS-6001

Ordinance. As required.

External Syllabus Support. As required.

2.16.9 Section Leader (SL)

2.16.9.1 Purpose. To prepare and evaluate the prospective Section Leader's ability to plan, brief and lead an event as a Section Leader (SL).

2.16.9.2 General

2.16.9.2.1 The Section Leader syllabus is comprised of four total flights; 2 events focusing on Core Skill based evaluations and 2 events focusing on Mission Skill based scenarios. Two of the four events may be flown in the simulator and two events shall be flown at night employing night systems in the aircraft. In addition, the Section Leader syllabus can be flown in any order with the exception of SL-6203 which shall be flown last and in the aircraft.

2.16.9.2.2 All prospective Section Leader events shall be evaluated by a designated Division Leader or higher. The Section Leader evaluation flight (SL-6203) shall be administered by a Flight Leadership Standardization Evaluator (FLSE) in the aircraft.

2.16.9.2.3 Completion of the Section Leader syllabus meets the requirements for designation as Section Leader. At the discretion of the Squadron Commanding Officer, a letter designating the pilot as Section Leader shall be placed in the NATOPS jacket and APR. For aircrew requiring Core Skill introduction refresher training, re-designation will require only the

successful completion of the evaluation event at the discretion of the Squadron Commanding Officer.

2.16.9.2.4 The Section Leader Under Instruction (SLUI) will perform preflight planning, conduct a tactical brief as required, NATOPS brief, lead a section and conduct a debrief. Evaluation will be based on mission accomplishment, adherence to all applicable directives, orders, SOPs, ATC and course rules. Further evaluation will concentrate on flight safety, section control, formation integrity, and communication procedures. Aircraft should be configured with all weapons and systems required for the scenario.

2.16.9.2.5 Prior to beginning the Section Leader syllabus:

Designated a HAC with a minimum of 25 aircraft commander hours, have flown a minimum of three flights as a HAC in a wingman position.

Nominated by the Standardization Board prior to beginning the Section Leader syllabus.

2.16.9.3 Crew Requirements. P/P/CC/AO

2.16.9.4 Academic Training. The MAWTS-1 CH-53 Course Catalog contains the required readings, and chalk talks which shall be completed prior to starting the Section Leader Syllabus.

2.16.9.5 Prerequisites. The following events/designations are prerequisites prior to the commencement of the Section Leader Syllabus:

Academic: ACPM-8630 & ACPM-8660

Flight: HAC-6122

Minimum of three flights as a HAC in a wingman position.

Designation/Qualification: HAC

SL-6200 1.5 * (NS) A/S 2 AsltSpt Aircraft/WST/APT TEN+

Goal. Conduct a day or night Core Skill based Section Leader review.

Requirements. Plan, brief, lead, and debrief a section flight utilizing the principles of CRM and flight leadership. The flight should offer sufficient opportunity to demonstrate cruise principles, conduct lead changes, TERF flight and navigation, cruise and parade formations, and section landings. The SLUI shall demonstrate comprehensive knowledge and understanding of the T&R Manual, NATOPS, OPNAV 3710.7, ASTACSOP, local SOPs, local course rules, and ORM/CRM principles.

Instructor: Division Leader or higher.

Performance Standards

TERF events shall navigate a route at or below 200' AGL and remain oriented IAW ASTACSOP Magellan criteria while navigating to a minimum of six checkpoints while using 1:250,000 and 1:50,000 scale maps as appropriate. To the max extent possible the route should be a minimum of 50nm.

NS (HLL or LLL) events shall ensure proper NVD considerations and planning is accomplished.

Brief event IAW SOPs and TTPs

Conduct event IAW NATOPS and OPNAV 3710.7

Maintain proper formation and mutual support to and from the working area

Ensure effective CRM for navigation and obstacle clearance
Demonstrate effective inter and intra cockpit communication and leadership required for precise navigation and flight management.
Effectively manage fuel and airspace.
Accurately recall and reconstruct events during debrief.
Provide valid learning points

Prerequisites. ACPM-8630, ACPM-8660, Designated HAC with a minimum of three flights as a HAC in a wingman position

External Syllabus Support. WST/APT (as required)

SL-6201 1.5 * (NS) A/S 2 AsltSpt Aircraft/WST/APT TEN+

Goal. Plan, brief, lead, and debrief a MCT based tactical scenario, day or night, utilizing principles of CRM and flight leadership to ensure mission success.

Requirements. Plan, brief, lead and debrief a day or night section in a low/medium threat MCT based tactical flight to include escort and fire support considerations. The SLUI shall demonstrate comprehensive knowledge and understanding of T&R Manual, NATOPS, ASTACSOP, local SOPs, local course rules, and ORM/CRM principles. Emphasis should be on mission analysis using METT-TSL, the mission planning process, weapons and ASE employment (evasive actions, sectors of fire), integrated objective area planning, and escort considerations. Additional emphasis on night considerations as applicable, detailed fuel planning, contingency planning, and mission delegation of tasks.

Instructor: Division Leader or higher.

Performance Standards.

Plan and brief a tactical mission IAW the ASTACSOP, ANTP 3-22.3 and all applicable SOPs.

Arrive at LZ +/- 30 seconds of L-Hour.

TERF events shall navigate a route at or below 200' AGL and remain oriented IAW ASTACSOP Magellan criteria while navigating to a minimum of six checkpoints while using 1:250,000 and 1:50,000 scale maps as appropriate. To the max extent possible the route should be a minimum of 50nm.

Land at points best supporting the Ground Combat Element's scheme of maneuver.

Demonstrate proper employment and understanding of ASE.

Demonstrate proper use of tactical formations.

Demonstrate situational awareness of other aircraft through all phases of flight.

Demonstrate positive control of flight.

As applicable, demonstrate proper understanding of NS considerations with multiple aircraft and aerial gunnery.

As applicable, demonstrate proper understanding of Laser employment.

Demonstrate proper understanding of MACCS system to facilitate execution and information flow.

Demonstrate appropriate consideration for threat from planning through execution.

Demonstrate understanding of aircraft maneuver with regard to threat response in concert with proper aerial gunnery employment.

Demonstrate proper understanding of escort considerations.

Demonstrate proper understanding and utilization of secure and active communications.

Demonstrate understanding of FSCM utilization.
Demonstrate understanding of contingency considerations.

Prerequisites. ACPM-8630, ACPM-8660, Designated HAC with a minimum of three flights as a HAC in a wingman position.

External Syllabus Support. Escort FW/RW aircraft optional, WST/APT (as required)

SL-6202 1.5 * (NS) A/S 2 AsltSpt Aircraft/WST/APT TEN+

Goal. Conduct a day or night Core Skill based Section Leader review.

Requirements. Plan, brief, lead, and debrief a section flight utilizing principles of CRM and flight leadership to ensure mission success. The flight should offer sufficient opportunity to demonstrate cruise principles, conduct lead changes, TERF flight and navigation, cruise and parade formations, and section landings. The SLUI shall demonstrate comprehensive knowledge and understanding of T&R Manual, NATOPS, OPNAV 3710.7, ASTACSOP, local SOPs, local course rules, and ORM/CRM principles.

Instructor: Division Leader or higher.

Performance Standards.

TERF events shall navigate a route at or below 200' AGL and remain oriented IAW ASTACSOP Magellan criteria while navigating to a minimum of six checkpoints while using 1:250,000 and 1:50,000 scale maps as appropriate. To the max extent possible the route should be a minimum of 50nm.

NS (HLL or LLL) events shall ensure proper NVD considerations and planning is accomplished.

Brief event IAW SOPs and TTPs.

Conduct event IAW NATOPS and OPNAV 3710.

Maintain proper formation and mutual support to and from the working area.

Ensure effective CRM for navigation and obstacle clearance.

Demonstrate effective inter and intra cockpit communication and leadership required for precise navigation and flight management.

Effectively manage fuel and airspace.

Accurately recall and reconstruct events during debrief.

Provide valid learning points.

Prerequisites. ACPM-8630, ACPM-8660; Designated HAC with a minimum of three flights as a HAC in a wingman position.

External Syllabus Support. WST/APT (as required).

SL-6203 1.5 * R NS A 2 AsltSpt Aircraft

Goal. Conduct a Section Leader evaluation utilizing a MCT based tactical scenario in a low to medium threat environment. Day or night; Emphasis should be on situational awareness, flight maturity, CRM, and the tactical and operational knowledge required of a Section Lead.

Requirement. Completion of 6200, 6201, and 6202 meets the requirement for the SLUI to be designated a Section Leader. The SLUI shall plan, brief, lead, and debrief a day or night section in a low/medium threat MCT based tactical flight. This flight should include escort, fire support considerations, and aerial gunnery. The SLUI shall demonstrate comprehensive knowledge and understanding of T&R Manual, NATOPS, ASTACSOP, local SOP, local course rules, and ORM/CRM principles.

Prerequisites. 6200, 6100, 6202

Instructor: FLSE

2.16.10 Division Leader (DL)

2.16.10.1 Purpose. To prepare and evaluate the prospective Division Lead's ability to plan, brief and lead an event as a Division Lead.

2.16.10.2 General

2.16.10.2.1 The Division Leader syllabus is comprised of three flights; 1 event focusing on core skill based evaluation and two events focusing on MCT based scenarios. One of the three events may be flown in the simulator and two of the three events shall be flown at night. The two events flown at night shall be flown in the aircraft. In addition, the Division Leader syllabus can be flown in any order with the exception of DL-6302 which shall be flown last and in the aircraft.

2.16.10.2.2 All prospective Division Leader events shall be evaluated by a designated AFL or higher. The Division Leader evaluation flight (DL-6302) shall be flown with a Flight Leadership Standardization Evaluator (FLSE) in the aircraft.

2.16.10.2.3 Completion of the Division Leader syllabus meets the requirements for designation as Division Leader at the discretion of the squadron Commanding Officer. A letter designating the pilot as a Division Leader shall be placed in the NATOPS jacket and APR. Aircraft should be configured with all weapons and systems required for the scenario.

2.16.10.2.3.1 For aircrew that require Core Skill introduction refresher training, re-designation will require successful completion of the evaluation event only, at the discretion of the MAG commanding officer.

2.16.10.2.3.2 For aircrew that require Core Skill introduction refresher training, and were previously designated a Flight Leader and/or Air Mission commander, successful completion of the R coded Division Leader Evaluation event fulfills all requirements for re-designation as a Flight Leader and/or Air Mission Commander, at the discretion of the MAG commanding officer.

2.16.10.2.4 The Division Leader Under Instruction (DLUI) will perform preflight planning, conduct a tactical mission and NATOPS brief, lead a division and conduct a debrief. Evaluation will be based on mission accomplishment, adherence to all applicable directives, orders, SOPs, ATC and course rules. Further evaluation will concentrate on flight safety, division control, formation integrity, and communication procedures. Aircraft should be configured with all weapons and systems required for the scenario.

2.16.10.2.5 Prospective Division Leads shall be Section Leaders who have:

Flown a minimum of three flights as a Section Leader.

600 total flight hours

200 hours in type

50 hours in model

Have been nominated by the Standardization Board prior to beginning the Division Leader syllabus

2.16.10.3 Crew Requirements. P/P/CC/AO

2.16.10.4 Academic Training. The MAWTS-1 CH-53 Course Catalog contains the required readings and chalk talks which shall be completed prior to starting the Division Leader Syllabus.

2.16.10.5 Prerequisites. The following events/designations are **prerequisites prior to the commencement of the Division Leader Syllabus:**

Academic: ACPM-8640 & 8641

Flight: SL-6203 and three flights as a Section Leader

Designation/Qualification: Section Lead

DL-6300 1.5 * (NS) A/S 3+ AsltSpt Aircraft/WST/APT
TEN+

Goal. Conduct a day or night Core Skill based Division Leader review.

Requirements. Plan, brief, lead, and debrief a division flight utilizing the principles of CRM and flight leadership. The flight should offer sufficient opportunity to demonstrate cruise principles, conduct lead changes, TERF flight and navigation, cruise and parade formations, and division landings. The DLUI shall demonstrate comprehensive knowledge and understanding of the T&R Manual, NATOPS, OPNAV 3710.7, ASTACSOP, local SOPs, local course rules, and ORM/CRM principles.

Instructor: Flight Leader or higher.

Performance Standards

TERF events shall navigate a route at or below 200' AGL and remain oriented IAW ASTACSOP Magellan criteria while navigating to a minimum of six checkpoints while using 1:250,000 and 1:50,000 scale maps as appropriate. To the max extent possible the route should be a minimum of 50nm.

NS (HLL or LLL) events shall ensure proper NVD considerations and planning is accomplished.

Brief event IAW SOPs and TTPs.

Conduct event IAW NATOPS and OPNAV 3710.7.

Maintain proper formation and mutual support to and from the working area.

Ensure effective CRM for navigation and obstacle clearance.

Demonstrate effective inter and intra cockpit communication and leadership required for precise navigation and flight management.

Effectively manage fuel and airspace.

Accurately recall and reconstruct events during debrief.

Provide valid learning points.

Prerequisites. ACPM-8640, ACPM-8641, Designated SL with a minimum of three flights as a Section Leader

External Syllabus Support. WST/APT (as required)

DL-6301 1.5 * (NS) A/S 3+ AsltSpt Aircraft/WST/APT
TEN+

Goal. Conduct a Division leader review utilizing a MCT based tactical scenario in a low to medium threat environment. Emphasis should be on situational awareness, flight maturity, CRM, and the tactical and operational knowledge required of a Division Lead.

Requirements. Plan, brief, lead, and debrief a tactical division flight utilizing principles of CRM and flight leadership to ensure mission success. Flight should offer sufficient opportunity to conduct lead changes, cruise principles, cruise and parade formations, and division landings. The DLUI shall demonstrate comprehensive knowledge and understanding of T&R Manual, NATOPS, ASTACSOP, local SOP, local

course rules, and ORM/CRM principles.

Instructor: Flight leader or higher

Performance Standards

Plans and briefs a tactical mission IAW the ASTACSOP, ANTP 3-22.3 and all applicable SOPs.

Arrive at LZ +/- 30 seconds of L-Hour.

TERF events shall navigate a route at or below 200' AGL and remain oriented IAW ASTACSOP Magellan criteria while navigating to a minimum of six checkpoints while using 1:250,000 and 1:50,000 scale maps as appropriate. To the max extent possible the route should be a minimum of 50nm.

Land at points best supporting the Ground Combat Elements scheme of maneuver.

Demonstrate proper employment of ASE.

Demonstrate proper use of tactical formations.

Demonstrate situational awareness of other aircraft through all phases of flight.

Demonstrate positive control of flight.

As applicable, demonstrate proper understanding of NS considerations with multiple aircraft and aerial gunnery.

As applicable, demonstrate proper understanding of Laser employment.

Demonstrate proper understanding of MACCS system to facilitate execution and information flow.

Demonstrate appropriate consideration for threat from planning through execution.

Demonstrate understanding of aircraft maneuver with regard to threat response in concert with proper aerial gunnery employment.

Demonstrate proper understanding of escort considerations.

Demonstrate proper understanding and utilization of secure and active communications.

Demonstrate understanding of FSCM utilization.

Demonstrate understanding of contingency considerations.

Prerequisites.

ACPM-8640, ACPM-8641

Designated SL

Minimum of three flights as a Section Leader.

External Syllabus Support.

WST/APT (as required)

Escort FW/RW aircraft optional.

DL-6302 1.5 * R (NS) A 3+ AsltSpt Aircraft

Goal. Conduct a Division leader check utilizing a Mission Skill based tactical scenario in a low to medium threat environment. Emphasis should be on situational awareness, flight maturity, CRM, and the tactical and operational knowledge required of a Division Lead.

Requirements. Plan, brief, lead, and debrief a tactical division flight utilizing principles of CRM and flight leadership to ensure mission success. Flight should offer sufficient opportunity to conduct lead changes, cruise principles, cruise and parade formations, and division landings. The DLUI shall demonstrate comprehensive knowledge and understanding of T&R Manual, NATOPS, ASTAC SOP, local SOP, local course rules, and ORM/CRM principles.

Instructor: FLSE.

Performance Standards

Plans and briefs a tactical mission IAW the ASTACSOP, ANTP 3-22.3 and all applicable SOPs.

Arrive at LZ +/- 30 seconds of L-Hour.

TERF events shall navigate a route at or below 200' AGL and remain oriented IAW ASTACSOP Magellan criteria while navigating to a minimum of six checkpoints while using 1:250,000 and 1:50,000 scale maps as appropriate. To the max extent possible the route should be a minimum of 50nm.

Land at points best supporting the Ground Combat Elements scheme of maneuver.

Demonstrate proper employment of ASE.

Demonstrate proper use of tactical formations.

Demonstrate situational awareness of other aircraft through all phases of flight.

Demonstrate positive control of flight.

As applicable, demonstrate proper understanding of NS considerations with multiple aircraft and aerial gunnery.

As applicable, demonstrate proper understanding of Laser employment.

Demonstrate proper understanding of MACCS system to facilitate execution and information flow.

Demonstrate appropriate consideration for threat from planning through execution.

Demonstrate understanding of aircraft maneuver with regard to threat response in concert with proper aerial gunnery employment.

Demonstrate proper understanding of escort considerations.

Demonstrate proper understanding and utilization of secure and active communications.

Demonstrate understanding of FSCM utilization.

Demonstrate understanding of contingency considerations.

Prerequisites. 600 hours flt hours, 200 in type, 50 hours in model, DL-6300-6301

External Syllabus Support: Escort FW/RW aircraft optional

2.16.11 Flight Leader (FL)

2.16.11.1 Purpose. To evaluate the prospective Flight Leader's ability to plan, brief and lead an event as a Flight Leader.

2.16.11.2 General

2.16.11.2.1 The Flight Lead evaluation flight shall be flown in the aircraft and may be flown either day or night. Aircraft should be configured with all weapons and systems required for the scenario.

2.16.11.2.2 The FL evaluation flight shall be evaluated by a FLSE.

2.16.11.2.3 Completion of the Flight Leader evaluation meets the requirements for designation as a Flight Leader, at the discretion of the Squadron Commanding Officer. A letter designating the pilot as a Flight Leader shall be placed in the NATOPS jacket and APR. For aircrew requiring Core Skill introduction refresher training and previously designated a Flight Leader, re-designation will require successful completion of the R coded Division Leader evaluation event, at the discretion of the Commanding Officer.

2.16.11.2.4 The Flight Lead Under Evaluation (FLUI) will perform preflight planning, conduct a tactical mission brief, lead a flight of five (5) or more assault aircraft with optional escorts, and conduct a debrief. Evaluation

will be based on mission accomplishment, adherence to all applicable directives, orders, SOPs, ATC and course rules. Further evaluation will concentrate on flight safety, flight control, formation integrity, and communication procedures. Additionally, evaluation will address tactical soundness, contingency planning, brief delivery, and use of supporting arms and flexibility during execution. Aircraft should be configured with all weapons and systems required for the scenario.

2.16.11.2.5 Prospective Flight Leads shall be Division Leaders with a minimum of 700 total flight hours and nominated by the Standardization Board. Prospective Flight Leads shall have flown three Division Leader Flights.

2.16.11.3 Crew Requirements. P/P/CC/AO.

2.16.11.4 Academic Training. The MAWTS-1 CH-53 Course Catalog contains the required readings, chalk talks which shall be completed prior to starting the Flight Leader Syllabus.

2.16.11.5 Prerequisites. The following events/designations are prerequisites prior to the commencement of the Flight Leader Syllabus:

Academic: ACAD-6010, ACPM-8620

Flight: DL-6302 and Minimum three flights as a Division Leader, one of which may be flown in a TEN+ simulator

Designation/Qualification: Division Lead

FL-6400 1.5 * R (NS) A 5+ Aircraft A

Goal. Conduct Flight Leader check utilizing a MCT based tactical scenario. Scenario used should not be the same MCT scenario used during Division Leader Check. Emphasis should be on planning, coordination and control of all supporting arms, escorts and agencies in meeting with mission requirements.

Requirement. Plan, brief, lead and debrief a tactical flight utilizing principles of CRM and flight leadership to ensure mission success. Flight should offer sufficient opportunity to conduct lead changes, cruise principles, cruise and parade formations, and Flight landings. The FLUI shall demonstrate comprehensive knowledge and understanding of T&R Manual, NATOPS, ASTACSOP, local SOP, local course rules, and ORM/CRM principles. The FLUI shall accomplish the following criteria:

Brief in accordance with ASTACSOP and ANTPP 3-22.3-CH53

Complies with Wing, MAG, and squadron SOPs.

Instructor: FLSE.

Performance Standards

Plan and brief a MCT based tactical mission IAW ASTACSOP and ANTPP 3-22.3-CH-53.

TERF events shall navigate a route at or below 200' AGL and remain oriented IAW ASTACSOP Magellan criteria while navigating to a minimum of six checkpoints while using 1:250,000 and 1:50,000 scale maps as appropriate. To the max extent possible the route should be a minimum of 50nm.

Comply with all applicable SOPs.

Arrive at LZ +/- 30 seconds of briefed plan.

Land at points best supporting the Ground Combat Elements scheme of maneuver.

Demonstrate proper employment and understanding of ASE.

Demonstrate proper use of tactical formations.

Demonstrate situational awareness of other aircraft through all phases of flight.
Demonstrate positive control of flight.
As applicable, demonstrate proper understanding of NS considerations with multiple aircraft, aerial gunnery, and laser employment.
Demonstrate proper understanding of MACCS system to facilitate execution and information flow.
Demonstrate appropriate threat consideration from planning through execution.
Demonstrate understanding of aircraft maneuver with regard to threat response in concert with proper aerial gunnery employment.
Demonstrate proper understanding of escort considerations.
Demonstrate proper understanding and utilization of secure and active communications.
Demonstrate understanding of FSCM utilization.
Demonstrate understanding of contingency considerations.
Demonstrate GCE accountability to and from the objective area.
Demonstrate the ability to conduct timely and effective contingency planning.

Prerequisites. ACAD-6010, ACPM-8620, minimum 3 flights as a Division Leader: Minimum 750 Flight hours

External Syllabus Support. CAL/MAL sites and authorized TERF areas as required. RW and/or FW escort preferred but not required.

2.16.12 Air Mission Commander (AMC)

2.16.12.1 Purpose. To prepare and evaluate the prospective Air Mission Commander's ability to plan, brief and lead an event as an Air Mission Commander.

2.16.12.2 General

2.16.12.2.1 Air Mission Commander evaluation event may be conducted from an aircraft, a C&C platform, or an appropriate ground based COC.

2.16.12.2.2 The AMC evaluation flight shall be evaluated by a FLSE.

2.16.12.2.3 Completion of AMC-6500 meets the requirements for designation as Air Mission Commander, at the discretion of the squadron Commanding Officer. A letter designating the pilot as an Air Mission Commander shall be placed in the NATOPS jacket and APR. For aircrew requiring Core Skill introduction refresher training and previously designated an Air Mission Commander, re-designation will require successful completion of the R coded Division Leader evaluation event, at the discretion of the Commanding Officer. Aircraft should be configured with all weapons and systems required for the scenario.

2.16.12.2.4 The AMC designation is a function of flight leadership, maturity and experience. The AMC should lead the mission from a C&C aircraft, if available. The Air Mission Commander Under Evaluation (AMCUI) will perform preflight planning, conduct a tactical mission brief, command a flight of two divisions or more, and conduct a debrief. The AMC shall be evaluated on his ability to integrate the 6 functions of Marine Aviation. Evaluation will be based on mission accomplishment, adherence to all applicable directives, orders, and SOPs. Further evaluation will concentrate on communication planning, coordination of multiple agencies and flight safety. Additionally, evaluation will address tactical soundness of contingency planning, brief delivery, and use of supporting arms and

flexibility during execution. Aircraft should be configured with all weapons and systems required for the scenario.

2.16.12.2.5 Prospective Air Mission Commanders shall be an AFL and shall be nominated by the Standardization Board.

2.16.12.3 Crew Requirements. As required.

2.16.12.4 Academic Training. The MAWTS-1 CH-53 Course Catalog contains the required readings, chalk talks, and lectures which shall be completed prior to starting the Air Mission Commander Syllabus.

2.16.12.5 Prerequisites. The following events/designations are prerequisites prior to the commencement of the Air Mission Commander Syllabus:

Academic: ACAD-6011
Flight: FL-6400
Designation/Qualification: Flight Lead

AMC-6500 1.5 * R (NS) A/L 5+ MULTIPLE ELEMENTS

Goal. Conduct a day or night Air Mission Commander (AMC) check utilizing a MCT based tactical scenario.

Requirement. Plan, brief, lead, and debrief a day or night multi-element, multi-T/M/S tactical mission in any threat environment. The AMCUI shall be evaluated on his/her ability to integrate the six functions of Marine Aviation and should lead the mission from a C&C platform or COC (as appropriate).

Discuss:

Mission analysis and METT-TSL.
Marine Corps Planning Process (MCP) / Rapid Response Planning Process (R2P2).
COA development and task delegation.
Six functions of Marine Aviation.
Aviation Ground Support (AGS) capabilities.
MACCS agencies, functions, and employment.
Threat planning considerations for multiple T/M/S aircraft.
GCE support considerations.
Objective area planning considerations.
Fire Support Coordination Measures (FSCMs).
Fire support/supporting arms considerations and integration (e.g. indirect fires, CAS).
RW and FW escort considerations and escort tactics.
Assault support considerations and tactics.
Contingency planning.
Immediate tasking.
Go vs. No-Go criteria.
Event vs. time driven mission execution.
Chain of responsibility and delegation of authority.
C&C platform considerations and Mission Coordination Area (MCA) selection.
Secure vs. active communications.
EMCON and radio procedures.
Information flow requirements.
Execution checklist utilization.

Review:

Tactical mission planning and briefing.

Command and control during a tactical mission.

Performance Standards. The AMCUI shall conduct mission analysis IAW MCWP 5-1, delegate mission tasks to the most advantageous asset/flight, ensure coordination and supervision of key personnel during planning, conduct tactical planning IAW ANTTP series publications, develop a plan that integrates the six functions of Marine Aviation and AGS, develop a plan that fully supports the GCE ground scheme of maneuver and Essential Fire Support Tasks (EFSTs), conduct an AMC brief IAW ANTTP series publications, maintain SA of all assets participating in the mission, maintain SA on mission progress/execution, maximize C&C platform capabilities, demonstrate proper decision making and task delegation in response to immediate missions and/or contingencies, execute appropriate command and control to ensure mission success. Demonstrate proper understanding and utilization of C4I to facilitate information flow and execution, RW and/or FW escort, secure and active communications, FSCM utilization and supporting arms, and contingency planning and execution. Possess the tactical and operational knowledge required of an AMC.

Prerequisite. Designated Flight Leader, ACAD-6011

Ordnance. As required.

Range Requirements. As required.

External Syllabus Support. GCE, MACCS agencies, AGS assets, multiple T/M/S RW and/or FW assets as required, and any other support required based on the tactical scenario (HST, threat emitter/simulator).

2.16.13 Functional Check Pilot (FCP)

2.16.13.1 Purpose. To prepare and evaluate the prospective Functional Check Pilot's ability to safely and proficiently conduct Functional Check Flights.

2.16.13.2 General

2.16.13.2.1 Squadron QAOs shall work closely with the PTO to monitor the squadron FCP program to ensure standardization, identify trends, provided additional FCP training and procedure compliance.

2.16.13.2.2 A designated FCP shall be the instructor for all FCPIUT training events.

2.16.13.2.3 Aircraft in a test status are preferred but are not required for the completion of an FCPIUT event.

2.16.13.3 Crew Requirements. P/P/CC.

2.16.13.4 Prerequisites. Prospective Functional Check Pilots shall be a designated HAC with a minimum of 25 aircraft commander hours to prior to the start of the syllabus, and nominated by the Standardization Board. Prior to their FCP designation, pilots must attain a minimum of 50 aircraft commander hours.

2.16.13.5 Academic Training. FCPUI will have a thorough understanding of the readings from OPNAV 3710.7, CH-53 NATOPS, 4790 Naval Aviation Maintenance Program, MIMS, and local SOP's that pertain to FCF operations. Readings and the Open book exam will be generated, administered and maintained by the Squadron QAO.

FCP-6610 1.5 * D S/A 1 WST/APT/CH-53E

Goal. Introduce AFCS checks associated with Functional Check Flight (B-card Procedures).

Requirements

Discuss:

Maintenance actions requiring a B-card
B-card procedures
QA brief/debrief

Introduce:

B-card procedures
QA brief/debrief

Performance Standards. FCPUI is expected to have a working knowledge of the procedures and concepts listed above as written in CH-53 NATOPS (CH. 10). FCPUI is able to answer questions and discuss the systems being checked as outlined above. As required, the FCP will demonstrate procedures in order to ensure standardized execution. The FCP should point out common errors in execution as well as common system failures that the FCPUI should look for.

Prerequisite. Recommendation by Stan Board. 25 HAC hours.

FCP-6611 1.5 * R D A 1 CH-53E

Goal. Review AFCS checks associated with Functional Check Flight (B-card Procedures).

Requirements

Discuss:

Conditions requiring a B-card.
B-card procedures.
QA brief/debrief.

Practice:

B-card procedures.
QA brief/debrief.

Performance Standards. FCPUI will demonstrate the ability to conduct a B-card functional check flight. The evaluator should only need to offer little procedural guidance and troubleshooting input. The FCPUI shall be evaluated on all stages of the evolution from QA briefing through QA debriefing and MAF initiation. FCPUI will be evaluated on overall systems knowledge, procedural correctness, time management, cockpit management and aircrew coordination.

Prerequisites. FCP 6610 (B-card SIM Flight)

FCP-6612 1.5 * D S/A 1 WST/APT/CH-53E

Goal. Introduce Mechanical Flight Control checks associated with Functional Check Flight (C-card Procedures).

Requirements

Discuss:

Conditions requiring a C-card
C-card procedures
QA brief/debrief

Introduce:

C-card procedures.
QA brief/debrief.

Performance Standards. FCPUI is expected to have a working knowledge of the procedures and concepts listed above as written in CH-53 NATOPS (CH. 10). FCPUI is able to answer questions and discuss the systems being checked as outlined above. As required, the FCP will demonstrate procedures in order to ensure standardized execution. The FCP should point out common errors in execution as well as common system failures that the FCPUI should look for.

Prerequisites. Recommendation by Stan Board. 25 HAC hours.

FCP-6613 1.5 * R D A 1 CH-53E

Goal. Evaluate Mechanical Flight Control checks associated with Functional Check Flight (C-card Procedures).

Requirements

Discuss:

Conditions requiring a C-card
C-card procedures
QA brief/debrief

Practice:

C-card procedures
QA brief/debrief

Performance Standards. FCPUI will demonstrate the ability to conduct a C-card functional check flight. The evaluator should only need to offer little procedural guidance and troubleshooting input. The FCPUI shall be evaluated on all stages of the evolution from QA briefing through QA debriefing and MAF initiation. FCPUI will be evaluated on overall systems knowledge, procedural correctness, time management, cockpit management and aircrew coordination.

Prerequisites: FCP 6612 (C-card SIM Flight).

FCP-6614 1.5 * D S/A 1 WST/APT/CH-53E

Goal. Introduce engine performance checks associated with Functional Check Flight (D-card Procedures).

Requirements

Discuss:

Conditions requiring a D-card.
D-card procedures.
QA brief/debrief.

Introduce:

D-card procedures.
QA brief/debrief.

Performance Standards. FCPUI is expected to have a working knowledge of the procedures and concepts listed above as written in CH-53 NATOPS (CH. 10). FCPUI is able to answer questions and discuss the systems being checked as outlined above. As required, the FCP will demonstrate procedures in order to ensure standardized execution. The FCP should point out common errors in execution as well as common system failures that the FCPUI should look for.

Prerequisites. Recommendation by Stan Board. 25 HAC hours.

FCP-6615 1.5 * R D A 1 CH-53E

Goal. Evaluate engine performance checks associated with Functional Check Flight (D-card Procedures).

Requirements:

Discuss:

Conditions requiring a D-card
D-card procedures
QA brief/debrief

Practice:

D-card procedures
QA brief/debrief

Performance Standards. FCPUI will demonstrate the ability to conduct a D-card functional check flight. The evaluator should only need to offer little procedural guidance and troubleshooting input. The FCPUI shall be evaluated on all stages of the evolution from QA briefing through QA debriefing and MAF initiation. FCPUI will be evaluated on overall systems knowledge, procedural correctness, time management, cockpit management and aircrew coordination.

Prerequisites. FCP 6614 (D-card SIM Flight).

FCP-6616 1.5 * R D S/A 1 WST/APT/CH-53E

Goal. Introduce A-card procedures not associated with another FCP profile Flight (A-card unique items).

Requirements

Discuss:

Conditions requiring an A-card
A-card procedures
IMDS testing procedures
QA brief/debrief

Introduce:

A-card procedures
IMDS testing procedures
QA brief/debrief

Performance Standards: FCPUI is expected to have a working knowledge of the procedures and concepts listed above as written in CH-53 NATOPS (CH. 10). FCPUI is able to answer questions and discuss the systems being checked as outlined above. As required, the FCP will demonstrate procedures in order to ensure standardized execution. The FCP should point out common errors in execution as well as common system failures that the FCPUI should look for.

Prerequisite. FCP-6610 (B-card SIM), FCP-6612 (C-card SIM), FCP-6614 (D-card SIM).

FCP-6617 1.5 * R D A 1 CH-53E

Goal. Conduct a functional check pilot evaluation.

Requirements Squadrons shall evaluate pilots for designation at the discretion of the Commanding Officer per the criteria in the CH-53 NATOPS Flight Manual, OPNAV 3710.7, 4790 Naval Aviation Maintenance Program, MIMS, and local SOPs.

Instructor: As determined by the squadron standardization board but must be a designated FCP at a minimum.

Discuss: Any previously discussed item in the FCP syllabus.

Review:

A-card procedures.

Perform a full A-card FCF

Performance Standards. FCPUI will be evaluated on the ability to conduct a full-systems functional check flight. The evaluator should not need to offer procedural guidance nor provide troubleshooting input. The FCPUI shall be evaluated on all stages of the evolution from QA briefing through QA debriefing and MAF initiation. FCPUI will be evaluated on overall systems knowledge, procedural correctness, time management, cockpit management, and aircrew coordination.

Prerequisites. FCP-6610-FCP-6616, completion of the squadron academic syllabus, 50 HAC hours and as determined by squadron CO, AMO, QAO, and STAN Board.

2.17 AVIATION CAREER PROGRESSION MODEL (ACPM) 8000 PHASE

2.17.1 Purpose. To enhance professional understanding of Marine Aviation and the MAGTF and ensure individuals possess the requisite skills to fill battle command and battle staff positions in support of the ACE and the MAGTF in a joint environment. The focus of training in the Aviation Career Progression Model (ACPM) is on academic events in the following areas:

- Marine Air Command and Control System (MACCS)
- Aviation Ground Support
- Joint Air Operations
- ACE Battle Staff
- MAGTF
- Seabased Operations
- Combatant Commander Organizations

2.17.2 General

2.17.2.1 The ACPM is intended to be an integrated series of academic events contained within each phase of training.

2.17.2.2 All ACPM classes are available on the MAWTS-1 NIPR website at <https://vcepub.tecom.usmc.mil/sites/msc/magtftc/mawts1/>

2.17.2.3 On the far left margin of the MAWTS-1 NIPR website, under documents is a tab for ACPM. Clicking on that tab will bring up viewing instructions, purpose, and the 3 ACPM categories (core skill, mission skill, flight leadership). Under the 3 category tabs, all the ACPM classes are listed in power point and media site format. Media site is the primary viewing form, backed up with power point slides, if necessary. For downloading classes, all the folders associated with each class (player, APP_themes, content, player options, etc) must be copied over to the selected computer.

2.17.2.4 These academic events can be given lecture style to an audience or done individually. If given as a lecture, those in attendance will sign an attendance roster and be given credit for the event by the PTO, or designated representative. The PTO or designated representative will then manually update MSHARP and the Pilot's APR Section III, Aircrew Ground School Training section using Enclosure 1 of this document.

2.17.2.5 If done on a self-paced individual level, that individual will report to the PTO or designated representative, upon completion. The PTO or designated representative will then manually update MSHARP.

2.17.2.6 Pilots who have previously completed classes listed under the ACPM syllabus may be given grandfather status and manually updated via MSHARP by the PTO or designated representative, at the discretion of the Squadron

Commanding Officer. Additional applicability is IAW NAVM C3500.14 Aviation T&R Program Manual, paragraph 212.

2.17.2.7 ACPM academic events are like any other academic event in that they serve as pre-requisites to selected flight events or stages.

2.17.2.8 Several ACPM academic events are integrated as prerequisites for flight leadership syllabi.

2.17.2.9 Squadron Commanding Officers shall ensure the requisite ACPM training requirements have been met prior to designating flight leaders.

2.17.2.10 ACPM academic events, along with their identifying prerequisite association with other training phases/stages/events are listed below.

TRAINING PHASE	ACPM ACADEMIC EVENT	PRE-REQUISITE TO
CORE SKILL	(U) ACPM-8200 MACCS AGENCIES, FUNCTIONS, AND CONTROL OF AIRCRAFT AND MISSILES	LLL STAGE
	(U) ACPM-8201 MWCS BRIEF	LLL STAGE
	(U) ACPM-8202 ACA & AIRSPACE	LLL STAGE
	(U) ACPM-8210 AVIATION GROUND SUPPORT	LLL STAGE
	(U) ACPM-8230 ACE BATTLESTAFF	LLL STAGE
	(U) ACPM-8231 BATTLE COMMAND DISPLAY	LLL STAGE
	(U) ACPM-8240 SIX FUNCTIONS OF MARINE AVIATION	LLL STAGE
	(U) ACPM-8241 ASR/JTAR INTRODUCTION AND PRACTICAL APPLICATION	LLL STAGE
	(U) ACPM-8242 SITE COMMAND PRIMER	LLL STAGE
	(U) ACPM-8250 THEATER AIR GROUND SYSTEM (TAGS)	LLL STAGE
MISSION SKILL	(U) ACPM-8300 AIR DEFENSE	EXP-3240
	(U) ACPM-8310 FORWARD ARMING REFUELING POINT (FARP) OPERATIONS	EXP-3240
	(U) ACPM-8311 MARINE CORPS TACTICAL FUEL SYSTEMS	EXP-3240
	(U) ACPM-8320 JOINT STRUCTURE AND JOINT AIR OPERATIONS	AT-3340
	(U) ACPM-8321 JOINT AIR TASKING CYCLE PHASE 1: STRATEGY DEVELOPMENT	AT-3340
	(U) ACPM-8322 JOINT AIR TASKING CYCLE PHASE 2: TARGET DEVELOPMENT	AT-3340
	(U) ACPM-8323 JOINT AIR TASKING CYCLE PHASE 3: WEAPONERING AND ALLOCATION	AT-3340
	(U) ACPM-8324 JOINT AIR TASKING CYCLE PHASE 4: JOINT ATO PRODUCTION	AT-3340
	(U) ACPM-8325 JOINT AIR TASKING CYCLE PHASE 5: FORCE EXECUTION	AT-3340
	(U) ACPM-8326 JOINT AIR TASKING CYCLE PHASE 6: COMBAT ASSESSMENT	AT-3340
	(U) ACPM-8340 INTEGRATING FIRES AND AIRSPACE WITHIN THE MAGTF	AT-3340
	(U) ACPM-8350 PHASING CONTROL ASHORE	SEA-3140
(U) ACPM-8351 TACRON ORGANIZATIONS AND FUNCTIONS	SEA-3140	
FLIGHT LEADERSHIP	(U) ACPM-8630 TACTICAL AIR COMMAND CENTER (TACC)	SECTION LEADER STAGE
	(U) ACPM-8660 JOINT OPS INTRO	
	(U) ACPM-8640 JOINT DATA NETWORK	DIVISION LEADER STAGE
	(U) ACPM-8641 MAGTF THEATER AND NATIONAL ISR EMPLOYMENT	
	(U) ACPM-8620 ESG/CSG INTEGRATION	FLIGHT LEADER STAGE

2.17.2.11 At the completion of each ACPM event, the appropriate training code shall be logged in M-SHARP by the squadron Pilot Training Officer (PTO) or designated representative, as appropriate.

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2.17.2.12 ACPM events do not have refly intervals.

2.18 T&R SYLLABUS MATRIX. The below matrix summarizes T&R syllabus event Information.

2.18 T&R SYLLABUS MATRIX (2000-8000)

CH-53E PILOT T&R MATRIX (2000-8000 PHASE)																									
SKILL	STAGE	TRNG CODE	T&R DESCRIPTION	BASIC	REF	SC	MAIN	#	ACAD	#	SIM	#	FLT	CON	DEVIC	#	TEN +	REFLY	PREREQUISITE	CHAINING	EVAL	ECM	EVENT	CONV	
2000 PHASE - CORE SKILL BASIC																									
ACADEMIC STAGE (ACAD)																									
ACAD	ACAD	2000	CH-53 GPS (FAM)	X					1.0									*						2000	
	ACAD	2001	ARC-210	X	X		X		1.0									365							2001
	ACAD	2002	AN/AYK-28	X					0.8										*						2002
	ACAD	2003	CH-53 INTERNAL CARGO	X					1.0										*						2003
	ACAD	2004	CH-53 AAR/ALE-47 (*)	X	X		X		1.5										365						2004
	ACAD	2005	CH-53 TACFORM	X					1.0										*						2005
	ACAD	2006	CH-53 PFPS TECHNIQUES	X					2.0										*						2006
	ACAD	2007	DESERT OPS (*)	X	X		X		1.0										365						2007
	ACAD	2008	MOUNTAIN OPS(*) (CAL)	X	X		X		1.0										365						2008
	ACAD	2009	COMBAT AIRCREW COOR	X					1.0										*						2009
	ACAD	2010	HUD	X					1.0										*						2010
	ACAD	2011	ASD TERRAIN FLIGHT	X					1.0										*						2011
	ACAD	2012	CH-53 APR-39 (*)	X	X		X		0.5										365						2012
	ACAD	2013	SURFACE TO AIR THREAT	X					0.5										*						2013
	ACAD	2014	HEAVY LIFT OPS	X	X		X		1.0										365						2014
	ACAD	2015	AS TO ARTILLERY	X					1.0										*						2015
	ACAD	2016	CH-53 DM/GTR I (GTR)	X					1.0										*						2016
	ACAD	2017	IR SAM THREAT	X	X		X		1.8										365						2017
	ACAD	2019	AAQ-24(*)	X	X		X		1.0										365						2019
	ACAD	2020	AAA THREAT	X					0.8										*						2020
	ACAD	2021	EVASIVE MANEUVERS	X					1.0										*						2021
	ACAD	2022	HAAR(*) (AR)	X	X	X	X		1.0										365						2022
	ACAD	2023	CH-53 WEAPONS SYSTEMS	X					1.0										*						2023
	ACAD	2024	WEAPONS EMPLOYMENT	X					1.0										*						2024
	ACAD	2025	INTRO TO LASER SYSTEMS	X					1.0										*						2025
	ACAD	2026	MAGTF FSCMS	X	X		X		1.0										365						2026
	ACAD	2027	OBJECTIVE AREA	X	X		X		1.0										365						2027
	ACAD	2028	ROE	X					1.0										*						2028
	ACAD	2029	EXECUTION CHECKLIST	X					0.5										*						2029
	ACAD	2030	MISSION ANALYSIS(*)	X	X		X		1.5										365						2030
	ACAD	2031	NVG PREFLIGHT & ADJ	X					1.0										*						2031
	ACAD	2032	NVG SYSTEMS	X					1.0										*						2032
	ACAD	2033	THE NIGHT ENVIRONMENT	X					1.0										*						2033
	ACAD	2034	MISPERCEPTIONS & ILL	X					1.0										*						2034
	ACAD	2035	NIGHT ROUTE PLANNING	X					1.0										*						2035
	ACAD	2036	NIGHT OPS & PLANNING A	X					1.0										*						2036
	ACAD	2037	HUMAN FACTORS	X					1.0										*						2037
	ACAD	2038	FLIR TRAINING COURSE	X					1.0										*						2038
	ACAD	2039	CH-53 HNVS FLIR (LLL)	X					1.0										*						2039
	ACAD	2040	ASULT SUPP ESCORT TAC	X					1.0										*						2040
	ACAD	2041	BATTLEFIELD ILLUM	X					0.5										*						2041
TOTAL ACAD STAGE								41	41.4	0	0.0	0	0.0												

CH-53E PILOT T&R MATRIX (2000-8000 PHASE)																									
SKILL	STAGE	TRNG CODE	T&R DESCRIPTION	BASIC	REF	SC	MAIN	#	ACAD	#	SIM	#	FLT	CON	DEVIC	#	TEN +	REFLY	PREREQUISITE	CHAINING	EVAL	EOM	EVENT	CONV	
FAMILIARIZATION / INSTRUMENT STAGE (FAM/INST)																									
FAM	ACAD	2001	ARC-210	X	X		X											365						2001	
	ACAD	2002	AN/AYK-28	X														*							2002
	ACAD	2003	CH-53 INTERNAL CARGO	X														*							2003
	ACAD	2004	CH-53 AAR/ALE-47 (*)	X	X		X											365							2004
	ACAD	2006	CH-53 PFPS TECHNIQUES	X														*							2006
	SFAM	2100	SIM FAM, INSTR, EP	X	X		X					1.5			(N)	S/A	1		90	1902					2100
	FAM	2101	DAY HUD FAM/CAL	X	X	X						1.5				S/A	1		*	2100					2101
	FAM	2105	FAM, INSTR, EP	X	X		X							1.5	(N)	A	1		365	2100					2105
TOTAL FAM/INST STAGE								0	0.0	2	3.0	1	1.5												
FORMATION STAGE (FORM)																									
FORM	ACAD	2005	CH-53 TACFORM	X														*							
	FORM	2110	DAY FORM	X	X		X						1.5		A	2		365	2005,2105						2110
TOTAL FORM STAGE								0	0.0	0	0.0	1	1.5												
CONFINED AREA LANDING STAGE (CAL)																									
CAL	ACAD	2007	DESERT OPERATIONS (*)	X	X		X											365							2007
	ACAD	2008	MOUNTAIN OPERATIONS (*)	X	X		X											365							2008
	ACAD	2009	COMBAT AIRCREW COOR	X														*							2009
	ACAD	2010	HUD	X														*							2010
	CAL	2210	CALS	X	X								1.5		A	1		365	2101,2105						2210
	CAL	2211	SECTION CALS	X	X	X	X						1.5		A	2		365	2110,2210						2211
	TOTAL CAL STAGE								0	0.0	0	0.0	2	3.0											
TERRAIN FLIGHT STAGE (TERF)																									
TERF	ACAD	2011	ASD TERRAIN FLIGHT	X														*							2011
	ACAD	2012	CH-53 APR-39 (*)	X	X		X											365							2012
	ACAD	2013	SURFACE TO AIR THREAT	X														*							2013
	TERF	2310	TERF	X									1.5		A	1		*	2105,2011						2310
	TERF	2311	SECTION TERF	X	X	X	X						1.5		A	2		365	2110,2310						2311
TOTAL TERF STAGE								0	0.0	0	0.0	2	3.0												
EXTERNAL STAGE (EXT)																									
EXT	ACAD	2014	HEAVY LIFT OPS (EXT)	X	X		X											365							2014
	ACAD	2015	AS TO ARTILLERY	X														*							2015
	SEXT	2400	HEAVY LIFT EXT SIM	X	X							1.5			S	1		*	1902,2101						2400
	EXT	2410	SINGLE POINT EXTERNALS	X	X	X							1.5		A	1		*	2014,2210				2210		2410
	EXT	2411	DUAL POINT EXTERNALS	X	X	X	X						1.5		A	1		365	2014,2210						2411
	EXT	2420	HLL SINGLE POINT EXT	X	X	X							1.5	NS	A	1		*	2220,2410						2420
	EXT	2421	HLL DUAL POINT EXT	X	X	X	X						1.5	NS	A	1		180	2220,2411						2421
	EXT	2430	LLL EXTERNAL	X	X	X	X						1.5	NS	A	1		180	2230,2420,2421,NSQ-HLL						2430
	EXT	2441	HEAVY LIFT EXTERNALS	X	X		X						1.5	(NS)	A	1		365	2400,2410,2421~NS,2430~LLL						2441
TOTAL EXT STAGE								0	0.0	1	1.5	6	9.0												

CH-53E PILOT T&R MATRIX (2000-8000 PHASE)																									
SKILL	STAGE	TRNG CODE	T&R DESCRIPTION	BASIC	REF	SC	MAIN	#	ACAD	#	SIM	#	FLT	CON	DEVIC	#	TEN +	REFLY	PREREQUISITE	CHAINING	EVAL	EOM	EVENT	CONV	
GROUND THREAT REACTION STAGE (GTR)																									
GTR	ACAD	2016	CH-53 DM/GTR I (GTR)	X														*						2016	
	ACAD	2017	IR SAM THREAT	X	X		X												365						2017
	ACAD	2019	AAQ-24 (*)	X	X		X												365						2019
	ACAD	2020	AAA THREAT	X															*						2020
	ACAD	2021	EVASIVE MANEUVERS	X															*						2021
	SGTR	2500	GTR & ASE FAM SIM	X								1.5				S	2		*	2016,2017,2019,2020,2021,2311					2500
	GTR	2540	NON RADAR GTR	X	X		X							1.5	(NS)	A	2		365	2311,2500,2321~NS,2331~LLL,2810~ORD	2110,2311				2540
TOTAL GTR STAGE								0	0.0	1	1.5	1	1.5												
HELICOPTER AIR TO AIR REFUELING STAGE (HAAR)																									
HAAR	ACAD	2022	HAAR(*) (AR)	X	X	X	X											365						2022	
	SHAAR	2600	DAY HAAR SIM	X		X					1.5				S	1		*	2100,2022					2600	
	SHAAR	2601	NS HAAR SIM	X		X					1.5			NS	S	1		*	2600					2601	
	HAAR	2610	DAY HAAR LEFT HOSE	X	X								1.5		A	1		*	2110,2600					2610	
	HAAR	2611	DAY HAAR LEFT & RIGHT	X	X	X	X						1.5		A	1		180	2610					2611	
	HAAR	2640	NS HAAR	X	X	X	X						1.5	NS	A	1		180	2101,2120,2601,2611	2611				2640	
TOTAL HAAR STAGE								0	0.0	2	3.0	3	4.5												
FIELD CARRIER LANDING PRACTICE STAGE (FCLP)																									
FCLP	SFCLP	2700	SIM CQ	X							1.5			(N)	S	1		*						2700	
	FCLP	2710	DAY FCLP	X	X	X	X						1.5		A	1		365	2210,2700					2710	
	FCLP	2742	NS FCLP	X	X	X	X						1.5	NS	A	1		365	2220,2230,2710	2710				2742	
TOTAL CQ STAGE								0	0.0	1	1.5	2	3.0												
AERIAL GUNNERY STAGE (AG)																									
AG	ACAD	2023	CH-53 WEAPONS SYSTEMS	X														*						2023	
	ACAD	2024	WEAPONS EMPLOYMENT	X															*						2024
	ACAD	2025	INTRO TO LASER SYSTEMS	X															*						2025
	ACAD	2026	MAGTF FSCMS	X	X		X												365						2026
	AG	2810	AERIAL GUNNERY	X									1.5		A	1		*	2023,2024,2025,2026,2105					2810	
	AG	2840	NS GUNNERY	X	X		X						1.5	NS	A	1		365	2101,2810,NSQ-HLL					2840	
TOTAL AG STAGE								0	0.0	0	0.0	2	3.0												
TACTICS STAGE (TAC)																									
TAC	ACAD	2027	OBJ AREA PLANNING	X	X		X											365						2027	
	ACAD	2028	ROE	X															*					2028	
	ACAD	2029	EXECUTION CHECKLIST	X															*					2029	
	ACAD	2030	MISSION ANALYSIS (*)	X	X		X												365					2030	
	TAC	2910	LOW THREAT LEVEL	X										2.0		A	2		*	2027,2028,2029,2030,2211,2311,2810~50 CAL	2110,2210,2211			2910	
	TAC	2911	MED THREAT LEVEL	X	X		X							2.0		A	2		365	2910	2110,2210,2211			2911	
TOTAL TAC STAGE								0	0.0	0	0.0	2	4.0												
NIGHT SYSTEMS HIGH LIGHT LEVEL STAGE (NS HLL)																									

NS HLL	ACAD	2031	ASSAULT NVG PREFLIGHT	X											*				2031
	ACAD	2032	NVG SYSTEMS	X											*				2032
	ACAD	2033	THE NIGHT ENVIRONMENT	X											*	2032			2033
	ACAD	2034	MISPERCEPTIONS & ILL	X											*	2033			2034
	ACAD	2035	NIGHT ROUTE PLANNING	X											*	2031			2035
	ACAD	2036	NIGHT OPERATIONS	X											*	2035			2036
	SHLL	2102	OPS OF AIRCRAFT NS	X	X			1.5			NS	S/A	1		*	2031,2100			
	HLL	2120	HLL FORM	X	X					1.5	NS	A	2	180		2036,2102,2110			2120
	HLL	2220	HLL CALS	X						1.5	NS	A	1	180		2102,2210			2220
	HLL	2221	HLL SECTION CALS	X	X	X	X			1.5	NS	A	2	180		2120,2211,2220	2220,2120,2211,2210		2221
HLL	2320	HLL TERF	X						1.5	NS	A	1	180		2102,2310	2311,2310		2320	
HLL	2321	HLL SECTION TERF	X	X	X	X			1.5	NS	A	2	180		2120,2311,2320	2311,2310,2320		2321	
HLL	2920	HLL CHK/LOW THREAT TAC	X	X		X			2.0	NS	A	2	365		2221,2321,2910, 2810-50 CAL	2910,2221,2220,2211,2210,2110		2920	
TOTAL NS HLL STAGE										0	0.0	1	1.5	6	9.5				
NIGHT SYSTEMS LOW LIGHT LEVEL STAGE (NS LLL)																			
NS LLL	ACAD	2037	HUMAN FACTORS	X											*				2037
	ACAD	2038	FLIR TRAINING COURSE	X											*				2038
	ACAD	2039	CH-53 HNVS FLIR (LLL)	X											*				2039
	ACAD	2040	AS ESCORT TACTICS	X											*				2040
	ACAD	2041	BATTLEFIELD ILLUM	X											*				2041
	LLL	2230	LLL CALS	X						1.5	NS	A	1	180		NSQ-HLL	2210,2220		2230
	LLL	2231	LLL SECTION CALS	X	X	X	X			1.5	NS	A	2	180		2230	2210,2211,2220,2221,2230		2231
	LLL	2330	LLL TERF	X						1.5	NS	A	1	180		NSQ-HLL	2310,2320		2330
LLL	2331	LLL SECTION TERF	X	X	X	X			1.5	NS	A	2	180		2330	2310,2311,2320,2321,2330		2331	
LLL	2930	LLL CHK/MED THREAT TAC	X	X	X	X			2.0	NS	A	2	365		2231,2331,2911, 2810-50 CAL	2110,2211,2120,2210,2220,2221,2230,2231,2910,2911,2920		2930	
TOTAL NS LLL STAGE										0	0.0	0	0.0	5	8.0				
CORE SKILL PHASE TOTAL										41	41.4	8	12.0	33	51.5				
3000 PHASE - MISSION SKILLS																			
ACADEMIC STAGE (ACAD)																			
ACAD	ACAD	3000	RAPID RESPONSE PLANNING	X					1.0						G				3000
	ACAD	3001	REC THREAT	X					0.7						G				3001
	ACAD	3002	NEO EXECUTION	X					0.8						G				3002
	ACAD	3003	INTELL PREP	X					0.8						G				3003
	ACAD	3004	PERSONNEL RECOVERY	X					1.0						G				3004
	ACAD	3005	CH-53 SPECIFIC TRAP	X					0.8						G				3005
	ACAD	3006	CASEVAC	X					0.5						G				3006
	ACAD	3007	CIRCADIAN RHYTHM	X					1.0						G				3007
ACAD	3008	INTRO TO NVG TAC	X					1.0						G				3008	
TOTAL ACAD STAGE										9	7.6	0	0.0	0	0.0				

TACTICAL RECOVERY OF AIRCRAFT AND PERSONNEL STAGE (TRAP)																					
TRAP	ACAD	3004	PERSONNEL RECOVERY	X											G		*		3004		
	ACAD	3005	CH-53 SPECIFIC TRAP	X											G		*		3005		
	LLL	2231	LLL SECTION CALS	X	X	X	X								NS	A	2	180	2230	2210,2211,2220,2221,2230	2231
	LLL	2331	LLL SECTION TERF	X	X	X	X								NS	A	2	180	2330	2311,2320,2321,2330	2331
	EXT	2430	LLL EXTERNAL	X	X	X	X								NS	A	1	180	2230,2420,2421,NSQ-HLL	2410,2411,2420	2430
	EXT	2441	HEAVY LIFT EXTERNALS	X	X		X								(NS)	A	1	365	2400,2410,2421~NS, 2430~LLL	2410,2210	2441
	GTR	2540	NON RADAR GTR	X	X		X								(NS)	A	2	365	2311,2500,2321~NS,2331~LLL,2810~ORD	2110,2311	2540
	HAAR	2640	NS HAAR	X	X	X	X								NS	A	1	180	2101,2120,2601,2611		2640
	AG	2840	NS GUNNERY	X	X		X								NS	A	1	365	2101,2810,NSQ-HLL		2840
TRAP	3440	TRAP TACTICS	X	X		X						2.0	(N)	A/S	1+	X	365	2930,3004,3005,8340,2430,2441,2540,2640,2840		3440	
TOTAL TRAP STAGE									0	0.0	0	0.0	1	2.0							
AIR EVACUATION STAGE (AE)																					
AE	ACAD	3006	CASEVAC	X											G		*		3006		
	ACAD	3007	CIRCADIAN RHYTHM	X											G		*		3007		
	ACAD	3008	INTRO TO NVG TAC	X											G		*		3008		
	LLL	2231	LLL SECTION CALS	X	X	X	X								NS	A	2	180	2230	2210,2211,2220,2221,2230	2231
	LLL	2331	LLL SECTION TERF	X	X	X	X								NS	A	2	180	2330	2311,2320,2321,2330	2331
	GTR	2540	NON RADAR GTR	X	X		X								(NS)	A	2	365	2311,2500,2321~NS,2331~LLL,2810~ORD	2110,2311	2540
	AG	2840	NS GUNNERY	X	X		X								NS	A	1	365	2101,2810,NSQ-HLL		2840
	AE	3540	AERIAL EVACUATION TAC	X	X		X						2.0	(N)	A/S	1+	X	365	2930,3006,3007,3008,8350,8351,2540,2840		3540
TOTAL AE STAGE									0	0.0	0	0.0	1	2.0							
TOTAL MISSION PHASE									9	7.6	0	0.0	5	10.0							
4000 PHASE - CORE PLUS																					
ACADEMIC STAGE (ACAD)																					
ACAD	ACAD	4000	RF SAM	X											G		*		4000		
	ACAD	4001	DM GAME PLANNING	X											G		*		4001		
	ACAD	4002	CH-53 DM/GTR II	X											G		*		4002		
	ACAD	4003	HELICOPTER PS AND EM	X											G		*		4003		
	ACAD	4004	FW THREAT TO AS	X											G		*		4004		
	ACAD	4005	ATTACK HELO THREAT	X											G		*		4005		
	ACAD	4006	RGR	X											G		*		4006		
	ACAD	4007	MOUT	X											G		*		4007		
	ACAD	4008	JCAS	X											G		*		4008		
	ACAD	4009	GCE RAID PLANNING	X											G		*		4009		
	ACAD	4010	MAGTF TARGETING	X											G		*		4010		
	ACAD	4011	TBFDs/MK-105	X											G		*		4011		
TOTAL ACAD STAGE									12	11.5	0	0.0	0	0.0							

HELICOPTER INSERTION & EXTRACTION TECHNIQUES STAGE (HIE)																								
HIE	HIE	4110	HELOCAST	X	X		X						1.5		A	1	365	2310	2210			4110		
	HIE	4140	FASTROPE/SPIE/RAPEL	X		X							1.5	(NS)	A	1	*	2210,2920~NS,2930~LLL	2210			4140		
	HIE	4141	PARA OPS	X									1.5	(NS)	A	1	*	2210,2920~NS,2930~LLL	2210			4141		
TOTAL HIE STAGE								0	0.0	0	0.0	3	4.5											
TERRAIN FLIGHT EXTERNALS STAGE (TERF EXT)																								
EXT	SEXT	4412	DAY TERF EXTERNALS	X	X	X						1.5		S/A	1		365	2210, 2310, 2410, 2411, 2500				4412		
	SEXT	4440	NS TERF EXTERNALS	X	X	X	X					1.5		NS	S/A	1	365	2320, 2420, 2421, 4412, 2330, 2430~LLL	4412			4440		
TOTAL TERF STAGE								0	0.0	2	3.0	0	0.0											
GROUND THREAT REACTION STAGE (GTR)																								
GTR	ACAD	4000	RF SAM	X										G			*						4000	
	GTR	4540	RADAR GTR	X	X		X						1.5	(NS)	A	2	365	2311,2500,4000	2110,2311				4540	
TOTAL GTR STAGE								0	0.0	0	0.0	1	1.5											
DEFENSIVE MEASURES STAGE (DM)																								
DM	ACAD	4001	DM GAME PLANNING	X										G			*						4001	
	ACAD	4002	CH-53 DM/GTR II	X										G			*						4002	
	ACAD	4003	HELICOPTER PS AND EM	X										G			*						4003	
	ACAD	4004	FW THREAT TO AS	X										G			*						4004	
	ACAD	4005	ATTACK HELO THREAT	X										G			*						4005	
	DM	4510	RW DM	X	X		X						1.5		A	2	365	2311,4001-4005	2110,2311				4510	
	DM	4511	FW DM	X	X		X						1.5		A	2	365	2311,4001-4005	2110,2311				4511	
TOTAL DM STAGE								0	0.0	0	0.0	2	3.0											
CHEMICAL, BIOLOGICAL, RADIATION, AND NUCLEAR STAGE (CBRN)																								
CBRN	SCBRN	4600	CBRN FAM	X								1.5	(N)	S/A	2	X	*	2105~DAY,2220~HLL,2230					4600	
TOTAL CBRN STAGE								0	0.0	1	1.5	0	0.0											
CARRIER QUALIFICATION STAGE (CQ)																								
CQ	CQ	4711	DAY CQ	X	X	X						1.5		A	1		365	2710					4711	
	CQ	4743	NS CQ	X	X	X	X					1.5	NS	A	1		365	2742,4711,2920~HLL	4711				4743	
TOTAL CQ STAGE								0	0.0	0	0.0	2	3.0											
TACTICS STAGE (TAC)																								
TAC	GTR	2540	NON RADAR GTR	X	X		X							(NS)	A	2	365	2311,2500,2321~NS,2331~LLL,2810~ORD	2110,2311				2540	
	AG	2840	NS GUNNERY	X	X		X							NS	A	1	365	2101,2810,NSQ-HLL					2840	
	ACAD	4006	RGR	X										G			*						4006	
	ACAD	4007	MOUT	X										G			*							4007
	TAC	4940	DIV TACTICS	X	X		X						2.0	(NS)	A	3+	365	2911,2920~HLL,2930~LLL	2210,2211,2911,NS~2920,LLL~2230,LLL~2231,2930~LLL				4940	
	TAC	4941	URBAN TACTICS	X	X		X						2.0	NS	A	2	365	2911,4007,2920~HLL,2930~LLL,2840,2540	2110,2210,2211,2220,2221,2910,2911				4941	
	TAC	4942	LONG RANGE TACTICS	X	X		X						4.0	(NS)	A	2	365	2640,2911,4006,2920~HLL,2930~LLL,2840,2540,	2110,2210,2211,2911				4942	
TOTAL TAC STAGE								0	0.0	0	0.0	3	8.0											

RAID STAGE (RAID)																						
RIE	GTR	2540	NON RADAR GTR	X	X	X						(NS)	A	2	365	2311,2500,2321~NS,2331~LLL,2810~ORD	2110,2311			2540		
	AG	2840	NS GUNNERY	X	X	X						NS	A	1	365	2101,2810,2321-HLL				2840		
	ACAD	4008	JCAS	X								G			*						4008	
	ACAD	4009	GCE RAID PLANNING	X								G			*							4009
	ACAD	4010	MAGTF TARGETING	X								G			*							4010
	RAID	4980	RIE TACTICS	X	X	X						2.0	(N)	A/S	1+	X	365	2930,4008,4009,4010,2840,2540,				4980
TOTAL RIE STAGE							0	0.0	0	0.0	1	2.0										
AVIATION DELIVERED GROUND REFUELING STAGE (ADGR)																						
ADGR	GTR	2540	NON RADAR GTR	X	X	X						(NS)	A	2	365	2311,2500,2321~NS,2331~LLL,2810~ORD	2110,2311				2540	
	AG	2840	NS GUNNERY	X	X	X						NS	A	1	365	2101,2810,2321-HLL					2840	
	ACAD	4011	TBFDS/MK-105	X								G			*							4011
	ADGR	4981	ADGR TACTICS	X	X	X						2.0	(N)	A	1+	365	4011,2930~LLL,2540,2840					4981
TOTAL ADGR STAGE							0	0.0	0	0.0	1	2.0										
SEA BASED OPERATIONS STAGE (SEA)																						
SEA	GTR	2540	NON RADAR GTR	X	X	X						(NS)	A	2	365	2311,2500,2321~NS,2331~LLL,2810~ORD	2110,2311				2540	
	AG	2840	NS GUNNERY	X	X	X						NS	A	1	365	2101,2810,2321-HLL					2840	
	SEA	4982	SEA BASED TACTICS	X	X	X						2.0	(N)	A/S	1+	X	365	2930~LLL,4711~DAY,4743~HLL,2540,2840				4982
TOTAL SEA STAGE							0	0.0	0	0.0	1	2.0										
TOTAL CORE PLUS PHASE							12	11.5	3	4.5	14	26.0										
INSTRUCTOR TRAINING (5000 PHASE)																						
ACADEMICS STAGE (ACAD)																						
ACAD	ACAD	5000	INSTRUCTIONAL TECHNIQUES	X											*							5000
TOTAL ACAD STAGE							1	1.0	0	0.0	0	0.0										
BASIC INSTRUCTOR STAGE (BIP)																						
BIP	ACAD	5000	INST TECHNIQUES	X											*							5000
	BIP	5100	BIP IUT FAM/CAL/INST	X								1.5	D	S/A	1	*	NSQ-LLL, Core & Mission Skill complete					5100
	BIP	5101	BIP IUT EXT/CQ	X								1.5	D	S/A	1	*	5100					5101
	BIP	5110	BIP CHECK	X								1.5	D	A	1	*	5101					5110
TOTAL BIP STAGE							1	1.0	2	3.0	1	1.5										
TERF INSTRUCTOR STAGE (TERFI)																						
TERF	TERF	5200	TERFI UT 1 A/C TERF	X							1.5	D	A	1	*	COURSE CATALOG						5200
	TERF	5201	TERFI UT EXT	X							1.5	D	A	1	*	COURSE CATALOG						5201
	TERF	5202	TERFI CHECK	X	X							1.5	D	A	2	*	COURSE CATALOG					
TOTAL TERFI STAGE							0	0.0	0	0.0	3	4.5										

AERIAL REFUELING INSTRUCTOR STAGE (ARI)																		
ARI	ARI	5300	ARI UT DAY	X						1.5	D	A	1	*	COURSE CATALOG	5300		
	ARI	5301	ARI NIGHT CHECK	X	X					1.5	NS	A	1	*	COURSE CATALOG	5301		
TOTAL ARI STAGE										0	0.0	0	0.0	2	3.0			
DEFENSIVE MEASURES INSTRUCTOR STAGE (DMI)																		
DMI	DMI	5700	2 V GROUND THREAT	X						1.5	D	A	2	*	COURSE CATALOG	5700		
	DMI	5701	2 V FW/RW	X						1.5	D	A	2	*	COURSE CATALOG	5701		
	DMI	5702	2 V FW/RW	X	X					1.5	D	A	2	*	COURSE CATALOG	5702		
TOTAL DMI STAGE										0	0.0	0	0.0	3	4.5			
NIGHT SYSTEMS INSTRUCTOR STAGE (NSI)																		
NSI	SNSI	5800	ANVIS HUD	X						1.5	NS	S/A		*	COURSE CATALOG	5800		
	NSI	5801	NSI UT LOW WORK	X						1.5	NS	A	1	*	COURSE CATALOG	5801		
	NSI	5802	NSI UT CALS/EXT	X						1.5	NS	A	1	*	COURSE CATALOG	5802		
	NSI	5803	NSI UT TERF	X						1.5	NS	A	2	*	COURSE CATALOG	5803		
	NSI	5804	NSI UT TACEX	X						1.5	NS	A	2	*	COURSE CATALOG	5804		
	NSI	5805	NSI CHECK	X	X					4.5	NS	A	2	*	COURSE CATALOG	5805		
TOTAL NSI STAGE										0	0.0	1	1.5	5	10.5			
6000 PHASE - REQUIREMENTS, CERTIFICATIONS, QUALIFICATIONS, DESIGNATIONS (RQD)																		
ACADEMICS STAGE (ACAD)																		
ACAD	ACAD	6010	TAC FLIGHT BRIEFING	X						1.5		G				6010		
	ACAD	6011	AMC	X						0.8		G				6011		
TOTAL ACADEMIC STAGE										2	2.3	0	0.0	0	0.0			
NATOPS STAGE																		
NATOPS	NATOPS	6000	NATOPS OPEN BOOK EXAM	X	X	X	X			3.0		G			365	X		
	NATOPS	6001	NATOPS CLOSED EXAM	X	X	X	X			1.0		G			365	6000		
	NATOPS	6002	NATOPS ORAL EXAM	X	X	X	X			2.0		G			365	6001		
	NATOPS	6004	MONTHLY EP EXAM	X	X	X	X			1.0		G			30			
	NATOPS	6100	NATOPS EVALUATION	X	X	X	X			1.5	(N)	S/A	1		365	6002		
TOTAL NATOPS STAGE										4	7.0	0	0.0	1	1.5	6000,6001,6002,6004	E	X
CREW RESOURCE MANAGEMENT STAGE (CRM)																		
CRM	CRM	6003	CRM CLASS	X	X	X	X			3.0		G			365	X		
	CRM	6101	PRACTICE CRM PRICIPLES	X	X	X	X			1.5	(N)	S/A	1		365	6003		
TOTAL CRM STAGE										1	3.0	0	0.0	1	1.5			
INSTRUMENT STAGE (INST)																		
INST	INST	6005	INST GROUND SCHOOL	X	X	X	X			4.0		G			365	X		
	INST	6006	INSTRUMENT EXAM	X	X	X	X			1.0		G			365	6005		
	INST	6102	INSTRUMENT EVALUATION	X	X	X	X			1.5		S/A	1		365	6006		
TOTAL INST STAGE										2	5.0	0	0.0	1	1.5			
HELICOPTER AIRCRAFT COMMANDER STAGE (HAC)																		
HAC	HAC	6120	HAC REVIEW	X						1.5	D	A/S	1	*	NSQ-LLL, CORE AND MISSION SKILL COMPLETE	6120		
	HAC	6121	NS HAC REVIEW	X						1.5	NS	A/S	1	*	NSQ-LLL	6121		
	HAC	6122	DAY INTO NIGHT HAC EVAL	X	X	X				2.0	(N)	A		*	5110,6120,6121,6001	6122		
TOTAL HAC STAGE										0	0.0	0	0.0	3	5.0			

SECTION LEADER STAGE (SL)																				
SL	SL	6200	DAY OR NIGHT CORE SKILL SL REVIEW	X								1.5	(NS)	A/S	2	X	*	8630,8660,HAC	6200	
	SL	6201	MCT BASED TACTICAL SCENARIO	X								1.5	(NS)	A/S	2	X	*	8630,8660,HAC	6201	
	SL	6202	DAY OR NIGHT CORE SKILL SL REVIEW	X								1.5	(NS)	A/S	2	X	*	8630,8660,HAC	6202	
	SL	6203	NIGHT SL EVAL W FLSE	X	X							1.5	NS	A	2		*	6200,6201,6202	6203	
TOTAL SL STAGE										0	0.0	0	0.0	4	6.0					
DIVISION LEADER STAGE (DL)																				
DL	DL	6300	DAY OR NIGHT CORE SKILL DL REVIEW	X								1.5	(NS)	A/S	3	X	*	8640,8641,SL	6300	
	DL	6301	MCT BASED TACTICAL SCENARIO	X								1.5	(NS)	A/S	3	X	*	8640,8641,SL	6301	
	DL	6302	DL EVALUATION W FLSE	X	X							1.5	(NS)	A	3		*	6300,6301	6302	
TOTAL DL STAGE										0	0.0	0	0.0	3	4.5					
FLIGHT LEADER STAGE (FL)																				
FL	FL	6400	FL EVAL W FLSE	X	X							1.5	(NS)	A	5+		*	6010,8620,DL,	6400	
TOTAL FL STAGE										0	0.0	0	0.0	1	1.5					
AIR MISSION COMMANDER STAGE (AMC)																				
AMC	AMC	6500	AMC EVAL W FLSE	X	X							1.5	(NS)	A	5+		*	6011, FLT LD	6500	
TOTAL AMC STAGE										0	0.0	0	0.0	1	1.5					
FUNCTIONAL CHECK PILOT STAGE (FCP)																				
FCP	FCP	6610	INTRO AFCS (B-CARD)	X								1.5		D	S/A	1	*		6610	
	FCP	6611	REVIEW AFCS (B-CARD)	X	X	X						1.5		D	A	1	*	6610	6611	
	FCP	6612	INTRO MECH (C-CARD)	X								1.5		D	S/A	1	*		6612	
	FCP	6613	REV MECH (C-CARD)	X	X	X						1.5		D	A	1	*	6612	6613	
	FCP	6614	INTRO ENGINES (D-CARD)	X								1.5		D	S/A	1	*		6614	
	FCP	6615	REV ENGINES (D-CARD)	X	X	X						1.5		D	A	1	*	6614	6615	
	FCP	6616	INTRO A CARD	X	X	X						1.5		D	S/A	1	*	6610,6612,6614	6616	
	FCP	6617	FCP EVAL	X	X	X						1.5		D	A	1	*	6610-6616	6617	
TOTAL FCP STAGE										0	0.0	4	6.0	4	6.0					

AVIATION CAREER PROGRESSION MODEL (ACPM)																				
ACPM	ACPM	8200	MACCS AGENCIES, FUNCTIONS AND CONTROL OF AIRCRAFT AND MISSILES	X										G		*				8200
	ACPM	8201	MWCS BRIEF	X										G		*				8201
	ACPM	8202	ACA AND AIRSPACE	X										G		*				8202
	ACPM	8210	AVIATION GROUND SUPPORT	X										G		*				8210
	ACPM	8230	ACE BATTLESTAFF	X										G		*				8230
	ACPM	8231	BATTLE COMMAND DISPLAY	X										G		*				8231
	ACPM	8240	SIX FUNCTIONS OF MARINE AVIATION	X										G		*				8240
	ACPM	8241	JTAR/ASR INTRODUCTION AND PRACTICAL APPLICATION CLASS	X										G		*				8241
	ACPM	8242	SITE COMMAND PRIMER	X										G		*				8242
	ACPM	8250	THEATER AIR GROUND SYSTEM (TAGS)	X										G		*				8250
	ACPM	8300	AIR DEFENSE	X										G		*				8300
	ACPM	8310	FORWARD ARMING AND REFUELING POINT (FARP) OPERATIONS	X										G		*				8310
	ACPM	8311	MARINE CORPS TACTICAL FUEL SYSTEMS	X										G		*				8311
	ACPM	8320	JOINT STRUCTURE & JOINT AIR OPERATIONS	X										G		*				8320
	ACPM	8321	JOINT AIR TASKING CYCLE PHASE 1: STRATEGY DEVELOPMENT	X										G		*				8321
	ACPM	8322	JOINT AIR TASKING CYCLE PHASE 2: TARGET DEVELOPMENT	X										G		*				8322
	ACPM	8323	JOINT AIR TASKING CYCLE PHASE 3: WEAPONING AND ALLOCATION	X										G		*				8323
	ACPM	8324	JOINT AIR TASKING CYCLE PHASE 4: JOINT ATO PRODUCTION	X										G		*				8324
	ACPM	8325	JOINT AIR TASKING CYCLE PHASE 5:	X										G		*				8325
	ACPM	8326	JOINT AIR TASKING CYCLE PHASE 6: COMBAT ASSESSMENT	X										G		*				8326
	ACPM	8340	INTEGRATING FIRES AND AIRSPACE WITHIN THE MAGTF	X										G		*				8340
	ACPM	8350	PHASING CONTROL ASHORE	X										G		*				8350
	ACPM	8351	TACRON ORGANIZATIONS AND FUNCTIONS	X										G		*				8351
	ACPM	8630	TACTICAL AIR COMMAND CENTER (TACC)	X										G		*				8630
	ACPM	8660	JOINT OPS INTRO	X										G		*				8660
	ACPM	8640	JOINT DATA NETWORK	X										G		*				8640
ACPM	8641	MAGTF THEATER	X										G		*				8641	
ACPM	8620	ESG/CSG INTEGRATION	X										G		*				8620	
TOTAL CONTRACT INSTRUCTOR STAGE									26	13.9	0	0.0	0	0.0						

2.19 FRS T&R SYLLABUS MATRIX (1000, 5000, & 6000)

CH-53E PILOT FRS T&R MATRIX (1000, 5000, and 6000 PHASE)

SKILL	STAGE	TRNG CODE	DESCRIPTION	BASIC	REF	SER CONV	MAIN	MOD REF	CIUT	#	ACAD	#	SIM	#	FLT	COND	DEVIC	#	REFLY	PREREQUISITE	CHAINING	EVAL	EOM	EVENT CONV		
CH-53E CORE SKILL INTRODUCTION T&R MATRIX (1000 PHASE)																										
COMPUTER BASED TRAINING (CBT), ACADEMICS (ACAD), & LAB (LAB) STAGE																										
ACAD	CBT	0001	INTRO TO THE CH-53	X	X	X		X	X		1.0								*						0001	
	CBT	0002	AUXILIARY POWER PLANT	X	X	X		X	X		1.0								*	0001						0002
	CBT	0003	ELECTRIC SYSTEM	X	X	X		X	X		2.0								*	0001						0003
	CBT	0004	HYDRAULIC SYSTEM	X	X	X		X	X		2.0								*	0001						0004
	CBT	0005	FUEL SYSTEM	X	X	X		X	X		1.5								*	0001						0005
	CBT	0006	ENGINES	X	X	X		X	X		2.5								*	0001						0006
	CBT	0007	DRIVE TRAIN	X	X	X		X	X		2.5								*	0001						0007
	CBT	0008	CHIP DETECTING SYSTEM	X	X	X		X	X		1.0								*	0006,0007						0008
	CBT	0009	ROTOR SYSTEM	X	X	X		X	X		1.0								*	0001						0009
	CBT	0010	FLIGHT CONTROL SYSTEM	X	X	X		X	X		3.0								*	0004,0009						0010
	CBT	0011	AFCS	X	X	X		X	X		2.0								*	0004,0010						0011
	CBT	0012	BLADE/PYLON FOLD & RB	X	X	X		X	X		2.5								*	0004						0012
	CBT	0013	LANDING GEAR & WHEEL	X	X	X		X	X		1.5								*	0004						0013
	CBT	0014	MISCELLANEOUS SYSTEMS	X	X	X		X	X		3.0								*	0001						0014
	CBT	0015	COMM NAV SYSTEMS	X	X	X		X	X		2.0								*	0001						0015
	CBT	0016	ASE	X	X	X		X	X		2.5								*	0001						0016
	CBT	0017	PREFLIGHT PLANNING	X		X			X		2.0								*	0001-0016						0017
	CBT	0018	INTRO TO FLIGHT PHASE	X		X			X		3.0								*	0017						0018
	CBT	0019	NIGHT FLIGHT	X		X			X		1.5								*	0017						0019
	CBT	0020	INST FLIGHT & NAV	X		X			X		2.5								*	0017						0020
	CBT	0021	VFR NAV, GPS, & HNVS	X		X			X		2.5								*	0017						0021
	CBT	0022	FORM	X		X			X		1.0								*	0017						0022
	CBT	0023	CALs	X		X			X		1.0								*	0017						0023
	CBT	0024	EXT OPS	X		X			X		2.0								*	0017						0024
	ACAD	0100	GS IN-BRIEF	X					X		1.0								*	0001-0016						0100
	ACAD	0101	ELECTRICAL SYSTEMS	X					X		3.0								*	0001-0016						0101
	ACAD	0102	HYDRAULIC SYSTEM	X					X		3.0								*	0001-0016						0102
	ACAD	0103	FUEL SYSTEM	X					X		2.0								*	0001-0016						0103
	ACAD	0104	ENGINES AND APP	X					X		3.0								*	0001-0016						0104
	ACAD	0105	DRIVE TRAIN & ROTOR	X					X		3.0								*	0001-0016						0105
	ACAD	0106	FLIGHT CONTROL SYSTEM	X					X		3.0								*	0001-0016						0106
	ACAD	0107	(AFCS)	X					X		2.0								*	0001-0016						0107
	ACAD	0108	COMM/NAV SYSTEMS	X					X		1.5								*	0001-0016						0108
	ACAD	0109	(CRM) INITIAL	X					X		2.5								*							0109
LAB	1000	PREFLIGHT INSP INTRO	X	X				X		2.0				1	0.0				*	0100-0108						
LAB	1001	PREFLIGHT INSP PRAC	X	X				X		2.0				1					*	1000						
LAB	1002	REVIEW PREFLIGHT	X	X				X		2.0				1					*	1001						
TOTAL CBT, ACAD, & LAB STAGE										34	145.5	0	0.0	0	0.0											
FAMILIARIZATION (FAM) STAGE																										
FAM	SFAM	1100	INTRO COCKPIT PROC	X	X	X		X					1.0					S	1	*	0017				1100	
	SFAM	1101	INTRO A/C EMER	X									1.0					S	1	*	0018,1100				1101	

CH-53E PILOT FRS T&R MATRIX (1000, 5000, and 6000 PHASE)																									
SKILL	STAGE	TRNG CODE	DESCRIPTION	BASIC	REF	SER CONV	MAIN	MOD REF	CIUT	#	ACAD	#	SIM	#	FLT	COND	DEVIC	#	REFLY	PREREQUISITE	CHAINING	EVAL	EOM	EVENT CONV	
CH-53E CORE SKILL INTRODUCTION T&R MATRIX (1000 PHASE)																									
	SFAM	1102	INTRO ENGINE MAL	X									1.0				S	1	*	1101					1102
	SFAM	1103	INTRO RUNNING LANDINGS&AUTOS	X									1.0				S	1	*	1102					1103
	SFAM	1104	INTRO GEARBOX MAL	X									1.0				S	1	*	1103					1104
	SFAM	1105	INTO CRM SKILLS	X	X	X		X					1.5				S	1	*	1104					1105
	SFAM	1106	PROGRESS CHECK	X	X	X		X					1.0				S	1	*	1105					1106
	SFAM	1107	NS ADAPTATION	X		X							1.0			NS	S	1	*	0019,1106					1107
	FAM	1110	INTRO COCKPIT & FLIGHT PROC	X		X								1.5		A	1	*	1002,1106						1110
	FAM	1111	INTRO PREC HOVER/LOW WORK	X										1.5		A	1	*	1110						1111
	FAM	1112	INTRO ENG FAILURES	X				X						1.5		A	1	*	1111						1112
	FAM	1113	INTRO NO HOVER	X										1.5		A	1	*	1112						1113
	FAM	1114	INTRO AFCS FAILURE	X	X	X		X						1.5		A	1	*	1113						1114
	FAM	1115	INTRO HIGH AOB MANEUVERS	X										1.5		A	1	*	1114						1115
	FAM	1116	PRACTICE ALL FAMS & EPS	X	X	X		X						1.5		A	1	*	1115						1116
	FAM	1117	PRACTICE ALL FAMS & EPS	X										1.5		A	1	*	1116						1117
	FAM	1118	REVIEW ALL FAMS & EPS	X	X	X		X						1.5		A	1	*	1117						1118
	FAM	1119	PROGRESS CHECK	X										1.5		A	1	*	1118						1119
	FAM	1201	INTRO NS LOW AND PATTERN WORK	X										1.5	NS	A	1	*	1107,1600						1201
	FAM	1202	PRACTICE NS LOW& PATTERN WORK	X	X	X		X						1.5	NS	A	1	*	1201						1202
TOTAL FAM STAGE										0	0.0	8	8.5	12	18.0										
INSTRUMENT (INST) STAGE																									
	SINST	1300	INTRO BASIC INST	X		X							1.0				S	1	*	0020					1300
	SINST	1301	INTRO PARTIAL PANEL	X	X	X								1.0			S	1	*	1300					1301
	SINST	1302	INTRO ILS/LOCALIZER	X	X	X								1.0			S	1	*	1301					1302
	SINST	1303	INTRO UNUSUAL ATT	X	X	X								1.0			S	1	*	1302					1303
	SINST	1304	INTRO IFR LOST COMM	X										1.0			S	1	*	1303					1304
	INST	1305	INTRO BASIC INST	X	X	X		X						2.0	(N)	A	1	*	1304						1305
	INST	1306	INST PROGRESS CHECK	X	X									1.5	(N)	A	1	*	1305						1306
TOTAL INST STAGE										0	0.0	5	5.0	2	3.5										
NAVIGATION (NAV) STAGE																									
	NAV	SNAV	1400	INTRO FLIGHT PLANNING SOFTWARE, GPS, HNVS	X								1.0				S	1	*	0021					1400
TOTAL NAV STAGE										0	0.0	1	1.0	0	0.0										

CH-53E PILOT FRS T&R MATRIX (1000, 5000, and 6000 PHASE)																								
SKILL	STAGE	TRNG CODE	DESCRIPTION	BASIC	REF	SER CONV	MAIN	MOD REF	CIUT	#	ACAD	#	SIM	#	FLT	COND	DEVIC	#	REFLY	PREREQUISITE	CHAINING	EVAL	EOM	EVENT CONVY
CH-53E CORE SKILL INTRODUCTION T&R MATRIX (1000 PHASE)																								
FORMATION (FORM) STAGE																								
FORM	SFORM	1500	INTRO DAY FORM	X	X	X		X					1.0				S	1	*	0022				1500
	FORM	1501	INTRO PARADE, CRUISE AND SEC LANDING	X	X	X		X							2.0		A	2	*	1400,1500				1501
	FORM	1502	INTRO NS FORM	X											2.0	NS	A	2	*	1202,1501,1602,1600				1502
TOTAL FORM STAGE										0	0.0	1	1.0	2	4.0									
CONFINED AREA LANDING (CAL) STAGE																								
CAL	SCAL	1600	INTRO NS CALS	X		X							1.0			NS	S	1	*	0019,1107				1600
	CAL	1601	DAY CALS	X	X	X		X							1.5		A	1	*	1111				1601
	CAL	1602	INTRO SEC CALS	X		X									1.5		A	2	*	1501,1601				1602
	CAL	1603	INTRO NS CALS	X											1.5	NS	A	1	*	1202,1600,1601				1603
	CAL	1604	INTRO NS SECTION CALS	X											1.5	NS	A	2	*	1502,1603,1602				1604
TOTAL CAL STAGE										0	0.0	1	1.0	4	6.0									
EXTERNAL (EXT) STAGE																								
EXT	SEXT	1700	INTRO SINGLE AND DUAL POINTS	X	X	X		X					2.0				S	1	*	0024				1700
	EXT	1701	INTRO SINGLE POINT	X	X	X		X							1.5		A	1	*	1700,1601				1701
	EXT	1702	INTRO NS SINGLE POINT	X	X	X									1.5	NS	A	1	*	1603,1701				1702
	EXT	1703	INTRO DUAL POINT	X	X			X							1.5		A	1	*	1701				1703
	EXT	1704	INTRO NS DUAL POINT	X	X	X									1.5	NS	A	1	*	1702,1703				1704
TOTAL EXT STAGE										0	0.0	1	2.0	4	6.0									
TERRAIN FLIGHT (TERF) STAGE																								
TERF	STERF	1800	INTRO TERF MANEUVERS	X	X	X							1.0				S	1	*	2011				1800
	TERF	1801	INTRO TERF	X	X	X									1.5		A	1	*	1601,1800				1801
TOTAL TERF STAGE										0	0.0	1	1.0	1	1.5									
CORE SKILL INTRODUCTION REVIEW (REV) STAGE																								
REV	SREV	1900	REVIEW CSII TRAINING	X	X	X							1.5				S	1	*	1119				1900
	REV	1901	REVIEW CSII TRAINING	X	X	X									1.5		A	1	*	1900`				1901
TOTAL REV STAGE										0	0.0	1	1.5	1	1.5									
CORE SKILL INTRODUCTION EVALUATION (CSIX) STAGE																								
CSIX	CSIX	1902	H2P CHECK	X	X	X		X						2.0		A	1	*	1901			E		1902
TOTAL CSIX STAGE										0	0.0	0	0.0	1	2.0									
TOTAL CORE SKILL INTRODUCTION PHASE										34	145.5	19	21.0	27	42.5									

CH-53E PILOT FRS T&R MATRIX (1000, 5000, and 6000 PHASE)																											
SKILL	STAGE	TRNG CODE	DESCRIPTION	BASIC	REF	SER	CONV	MAIN	MOD	REF	CIUT	#	ACAD	#	SIM	#	FLT	COND	DEVIC	#	REFLY	PREREQUISITE	CHAINING	EVAL	EOM	EVENT CONV	
CH-53E CORE SKILL INTRODUCTION T&R MATRIX (1000 PHASE)																											
INSTRUCTOR TRAINING (5000 PHASE)																											
ACADEMICS STAGE (ACAD)																											
ACAD	ACAD	5000	INSTRUCTIONAL TECH	X									1.0								*						5000
TOTAL ACAD STAGE												1	1.0	0	0.0	0	0.0										
FLEET REPLACEMENT SQUADRON INSTRUCTOR E STAGE (FRSI)																											
FRSI	FRSI	5500	FRSI UT DAY FAM	X													1.5	D	A	1	*	6203,5202				5500	
	SFRSI	5502	FRSI UT INSTR	X											2.0				(N)	S/A	1	*	6203,5202				5502
	FRSI	5503	FRSI UT DAY CAL	X														1.5	D	A	1	*	5500				5503
	FRSI	5504	FRSI UT DAY FORM	X														1.5	D	A	2	*	5500				5504
	FRSI	5505	FRSI UT EXT	X														1.5	D	A	1	*	5500				5505
	FRSI	5506	FRSI CHECK	X	X													1.5	(N)	A	1	*	5500-5505				5506
TOTAL FRSI STAGE												0	0.0	1	2.0	5	7.5										
NIGHT SYSTEM FAMILIARIZATION INSTRUCTOR STAGE (NSFI)																											
NSFI	NSFI	5600	NSFI UT HLL NS FAM	X													1.5	NS	A	1	*	MAWTS-1 CC				5600	
	NSFI	5601	NSFI UT HLL NS FORM	X													1.5	NS	A	2	*	MAWTS-1 CC				5601	
	NSFI	5602	NSFI UT HLL EXT	X													1.5	NS	A	1	*	MAWTS-I CC				5602	
	NSFI	5603	NSFI CHECK	X	X												1.5	NS	A	1	*	MAWTS-1 CC				5603	
TOTAL NSFI STAGE												0	0.0	0	0.0	4	6.0										
CI SIMULATOR FAM STAGE (SFAM)																											

CH-53E PILOT FRS T&R MATRIX (1000, 5000, and 6000 PHASE)																											
SKILL	STAGE	TRNG CODE	DESCRIPTION	BASIC	REF	SER	CONV	MAIN	MOD	REF	CIUT	#	ACAD	#	SIM	#	FLT	COND	DEVIC	#	REFLY	PREREQUISITE	CHAINING	EVAL	EOM	EVENT CONV	
CH-53E CORE SKILL INTRODUCTION T&R MATRIX (1000 PHASE)																											
CIUT	CIUT	5900	INTRO TO COCKPIT PROCEDURES								X				1.0			D	S	1	*	CBT/ACAD COMP				5900	
	CIUT	5901	INTRO TO A/C EMERGENCIES								X				1.0			D	S	1	*	0018~CIUTE				5901	
	CIUT	5902	INTRO ENGINE MALFUNCTIONS								X				1.0			D	S	1	*	5901				5902	
	CIUT	5903	INTRO RUNNING LANDINGS & AUTOS								X				1.0			D	S	1	*	5902				5903	
	CIUT	5904	INTRO GEARBOX MALFUNCTIONS								X				1.0			D	S	1	*	5903				5904	
	CIUT	5905	INTRO CRM SKILLS								X				1.5			D	S	1	*	5904				5905	
	CIUT	5906	PROGRESS CHECK								X				1.0			D	S	1	*	5905				5906	
	CIUT	5907	ENG FAILURE / LANDINGS								X				1.5			D	S	1	*	5906				5907	
	CIUT	5908	AFCs FAILURE / FAM								X				1.5			D	S	1	*	5907				5908	
	CIUT	5909	PRAC FAM								X				1.5			D	S	1	*	5908				5909	
	CIUT	5910	REV FAM & EPs								X				1.5			D	S	1	*	5909				5910	
	CIUT	5911	NIGHT FAM								X				1.5			N	S	1	*	5910				5911	
	CIUT	5912	INTRO BASIC INSTRUMENTS								X				1.0			D	S	1	*	5911				5912	
	CIUT	5913	INTRO PARTIAL PANNEL								X				1.0			D	S	1	*	5912				5913	
	CIUT	5914	INTRO ILS/LOCALIZER								X				1.0			D	S	1	*	5913				5914	
	CIUT	5915	INTRO UNUSUAL ATTITUDES								X				1.0			D	S	1	*	5914				5915	
	CIUT	5916	INTRO IFR LOST COMM								X				1.0			D	S	1	*	5915				5916	
	CIUT	5917	BASIC INST, PRE APP								X				2.0			D	S	1	*	5916				5917	
	CIUT	5918	IFR ROUTE								X				1.5			D	S	1	*	5917				5918	
	CIUT	5920	INTRO FLIGHT PLANNING SOFTWARE, GPS, HNVs								X				1.0			D	S	1	*	5918				5920	
	CIUT	5921	INTRO DAY FORM								X				1.0			D	S	1	*	5920				5921	
	CIUT	5922	INTRO CALS								X				1.5			D	S	1	*	5921				5922	
	CIUT	5923	INTRO SINGLE AND DUAL POINTS								X				2.0			D	S	1	*	5922				5923	
	CIUT	5924	TERF								X				1.0			D	S	1	*	5923				5924	
	CIUT	5925	REVIEW CIUT								X				2.0			D	S	1	*	5900-5924				5925	
	CIUT	5926	REVIEW CIUT								X				2.0			D	S	1	*	5925				5926	
	CIUT	5927	CIUT CHECK								X				2.0			D	S	1	*	5926				5927	
	CIUT	5931	IP BRIEF								X				1.5			D	S	1	*	5927				5931	
CIUT	5932	REVIEW FAM MANEUVERS								X				1.5			D	S	1	*	5931				5932		
CIUT	5933	REVIEW BI, AIRWAY NAV								X				2.0			D	S	1	*	5932				5933		
CIUT	5934	REVIEW CAL								X				1.5			D	S	1	*	5933				5934		
CIUT	5935	REVIEW FORM								X				1.5			D	S	1	*	5934				5935		
CIUT	5936	REV EXT OPS								X				1.5			D	S	1	*	5935				5936		
CI UT	5937	STAN CHECK								X				1.5			D	S	1	*	5936				5937		
TOTAL CONTRACT INSTRUCTOR CI FRS STAGE												0	0.0	34	47.0	0	0.0										

CH-53E PILOT FRS T&R MATRIX (1000, 5000, and 6000 PHASE)																									
SKILL	STAGE	TRNG CODE	DESCRIPTION	BASIC	REF	SER CONV	MAIN	MOD REF	CIUT	#	ACAD	#	SIM	#	FLT	COND	DEVIC	#	REFLY	PREREQUISITE	CHAINING	EVAL	EOM	EVENT CONV	
CH-53E CORE SKILL INTRODUCTION T&R MATRIX (1000 PHASE)																									
6000 PHASE - REQUIREMENTS, CERTIFICATIONS, QUALIFICATIONS, DESIGNATIONS (RQD)																									
NATOPS STAGE																									
NATOPS	NATOPS	6000	NATOPS OPEN BOOK EXAM	X	X	X	X				3.0						ACAD		365				X	6000	
	NATOPS	6001	NATOPS CLOSED BOOK EXAM	X	X	X	X				1.0						ACAD		365	6000				X	6001
	NATOPS	6002	NATOPS ORAL EXAM	X	X	X	X				2.0						ACAD		365	6001				X	6002
	NATOPS	6004	MONTHLY EP EXAM	X	X	X	X				1.0						ACAD		30					X	6004
	NATOPS	6100	NATOPS EVALUATION	X	X	X	X								1.5	(N)	S/A	1	365	6002		6000,6001, 6002,6004	E	X	6100
TOTAL NATOPS STAGE										4	7.0	0	0.0	1	1.5										
CREW RESOURCE MANAGEMENT STAGE (CRM)																									
CRM	CRM	6003	CRM CLASS	X	X	X	X				3.0						ACAD		365				X	6003	
	CRM	6101	PRACTICE CRM PRICIPLES	X	X	X	X				1	3.0	0	0.0	1	1.5	(N)	S/A	1	365	6003		E	X	6101
TOTAL CRM STAGE										1	3.0	0	0.0	1	1.5										
INSTRUMENT STAGE (INST)																									
INST	INST	6005	INSTRUMENT GROUND SCHOOL	X	X	X	X				4.0						ACAD		365				X	6005	
	INST	6006	WRITTEN INSTRUMENT EXAM	X	X	X	X				1.0						ACAD		365	6005				X	6006
	INST	6102	INSTRUMENT EVALUATION	X	X	X	X								1.5		S/A	1	365	6006			E	X	6102
TOTAL INST STAGE										2	5.0	0	0.0	1	1.5										

2.20 AIRCREW ACADEMIC/GROUND TRAINING APR TRACKER

AIRCREW PERFORMANCE RECORD/QUALIFICATION JACKET				
SECTION IIIIB-AIRCREW ACADEMIC/GROUND SCHOOL TRAINING				
NAME (Last, first, middle initial)			Last 4 SSN	
T&R CODE	ACADEMIC SYLLABUS	DATE	INSTRUCTOR	ENTERED BY
	FRS ACADEMIC PHASE (0000)	DD/MM/YY	NAME OR SELF PACED	NAME
CBT-0001	INTRO TO THE CH-53			
CBT-0002	THE AUXILLARY POWER PLANT			
CBT-0003	THE ELECTRICAL SYSTEM			
CBT-0004	HYDRAULIC SYSTEM			
CBT-0005	FUEL SYSTEM			
CBT-0006	ENGINES			
CBT-0007	DRIVE TRAIN			
CBT-0008	CHIP DETECTING SYSTEM			
CBT-0009	ROTOR SYSTEM			
CBT-0010	FLIGHT CONTROL SYSTEM			
CBT-0011	AUTOMATED FLIGHT CONTROL SYSTEM (AFCS)			
CBT-0012	BLADE/PYLON FOLD AND ROTOR BRAKE SYSTEM			
CBT-0013	LANDING GEAR AND WHEEL BRAKE SYSTEM			
CBT-0014	MISCELLANEOUS SYSTEM			
CBT-0015	COMMUNICATION AND NAVIGATION SYSTEMS			
CBT-0016	AIRCRAFT SURVIVABILITY EQUIPMENT			
CBT-0017	PREFLIGHT PLANNING AND PROCEDURES			
CBT-0018	INTRODUCTION TO THE FLIGHT PHASE			
CBT-0019	NIGHT FLIGHT			
CBT-0020	INSTRUMENT FLIGHT AND NAVIGATION			
CBT-0021	VFR NAVIGATION, GPS AND HELICOPTER NIGHT VISION SYSTEMS (HNVS)			
CBT-0022	FORMATION FLIGHT			
CBT-0023	CONFINED AREA LANDINGS			
CBT-0024	EXTERNAL CARGO OPERATIONS			
ACAD-0100	GROUND SCHOOL INTRO IN-BRIEF			
ACAD-0101	ELECTRICAL SYSTEM			
ACAD-0102	HYDRAULIC SYSTEM			
ACAD-0103	FUEL SYSTEM			
ACAD-0104	ENGINES AND THE AUXILLARY POWER PLANT			
ACAD-0105	DRIVE TRAIN AND ROTOR SYSTEM			

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SECTION IIIB-AIRCREW ACADEMIC/GROUND SCHOOL TRAINING					
NAME (Last, first, middle initial)			Last 4 SSN		
T&R CODE	ACADEMIC SYLLABUS		DATE	INSTRUCTOR	ENTERED BY
	CORE SKILL PHASE (2000)		DD/MM/YY	NAME OR SELF PACED	NAME
ACAD-2000	(U)	CH-53 GPS (FAM STAGE)			
ACAD-2001	(U)	ARC-210/HAVEQUICK/SINGGARS (*)			
ACAD-2002	(U)	AN/AYK-28			
ACAD-2003	(U)	CH-53 INTERNAL CARGO OPERATIONS			
ACAD-2004	(S)	CH-53 AAR/ALE-47 (*)			
ACAD-2005	(U)	CH-53 TACFORM			
ACAD-2006	(U)	CH-53 PFPS TECHNIQUES			
ACAD-2007	(U)	DESERT OPERATIONS (*)			
ACAD-2008	(U)	MOUNTAIN OPERATIONS (*) (CAL STAGE)			
ACAD-2009	(U)	COMBAT AIRCREW COORDINATION			
ACAD-2010	(U)	HUD			
ACAD-2011	(U)	ASD TERRAIN FLIGHT (TERF STAGE)			
ACAD-2012	(S)	CH-53 APR-39 (*)			
ACAD-2013	(S)	SURFACE TO AIR THREAT TO THE MAGTF			
ACAD-2014	(U)	HEAVY LIFT OPERATIONS (*) (EXT STAGE)			
ACAD-2015	(U)	ASSAULT SUPPORT TO ARTILLERY			
ACAD-2016	(U)	CH-53 DM/GTR I (GTR STAGE)			
ACAD-2017	(S)	IR SAM THREAT TO ASSAULT SUPPORT (*)			
ACAD-2019	(S)	AAQ-24 (*)			
ACAD-2020	(S)	AAA THREAT TO ASSAULT SUPPORT			
ACAD-2021	(S)	EVASIVE MANEUVERS			
ACAD-2022	(U)	HAAR (*) (HAAR STAGE)			
ACAD-2023	(U)	CH-53 WEAPONS SYSTEMS AND TRAINING (AG STAGE)			
ACAD-2024	(U)	WEAPONS EMPLOYMENT TECHNIQUES			
ACAD-2025	(U)	INTRO TO LASER SYSTEMS AND SAFETY			
ACAD-2026	(U)	MAGTF FSCMS (*) (MARINE NET CLASS)			
ACAD-2027	(U)	OBJECTIVE AREA PLANNING (*) (TAC STAGE)			
ACAD-2028	(U)	ROE			
ACAD-2029	(U)	EXECUTION CHECKLIST			
ACAD-2030	(U)	MISSION ANALYSIS (*)			
ACAD-2031	(U)	ASSAULT NVG PREFLIGHT AND ADJUSTMENT			
ACAD-2032	(U)	NVG SYSTEMS AND IMAGE CHARACTERISTICS			
ACAD-2033	(U)	THE NIGHT ENVIRONMENT (HLL STAGE)			
ACAD-2034	(U)	MISPERCEPTIONS AND ILLUSIONS			
ACAD-2035	(U)	NIGHT ROUTE PLANNING CONSIDERATIONS			
ACAD-2036	(U)	NIGHT OPERATIONS AND PLANNING AIDS			
ACAD-2037	(U)	HUMAN FACTORS			
ACAD-2038	(U)	FLIR TRAINING COURSE			

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ACAD-2039	(U) CH-53 HNVS FLIR (LLL STAGE)			
ACAD-2040	(U) ASSAULT SUPPORT ESCORT TACTICS			
ACAD-2041	(U) BATTLEFIELD ILLUMINATION AND FW ITG			

* Denotes annual academic training requirements.

AIRCREW PERFORMANCE RECORD/QUALIFICATION JACKET					
SECTION IIIB-AIRCREW ACADEMIC/GROUND SCHOOL TRAINING					
NAME (Last, first, middle initial)			Last 4 SSN		
T&R CODE	ACADEMIC SYLLABUS		DATE	INSTRUCTOR	ENTERED BY
	MISSION SKILL PHASE (3000)		DD/MM/YY	NAME OR SELF PACED	NAME
ACAD-3000	(U) RAPID RESPONSE PLANNING (EXP STAGE)				
ACAD-3001	(S) REC THREAT TO THE MAGTF (EXP STAGE)				
ACAD-3002	(U) NEO EXECUTION (AT STAGE)				
ACAD-3003	(S) INTELLIGENCE PREPARATION OF THE BATTLE SPACE				
ACAD-3004	(S) PERSONNEL RECOVERY (TRAP STAGE)				
ACAD-3005	(S) CH-53 SPECIFIC TRAP TTPS				
ACAD-3006	(U) CASEVAC (AE STAGE)				
ACAD-3007	(U) CIRCADIAN RHYTHM AND FATIGUE				
ACAD-3008	(U) INTRO TO NVG TACTICAL ENVIRONMENT				
CORE PLUS SKILL PHASE (4000)					
ACAD-4000	(S) RF SAM (GTR STAGE)				
ACAD-4001	(U) DM GAME PLANNING				
ACAD-4002	(U) CH-53 DM/GTR II (DM STAGE)				
ACAD-4003	(S) HELICOPTER PS AND EM				
ACAD-4004	(S) FW Threat to Assault Support				
ACAD-4005	(S) RW Threat to Assault Support				
ACAD-4006	(U) RGR (TAC STAGE)				
ACAD-4007	(S) MOUT				
ACAD-4008	(U) JCAS (RAID STAGE)				
ACAD-4009	(U) GCE RAID PLANNING				
ACAD-4010	(U) MAGTF TARGETING AND FIRE SUPPORT PLANNING				
ACAD-4011	(U) TBFDS/MK-105 (ADGR STAGE)				
INSTRUCTOR TRAINING PHASE (5000)					
ACAD-5000	(U) INSTRUCTIONAL TECHNIQUES				
FLIGHT LEADERSHIP TRAINING PHASE (6000)					
ACAD-6000	(U) TACTICAL FLIGHT BRIEFING				
ACAD-6001	(U) AMC				

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AIRCREW PERFORMANCE RECORD/QUALIFICATION JACKET					
SECTION IIIB-AIRCREW ACADEMIC/GROUND SCHOOL TRAINING					
NAME (Last, first, middle initial)			Last 4 SSN		
T&R CODE	ACADEMIC SYLLABUS		DATE	INSTRUCTOR	ENTERED BY
	AVIATION CAREER PROGRESSION MODEL PHASE (8000)		DD/MM/YY	NAME OR SELF PACED	NAME
CORE SKILL PHASE					
ACPM-8200	(U) MACCS AGENCIES, FUNCTIONS, AND CONTROL OF AIRCRAFT AND MISSILES				
ACPM-8201	(U) MWCS BRIEF				
ACPM-8202	(U) ACA AND AIRSPACE				
ACPM-8210	(U) AVIATION GROUND SUPPORT				
ACPM-8230	(U) ACE BATTLESTAFF				
ACPM-8231	(U) BATTLE COMMAND DISPLAY				
ACPM-8240	(U) SIX FUNCTIONS OF MARINE AVIATION (*)				
ACPM-8241	(U) JTAR/ASR INTRODUCTION AND PRACTICAL APPLICATION				
ACPM-8242	(U) SITE COMMAND PRIMER				
ACPM-8250	(U) THEATER AIR GROUND SYSTEM (TAGS)				
MISSION SKILL PHASE					
ACPM-8300	(U) AIR DEFENSE				
ACPM-8310	(U) FORWARD ARMING AND REFUELING POINT (FARP) OPERATIONS				
ACPM-8311	(U) MARINE CORPS TACTICAL FUEL SYSTEMS				
ACPM-8320	(U) JOINT STRUCTURE AND JOINT AIR OPERATIONS				
ACPM-8321	(U) JOINT AIR TASKING CYCLE PHASE 1: STRATEGY DEVELOPMENT				
ACPM-8322	(U) JOINT AIR TASKING CYCLE PHASE 2: TARGET DEVELOPMENT				
ACPM-8323	(U) JOINT AIR TASKING CYCLE PHASE 3: WEAPONNEERING AND ALLOCATION				
ACPM-8324	(U) JOINT AIR TASKING CYCLE PHASE 4: JOINT ATO PRODUCTION				
ACPM-8325	(U) JOINT AIR TASKING CYCLE PHASE 5: FORCE EXECUTION				
ACPM-8326	(U) JOINT AIR TASKING CYCLE PHASE 6: COMBAT ASSESSMENT				
ACPM-8340	(U) INTEGRATING FIRES AND AIRSPACE WITHIN THE MAGTF				
ACPM-8350	(U) PHASING CONTROL ASHORE				
ACPM-8351	(U) TACRON ORGANIZATIONS AND FUNCTIONS				
SECTION LEAD SYLLABUS					
ACPM-8630	(U) TACTICAL AIR COMMAND CENTER (TACC)				
ACPM-8660	(U) JOINT OPERATIONS INTRODUCTION				

* Denotes annual academic training requirements.

AIRCREW PERFORMANCE RECORD/QUALIFICATION JACKET					
SECTION IIIB-AIRCREW ACADEMIC/GROUND SCHOOL TRAINING					
NAME (Last, first, middle initial)			Last 4 SSN		
T&R CODE	ACADEMIC SYLLABUS		DATE	INSTRUCTOR	ENTERED BY
	AVIATION CAREER PROGRESSION MODEL PHASE (8000)		DD/MM/YY	NAME OR SELF PACED	NAME
DIVISION LEAD SYLLABUS					
ACPM-8640	(U) JOINT DATA NETWORK				
ACPM-8641	(U) MAGTF THEATER AND NATIONAL ISR EMPLOYMENT				
FLIGHT LEAD SYLLABUS					
ACPM-8620	(U) ESG/CSG INTEGRATION				

* Denotes annual academic training requirements.

CHAPTER 3

CH-53 CREW CHIEF (MOS 6173)

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EXT	External Stage
GTR	Ground Threat Reaction Stage
FCLP	Field Carrier Landing Practice Stage
AG	Aerial Gunnery Stage
TAC	Tactics Stage
NS HLL	Night Systems High Light Level Stage
NS LLL	Night Systems Low Light Level Stage
MISSION SKILLS (3000 Phase)	
ACAD	Academic Lectures
EXP	Expeditionary Shore Based Tactics Stage
AT	Assault Transport Tactics Stage
AD	Aerial Delivery Tactics Stage
TRAP	Tactical Recovery of Aircraft and Personnel Stage
AE	Aerial Evacuation Tactics Stage
CORE PLUS SKILLS (4000 Phase)	
ACAD	Academic Lectures
HIE	Helicopter Insertion and Extraction Techniques Stage
ADGR	Aviation Delivered Ground Refueling Stage
TERF EXT	Terrain Flight Externals Stage
DM	Defensive measures Stage
GTR	Ground Threat Reaction Stage
CBRN	Chemical, Biological, Radiation, and Nuclear Stage
CQ	Carrier Qualification Stage
TG	Tail Gunnery
MTG	Moving Target Gunnery Stage
TAC	Tactics Stage
MISSION PLUS SKILLS (4000 PHASE)	
RIE	Rapid Insert and Extract Tactics Stage
ADGR	Aviation Delivered Ground Refueling Tactics Stage
SEA	Sea Based Tactics Stage

3.3 DEFINITIONS

TERM	DEFINITION
Core Model	The Core Model is the basic foundation or standardized format by which all T&Rs are constructed. The Core model provides the capability of quantifying both unit and individual training requirements and measuring readiness. This is accomplished by linking community Mission Statements, Mission Essential Task Lists, Output Standards, Core Skill Proficiency Requirements and Combat Leadership matrices.
Core Skill	Fundamental, environmental, or conditional capabilities required to perform basic functions. These basic functions serve as tactical enablers that allow crews to progress to the more complex Mission Skills. Primarily 2000 Phase events but may be introduced in the 1000 Phase.
Mission Skill	Mission Skills enable a unit to execute a specific MET. They are comprised of advanced event (s) that are focused on MET performance and draw upon the knowledge, aeronautical abilities, and situational awareness developed during Core Skill training. 3000 Phase events.
Core Plus Skill	Training events that can be theater specific or that have a low likelihood of occurrence. They may be Fundamental, environmental, or conditional capabilities required to perform basic functions. 4000 Phase events.
Core Plus Mission	Training events that can be theater specific or that have a low likelihood of occurrence. They are comprised of advanced event (s) that are focused on Core Plus MET performance and draw upon the knowledge, aeronautical abilities, and situational awareness. 4000 Phase events.
Core Skill Proficiency (CSP)	CSP is a measure of training completion for 2000 Phase events. CSP is attained by executing all events listed in the Attain Table for each Core Skill. The individual must be simultaneously proficient in all events within that Core

	Skill to attain CSP.
Mission Skill Proficiency (MSP)	MSP is a measure of training completion for 3000 Phase events. MSP is attained by executing all events listed in the Attain Table for each Mission Skill. The individual must be simultaneously proficient in all events within that Mission Skill to attain MSP. MSP is directly related to Training Readiness.
Core Plus Skill Proficiency (CPSP)	CPSP is a measure of training completion for 4000 Phase "Skill" events. CPSP is attained by executing all events listed in the Attain Table for each Core Plus Skill. The individual must be simultaneously proficient in all events within that Core Plus Skill to attain CPSP.
Core Plus Mission Proficiency (CPMP)	CPMP is a measure of training completion for 4000 Phase "Mission" events. CPMP is attained by executing all events listed in the Attain Table for each Core Plus Mission. The individual must be simultaneously proficient in all events within that Core Plus Mission to attain CPMP.

3.4 INDIVIDUAL CORE/MISSION/CORE PLUS SKILL PROFICIENCY REQUIREMENTS

3.4.1 Management of individual CSP/MSP/CPSP/CPMP serves as the foundation for developing proficiency requirements in DRRS.

3.4.2 Individual CSP is a "Yes/No" status assigned to an individual by Core Skill. When an individual attains and maintains CSP in a Core Skill, the individual counts towards CMMR Unit CSP requirements for that Core Skill.

3.4.3 Proficiency is attained by individual Core/Mission/Core Plus skill where the training events for each skill are determined by POI assignment.

3.4.4 Once proficiency has been attained by Core/Mission/Core Plus Skill (by any POI assignment) then the individual maintains proficiency by executing those events noted in the maintain table and in the "Maintain POI" column of the T&R syllabus matrix. An individual maintains proficiency by individual Core/Mission/Core Plus Skill.

Note

Individual may be attaining proficiency in some Core/Mission/Core Plus Skills while Maintaining proficiency in other Core/Mission/Core Plus Skills.

3.4.5 Once proficiency has been attained, should one lose proficiency in an event in the "Maintain POI" column, proficiency can be re-attained by demonstrating proficiency in the delinquent event. Should an individual lose proficiency in all events in the "Maintain POI" column by Core/Mission/Core Plus Skill, the individual will be assigned to the Refresher POI for that Skill. To regain proficiency for that Core/Mission/Core Plus Skill the individual must demonstrate proficiency in all R-coded events for that Skill.

Note

See T&R Program Manual Chapter 2 for amplifying information on POI updating.

CH-53E CREW CHIEF ATTAIN AND MAINTAIN PROFICIENCY (2000-4000)						
SKILL	STAGE	TRNG CODE	T&R DESCRIPTION	ATTAIN PROFICIENCY		MAINTAIN POI
				BASIC POI	REFRESHER POI	
CORE SKILLS (2000 Phase)						
INT	INT	2100	CARGO LAB	2100	2100	
	INT	2101	PAX LAB	2101	2100	
	INT	2105	CARGO	2105	2105	2105
	INT	2106	PAX	2106	2106	2106
FORM	FORM	2110	DAY FORM	2110	2110	2110
CAL	CAL	2210	CALS	2210	2210	2210
	CAL	2211	SECTION CALS	2211	2211	2211

CH-53E CREW CHIEF ATTAIN AND MAINTAIN PROFICIENCY (2000-4000)						
SKILL	STAGE	TRNG CODE	T&R DESCRIPTION	ATTAIN PROFICIENCY		MAINTAIN POI
				BASIC POI	REFRESHER POI	
TERF	TERF	2310	TERF	2310	2310	2310
	TERF	2311	SECTION TERF	2311	2311	2311
EXT	EXT	2410	SINGLE POINT	2410	2410	2410
	EXT	2411	DUAL POINT	2411	2411	2411
	EXT	2420	HLL SINGLE POINT	2420	2420	2420
	EXT	2421	HLL DUAL POINT	2421	2421	2421
	EXT	2430	LLL EXTERNALS	2430	2430	2430
GTR	GTR	2540	NON RADAR GTR	2540	2540	2540
FCLP	FCLP	2710	DAY FCLP	2710	2710	2710
	FCLP	2742	NS FCLP	2742	2742	2742
AG	AG	2800	GAU-21 LAB	2800	2800	
	AG	2801	GAU-21 MWPC LAB	2801	2801	
	AG	2802	Weapon Proc LAB	2802	2802	
	AG	2812	DAY AG	2812	2812	2812
	AG	2813	DAY SEC AG	2813	2813	2813
	AG	2842	NIGHT AG	2842	2842	2842
	AG	2843	NIGHT SEC AG	2843	2843	2843
TAC	TAC	2910	DAY LOW THREAT	2910	2910	2910
	TAC	2911	DAY MED THREAT	2911	2911	2911
NS HLL	HLL	2120	HLL FORM	2120	2120	2120
	HLL	2220	HLL CALS	2220	2220	2220
	HLL	2221	HLL SEC CALS	2221	2221	2221
	HLL	2320	HLL TERF	2320	2320	2320
	HLL	2321	HLL SEC TERF	2321	2321	2321
	HLL	2920	HLL LOW THREAT	2920	2920	2920
NS LLL	LLL	2230	LLL CALS	2230	2230	2230
	LLL	2231	LLL SEC CALS	2231	2231	2231
	LLL	2330	LLL TERF	2330	2330	2330
	LLL	2331	LLL SEC TERF	2331	2331	2331
	LLL	2930	LLL MED THREAT	2930	2930	2930
MISSION SKILLS (3000 Phase)						
EXP	GTR	2540	NON RADAR GTR	2540	2540	2540
	AG	2843	NIGHT SEC AG	2843	2843	2843
	LLL	2231	LLL SEC CALS	2231	2231	2231
	LLL	2331	LLL SEC TERF	2331	2331	2331
	EXP	3140	EXP SHORE BASED OPS	3140	3140	3140
AT	GTR	2540	NON RADAR GTR	2540	2540	2540
	AG	2843	NIGHT SEC AG	2843	2843	2843
	LLL	2231	LLL SEC CALS	2231	2231	2231
	LLL	2331	LLL SEC TERF	2331	2331	2331
	ACAD	3002	NEO EXECUTION	3002		
AD	AT	3240	ASSAULT TRANSPORT	3140	3140	3140
	EXT	2430	LLL EXTERNALS	2430	2430	2430
	GTR	2540	NON RADAR GTR	2540	2540	2540
	AG	2843	NIGHT SEC AG	2843	2843	2843
	LLL	2231	LLL SEC CALS	2231	2231	2231
	LLL	2331	LLL SEC TERF	2331	2331	2331
TRAP	AD	3340	AERIAL DELVIERY	3340	3340	3340
	EXT	2430	LLL EXTERNALS	2430	2430	2430
	GTR	2540	NON RADAR GTR	2540	2540	2540
	AG	2843	NIGHT SEC AG	2843	2843	2843
	LLL	2231	LLL SEC CALS	2231	2231	2231
	LLL	2331	LLL SEC TERF	2331	2331	2331
	ACAD	3004	(S) PERSONNEL RECOVERY	3004		
ACAD	3005	(S) CH53 SPEC TRAP TTPS	3005			
TRAP	3440	TRAP	3440	3440	3440	

CH-53E CREW CHIEF ATTAIN AND MAINTAIN PROFICIENCY (2000-4000)						
SKILL	STAGE	TRNG CODE	T&R DESCRIPTION	ATTAIN PROFICIENCY		MAINTAIN POI
				BASIC POI	REFRESHER POI	
AE	GTR	2540	NON RADAR GTR	2540	2540	2540
	AG	2843	NIGHT SEC AG	2843	2843	2843
	LLL	2231	LLL SEC CALS	2231	2231	2231
	LLL	2331	LLL SEC TERF	2331	2331	2331
	ACAD	3006	(U) CASEVAC	3006		
	AE	3540	AERIAL EVACUATION	3540	3540	3540
CORE PLUS (4000 Phase)						
HIE	HIE	4110	HELOCAST	4110	4110	4110
	HIE	4140	RAPPEL	4140	4140	4140
	HIE	4141	PARAOPS	4141	4141	4141
ADGR	ADGR	4200	TBFDS STATIC TRAINING	4200	4200	
	ADGR	4240	TBFDS OPERATION	4240	4240	4201
TERF EXT	TERF EXT	4412	DAY TERF EXTERNALS	4412	4412	4412
	TERF EXT	4440	NS TERF EXTERNALS	4440	4440	4440
DM	DM	4510	RW DM	4510	4510	4510
	DM	4511	FW DM	4511	4511	4511
GTR	GTR	4540	RADAR GTR	4540	4540	4540
CBRN	CBRN	4600	CBRN	4600		
CQ	CQ	4711	DAY CQ	4711	4711	4711
	CQ	4743	NIGHT CQ	4743	4743	4743
TG	TG	4800	STATIC TG TRAINING	4800	4800	
	TG	4810	DAY TG	4810	4810	
	TG	4811	DAY SECTION TG	4811	4811	4811
	TG	4840	NIGHT SECTION TG	4840	4840	4840
MTG	MTG	4841	MTG	4841	4841	4841
TAC	TAC	4940	DIV TAC	4940	4940	4940
	TAC	4941	URBAN TAC	4941	4941	4941
RIE	GTR	2540	NON RADAR GTR	2540	2540	2540
	AG	2843	NIGHT SEC AG	2843	2843	2843
	RIE	4980	RIE	4980	4980	4980
ADGR	GTR	2540	NON RADAR GTR	2540	2540	2540
	AG	2843	NIGHT SEC AG	2843	2843	2843
	ADGR	4240	TBFDS OPERATION	4240	4240	4201
	ADGR	4981	ADGR TACTICS	4981	4981	4981
SEA	GTR	2540	NON RADAR GTR	2540	2540	2540
	AG	2843	NIGHT SEC AG	2843	2843	2843
	SEA	4982	SEA BASED	4982	4982	4982

3.5 REQUIREMENT, CERTIFICATION, QUALIFICATION AND DESIGNATION TABLES:

The tables below delineate T&R events required to be completed to attain proficiency for select certifications, qualifications and designations. In addition to event requirements, all required stage lectures, briefs; squadron training, prerequisites, and other criteria shall be completed prior to completing final events. Certifications, qualification and designation letters signed by the Squadron Commanding Officer shall be placed in training Performance Records and NATOPS.

3.5.1 Individual Qualification Requirements

INDIVIDUAL QUALIFICATION REQUIREMENTS	
Qualification	Event Requirements
TERF	2310, 2311
NSQ HLL	2120, 2220, 2221, 2320, 2321, 2920
NSQ LLL	2230, 2231, 2330, 2331, 2930
AG	2800, 2801, 2802, 2812, 2813, 2842, 2843
DM	4510, 4511
TG	4800, 4810, 4811, 4840
NATOPS	6100

3.5.2 Individual Designation Requirements

INDIVIDUAL DESIGNATION REQUIREMENTS	
Designation	Event Requirements
NATOPS	6000, 6001, 6002, 6101
CRM	6003, 6101
TERFI	5700, 5701
NSI	5900, 5901, 5902
AGI	5400 Through 5408
DMI	5800, 5801, 5802
FRSI	5100 Through 5107
NSFI	5600, 5601, 5602
WTI	See CH-53 Course Catalog

3.6 CREW CHIEF PROGRAMS OF INSTRUCTION (POI): These tables reflect the average time-to-train versus the minimum to maximum time-to-train parameters in the Training Progression Model.

3.6.1 Basic, Conversion, and Transition POI

CH-53E CREW CHIEF Basic POI		
Weeks	Phase of Instruction	Unit
4-12	Crew Chief	N/A
12-24	Core Skill Training	Tactical Squadron
24-36	Mission Skill Training	Tactical Squadron
52+	Core Plus Training	Tactical Squadron

3.6.2 Refresher POI

CH-53E CREW CHIEF Refresher POI		
Weeks	Phase of Instruction	Unit
4-12	Core Skill Training	Tactical Squadron
12-24	Mission Skill Training	Tactical Squadron
52+	Core Plus Training	Tactical Squadron

3.6.3 Fleet Replacement Instructor FRSI POI.

CH-53E CREW CHIEF Instructor Training		
Weeks	Phase of Instruction	Unit
3	FRSI Academics	Fleet Replacement Squadron
3	Instructor Training	Fleet Replacement Squadron

3.7 SYLLABUS NOTES

3.7.1 AIRCREW TRAINING REFERENCES. Aircrew shall use the following references to ensure safe and standardized training procedures, grading criteria, and aircraft operation.

AIRCREW TRAINING REFERNCES	
Designator	Title
OPNAVIST 3710.7	NATOPS General Flight and Operating Instructions
NAVAIR H53BE-NFM-000	CH-53E NATOPS Flight manual
NAVMC 3500.14	Aviation Training and Readiness (T&R) Program manual
MCO 4790.20	Individual training standards
MCRP 4-23E	Multiservice helicopter sling load manual
NTTP 3-22.3-53	CH-53 Air Naval Tactics Techniques and Procedures
NTTP 3-22.5-ASTACSOP	USMC Assault Support Tactical SOP
NTTP 3-22.5-CH-53	CH-53 Tactical Pocket Guide
NVD manual	USN/USMC Helicopter Night Vision Device
A1-H53BE-CLG-000	Cargo loading manual
TM HM-020-800-23&P-M	Tactical Bulk Fuel Delivery System
TBFDS APCL-CH53E	TBFDS Aircrew Pocket Checklist
EA Academic support package	MAWTS-1 Course Catalog
EA Instructor support package	MAWTS-1 Course Catalog
GTR program guide	MAWTS-1 Ground Threat Reaction program guide
DM program guide	MAWTS-1 Defensive Measures program guide
NTRP 3-22.4	Naval Aviation Technical Information

3.7.2 General

3.7.2.1 This Manual is written to allow for local conditions and yet remain unclassified. DC AVN and CG MCCDC encourage squadrons to use the full range of tactics in the tactical manuals and adopt the latest developed and proven tactics.

3.7.2.2 All events shall terminate with a comprehensive debrief with emphasis on aircrew performance using all evaluation techniques.

3.7.2.3 Aircrew shall fly night events in accordance with the table of acronyms for environmental conditions.

3.7.3 Program of Instruction (POI) Assignment

PROGRAM ON INSTRUCTION MATRIX		
Program of Instruction (POI)	Symbol	Aviation Flying
Basic	B	Initial MOS/Skill Training
Transition*	T	Moving from one Type to another (Tilt-Rotor to Rotary-Wing)e.g. MV-22 to CH-53
Conversion*	C	Moving from one Model to another (CH-46 to CH-53)
Refresher	R	Non-flying status for 366 days or longer
Maintain	M	All individual who have attained CSP/MSP/CPD by initial POI assignment are re-assigned to the M POI to maintain proficiency.
*Transition and Conversion Crew Chiefs shall be assigned to the Basic POI.		

3.7.4 Basic, Conversion, and Transition POI: Crew Chiefs assigned to

Basic (B), Conversion (C), and Transition (T) POIs shall fly the entire Basic (B) POI.

3.7.5 Refresher POI

3.7.5.1 Crew Chief Refresher. The Refresher (R) POI is predicated on the experience of the Refresher Crew Chief. Previously designated Crew Chiefs returning to a flying status after being in a non-flying status for a period greater than 365 days shall be assigned to the Refresher (R) POI and fly all (R) coded events. The Squadron Commanding Officer may tailor the individual's Refresher POI per the squadron standardization board recommendations and IAW NAVMC 3500.14 Chapter 2. When the (R) coded events within a stage of training are complete, the Crew Chief may be credited with the entire stage of training. This assumes the Crew Chief has previous proficiency in a stage of training. If the Crew Chief has no previous proficiency in a stage or particular event (i.e. event Never Been Attempted (NBA)), then the Refresher Crew Chief shall fly the entire stage or all events not previously attempted.

3.7.5.2 Re-Qualification (TERFQ, AGQ, NSQ HLL, NSQ LLL, TGQ, DMQ). Upon demonstration of proficiency, by flying those (R) coded events, IAW the Program Manual NAVMC 3500.14, within the applicable stage in a specific core skill, aircrew may be re-qualified at the discretion of the Squadron Commanding Officer.

3.7.5.3 Instructor Re-Designation (TERFI, AGI, NSI, DMI). All Crew Chiefs that were previously designated as an Instructor returning to a flying status after being in a non-flying status for a period between 366 to 485 days shall fly the appropriate Refresher POI IAW with the above paragraph. Once the Crew Chief has demonstrated proficiency for the appropriate core skills and completed the appropriate pre-requisite may be re-designated an Instructor at the discretion of the Squadron Commanding Officer.

3.7.5.4 For those Crew Chiefs that were previously designated an Instructor returning to a flying status after being in a non-flying status for a period greater than 485 days shall be assigned to the Refresher POI per the MAWTS-1 CH-53 Course Catalog for the specific instructor syllabus. Once the Crew Chief has completed the required Refresher POI for the specific Instructor syllabus the Crew Chief may then be re-designated as an Instructor at the discretion of the Squadron Commanding Officer.

3.7.6 Aviation Training Forms (ATF)

3.7.6.1 All initial Basic (B), Conversion (C), and Transition (T) POI events shall require an ATF. The ATF shall be filled out and signed by the Crew Chief Instructor as outlined by the instructor requirement per the individual T&R event. All ATFs shall have the NAVFLIR number logged and be marked either "SATISFACTORY" or "UNSATISFACTORY".

3.7.6.2 All initial Refresher (R) POI events shall require an ATF. The ATF shall be filled out and signed by the Crew Chief Instructor as outlined by the instructor requirement per the individual T&R event. All Refresher ATFs shall be annotated with a (R) after the T&R event code to annotate that the event was a refresher. All ATFs shall have the NAVFLIR number logged and be marked either "SATISFACTORY" or "UNSATISFACTORY".

3.7.6.3 All POI events deemed to be "UNSATISFACTORY" shall require an ATF. The ATF shall be filled out and signed by the Crew Chief Instructor as outlined by the instructor requirement per the individual T&R event. These events shall not be logged on the NAVFLIR for the individual nor shall they receive credit for conducting these events.

3.7.6.4 All individual instructors shall report to the Enlisted Aircrew Training Manager (EATM) within a 24 hour period and provide them with the completed ATFs for the event. The EATM shall ensure that all ATFs are properly logged in the individual's APR within 48 hours after the event has been completed.

3.7.6.5 All ATFs shall be logged in section 3 of the individual's APR jacket under the T&R Evaluated Flights tab. The standardized ATF's are maintained by MAWTS-1 and are located at the following link:

<https://vcepub.tecom.usmc.mil/sites/msc/magtftc/mawts1/departments1/ASD/CH-53%20Division.aspx>

3.7.6.6 The ATFs shall be logged in order of the "T&R Tracker Table" with the highest numbered T&R code place on top.

3.7.6.7 All Refresher ATFs shall be logged in the same manner except that they shall all be grouped together and placed on the top of the other ATFs and have the refresher syllabus letter signed by the Squadron Commanding Officer placed on top.

3.7.6.8 All "UNSATISFACTORY" ATFs shall be logged in the same order and shall remain the individuals APR jacket.

3.7.6.9 The T&R Tracker Table shall be placed in section 3 of the APR and placed on top of the T&R Evaluated Flights Tab. The tracker table is located in the MAWTS-1 course catalog Appendix F.

3.7.7 Regaining CSP/MSP Proficiency

3.7.7.1 Individual. For an individual to regain proficiency of a single "delinquent event" (i.e. event re-fly interval exceeded) in a Core/Mission/Core Plus Skill, the individual is required to complete that "delinquent event" with another crewmember who is proficient in that event.

NOTE

See NAVMC 3500.14 Chapter 3 for specific requirements in Low Level Flight/TERF, Night Systems, and Air Combat Maneuvering/DM.

3.7.7.2 If all events in the Maintain Table/POI for a Core/Mission/Core Plus Skill. The individual must re-fly all delinquent R-coded events in the Attain Table for that Core/Mission/Core Plus Skill.

3.7.7.3 Unit. If an entire unit loses proficiency, unit instructors shall regain proficiency by completing event(s) with instructors from another like unit; if not feasible, proficiency shall be regained by completing event(s) with another instructor. If a unit has only one instructor and another instructor is not available, instructor proficiency shall be regained as designated by the Squadron Commanding Officer.

3.7.8 Qualifications. Qualifications are assigned to personnel based on demonstration of proficiency in a specific skill (i.e. FORM, CALS, TERF, EXT, HLL, LLL, etc.). All qualifications are assigned one or more T&R qualification events. When all qualifications requirements and events are completed, the individual may be granted the respective qualification by the Squadron Commanding Officer. Proficiency statuses of these qualification events are used to determine qualification status; an individual qualification status may be either "Qualified" or "Not Qualified".

3.7.8.1 Loss of Qualifications. If an individual goes delinquent in all

associated qualification events, the qualification is lost and the status automatically reverts to "Not Qualified." Individuals do not lose a qualification as a function of re-fly factor for individual events. Loss of proficiency resulting from being delinquent on all associated qualification events (events with measurable re-fly factor; excluding one-time events '**') constitutes loss of that qualification.

3.7.8.2 Re-Qualification. Re-qualification requires demonstration of proficiency in a specific skill. To regain a lost qualification due to delinquency, the individual must re-complete all R-coded qualifications events. Upon completion, the qualification status automatically reverts back to "Qualified." Normally qualification regained in this manner requires no additional documentation.

3.7.9 Acronyms for crew requirements

Acronyms for Crew Requirements	
Acronym	Definition
CCUI	Crew Chief Under Instruction
CC	Crew Chief
AOUI	Aerial Observer Under Instruction
AO	Aerial Observer

3.7.10 Environmental Conditions Matrix

Environmental Conditions	
Code	Meaning
D	Shall be flown daytime
N	Shall be flown at night, may be aided or unaided.
N*	Shall be flown at night, must be flown unaided.
(N*)	May be flown at night - If flown at night, must be flown unaided.
(N)	May be flown at night - If flown at night; may be flown aided or unaided.
NS	Shall be flown at night - Mandatory use of Night Vision Devices.
(NS)	May be flown at night - If flown at night; must be flown with Night Vision Devices.
Note - Aircrew shall fly all night time events at least 30 minutes after official sunset.	
Note - If the event is to be flown in the simulator the Instructor shall set the desired environmental conditions for the event.	

3.7.11 Event Terms

EVENT TERMS	
TERM	DESCRIPTION
Discuss	An explanation of systems, procedures, or maneuvers during the brief, in flight, or post flight. Student is responsible for knowledge or procedures.
Demonstrate	The description and performance of a particular maneuver/event by the instructor, observed by the student. The student is responsible for knowledge of the procedures prior to the demonstration of a required maneuver.
Introduce	The instructor may demonstrate a procedure or maneuver to a student, or may coach the student through the maneuver without demonstration. The student performs the procedures or maneuver with coaching as necessary. The student is responsible for knowledge of the procedures.
Practice	The performance of a maneuver or procedure by the student that may have been previously introduced in order to attain a specified level of performance.
Review	Demonstrated proficiency of a maneuver by the student.
Evaluate	Any flight designed to evaluate aircrew standardization that does not fit another category.
E-Coded	An event evaluation form is required each time the event is logged. Requires evaluation by a certified standardization instructor (NATOPS I, Assistant NATOPS I, WTI, etc.)

3.7.12 ACADEMIC TRAINING: The Academic syllabus is designed to ensure aircrew receive the proper academic training prior to starting a new phase and stage of training. Within each phase of training (0000-6000) there are

corresponding stages, each stage has an academic syllabus. The required academic syllabus for each stage of training is further delineated in the beginning paragraphs of each phase. Each phase and stage contain specific academic requirements which must be completed either prior to phase and/or stage initiation or prior to phase and/or stage completion. Academic/ground training events can either be accomplished by an individual utilizing self paced courseware or presented by a qualified instructor. The Enlisted Aircrew Training Manager shall ensure that the appropriate academic/ground training event is manually updated in MSHARP and logged in the APR.

3.7.12.1 The purpose of the academic syllabus is to ensure that required academic courses for each phase/stage of training are completed and logged in M-SHARP for each Crew Member. A summary of academic classes required for all of the phases of training (0000-6000) are listed below with their corresponding T&R code. Where indicated, standardized academic training materials exist and may be obtained from the sponsoring activity.

3.7.12.2 The academic/ground training shall be complete IAW the phase and/or stage requirements and prerequisites. Upon completion, the Crew Chief shall report to the Enlisted Aircrew Training Manager (EATM) in the Operations Department.

3.7.12.3 The EATM shall manually update the training code in MSHARP.

3.7.12.4 The EATM shall log the academic/ground training event on the Academic Tracker.

3.7.12.5 The EATM shall ensure that the Academic Tracker is located in the individuals APR jacket in section 3 under the ground school tab.

3.7.12.6 Additional academic/ground training classes not listed as requirements in the T&R shall be logged on the Additional Academic Tracker and logged in section 3 of the individuals APR jacket under the ground school tab.

3.7.13 Secondary AMOS Crew Chief

(a) All efforts shall be made with MMEA-84 to receive assignment of primary MOS CCs prior to utilizing secondary AMOS program. If inventory shortages cannot be filled through MMEA-84, authorization is granted to individual unit CO's to train secondary AMOS 6173 under the following guidelines:

(b) The number of secondary MOS CCs that an individual unit Commander may train is limited to the current staffing formula; $1.6 \text{ CC} \times \text{primary assigned aircraft (PAA)} = \text{number of CCs minus primary/additional MOS CCs on hand}$. For example, if a squadron has 14 primary/additional MOS CCs assigned, and the staffing formula computes to 19 total CCs, unit commanders may only request to train a maximum of 5 secondary AMOS CCs to equal PAA.

(c) To ensure standardization of training and aviation adaptability, all requested trainees shall be designated an aerial observer prior to starting secondary AMOS training.

(d) The source population shall be restricted to aviation maintenance MOS of 6113, 6153, and 6323 only. All requests shall be submitted via naval message format to CG TECOM ATB (C4610) for approval prior to trainee starting flight syllabus. MSG shall include:

Organization requesting training of secondary AMOS CC.

Name, rank, MOS, and SSN of trainee.

Total number of CCs rated by PAA.

Total number of primary and secondary AMOS CCs assigned to requesting MCC.

Adequate justification for training a secondary AMOS CC.

Faxed copy of initial AO NATOPS evaluation report (OPNAV 3710.7 form).

(e) Upon receipt of request, ATB will approve/disapprove request via ASL/ASM and notify requesting command through AMHS format. Approved training will be conducted in strict compliance with this manual and MCO P1200.7 Military Occupational Specialties manual. Additional requirements are outlined below:

(f) All Secondary AMOS Crew Chiefs shall be assigned to fly the entire Basic POI. Core Skill, Mission Skill, Core Plus / Mission Plus Skill flights previously flown as an Aerial Observer shall not transfer to the training of the secondary AMOS CC. All flights must be flown with CCUI acting in the capacity of a CC.

(g) To ensure MOS standardization all Core Skill Introduction (1000 phase) events shall be flown with a current enlisted Weapons and Tactics Instructor (MOS 6177) or NATOPS Evaluator/Instructor holding a primary MOS of 6173. Only a currently assigned and designated FRSI CC instructor (FRSI) shall administer the Core Skill Introduction evaluation flight.

(h) The Total Time to Train (TTT) secondary AMOS CCs shall not exceed 6 months. The date of initial flight and completion of evaluation flight define the TTT.

(i) Only the FRS CO's have the authority to designate the secondary AMOS of 6173. The evaluation flight may be flown at the respective FRS or individual requesting squadron. Requesting commands shall coordinate with FRS for scheduling of the evaluation flight. TAD funding for either the trainee or FRSI CC shall be the responsibility of the requesting squadron.

(j) The FRSI CC shall administer the closed book NATOPS examination, oral exam, and Core Skill Introduction evaluation flight. Prior to Core Skill Introduction evaluation flight parent commands shall ensure:

(k) Nominees complete squadron approved open book NATOPS examination.

Nominees are designated a plane captain by unit CO. Prior to designation, nominees shall attend SERE training.

(l) Upon completion of Core Skill Introduction evaluation flight, copies of all certifications and evaluations shall be submitted to respective FRS CO's for secondary AMOS certification/approval. Documents to be submitted are:

Copy of current flight physical.

Copy of physiology/water survival form 3760/32.

Copy of all CC 1000 phase ATF's.

Copy of current flight orders.

Copy of section III(c), examination record, OPNAV 3760/32G.

Copy of current Plane Captain Designation.

Copy of initial AO evaluation form, OPNAV 3710/7.

Original CC evaluation form, OPNAV 3710/7.
Copy of SERE completion certificate.

(m) Marines listed as an instructor on 1000 phase ATFs must submit a copy of respective WTI certificate or NATOPS Evaluator/Instructor designation. The primary purpose of this documentation is to assist the model manager in tracking the certification process and identifies positive/negative trends in the training process. Evaluation standards applicable to primary MOS CCs shall be strictly adhered to.

(n) The FRSI CC shall forward original OPNAV 3710/7 form to FRS CO for approval. The FRS CO shall sign the NATOPS evaluation and a CC designation letter and forward to the originating command for insertion into trainees NATOPS jacket.

(o) In order to facilitate management of the MOS end strengths, secondary AMOS CCs desiring a primary 6173 MOS, will forward the appropriate AA form to MMEA-6 requesting a lateral move from a secondary AMOS CC to a primary MOS CC.

(p) On hand primary designated MOS CC shall have priority for crewmember flight orders IAW MCO1326.2G.

(q) This policy applies to Marines currently in training and is effective immediately. This is not applicable to Marines designated prior to this revision, or Marines currently assigned to the executive flight detachment of HMX-1.

(r) Refer to DMS R CG TECOM ATB 141412Z APR 05 for helicopter additional MOS Crew Chief training program message.

(s) POC for secondary AMOS Crew Chief training program is TECOM ATB.

3.8 CORE SKILL INTRODUCTION PHASE (1000) ACADEMIC SYLLABUS

T&R CODE	ACADEMIC SYLLABUS
	CORE SKILL INTRODUCTION (1000)
	CH-53E CBT
CBT-0100	(U) CH-53E HISTORY
CBT-0102	(U) INTERIOR FAMILIARIZATION
CBT-0103	(U) EXTERIOR FAMILIARIZATION
CBT-0118	(U) APP OPERATION
CBT-0119	(U) AFCS
CBT-0120	(U) BLADE SPREAD/FOLD PROCEDURES
CBT-0124	(U) EMERGENCY PROCEDURES
CBT-0126	(U) TAXI / TAKEOFF / IN-FLIGHT CHECKS & PROCEDURES
CBT-0130	(U) INTERNAL CARGO HANDLING
CBT-0190	(U) BEARING MONITOR SYSTEM
T&R CODE	CH-53 ACADEMICS
ACAD-0200	(U) COURSE INTRODUCTION BRIEF
ACAD-0201	(U) BASIC GROUND HANDLING AND AIRCRAFT MOVEMENT
ACAD-0202	(U) AIRCRAFT INTERIOR
ACAD-0203	(U) ELECTRONICS COMPARTMENTS
ACAD-0204	(U) LANDING GEAR
ACAD-0205	(U) REFUEL, AUX TANKS, L/R FUSELAGE
ACAD-0206	(U) ENGINES, NOSE GEAR BOX, EAPS

ACAD-0207	(U) AFT MAIN ROTOR PYLON
ACAD-0208	(U) TAIL DRIVE SHAFTS
ACAD-0209	(U) TAIL SKID, IGB, TGB, TAIL SERVO
ACAD-0210	(U) TAIL ROTOR HEAD, ROTOR BLADES
ACAD-0211	(U) MGB, FLIGHT CONTROL MIXER UNIT
ACAD-0212	(U) 2 ND STAGE, UTILITY HYDRAULIC
ACAD-0213	(U) AUXILIARY POWER PLANT
ACAD-0214	(U) MAIN ROTOR HEAD AND BLADES
ACAD-0215	(U) MISSION SYSTEMS
ACAD-0216	(U) TURNAROUND INSPECTION
ACAD-0217	(U) REFUELING AND DEFUELING
ACAD-0218	(U) APP OPERATION
ACAD-0219	(U) FLIGHT CONTROLS, AFCS
ACAD-0220	(U) BLADE AND PYLON FOLD AND SPREAD PROCEDURES
ACAD-0221	(U) PLANE CAPTAIN RESPONSIBILITIES
ACAD-0222	(U) NATOPS FLIGHT PROCEDURES
ACAD-0223	(U) PRE/POST FLIGHT INSPECTION
ACAD-0224	(U) EGRESS PROCEDURES
ACAD-0225	(U) CRM
ACAD-0226	(U) START UP/SHUT DOWN PROCEDURES
ACAD-0227	(U) SINGLE POINT ENGINE PLOT/OPERATIONAL POWER CHECK
ACAD-0228	(U) READINESS MANUAL
ACAD-0229	(U) .50 CALIBER MACHINE GUN
ACAD-0230	(U) CARGO LOADING
ACAD-0270	(U) EXTERNAL TRANSPORTATION
ACAD-0280	(U) TERRAIN FLIGHT MANUVERS
ACAD-0290	(U) AIRCRAFT TRACK AND BALANCE
ACAD-0291	(U) IMDS
T&R CODE	LAB TRAINING (LAB) CH-53E
LAB-0301	(U) BASIC GROUND HANDLING AND AIRCRAFT MOVEMENT
LAB-0302	(U) AIRCRAFT INTERIOR
LAB-0303	(U) ELECTRONICS COMPARTMENTS
LAB-0304	(U) LANDING GEAR
LAB-0305	(U) REFUEL, AUX TANKS, L/R FUSELAGE
LAB-0306	(U) ENGINES, NOSE GEAR BOX, EAPS
LAB-0307	(U) AFT MAIN ROTOR PYLON
LAB-0308	(U) TAIL DRIVE SHAFTS
LAB-0309	(U) TAIL SKID, IGB, TGB, TAIL SERVO
LAB-0310	(U) TAIL ROTOR HEAD, ROTOR BLADES
LAB-0311	(U) MGB, FLIGHT CONTROL MIXER UNIT
LAB-0312	(U) 2 ND STAGE, UTILITY HYDRAULIC
LAB-0313	(U) AUXILIARY POWER PLANT
LAB-0314	(U) MAIN ROTOR HEAD AND BLADES
LAB-0315	(U) MISSION SYSTEMS
LAB-0316	(U) TURNAROUND INSPECTION
LAB-0317	(U) REFUELING AND DEFUELING
LAB-0318	(U) APP OPERATION
LAB-0319	(U) FLIGHT CONTROLS, AFCS
LAB-0321	(U) DAILY INSPECTION
LAB-0322	(U) TURNAROUND INSPECTION
LAB-0323	(U) FLIGHT EQUIPMENT

LAB-0324	(U) EGRESS PROCEDURES
T&R CODE	CREW CHIEF INSTRUCTOR STAGE (INST)
FRSI-0500	(U) COMPUTER AIDED INSTRUCTION
FRSI-0501	(U) LAB PERIOD OF INSTRUCTION
FRSI-0502	(U) INSTRUCTIONAL SKILLS
FRSI-0503	(U) PERIOD OF INSTRUCTION
T&R CODE	EVALUATION STAGE (EVAL)
EVAL-0600	(U) PLANE CAPTIAN DUTIES
EVAL-0601	(U) PLANE CAPTIAN DUTIES REVIEW

3.8.1 Computer Based Training

3.8.1.1 Purpose. To provide the CCUI with a basic understanding of CH-53E systems and operating characteristics.

3.8.1.2 General. Instructors shall complete all applicable academic events in this phase of training prior to performing instructor duties.

3.8.1.3 Crew Requirement. CCI/CCUI

CBT-0100 1.0 * B, CI, FRSI * * * CBT

Goal: Provide the Crew Chief Under Instruction (CCUI) with CH-53 Historical background and provide introduction to associated course publications.

Requirement:

Introduce:

General CH-53 historical information
CH-53 NATOPS manual and related maintenance publications

Performance Standard: CCUI is responsible for completing statements to demonstrate understanding of CH-53: Historical information; NATOPS manual and related maintenance publications

Prerequisite: ACAD 0200

External Syllabus Support: Electronic classroom

CBT-0102 1.0 * B, CI, FRSI * * * CBT

Goal: Introduce CCUI to the components of the cockpit and cabin interior.

Requirement:

Introduce:

Cabin interior
Cockpit
Cabin emergency equipment

Performance Standard: CCUI is responsible for completing statements to demonstrate understanding of: Cabin interior; Cockpit; and Cabin emergency equipment.

Prerequisite: CBT 0100

External Syllabus Support: Electronic classroom

Reference: A1-H53CE-GAI-000, A1-H53CE-MRC-200

CBT-0103 1.0 * B, CI, FRSI * * * CBT

Goal: Introduce the CCUI to the location of aircraft exterior components, panels and the identification of water lines and butt lines.

Requirement:

Introduce:

Helicopter dimensions
Component locations
Danger areas

Performance Standard: CCUI is responsible for completing statements to demonstrate understanding of: Helicopter dimensions, Component locations, and Danger areas

Prerequisite: CBT 0102

External Syllabus Support: Electronic classroom

Reference: A1-H53CE-GAI-000

CBT-0118 1.5 * B,CI,FRSI * * * CBT

Goal: Introduce CCUI to the principles of APP operation.

Requirement:

Introduce:

APP safety precautions
Fire bottle procedures
Hand and arm signals
APP Principles of operation

Performance Standard: CCUI is responsible for completing statements to demonstrate understanding of: APP safety precautions, Fire bottle procedures, Hand and arm signals, and APP operation.

Prerequisite: CBT 0103

External Syllabus Support: Electronic classroom

Reference: A1-H53BE-NFM-900, A1-H53CE-220-000

CBT-0119 1.0 * B,CI,FRSI * * * CBT

Goal: Introduce CCUI with the control functions and principles of operation of the AFCS.

Requirement:

Introduce:

Collective, yaw and cyclic control functions
AFCS principles of operation

Performance Standard: CCUI is responsible for completing statements to demonstrate understanding of: Collective, yaw and cyclic control functions, and AFCS principles of operation.

Prerequisite: CBT 0103

External Syllabus Support: Electronic classroom

CBT-0120 1.0 * B,CI,FRSI * * * CBT

Goal: Introduce CCUI to the blade fold and spread procedures and functions.

Requirement:

Introduce:

Blade/Pylon fold/spread safety considerations
Blade fold procedures

Blade spread procedures
Pylon fold procedures
Pylon spread procedures

Performance Standard: CCUI is responsible for completing statements to demonstrate understanding of: Blade/Pylon fold/spread safety considerations, Blade fold procedures, Blade spread procedures, Pylon fold procedures, and Pylon spread procedures.

Prerequisite: CBT 0103

External Syllabus Support: Electronic classroom

Reference:
A1-H53BE-NFM-900
A1-H53CE-GAI-000

CBT 0124 1.0 * B,CI,FRSI * * * CBT

Goal: Introduce Emergency Procedures (EPs) to the CCUI

Requirement:

Introduce:
Fire EPs
Smoke/Fumes EPs
Bearing Monitor System EPs
Emergency landing
Landing gear system failure

Performance Standard: CCUI is responsible for completing statements to demonstrate understanding of: Fire, Smoke/Fumes, Bearing monitor system, Emergency landing, and Landing gear system failure.

Prerequisite: CBT 0103

External Syllabus Support: Electronic classroom

Reference:
A1-H53BE-NFM-000
A1-H53BE-NFM-900

CBT 0126 1.0 * B,CI,FRSI * * * CBT

Goal: Introduce the CCUI to taxi, take off and in-flight checks and procedures.

Requirement:

Introduce:
Hand and arm signals
Aircraft clearance
Pre-taxi, take off, and in-flight checklists

Performance Standard: CCUI is responsible for completing statements to demonstrate understanding of: Hand and arm signals, aircraft clearance, Pre-taxi, take off, and in-flight checklists.

Prerequisite: CBT 0103

External Syllabus Support: Electronic classroom

Reference:

A1-H53BE-NFM-000
A1-H53BE-NFM-900

CBT 0130 1.0 * B,CI,FRSI * * * CBT

Goal: Introduce the CCUI to the functionality of cargo securing equipment and how to properly utilize the equipment to secure cargo.

Requirement:

Introduce:

Functionality of cargo securing equipment
Proper use of cargo securing equipment
Winch operation and procedures
Cargo ramp and flippers operations and procedures

Performance Standard: CCUI is responsible for completing statements to demonstrate understanding of: Functionality of cargo securing equipment, Proper use of cargo securing equipment, Winch operation and procedures, Cargo ramp and flippers operations and procedures.

Prerequisite: CBT 0103

External Syllabus Support: Electronic classroom

Reference:

A1-H53BE-CLG-000

CBT 0190 1.0 * B,CI,FRSI * * * CBT

Goal: Familiarize the CCUI with the basic function of the Bearing Monitor System (BMS).

Requirement:

Introduce:

Component location
System operation

Performance Standard: CCUI is responsible for completing statements to demonstrate understanding of BMS: Component location and system operation.

External Syllabus Support: Electronic classroom

Reference:

A1-H53BE-NFM-000
A1-H53BE-NFM-900
A1-H53CE-VIB-000

3.8.2 Academic Training

3.8.2.1 Purpose: To provide the CCUI with a basic understanding of the procedures required to perform a CH-53E Daily Inspection and prepare the CCUI and helicopter for flight.

3.8.2.2 General: Instructors shall complete all applicable 0500 stage events in this phase of training prior to performing instructor duties.

3.8.2.3 Crew Requirement: CCI/CCUI

ACAD 0200 2.0 * B,CI,FRSI * * * CLSRM

Goal: Provide Course Introduction Brief to ensure (CCUI) understands the expectations and requisite knowledge required to complete the CH-53 Crew Chief Training School Course.

Requirement:

Discuss:

- Course overview and design
- Study guide
- Class schedule
- Squadron check-in
- Academic handouts
- Course References
- Expectations of CCUI
- Schoolhouse procedures

Demonstrate:

- Classroom computer access
- Basic operation of ADL

Performance Standard: CCUI is responsible for knowledge of: Course overview and design, Study guide, Class schedule, Squadron check-in, Academic handouts, Course References, Expectations of CCUI and Schoolhouse procedures.

CCUI is responsible for observing while Instructor performs: Classroom computer access and Basic operation of ADL

Prerequisite: Squadron operations department check-in.

Reference: HMT-302 Marine Enlisted Aircrew Training SOP

ACAD 0201 1.5 * B,CI,FRSI * * * CLSRM

Goal: The CCUI understands the procedures, common terminology and hand and arm signals for promoting good safety during all facets of training, both in the air and on the ground. Be familiar with basic ground handling and aircraft movement procedures and safety protocols.

Requirement:

Discuss:

- Training time out (TTO)
- Drop on Request (DOR)
- "Knock it off"
- Ground handling procedures
- Fire extinguisher safety considerations
- Aircraft movement
- Required personnel and positions during aircraft movement
- Basic hand and arm signals
- Hazard areas on and around aircraft
- All five safety provisions installed or complied with

Performance Standard: CCUI is responsible for knowledge of procedures

required for: Training time out (TTO), Drop on Request (DOR), "Knock it off", Ground handling procedures, Fire extinguisher safety considerations, Aircraft movement, Required personnel and positions during aircraft movement, Basic hand and arm signals, Hazard areas on and around aircraft, and All five safety provisions installed or complied with.

Prerequisite: CBT 0103

Reference:

A1-H53CE-GAI-000
A1-H53BE-NFM-000

ACAD 0202 1.0 * B,CI,FRSI * * * CLSRM

Goal: Familiarize CCUI with the nomenclature, Theory of Operation and Daily inspection criteria for the aircraft interior.

Requirement:

Discuss: Nomenclature, theories of operation and inspection criteria of:

Cockpit section
Pilot and Copilot seats
Cabin section

Performance Standard: CCUI is responsible for knowledge of nomenclature, Theory of Operation, and procedures required to perform a daily inspection of: Cockpit section, Pilot and Copilot seats and Cabin section.

Prerequisite: ACAD 0201

Reference:

A1-H53CE-MRC-200
A1-H53CE-570-100
A1-H53CE-600-100
A1-H53CE-700-100
A1-H53CE-760-100
A1-H53CE-500-100

ACAD 0203 1.5 * B,CI,FRSI * * * CLSRM

Goal: Familiarize CCUI with the nomenclature, theory of operation and Daily inspection criteria for the electronics compartments, Countermeasure systems, Spot lights, and FLIR Ball and boom.

Requirement:

Discuss: nomenclature, theories of operation and inspection criteria of:

Right electronics compartment
Nose electronics compartment
Left side electronics compartments
Countermeasure systems
Spot lights
FLIR Ball and boom

Performance Standard: CCUI is responsible for knowledge of nomenclature, Theory of Operation, and procedures required to perform a daily inspection of: Right electronics compartment, Nose electronics compartment,

Left side electronics compartments, Countermeasure systems, Spot lights, FLIR Ball and boom.

Prerequisite: ACAD 0201

Reference:

A1-H53CE-MRC-200
A1-H53CE-570-100
A1-H53CE-600-100
A1-H53CE-700-100
A1-H53CE-760-100
A1-H53CE-500-100

ACAD 0204 1.0 * B,CI,FRSI * * * CLSRM

Goal. Familiarize CCUI with the nomenclature, theory of operation and Daily inspection criteria for landing gear and all associated lines and hardware.

Requirement.

Discuss: Nomenclature, theories of operation and inspection criteria of:

Nose gear door
Nose landing gear
Pitot static drain lines
Emergency landing gear extension cable
Cargo release linkage
Pilot and Copilot moveable spotlight
Main Landing Gear (MLG)
MLG brake assembly
Landing gear servicing

Performance Standard: CCUI is responsible for knowledge of nomenclature, Theory of Operation, and procedures required to perform a daily inspection of: Nose gear door, Nose landing gear, Pitot static drain lines, Emergency landing gear extension cable, Cargo release linkage, Pilot and Copilot moveable spotlight, Main Landing Gear (MLG), MLG brake assembly, and Landing gear servicing.

Prerequisite: ACAD 0201

Reference:

A1-H53CE-MRC-200
A1-H53CE-130-100

ACAD 0205 1.5 * B,CI,FRSI * * * CLSRM

Goal: Familiarize CCUI with the nomenclature, theory of operation and Daily inspection criteria for the refuel panel, aux tanks, and pylons to include sponsons and left and right fuselage.

Requirement:

Discuss: Nomenclature, theories of operation and inspection criteria of:

Aerial refueling probe
Pressure refueling panel
Auxiliary fuel tank and pylon assembly
Auxiliary fuel tank support

Sponson
Fuselage

Performance Standard: CCUI is responsible for knowledge of nomenclature, Theory of Operation, and procedures required to perform a daily inspection of: Aerial refueling probe, Pressure refueling panel, Auxiliary fuel tank and pylon assembly, Auxiliary fuel tank support, Sponson, and Fuselage.

Prerequisite: ACAD 0201

Reference:

A1-H53CE-MRC-200
A1-H53CE-110-100
A1-H53CE-460-100

ACAD 0206 1.5 * B,CI,FRSI * * * CLSRM

Goal: Familiarize CCUI with the nomenclature, theory of operation and Daily inspection criteria for all components associated with engines, nose gear boxes, and EAPS.

Requirement:

Discuss: Nomenclature, theories of operation and inspection criteria of:

Engine
EAPS
NGB

Performance Standard: CCUI is responsible for knowledge of nomenclature, theory of operation, and procedures required to perform a daily inspection of: Engine, EAPS, and NGB.

Prerequisite: ACAD 0201

Reference:

A1-H53CE-MRC-200
A1-H53CE-220-100

ACAD 0207 1.5 * B,CI,FRSI * * * CLSRM

Goal: Familiarize CCUI with the nomenclature, theory of operation and Daily inspection criteria for the aft main rotor pylon.

Requirement:

Discuss: Nomenclature, theories of operation and inspection criteria of:

Aft main rotor pylon

Performance Standard: CCUI is responsible for knowledge of nomenclature, theory of operation, and procedures required to perform a daily inspection of: Aft main rotor pylon.

Prerequisite: ACAD 0201

Reference:

A1-H53CE-MRC-200

A1-H53CE-110-100

ACAD 0208 1.0 * B,CI,FRSI * * * CLSRM

Goal: Familiarize CCUI with the nomenclature, theory of operation and Daily inspection criteria for the tail drive shafts and disconnect coupling.

Requirement:

Discuss: Nomenclature, theories of operation and inspection criteria of:

Tail driveshaft viscous damper assemblies
Disconnect coupling
Cleaning and greasing:
Disconnect coupling

Performance Standard: CCUI is responsible for knowledge of nomenclature, theory of operation, and procedures required to perform a daily inspection of: tail driveshaft viscous damper assemblies and disconnect coupling.

CCUI is responsible for understanding procedures required to clean and grease the disconnect coupling.

Prerequisite: ACAD 0201

Reference:

A1-H53CE-MRC-200
A1-H53CE-260-100

ACAD 0209 1.5 * B,CI,FRSI * * * CLSRM

Goal: Familiarize CCUI with the nomenclature, theory of operation and Daily inspection criteria for the Tail skid, Intermediate gearbox, Tail gearbox, tail rotor servo, Tail pylon and stabilizer structure.

Requirement:

Discuss: Nomenclature, theories of operation and inspection criteria of:

Tail pylon and stabilizer structure
Tail gearbox
Intermediate gearbox
Tail skid
Tail rotor servo

Performance Standard: CCUI is responsible for knowledge of nomenclature, theory of operation, and procedures required to perform a daily inspection of: tail pylon and stabilizer structure, tail gearbox, intermediate gearbox, tail skid, and tail rotor servo.

Prerequisite: ACAD 0201

Reference:

A1-H53CE-MRC-200
A1-H53CE-260-100

ACAD 0210 1.0 * B,CI,FRSI * * * CLSRM

Goal: Familiarize CCUI with the nomenclature, theory of operation and

Daily inspection criteria for the tail rotor head and tail rotor blades.

Requirement:

Discuss: Nomenclature, theories of operation and inspection criteria
of:

Tail rotor head
Tail rotor blades

Performance Standard: CCUI is responsible for knowledge of nomenclature, theory of operation, and procedures required to perform a daily inspection of: tail rotor head, tail rotor blades.

Prerequisite: ACAD 0201

Reference:

A1-H53CE-MRC-200
A1-H53CE-150-100

ACAD 0211 1.5 * B,CI,FRSI * * * CLSRM

Goal: Familiarize CCUI with the nomenclature, theory of operation and Daily inspection criteria for the Main gearbox, Main rotor primary servo cylinders and control rods, and Flight control mixer unit.

Requirement:

Discuss: Nomenclature, theories of operation and inspection criteria
of:

Main gearbox
Main rotor primary servo cylinders and control rods
Flight control mixer unit

Performance Standard: CCUI is responsible for knowledge of nomenclature, theory of operation, and procedures required to perform a daily inspection of: main gearbox, main rotor primary servo cylinders and control rods, and flight control mixer unit.

Prerequisite: ACAD 0201

Reference:

A1-H53CE-MRC-200
A1-H53CE-260-100
A1-H53CE-140-100

ACAD 0212 1.5 * B,CI,FRSI * * * CLSRM

Goal: Familiarize CCUI with the nomenclature, theory of operation and Daily inspection criteria for the 2nd stage and utility hydraulic systems and engine start hydraulic components.

Requirement:

Discuss: Nomenclature, theories of operation and inspection criteria
of:

2nd stage hydraulic system
Utility hydraulic system
Engine start hydraulic components
Servicing:

Hydraulic systems

Performance Standard: CCUI is responsible for knowledge of nomenclature, theory of operation, and procedures required to perform a daily inspection of: 2nd stage hydraulic system, utility hydraulic system, and engine start hydraulic components.

Prerequisite: ACAD 0201

Reference:

A1-H53CE-MRC-200
A1-H53CE-400-100

ACAD 0213 1.5 * B,CI,FRSI * * * CLSRM

Goal: Familiarize CCUI with the nomenclature, theory of operation and Daily inspection criteria for the forward hydraulic and auxiliary power plant compartment and Discuss the inspection criteria for all components.

Requirement:

Discuss: Nomenclature, theories of operation and inspection criteria of:

- Accessory gearbox
- Auxiliary power plant
- Fire extinguishers
- Heater
- Rotor head light
- Access panels

Performance Standard: CCUI is responsible for knowledge of nomenclature, theory of operation, and procedures required to perform a daily inspection of: accessory gearbox, auxiliary power plant, fire extinguishers, heater, rotor head light, and access panels.

Prerequisite: ACAD 0201

Reference:

A1-H53CE-MRC-200
A1-H53CE-400-100
A1-H53CE-110-100
A1-H53CE-260-100

ACAD 0214 1.0 * B,CI,FRSI * * * CLSRM

Goal: Familiarize CCUI with the nomenclature, theory of operation and Daily inspection criteria for the main rotor head and main rotor blades.

Requirement:

Discuss: Nomenclature, theories of operation and inspection criteria of:

- Main rotor head
- Main rotor blades

Performance Standard: CCUI is responsible for knowledge of nomenclature, Theories of Operation, and procedures required to perform a daily inspection of: main rotor head and main rotor blades.

Prerequisite: ACAD 0201

Reference:

A1-H53CE-MRC-200
A1-H53CE-150-100

ACAD 0215 1.0 * B,CI,FRSI * * * CLSRM

Goal: Familiarize CCUI with the nomenclature, theory of operation and Daily inspection criteria for the mission systems.

Requirement:

Discuss: Nomenclature, theories of operation and inspection criteria of:

- Single-point cargo hook and pendant
- Two-point suspension system
- Dual point cargo pendant
- Aircrew portable pendant control

- Single-point cargo system operational check and hook jettison test
- Two point cargo system
- CG/hook load indicating system operational checks
- Operational check of cargo winch
- Operational check of utility hoist
- Ensuring proper aircraft configuration

Performance Standard: CCUI is responsible for knowledge of nomenclature, theory of operation, and procedures required to perform a daily inspection of: single-point cargo hook and pendant, two-point suspension system, dual point cargo pendant, and aircrew portable pendant control

CCUI is responsible for knowledge of procedures required to perform operation of: single-point cargo system operational check and hook jettison test, two point cargo system and CG/hook load indicating system operational checks, operational check of cargo winch, and operational check of utility hoist.

CCUI is responsible for understanding procedures required to: ensure proper aircraft configuration.

Prerequisite: ACAD 0201, CBT 0130

Reference:

A1-H53CE-MRC-200
A1-H53CE-110-100

ACAD-0216 1.0 * B,CI,FRSI * * * CLSRM

Goal: Familiarize CCUI with the inspection criteria for performing a turnaround inspection.

Requirement:

Discuss:

- Turnaround inspection criteria
- Turnaround inspection
- Fuel samples

Performance Standard: CCUI is responsible for knowledge of procedures

required to perform: turnaround inspection and fuel samples.

Prerequisite: ACAD 0201

Reference:

A1-H53CE-MRC-200

ACAD-0217 1.0 * B,CI,FRSI * * * CLSRM

Goal: Familiarize the CCUI with the procedures for refueling, and defueling the CH-53.

Requirement:

Discuss:

Refuel/de-fuel truck considerations
Safety precautions, fire bottle and fuel spills
Hand and arm signals
APP operations

Performance Standard: CCUI is responsible for knowledge of procedures required to perform: refuel/de-fuel truck considerations, safety precautions, fire bottle, fuel spills, hand and arm signals, and APP operation.

Prerequisite: ACAD 0201

Reference:

A1-H53CE-GAI-000
A1-H53BE-NFM-000

ACAD-0218 1.0 * B,CI,FRSI * * * CLSRM

Goal: Familiarize the CCUI with the procedures APP operation.

Requirement:

Discuss:

APP preflight/inspection
Cockpit preflight/inspection
Safety precautions
Fire bottle procedures
Hand and arm signals
APP operation

Performance Standard: CCUI is responsible for knowledge of procedures required to perform: APP preflight/inspection, cockpit preflight/inspection, safety precautions, fire bottle procedures, hand and arm signals, and APP operation.

Prerequisite: CBT 0118, ACAD 0201

Reference:

A1-H53CE-220-100
A1-H53CE-MRC-200
A1-H53BE-NFM-000

ACAD-0219 1.0 * B,CI,FRSI * * * CLSRM

Goal: Familiarize CCUI with the nomenclature, and theory of operation of the flight controls and of the AFCS.

Requirement:

Discuss: Nomenclature, and theory of operation:
Collective, yaw and cyclic control functions
AFCS principles of operation

Performance Standards: CCUI is responsible for knowledge of nomenclature, and theory of operation: collective, yaw and cyclic control functions and AFCS principles of operation

Prerequisite: CBT 0119, ACAD 0201

Reference:

A1-H53CE-MRC-200
A1-H53BE-NFM-000
A1-H53CE-570-100
A1-H53CE-140-100

ACAD-0220 1.0 * B,CI,FRSI * * * CLSRM

Goal: Familiarize CCUI with the nomenclature, theory of operation and procedures for blade fold and spread and the pylon fold and spread.

Requirement:

Discuss: Nomenclature, theories of operation and procedures for:
Safety considerations
Blade fold procedures
Blade spread procedures
Pylon fold procedures
Pylon spread procedures

Performance Standard: CCUI is responsible for knowledge of nomenclature, Theories of Operation, and procedures for: safety considerations, blade fold procedures, blade spread procedures, pylon fold procedures, and pylon spread procedures.

Prerequisite: CBT 0120, ACAD 0201

Reference:

A1-H53CE-GAI-000
A1-H53BE-NFM-000

ACAD-0221 2.5 * B,CI,FRSI * * * CLSRM

Goal: Familiarize the CCUI with the fundamentals of security integrity, FOD, and leakage and introduce the responsibilities associated with the plane captain program.

Requirement:

Discuss:
Fundamentals and qualities that make up a plane captain
Plane captain program

Performance Standard: CCUI is responsible for knowledge of procedures required for: fundamentals and qualities that make up a plane captain, and

the plane captain program.

Prerequisite: ACAD 0201

Reference:
COMNAVFORINST 4790.2

ACAD-0222 4.0 * B,CI,FRSI * * * CLSRM

Goal: Familiarize the CCUI with NATOPS flight procedures and Local standard operating procedures for flight.

Requirement:

Discuss:
Scheduling procedures
Air Crew areas of responsibility
Standard terminology
Stages of flight
Emergency procedures

Performance Standard: CCUI is responsible for knowledge of: scheduling procedures, air crew areas of responsibility, standard terminology, stages of flight, and emergency procedures.

Prerequisite: ACAD 0201

Reference:
A1-H53BE-NFM-000
Squadron Flight SOPs

ACAD-0223 4.0 * B,CI,FRSI * * * CLSRM

Goal: Familiarize the CCUI with the preflight/post flight inspection criteria for required gear and proper wear of flight equipment.

Requirement:

Discuss:
Preflight inspection of required gear
Post-flight inspection of required gear
Proper wear of flight equipment

Performance Standard: CCUI is responsible for knowledge of: preflight inspection of required gear, post-flight inspection of required gear, and proper wear of flight equipment.

Prerequisite: ACAD 0201

Reference:
A1-H53BE-NFM-000

ACAD-0224 4.0 * B,CI,FRSI * * * CLSRM

Goal: Familiarize the CCUI with the proper CH-53E egress procedures.

Requirement:

Discuss:
Water egress procedures

Proper egress procedures
CH-53E egress points

Performance Standard: CCUI is responsible for knowledge of: water egress procedures, proper egress procedures, and CH-53E egress points.

Prerequisite: ACAD 0201

Reference:

A1-H53BE-NFM-000

ACAD-0225	2.5	*	B, CI, FRSI	*	*	*	CLSRM
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Goal: Introduce CRM.

Requirement:

Discuss:

Decision making
Assertiveness
Mission Analysis
Communication
Leadership
Adaptability/Flexibility
Situational Awareness
Case Study

Performance Standard: CCUI is responsible for knowledge of: decision making, assertiveness, mission analysis, communication, leadership, adaptability/flexibility, and situational awareness.

Reference:

OPNAV INST 1542.7C

ACAD-022	1.0	*	B, CI, FRSI	*	*	*	CLSRM
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Goal: Familiarize the CCUI with common terminology and ICS procedures during aircraft start up and shut down.

Requirement:

Discuss:

Safety considerations
Fire bottle position
Hand and arm signals
Start up checklist
Shutdown checklist
Common terminology

Performance Standard: CCUI is responsible for knowledge of: safety considerations, fire bottle position, hand and arm signals, start up checklist, shutdown checklist, and common terminology.

Prerequisite: CBT 0126, ACAD 0201, ACAD 0222

Reference:

A1-H53BE-NFM-000
A1-H53BE-NFM-900

ACAD-0227 1.0 * B,CI,FRSI * * * CLSRM

Goal: Familiarize the CCUI with single point engine plot and operational power check procedures.

Requirement:

Discuss:

Single point engine plot procedures
Operational power check procedures
Utilizing engine plot charts

Performance Standard: CCUI is responsible for knowledge of procedures required to perform: single point engine plot procedures, and operational power check procedures.

Prerequisite: ACAD 0201

Reference:

A1-H53BE-NFM-000

ACAD-0228 1.0 * B,CI,FRSI * * * CLSRM

Goal: Familiarize the CCUI with the content encompassed within the training and readiness manuals.

Requirement:

Discuss:

Content of the program manual NAVMC 3500
Content of the applicable 3500 series manual

Performance Standard: CCUI is responsible for knowledge of: content of the program manual NAVMC 3500, and content of the applicable 3500 series manual.

Reference:

NAVMC 3500 series manuals

ACAD-0229 1.0 * B,CI,FRSI * * * CLSRM

Goal: Familiarize the CCUI the nomenclature and Theory of Operation and demonstrate handling procedures of the .50 caliber machine gun.

Requirement:

Instructor: GAU-21 AGI or TGI required to give class on the GAU-21 .50 cal machine gun.

Discuss:

Weapon nomenclature
Basic assembly
Head space and timing
Weapons checklist
Troubleshooting procedures
Ammunition

Performance Standard: CCUI is responsible for knowledge of: weapon nomenclature, basic assembly, head space and timing, weapons checklist,

troubleshooting procedures, and ammunition.

Reference:

NAVAIR 11-95GAU-21-1

ACAD-0230 1.0 * B,CI,FRSI * * * CLSRM

Goal: Familiarize the CCUI with the functionality of cargo securing equipment, how to properly utilize the equipment to secure cargo and load aircraft utilizing proper weight and balance and center of gravity techniques.

Requirement:

Discuss: Nomenclature, theories of operation and operation of:

- Cargo securing equipment
- Proper use of cargo securing equipment
- Winch operation and procedures
- Cargo ramp and flippers operations and procedures
- Calculate weight and balance
- Load techniques for proper center of gravity preservation

Performance Standard: CCUI is responsible for knowledge of nomenclature, theory of operation and operation of: cargo securing equipment, proper use of cargo securing equipment, winch operation and procedures, cargo ramp and flippers operations and procedures, calculate weight and balance, and load techniques for proper center of gravity preservation.

Prerequisite: CBT 0130, ACAD 0201, ACAD 0215

Reference:

A1-H53CE-CLG-000
A1-H53CE-GAI-000
A1-H53BE-NFM-000

ACAD-0270 1.0 * B,CI,FRSI * * * CLSRM

Goal: Familiarize the CCUI with external transportation of cargo, standard terminology, and operating with a Helicopter Support Team (HST).

Requirement:

Discuss:

- Single point external cargo operations
- Dual point external cargo operations
- Emergency jettison of cargo
- Safety considerations while operating with HST

Performance Standard: CCUI is responsible for knowledge of procedures required to perform: single point external cargo operations, dual point external cargo operations, emergency jettison of cargo, and safety considerations while operating with HST.

Prerequisite: ACAD 0201

Reference:

A1-H53BE-NFM-000
A1-H53CE-110-100

ACAD-0280 1.0 * B,CI,FRSI * * * CLSRM

Goal: Familiarize the CCUI with terrain flight maneuvers and common terminology.

Requirement:

Discuss:

3 types of terrain flight
Terrain flight maneuvers
Aircraft clearances
Common terminology

Performance Standard: CCUI is responsible for knowledge of procedures required to perform: 3 types of terrain flight, terrain flight maneuvers, aircraft clearances, common terminology.

Prerequisite: ACAD 0201

Reference:

A1-H53BE-NFM-000
ANTTP 3-22.3-CH-53
MAWTS-1 Crew Chief Academic Support Package

ACAD-0290 2.0 * B,CI,FRSI * * * CLSRM

Goal: Familiarize the CCUI with the Vibration Analysis Test System (VATS) and Aircraft Track and Balance System (ATABS)

Requirement:

Discuss:

Component nomenclature
Systems operation
Installation of system components

Performance Standard: CCUI is responsible for knowledge of: component nomenclature, systems operation, and installation of system components.

Prerequisite: ACAD 0227

Reference:

A1-H53CE-VIB-000

ACAD-0291 2.0 * B,CI,FRSI * * * CLSRM

Goal: Familiarize the CCUI with the Intergraded Maintenance Diagnostic System (IMDS).

Requirement:

Discuss:

Component nomenclature
Component location
System operation

Performance Standard: CCUI is responsible for knowledge of: component nomenclature, component location, and system operation.

Prerequisite: ACAD 0227

Reference:

A1-H53CE-580-10

3.8.3 LAB Training

3.8.3.1 Purpose: To provide the CCUI with basic skills required to perform CH-53E Daily and Turnaround Inspections and prepare the CCUI and helicopter for flight.

3.8.3.2 General: Instructors shall:

3.8.3.2.1 Complete all applicable 0500 stage events in this phase of training prior to performing instructor duties.

3.8.3.2.2 Be a designated CH-53E Plane Captain.

3.8.3.2.3 Crew Requirement: CCI/CCUI

LAB-0301 2.5 * B,CI,FRSI * * * S/A

Goal: Provide the CCUI with the fundamental skills required for promoting safe procedures and considerations when conducting ground operations on and/or around the aircraft.

Requirement:

Discuss:

Procedures for entering/exiting rotor arc
Radioactive components
Engine high exhaust danger areas
Fire bottle considerations during APP and engine start
Movement of aircraft

Introduce:

Entering/exiting rotor arc
Movement of aircraft

Performance Standard: CCUI is responsible for recognizing and avoiding: rotor arc hazard areas, procedures for entering/exiting rotor arc, radioactive components, engine high exhaust danger areas, and fire bottle considerations during APP and engine start.

CCUI is responsible for performing procedures required for: movement of aircraft Hand and arm signals and entering/exiting rotor arc.

Prerequisite: ACAD 0201

Reference:

A1-H53CE-MRC-200
A1-H53CE-GAI-000
A1-H53BE-NFM-000

LAB-0302 2.5 * B,CI,FRSI * * * S/A

Goal: Provide the CCUI with the fundamental skills required to perform a daily inspection of the aircraft interior.

Requirement:

Introduce: Inspection of:
Cockpit section
Pilot and Copilot seats
Cabin Section

Performance Standard: CCUI is responsible for performing procedures required to inspect: cockpit section, pilot and co-pilot seats, and cabin section.

Prerequisite: ACAD 0202

Reference:
A1-H53CE-MRC-200

LAB-0303 1.5 * B,CI,FRSI * * * S/A

Goal: Provide the CCUI with the fundamental skills required to perform a daily inspection of the electronics compartments, Countermeasure systems, and FLIR ball and boom.

Requirement:

Introduce: Inspection of:
Right electronics compartment
Nose electronics compartment
Left side electronics compartments
Countermeasures systems
Spot Light
FLIR Ball and boom

Performance Standard: CCUI is responsible for performing procedures required to inspect: right electronics compartment, nose electronics compartment, left side electronics compartments, countermeasures systems, spot light, and FLIR Ball and boom.

Prerequisite: ACAD 0203

Reference:
A1-H53CE-MRC-200

LAB-0304 1.5 * B,CI,FRSI * * * S/A

Goal: Provide the CCUI with the fundamental skills required to perform a daily inspection of the landing gear and associated components.

Requirement:

Introduce: Inspection of:
Nose gear door
Nose landing gear
Pitot static drain lines
Emergency landing gear extension cable
Cargo release linkage
Pilot and Copilot moveable spotlight
Main Landing Gear (MLG)
MLG brake assembly
Landing gear servicing

Performance Standard: CCUI is responsible for performing procedures required to inspect: nose gear door, nose landing gear, pitot static drain lines, emergency landing gear extension cable, cargo release linkage, pilot and Copilot moveable spotlight, main Landing Gear (MLG), and MLG brake assembly.

CCUI is responsible for knowledge of: landing gear servicing.

Prerequisite: ACAD 0204

Reference:
A1-H53CE-MRC-200

LAB-0305 1.0 * B,CI,FRSI * * * S/A

Goal: Provide the CCUI with the fundamental skills required to perform a daily inspection of the refueling panel, auxiliary fuel tank and pylons assemblies, sponsons, and aircraft fuselage.

Requirement:

Introduce: Inspection of:
Aerial refueling probe
Pressure refueling panel
Auxiliary fuel tank and pylon assembly
Auxiliary fuel tank support
Sponson
Fuselage

Performance Standard: CCUI is responsible for performing procedures required to inspect: aerial refueling probe, pressure refueling panel, auxiliary fuel tank and pylon assembly, auxiliary fuel tank support, sponson, and fuselage.

Prerequisite: ACAD 0205

Reference:
A1-H53CE-MRC-200

LAB-0306 2.0 * B,CI,FRSI * * * S/A

Goal: Provide the CCUI with the fundamental skills required to perform a daily inspection of the engines, nose gear boxes and EAPS.

Requirement:

Introduce: Inspection of:
Engine
EAPS
NGB

Performance Standard: CCUI is responsible for performing procedures required to inspect: engine, EAPS, and NGB.

Prerequisite: ACAD 0206

Reference:
A1-H53CE-MRC-200

LAB-0307 1.5 * B,CI,FRSI * * * S/A

Goal: Provide the CCUI with the fundamental skills required to perform a daily inspection of the aft main rotor pylon.

Requirement:

Introduce: Inspection of:
Aft main rotor pylon

Performance Standard: CCUI is responsible for performing procedures required to inspect: aft main rotor pylon.

Prerequisite: ACAD 0207

Reference:
A1-H53CE-MRC-200

LAB-0308 1.0 * B,CI,FRSI * * * S/A

Goal: Provide the CCUI with the fundamental skills required to perform a daily inspection of the drive shafts and disconnect coupling components.

Requirement:

Introduce: Inspection of:
Tail driveshaft viscous damper assemblies
Disconnect coupling for wear
Introduce cleaning and greasing:
Disconnect coupling

Performance Standard: CCUI is responsible for performing procedures required to inspect: tail driveshaft viscous damper assemblies and disconnect coupling for wear.

CCUI is responsible for performing procedures required to: clean and grease disconnect coupling.

Prerequisite: ACAD 0208

Reference:
A1-H53CE-MRC-200

LAB-0309 1.5 * B,CI,FRSI * * * S/A

Goal: Provide the CCUI with the fundamental skills required to perform a daily inspection of the tail skid, IGB, TGB, pylon, stabilizer, and tail rotor servo.

Requirement:

Introduce: Inspection of:
Tail pylon and stabilizer structure
Tail gearbox
Intermediate gearbox
Tail skid
Tail rotor servo

Performance Standard: CCUI is responsible for performing procedures required to inspect: tail pylon and stabilizer structure, tail gearbox, intermediate gearbox, tail skid, and tail rotor servo.

Prerequisite: ACAD 0209

Reference:
A1-H53CE-MRC-200

LAB-0310 1.0 * B,CI,FRSI * * * S/A

Goal: Provide the CCUI with the fundamental skills required to perform a daily inspection of the tail rotor head and tail rotor blades.

Requirement: Introduce inspection of:
Tail rotor head
Tail rotor blades

Performance Standard: CCUI is responsible for performing procedures required to inspect: tail rotor head and tail rotor blades.

Prerequisite: ACAD 0210

Reference:
A1-H53CE-MRC-200

LAB-0311 1.5 * B,CI,FRSI * * * S/A

Goal: Provide the CCUI with the fundamental skills required to perform a daily inspection of the Main gearbox, Main rotor primary servo cylinders and control rods, and Flight control mixer unit.

Requirement:

Introduce: Inspection of:
Main gearbox
Main rotor primary servo cylinders and control rods
Flight control mixer unit

Performance Standard: CCUI is responsible for performing procedures required to inspect: main gearbox, main rotor primary servo cylinders and control rods, and flight control mixer unit.

Prerequisite: ACAD 0211

Reference:
A1-H53CE-MRC-200

LAB-0312 1.5 * B,CI,FRSI * * * S/A

Goal: Provide the CCUI with the fundamental skills required to perform a daily inspection of the 2nd stage and utility hydraulic systems and engine start hydraulic components.

Requirement:

Introduce: Inspection of:
2nd stage hydraulic system
Utility hydraulic system
Engine start hydraulic components
Servicing hydraulic systems

Performance Standard: CCUI is responsible for performing procedures required to inspect: 2nd stage hydraulic system, utility hydraulic system, and engine start hydraulic components.

CCUI is responsible for performing procedures required to service hydraulic systems.

Prerequisite: ACAD 0212

Reference:
A1-H53CE-MRC-200

LAB-0313 1.5 * B,CI,FRSI * * * S/A

Goal: Provide the CCUI with the fundamental skills required to perform a daily inspection of the forward hydraulic & APP compartment, and associated components.

Requirement:

Introduce: Inspection of:
Accessory gearbox
Auxiliary power plant
Fire extinguishers
Heater
Rotor head light
Access panels

Performance Standard: CCUI is responsible for performing procedures required to inspect; accessory gearbox, auxiliary power plant, fire extinguishers, heater, rotor head light and access panels.

Prerequisite: ACAD 0213

Reference:
A1-H53CE-MRC-200

LAB-0314 1.5 * B,CI,FRSI * * * S/A

Goal: Provide the CCUI with the fundamental skills required to perform a daily inspection of the main rotor head and main rotor blades.

Requirement: Introduce inspection of:

Main rotor head
Main rotor blades

Performance Standard: CCUI is responsible for performing procedures required to inspect: main rotor head, and main rotor blades.

Prerequisite: ACAD 0214

Reference:
A1-H53CE-MRC-200

LAB-0315 1.5 * B,CI,FRSI * * * S/A

Goal: Provide the CCUI with the fundamental skills required to perform a daily inspection of mission systems and ability to configure aircraft for assigned missions.

Requirement:

Introduce: Inspection of:

Single-point cargo hook and pendant
Two-point suspension system
Dual point cargo pendant
Aircrew portable pendant control

Introduce performing:

Single-point cargo system operational check and hook jettison test
Two point cargo system and CG/hook load indicating system
operational checks
Operational check of cargo winch
Operational check of utility hoist

Demonstrate:

Ensuring proper aircraft configuration

Performance Standard: CCUI is responsible for performing procedures required to inspect: single-point cargo hook and pendant, two-point suspension system, dual point cargo pendant, and aircrew portable pendant control.

CCUI is responsible for performing: single-point cargo system operational check and hook jettison test, two point cargo system and CG/hook load indicating system operational checks, operational check of cargo winch, and operational check of utility hoist.

CCUI is responsible for ensuring proper aircraft configuration.

Prerequisite: ACAD 0215

Reference:

A1-H53CE-MRC-200

LAB-0316 1.5 * B,CI,FRSI * * * S/A

Goal: Provide the CCUI with the fundamental skills required to perform a turnaround inspection.

Requirement:

Introduce:

Turnaround inspection
Fuel sample procedures

Performance Standard: CCUI is responsible for performing: turnaround inspection, and fuel samples.

Prerequisite: ACAD 0216

External Syllabus Support: Fuel sample trainer

Reference:

A1-H53CE-MRC-100

LAB-0317 1.0 * B,CI,FRIS * * * S/A

Goal: Provide the CCUI with the fundamental skills required to refuel

and/or defuel the aircraft.

Requirement:

Introduce:

Refuel/Defuel truck considerations
Safety precautions, fire bottle positioning, and fuel spills
Hand and arm signals
APP operations

Performance Standard: CCUI is responsible for recognizing hazards and taking appropriate actions for: refuel/defuel truck considerations, safety precautions, fire bottle and fuel spills

CCUI is responsible for performing: hand and arm signals, and APP operations.

Prerequisite: ACAD 0217

Reference:

A1-H53CE-GAI-000
A1-H53BE-NFM-900

LAB-0318 1.0 * B,CI,FRIS * * * S/A

Goal: Provide the CCUI with the fundamental skills required for APP operation.

Requirement:

Introduce:

APP compartment preflight/inspection
Cockpit preflight/inspection
Safety precautions
Fire bottle procedures
Hand and arm signals
APP operation

Performance Standard: CCUI is responsible for: following applicable safety precautions.

CCUI is responsible for performing: APP compartment preflight/inspection, cockpit preflight/inspection, fire bottle procedures, hand and arm signals, and APP operation.

Prerequisite: ACAD 0218

Reference:

A1-H53CE-GAI-000
A1-H53BE-NFM-900

LAB-0319 1.0 * B,CI,FRSI * * * S/A

Goal: Provide the CCUI with the fundamental skills required for operation of the AFCS.

Requirement:

Introduce:

Collective and cyclic control functions

AFCS operation

Performance Standard: CCUI is responsible for performing: collective and cyclic control functions, and AFCS operation.

Prerequisite: ACAD 0219

Reference:

A1-H53CE-MRC-200
A1-H53CE-GAI-000
A1-H53BE-NFM-000

LAB-0321 4.0 * B,CI,FRSI * * * S/A

Goal: Provide the CCUI with the fundamental skills required performing a Daily inspection.

Requirement:

Discuss:

Fundamentals and qualities that make up a plane captain
Plane captain program

Practice:

Performing Daily inspection

Performance Standard: CCUI is responsible for: displaying knowledge of plane captain program, following appropriate safety practices, and performing Daily inspection

Prerequisites: ACAD 0221

Reference:

COMNAVFORINST 4790.2
A1-H53CE-MRC-200

LAB-0322 1.0 * B,CI,FRSI * * * S/A

Goal: Provide the CCUI with the fundamental skills required for performing a Turnaround inspection.

Requirement:

Discuss:

Fundamentals and qualities that make up a plane captain
Plane captain program

Practice:

Performing Turnaround inspection

Performance Standard: CCUI is responsible for: displaying knowledge of Plane caption program, following appropriate safety practices, and performing turnaround inspection

Prerequisites: ACAD 0222

External Syllabus Support: Fuel sample trainer

Reference:

COMNAVFORINST 4790.2
A1-H53CE-MRC-100

LAB-0323 1.0 * B,CI,FRSI * * * S/A

Goal: Provide the CCUI with the fundamental skills required for preflight/post flight inspection and proper wear of required flight equipment.

Requirement:

Introduce:

Preflight inspection of required gear
Post-flight inspection of required gear
Proper wear of flight equipment

Performance Standard: CCUI is responsible for: preflight inspection of required gear, post-flight inspection of required gear and proper wear of flight equipment.

Prerequisite: ACAD 0223

Reference:

A1-H53BE-NFM-000

LAB-0324 1.5 * B,CI,FRSI * * * S/A

Goal: Discuss and demonstrate the proper egress procedures.

Requirement:

Discuss:

Water egress procedures
Proper egress procedures

Introduce:

Proper egress procedures

Performance Standard: CCUI is responsible for performing proper egress procedures.

Prerequisite: ACAD 0224 and LAB 0323

Reference:

A1-H53BE-NFM-000

3.8.4 Instructor Events

3.8.4.1 Purpose: To ensure the CCI possesses the requisite knowledge and technical skills required to instruct CH-53 Aircrew Core Skill Introduction FRS Academic Phase training events.

3.8.4.2 General. CCIUT may complete these events in conjunction with the CCUI CH-53 Aircrew Core Skill Introduction FRS Academic Phase syllabus. CIUT shall be evaluated by a qualified CH-53 Aircrew Core Skill Introduction FRS Instructors prior to performing instructor duties.

3.8.4.3 Crew Requirement: CCI/CCIUT

FRSI-0500 2.0 * CI,FRSI * * * CLSRM

Goal: Provide Crew Chief Instructor Under Training (CCIUT) with the skills required to conduct a Computer Aided Instruction (CAI) period of instruction.

Requirement:

Introduce:
Conducting CAI

Performance Standard: CCIUT is responsible for: properly conducting a CAI period of instruction.

Prerequisite: Successfully complete Formal School Instructor Course (FSIC) and Basic Instructor Training Course (BITC).

External Syllabus Support: Electronic classroom

Reference:
HMT-302 Marine Enlisted Aircrew Training SOP

FRSI-0501 2.0 * CI,FRSI * * * S/A

Goal: Provide CCIUT with the skills required to conduct a LAB period of instruction.

Requirement:

Introduce:
Conducting LAB

Performance Standard: CCIUT is responsible for: properly conducting a LAB period of instruction.

Prerequisite: INST 0500

External Syllabus Support: Electronic classroom

Reference:
HMT-302 Marine Enlisted Aircrew Training SOP

FRSI-0502 2.0 * CI,FRSI * * * CLSRM or S/A

Goal: Provide CCIUT with the opportunity to demonstrate mastery of instructional skills.

Requirement:

Review:
CCIUTs ability to properly conduct period of instruction

Performance Standard: CCIUT is responsible for: demonstrating ability to properly conduct period of instruction.

Prerequisite: INST 0501

External Syllabus Support: Electronic classroom

Reference:
HMT-302 Marine Enlisted Aircrew Training SOP

FRSI-0503 2.0 * CI,FRSI * * * CLSRM or S/A

Goal: Review Crew Chief Instructors (CCI) ability to conduct period of instruction.

Requirement:

Review:

Instructional techniques

Performance Standard: CCIUT is responsible for: demonstrating proper instructional techniques by properly conducting a period of instruction.

Prerequisite: INST 0502

External Syllabus Support: Electronic classroom

Reference:

HMT-302 Marine Enlisted Aircrew Training SOP

3.8.5 Evaluation Events

3.8.5.1 Purpose: To ensure CCUI possess the requisite knowledge and technical skills required perform CH-53 Plane Captain duties.

3.8.5.2 General: CCUI shall complete these events in conjunction with COMNAVAIRFORINST 4790.2A requirements.

3.8.5.3 Crew Requirement: CCUI or CC

EVAL-0600 2.0 * B,CI,FRSI * * * A

Goal: Provide CCUI with the opportunity to demonstrate mastery of CH-53 Plane Captain duties.

Requirement:

Review: CCUIs ability to properly perform:

Daily Inspection
Turnaround inspection

Performance Standard: CCUI is responsible for demonstrating ability to properly perform: daily inspection, and turnaround inspection.

Prerequisite: LAB 0321, LAB 0322

External Syllabus Support: N/A

Reference:

A1-H53CE-MRC-200

EVAL-0601 2.0 * B,CI,FRSI * * * A

Goal: Review Crew Chiefs ability to perform CH-53 Plane Captain duties.

Requirement:

NAVMC 3500.47B
11 Apr 14

Review: Crew Chief ability to properly perform:
Daily Inspection
Turnaround inspection

Performance Standard: Crew Chief is responsible for demonstrating ability to properly perform: daily inspection, and turnaround inspection.

Prerequisite: EVAL 0600

External Syllabus Support: N/A

Reference:
A1-H53CE-MRC-200

3.9 CORE SKILL INTRODUCTION PHASE (1000) FLIGHT SYLLABUS

3.9.1 General

3.9.1.1 Prior to starting 1000 phase, aircrew must complete: flight physical, Naval Aviation Water Survival Training Program (NAWSTP) and Naval Aviation Physiology Training Program (NAPTP).

3.9.1.2 Stages

1100-FAM
1200-NFAM
1300-INT
1400-N/A
1500-FORM
1600-CAL
1700-EXT
1800-TERF
1900-REV/CSIX

3.9.1.3 Familiarization

3.9.1.4 Purpose: To familiarize Aircrew with CH-53 operations and emergency procedures.

3.9.1.5 General: Aircrew (CCUI) may fly these events in conjunction with the Pilot syllabus. Instructors (CCI) shall be AGI for FAM-1113.

3.9.1.6 Crew Requirement: CCI/CCUI

3.9.1.7 Academic Training: Instructor led classroom instruction on applicable publications and directives. Crew Resource Management class.

SFAM-1100 1.5 * B D * A/S 1 CH-53

Goal: Practice aircrew duties part 1

Requirement:

Discuss:

Crew Resource Management (CRM) principles
Immediate dangerous hazards
Concise recommendations of safety concerns
Post Auxiliary Power plant (APP) start
Blade/pylon spread procedures
Starting engines/rotors checks
Bearing Monitor System (BMS)
Auxiliary Power plant (APP)
Startup safety

Practice:

Crew Resource Management (CRM)
Operational Risk Management (ORM) process
Possible hazards scanning during startup
Startup
Establishing area clear
Possible hazards

Hazards
Bearing Monitor Panel (BMP)

Performance Standard: Per CH-53 NATOPS and FRS Maneuver Description Guide.

External Syllabus Support: Aircrew Procedures Trainer

FAM-1101 1.5 * B D * A 1 CH-53

Goal: Practice Aircrew Duties Part 2

Requirement

Discuss:

Crew Resource Management (CRM)
Pre-taxi
Taxi
Pre-takeoff
Takeoff duties safety
Concise recommendation of safety concerns
Flight safety

Demonstrate:

Lesson pre-briefing
Training mission brief

Introduce:

Pre-taxi
Taxi
Pre-takeoff
Takeoff duties

Practice:

Starting engines/rotors checks
Starting engines/rotors
Windshield failure
Unusual attitude recovery
Emergency ground egress
Miscellaneous emergency procedure

Review:

Crew Resource Management (CRM)
Operational Risk Management (ORM) process
Post Auxiliary Power plant (APP) start
Blade Inspection Method (BIM) panel

Performance Standard: Per CH-53 NATOPS and FRS Maneuver Description Guide.

Prerequisite: FAM-1100

FAM-1102 1.5 * B D * A 1 CH-53

Goal: Introduce Emergency Procedures

Requirement:

Discuss:

- Smoke and fume elimination
- Engine power loss
- Engine over speed
- Control linkage failure
- Power turbine failure
- Engine lubrication system malfunction
- Power deterioration failure
- Engine restart during flight
- Electrical fire
- Hydraulic fire in main rotor pylon
- Primary tandem servo malfunction
- Nose Gearbox (NGB) chip locator light
- Accessory Gearbox (AGB) chip locator light

Introduce:

- Engine compartment fire(s) on the ground
- Engine post shutdown fire(s) on ground
- Engine/Auxiliary Power plant (APP)/heater compartment fire on ground
- Smoke and fume elimination
- Engine power loss
- Engine over speed
- Control linkage failure
- Power turbine failure
- Power deterioration failure
- Engine lubrication system malfunction
- Engine restart during flight
- Fire
- Electrical fire
- Hydraulic fire in main rotor pylon
- Restriction or binding in the flight controls
- Primary tandem servo malfunction
- Flight control
- Nose Gearbox (NGB) chip locator light
- Nose Gearbox (NGB) oil system failure
- Accessory Gearbox (AGB) failure
- Accessory Gearbox (AGB) chip locator light
- Assessor Gearbox (AGB) oil system failure

Performance Standard: Per CH-53 NATOPS and FRS Maneuver Description Guide.

Prerequisite: FAM-1101

FAM-1103 1.5 * B D * A 1 CH-53

Goal: Practice Aircrew Duties Part 3

Requirement:

Discuss:

- Crew Resource Management (CRM)
- Pre-landing
- Landing
- Online engine wash
- Shutdown safety
- Shutdown

Demonstrate:

- Control mission systems
- In-flight aircraft servicing
- Online engine wash procedures
- Possible hazards during shutdown
- Shutdown procedures
- Blade/pylon fold
- Shutdown monitoring procedures
- Shutdown checks

Review:

- Crew Resource Management (CRM)
- Operational Risk Management (ORM) process
- Pre-landing checks
- Landing duties
- Post flight inspection

Performance Standard: Per CH-53 NATOPS and FRS Maneuver Description Guide.

Prerequisite: FAM-1102

FAM-1104 1.5 * B D * A/S 1 CH-53

Goal: Review Aircrew duties while incorporating Crew Resource Management (CRM).

Requirement:

Discuss:

- Aircrew duties
- Performing emergency procedures
- Emergency procedure safety

Review:

- Aircrew duties
- Engine emergency procedures
- Bearing Monitor System emergency procedures
- Tail rotor drive system emergency procedures
- Hydraulic system emergency procedures
- Electrical system emergency procedures
- Transmission emergency procedures
- Flight control emergency procedures
- Fuel system emergency procedures
- Landing gear emergency procedures
- Fire emergency procedures
- Emergency landing
- Autorotative landing
- Emergency descent

Performance Standard: Per CH-53 NATOPS and FRS Maneuver Description Guide.

Prerequisite: FAM-1103

External Syllabus Support: Aircrew Emergency Procedures Trainer

3.9.2 Night Familiarization

3.9.2.1 Purpose: To familiarize Aircrew with CH-53 operations at night.

3.9.2.2 General. Aircrew (CCUI) may fly these events in conjunction with the pilot syllabus. Instructors (CCI) shall be an NSI or NSFI for NFAM-1201 and NFAM-1202.

3.9.2.3 Crew Requirement: CCI/CCUI

3.9.2.4 Academic Training: Instructor led classroom instruction on applicable publications and directives.

NFAM-1200 1.5 * B NS * A/S 1 CH-53

Goal: Introduce Night Systems (NS)

Requirement:

Discuss:

Crew Resource Management (CRM)
Night operation safety
Night Vision Goggles (NVGs)

Introduce:

Crew Resource Management (CRM)
Operational Risk Management (ORM)
NVGs operation
NVG goggle/de-goggle procedures
Lookout duties
Monitoring procedures
In-flight support duties
Pre-landing checks
Possible hazards scanning
Flight procedures
Decision making

Performance Standard: Per CH-53 NATOPS and FRS Maneuver Description Guide.

Prerequisite: NFAM-1200 and Night Imaging and Threat Evaluation (NITE) Lab Instruction

External Syllabus Support: Aircrew Procedures Trainer

NFAM-1201 1.5 * B NS * A 1 CH-53

Goal: Practice Night Systems (NS)

Requirement:

Discuss:

Crew Resource Management (CRM) principles

Night operation safety
NVG operation

Practice:

Crew Resource Management (CRM)
Operational Risk Management (ORM) process
NVG operation
NVG goggle/de-goggle procedures
Lookout duties
Monitoring procedures
In-flight support duties
Pre-landing checks
Scanning for possible hazards
Flight procedures

Performance Standard: Per CH-53 NATOPS and FRS Maneuver Description Guide.

Prerequisite: NFAM-1200

3.9.3 Internal Loads

3.9.3.1 Purpose: To introduce aircrew duties associated with loading, securing, and loading of passengers, cargo, and vehicles.

3.9.3.2 General: Aircrew (CCUI) may fly these events in conjunction with the pilot syllabus. Instructors (CCI) shall be an NSI if Night Systems are utilized.

3.9.3.3 Crew Requirement: CCI/CCUI

3.9.3.4 Ground Training Prerequisites: Aircrew must be familiar with the appropriate sections of the NATOPS Flight Manual and Cargo Loading Manual.

INT-1300 1.5 * B (N) * A/S 1 CH-53

Goal: Introduce Cabin/Cargo Configuration/Load Planning

Requirement:

Discuss:

Potential safety hazards
Cargo compartment
Operation of cabin and loading equipment
Load planning
Cargo ramp and door
Floor-loaded cargo on-load/offload
Operation of cabin on-load/offload equipment
Palletized cargo on-load/offload
Rolling stock cargo on-load/offload procedures

Introduce:

Cargo compartment
Cabin and loading equipment
Cargo preparation and loading

Load planning
Load plan
Cargo ramp and door procedures
Cargo winch operations
Cabin on-load/offload equipment
Floor-loaded cargo on-load/offload procedures
Palletized cargo on-load/offload procedures
Rolling stock cargo on-load/offload procedures

Performance Standard: Per CH-53 NATOPS and FRS Maneuver Description Guide.

Prerequisite: FAM-1104

External Syllabus Support: Aircrew Cabin Procedures Trainer

INT-1301 1.5 * B (N) * A/S 1 CH-53

Goal: Introduce Internal Passengers/Cargo Operations

Requirement:

Discuss:

Crew Resource Management (CRM)
Troop loading on-load procedures
Troop offload procedures
Litter on-load/offload procedures
On-load/offload safety
Passenger/personnel on-load/offload procedures
Post-loading procedures
Operation of cabin and offloading equipment
Cargo offload procedures

Introduce:

Crew Resource Management (CRM)
Operational Risk Management (ORM)
Troop loading preparation and loading procedures
Troop offload
Litter on-load/offload
Passenger/personnel on-load/offload
Post-loading
Cabin and offloading equipment
General cargo offload
Rolling stock cargo on-load/offload procedures

Performance Standard: Per CH-53 NATOPS and FRS Maneuver Description Guide.

Prerequisite: INT-1300

External Syllabus Support: Aircrew Cabin Procedures Trainer

3.9.4 Formation

3.9.4.1 Purpose: To introduce aircrew duties associated with formation flight.

3.9.4.2 General: Aircrew (CCUI) may fly these events in conjunction with the pilot syllabus. Instructors (CCI) shall be an NSI for FORM-1501.

3.9.4.3 Crew Requirement: CCI/CCUI

FORM-1500 2.0 * B D * A 2 CH-53

Goal: Introduce day Formation Flight

Requirement:

Discuss:

Crew Resource Management (CRM)
Formation flight procedures

Introduce:

Crew Resource Management (CRM)
Operational Risk Management (ORM)
Formation flight procedures

Performance Standard: Per CH-53 NATOPS and FRS Maneuver Description Guide.

Prerequisite: FAM-1103

FORM-1501 2.0 * B NS * A 2 CH-53

Goal: Introduce Night Systems (NS) Formation Flight

Requirement:

Discuss:

Crew Resource Management (CRM)
Formation flight procedures

Introduce:

Crew Resource Management (CRM)
Operational Risk Management (ORM)
Formation flight procedures

Performance Standard: Per CH-53 NATOPS and FRS Maneuver Description Guide.

Prerequisite: NFAM-1201 and FORM-1500

3.9.5 Confined Area Landings

3.9.5.1 Purpose: To introduce aircrew duties associated with Confined Area Landings (CAL).

3.9.5.2 General: Aircrew (CCUI) may fly these events in conjunction with the CAL stage of the pilot syllabus. Instructors (CCI) shall be an NSI for CAL-1602 and CAL-1603.

3.9.5.3 Crew Requirement: CCI/CCUI

CAL-1600 1.5 * B D * A/S 1 CH-53

Goal: Introduce Confined Area Landings (CALs)

Requirement:

Discuss:

- Crew Resource Management (CRM)
- Loss of visual reference during landing

Introduce:

- Crew Resource Management (CRM)
- Operational Risk Management (ORM)
- Loss of visual reference during landing
- Confined Area Landings (CALs)/takeoff procedures

Performance Standard: Per CH-53 NATOPS and FRS Maneuver Description Guide.

Prerequisite: FAM-1104

External Syllabus Support: Aircrew Procedures Trainer

CAL-1601 1.5 * B D * A 2 CH-53

Goal: Introduce Section Confined Area Landings (CALs)

Requirement:

Discuss:

- Crew Resource Management (CRM)

Introduce:

- Crew Resource Management (CRM)
- Operational Risk Management (ORM)

Formation landing
Loss of visual reference during landing
Confined Area Landings (CALs)/takeoff procedures

Performance Standard: Per CH-53 NATOPS and FRS Maneuver Description Guide.

Prerequisite: CAL-1600

CAL-1602 1.5 * B NS * A 1 CH-53

Goal: Introduce Night Systems (NS) Confined Area Landings (CALs)

Requirement:

Discuss:
Crew Resource Management (CRM)

Introduce:
Crew Resource Management (CRM)
Operational Risk Management (ORM)
Confined Area Landings (CALs)/takeoff procedures

Performance Standard: Per CH-53 NATOPS and FRS Maneuver Description Guide.

Prerequisite: NFAM-1201 and CAL-1601

CAL-1603 1.5 * B NS * A 2 CH-53

Goal: Practice Night Systems (NS) Section Confined Area Landings (CALs)

Requirement:

Discuss:
Crew Resource Management (CRM)

Practice:
Crew Resource Management (CRM)
Operational Risk Management (ORM)
Confined Area Landings (CALs)/takeoff procedures
Formation landing

Performance Standard: Per CH-53 NATOPS and FRS Maneuver Description Guide.

Prerequisite: CAL-1602

3.9.6 External Loads

3.9.6.1 Purpose: To introduce aircrew duties associated with external cargo operations.

3.9.6.2 General: Aircrew (CCUI) may fly these events in conjunction with the external stage of the Pilot syllabus. Instructors (CCI) shall be an NSI for 1705 and 1706.

3.9.6.3 Crew Requirement: CCI/CCUI

EXT-1700 1.5 * B D * S 1 CH-53

Goal: Introduce Single-Point External Operations Part 1

Requirement:

Discuss:

- Commands called
- External cargo transport single-point suspension pre-flight
- Preflight procedures for each type of external
- Cargo equipment safety
- Operation of external cargo equipment safety
- Single-point suspension external transport of cargo procedure
- Single-point suspension attach cargo procedure
- Single-point suspension external cargo load release procedures
- External operation safety

Introduce:

- Cabin compartment organization
- External cargo transport
- Single-point suspension pre-flight procedures
- External cargo equipment
- Attach cargo (single-point suspension) procedures
- Single-point suspension external transport of cargo procedures

Performance Standard: Per CH-53 NATOPS and FRS Maneuver Description Guide.

Prerequisite: CAL-1600

External Syllabus Support: Aircrew External Procedures Trainer

EXT-1701 1.5 * B D * S 1 CH-53

Goal: Introduce Dual-Point External Operations

Requirement:

Discuss:

Preflight procedures for each type of external
Cargo equipment safety
Operation of external cargo equipment safety
External cargo transport dual-point suspension pre-flight
Dual-point suspension pre-takeoff
External operation safety
Commands called

Introduce:

External cargo transport dual-point suspension pre-flight procedures
Pre-takeoff (dual-point suspension) procedures
Dual-point suspension pre-takeoff monitoring procedures
Dual-point suspension external transport of cargo procedures
External cargo load release (dual-point suspension) procedures
External cargo equipment

Performance Standard: Per CH-53 NATOPS and FRS Maneuver Description
Guide.

Prerequisite: EXT-1700

External Syllabus Support: Aircrew External Procedures Trainer

EXT-1703 1.5 * B D * A 1 CH-53

Goal: Practice Single-Point External Operations Part 2

Requirement:

Discuss:

Crew Resource Management (CRM)
External cargo equipment checks
External cargo jettison

Practice:

Crew Resource Management (CRM)
Operational Risk Management (ORM)
External cargo jettison
Cargo systems emergency procedure
Positive communication calls
External transport of cargo
External cargo load release (single-point) procedures

Performance Standard: Per CH-53 NATOPS and FRS Maneuver Description
Guide.

Prerequisite: CAL-1601 and EXT-1702

External Syllabus Support: Aircrew External Procedures Trainer

EXT-1704 1.5 * B D * A 1 CH-53

Goal: Review Dual-Point External Operations Part 3

Requirement:

Discuss:

- External operation safety
- Preflight procedures for each type of external
- Cargo equipment safety
- External cargo transport dual-point suspension pre-flight
- Dual-point suspension pre-takeoff
- Operation of external cargo equipment safety
- Commands called

Review:

- External cargo transport dual-point suspension pre-flight procedures
- Dual-point suspension pre-takeoff monitoring procedures
- Pre-takeoff (dual-point suspension) procedures
- Dual-point suspension external transport of cargo procedures
- External cargo load release (dual-point suspension) procedures
- External cargo equipment

Performance Standard: Per CH-53 NATOPS and FRS Maneuver Description Guide.

Prerequisite: EXT-1703

EXT-1705 1.5 * B NS * A 1 CH-53

Goal: Introduce Night Systems Single-Point External Operations

Requirement:

Discuss:

- Crew Resource Management (CRM)

Introduce:

- Crew Resource Management (CRM)
- Operational Risk Management (ORM)
- Single-point suspension external transport of cargo procedures
- External cargo load release (single-point) procedures

Performance Standard: Per CH-53 NATOPS and FRS Maneuver Description Guide.

Prerequisite: CAL-1603 and EXT-1704

EXT-1706 1.5 * B NS * A 1 CH-53

Goal: Introduce Night Systems (NS) Dual-Point External Operations

Requirement:

Discuss:

Crew Resource Management (CRM)

Introduce:

Crew Resource Management (CRM)
Operational Risk Management (ORM) process
External cargo load release (dual-point suspension) procedures

Performance Standard: Per CH-53 NATOPS and FRS Maneuver Description Guide.

Prerequisite: EXT-1705

3.9.7 Terrain Flight

3.9.7.1 Purpose: To introduce aircrew duties associated with terrain flight.

3.9.7.2 General: Aircrew (CCUI) may fly these events in conjunction with the terrain flight stage of the pilot syllabus. Instructors (CCI) shall be a TERFI.

3.9.7.3 Crew Requirement: CCI/CCUI

TERF-1801 1.5 * B D * A 1 CH-53

Goal: Practice Terrain Flight (TERF)

Requirement:

Discuss:

Crew Resource Management (CRM) principles
Emergency considerations during Terrain Flight (TERF)

Practice:

Crew Resource Management (CRM)
Operational Risk Management (ORM)
Terrain Flight (TERF) procedures

Performance Standard: Per CH-53 NATOPS and FRS Maneuver Description
Guide

Prerequisite: CAL-1600

3.9.8 Review and Core Skill Introduction Evaluation

3.9.8.1 Purpose: To demonstrate proficiency in performing aircrew duties.

3.9.8.2 General:

3.9.8.2.1 Aircrew (CCUI) shall complete a CH-53 NATOPS Flight Manual Open and Closed Book evaluation prior to performing this stage of flight.

3.9.8.2.2 Upon completion of this stage of flight, the aircrew will be NATOPS qualified as Crew Chief (CC) in appropriate T/M/S.

3.9.8.2.3 Qualified Crew Chief NATOPS Instructor (CCNI) or Fleet Replacement Squadron Instructor (FRSI) shall evaluate this stage of flight.

3.9.8.3 Crew Requirement: FRSI/CCUI

REV-1900 2.0 * B (NS) * A 1 CH-53

Goal: Review emergency procedures while incorporating Crew Resource Management (CRM).

Requirement

Discuss:

Performing emergency procedures
Emergency procedure safety

Review:

Engine emergency procedures
Bearing Monitor System emergency procedures
Tail rotor drive system emergency procedures
Hydraulic system emergency procedures
Electrical system emergency procedures
Transmission emergency procedures
Flight control emergency procedures
Fuel system emergency procedures
Landing gear emergency procedures
Fire emergency procedures
Emergency landing
Autorotative landing
Emergency descent

Performance Standard: Per CH-53 NATOPS and FRS Maneuver Description
Guide.

Prerequisite: Completion of all applicable 1000 level flight events

External Syllabus Support: Aircrew Emergency Procedures Trainer

CSIX-1901 1.5 * B (NS) E A 1 CH-53

Goal: Review Aircrew duties while incorporating Crew Resource Management (CRM).

Requirement:

Discuss:

Aircrew duties

Review:

Aircrew duties

Performance Standard: Per CH-53 NATOPS and FRS Maneuver Description Guide.

Prerequisite: REV-1900

3.10 CORE SKILL PHASE (2000)

3.10.1 Purpose: To introduce and develop proficiency in the execution of Core Skills required as Crew Chief/Aerial Observer within a Marine Heavy Helicopter Squadron (HMH). The Core Skill Phase represents the basic skill sets required to conduct Mission Skills (3000 Phase). These basic functions serve as tactical enablers that allow crews to progress to the more complex Mission Phase. This phase encompasses a combination of academic and flight events to train the individual aircrew to the level required to conduct assigned Mission Skills.

3.10.1.1 General:

3.10.1.2 A Crew Chief (CC) will no longer be referred to as a Crew Chief Under Instruction (CCUI) upon graduation for HMHT-302 as the individual is a designated Naval Aircrewman per OPNAVIST 3710.7. For all 2000-5000 phase of training the crew requirement of "CC" shall refer to a designated Crew Chief who is eligible for that level event per the event prerequisites. This individual may fulfill either the "CC" or the "AO" portion of the crew requirement.

3.10.1.3 An Aerial Observer Under Instruction (AOUI) is an individual that has been approved by a unit Commanding Officer to begin the AOUI syllabus per Chapter 4 of this manual, but has not yet completed the syllabus and has not yet been designated a Naval Aircrewman. This individual shall not be used to fulfill the crew requirement per the individual event.

3.10.1.4 An Aerial Observer (AO) is an individual that has completed the prescribed AOUI syllabus per Chapter 4 of this manual, and has been designated a Naval Aircrewman by a unit Commanding Officer. This individual may be used to fulfill the "AO" portion of the crew requirement for any event for which they are eligible per the event prerequisites.

3.10.1.5 Aircrew is considered NSQ HLL (able to transport troops under HLL conditions) when the following 6 events have been completed: HLL-2120, HLL-2220, HLL-2221, HLL-2320, HLL-2321, and HLL-2920. Aircrew shall fly all NS events in the NSQ HLL syllabus under ambient light conditions of .0022 LUX or greater.

3.10.1.6 Aircrew is considered NSQ LLL (able to transport troops under LLL conditions) when the following events have been completed: LLL-2230, LLL-2231, LLL-2330, LLL-2331, LLL-2930. Aircrew shall fly all NS events in the NSQ LLL syllabi under ambient light conditions of below .0022 LUX.

3.10.1.7 Stages

- 2100-Internal Loads (INT) & Formation (FORM)
- 2200-Confined Area Landings (CAL)
- 2300-Terrain Flight (TERF)
- 2400-Externals (EXT)
- 2500-Ground Threat Reaction (GTR)
- 2700-Field Carrier Landing Practice (FCLP)
- 2800-Aerial Gunnery (AG)
- 2900-Tactics (TAC)
- 2X2X-NS HLL (HLL) (Contained within other stages)
- 2X3X-NS LLL (LLL) (Contained within other stages)

3.10.1.8 Within the stages all training codes are further broken down according to ambient conditions.

- (XX00) Sim
- (XX10) Daylight
- (XX20) High Light Level
- (XX30) Low Light Level
- (XX40) Can be done day or night (during HLL or LLL conditions)

unless otherwise specified

3.10.1.9	<u>Abbreviation</u>	<u>Meaning</u>
	A	Aircraft
	B	Basic Program of Instruction
	C	Conversion Program of Instruction
	M	Maintain Program of Instruction
	R	Refresher Program of Instruction
	T	Transition Program of Instruction
	S	Simulated event
	GAU-21	GAU-21 .50 caliber machine gun
	MWPC	Medium Window Pintle Connection
	RMWS	Ramp Mounted Weapon System
	STATIC A/C	Static aircraft not required to fly for event
	S/P	Single Point external system
	D/P	Dual Point external system

3.10.1.10 Event terms

EVENT TERMS	
TERM	DESCRIPTION
Discuss	An explanation of systems, procedures, or maneuvers during the brief, in flight, or post flight. Student is responsible for knowledge of procedures.
Demonstrate	The description and performance of a particular maneuver / event by the instructor, observed by the student. The student is

	responsible for knowledge of the procedures prior to the demonstration of a required maneuver.
Introduce	A first time explanation of systems, procedures, or maneuvers during the brief, in flight, or post flight. Student is responsible for knowledge of procedures.
Practice	The performance of a maneuver or procedure by the student that may have been previously introduced in order to attain a specified level of performance.
Review	Demonstrated knowledge of a procedure or proficiency of a maneuver by the student.
Evaluate	Any flight designed to evaluate aircrew standardization that does not fit another category.
E-Coded	This term means an event evaluation form is required each time the event is logged. Requires evaluation by a certified standardization instructor (NATOPS I, WTI, INST Evaluator etc.)

3.10.1.11 Ground/Academic Training

3.10.1.12 Purpose: Aircrew undergoing instruction in this phase must have completed the MAWTS-1 Course Catalog Academic Support Package lectures applicable to this phase of training.

3.10.1.13 Upon completion, the CC/AOUI/AO shall report to the designated representative(s), who will then manually update the training code in M-SHARP and log the academic/ground training event in section 3 (Aircrew Ground School Training) of the APR, using the Enlisted Aircrew Performance Record/Qualification Jacket Academic Tracker beginning on Pg 3-183 of this document.

3.10.1.14 2000-5000 classes are located at the MAWTS-1 NIPR website under ASD, CH-53, T&R:

<https://www.intranet.tecom.usmc.mil/sites/mawts1/default.aspx>

3.10.1.15 SIPR 2000-6000 classes are located at the MAWTS-1 SIPR website under ASD, CH-53, T&R:

<http://www.mawts1.usmc.smil.mil/>

T&R CODE	ACADEMIC SYLLABUS
	CORE SKILL PHASE (2000)
ACAD-2004	(S) AAR 47 / ALE 47
ACAD-2012	(S) APR-39
ACAD-2019	(S) AAQ-24
ACAD-2050	(U) EA Tactical aircrew considerations and responsibility (TACR)
ACAD-2051	(U) EA Terrain flight
ACAD-2052	(U) EA Night vision training
ACAD-2053	(U) EA Fundamentals of aerial gunnery
ACAD-2055	(U) EA GAU-21 .50 cal machine gun
ACAD-2056	(U) EA Laser aiming devices
ACAD-2057	(U) EA Laser bore sighting

ACAD-2058	(U) EA Basic principles of escort operations
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3.10.1.16 Prerequisites: The following events/designations are prerequisites for crew chiefs prior to the commencement of the Core Skill Phase. Aerial observers shall begin their training in the Core Skill Phase (2000).

Academic: See event
Flight: CSIX-1901

3.10.1.17 Internal Loads (INT)

3.10.1.18 Purpose: To introduce and refine aircrew duties in loading, securing, unloading passengers, cargo and vehicles.

3.10.8.19 Ground/Academic Training: All self-paced readings and lectures pertaining to this stage shall be completed prior to flight initiation. Utilize academic courseware as outlined in the MAWTS-1 Course Catalog.

INT-2100 1.5 * B,R (N) * A 1 Static CH-53E

Goal: Introduce and practice aircrew duties when loading, unloading and securing internal cargo and/or vehicles.

Requirement:

Instructor: TERFI required for all personnel in the Basic (B) and Refresher(R) POI.

Introduce:

- CC vs. AO responsibilities during cargo operations
- CRM and crew coordination during cargo operations
- Aircraft danger zones
- Aircraft limitations
- Cabin configuration
- CG limitations and considerations
- Cargo loading procedures
- Cargo winch operation w/ snatch blocks
- Various types of support equipment
- Forklift procedures
- J-Bar usage
- Palletized vs. Non-palletized cargo
- Cargo securing procedures
- Safety precautions transporting various cargo
- Deceased casualties
- Petroleum, oxygen, lubricants (POL)
- Liquid oxygen (LOX)
- Pyrotechnics
- Class V cargo (ammunition)
- Cargo unloading procedures
- Taxi drop procedures
- Vehicle loading, securing, and off-load procedures
- Scan pattern with cargo/vehicles
- Hand and arm signals
- Cargo on-load/off-load with RMWS installed
- Ramp/flipper position during on-load/off-load/taxi drop
- Terrain suitability for cargo/vehicle on-load/off-load

NVG considerations
Cabin/cargo lighting considerations
Safety precautions during cargo operations
Crew Coordination
ICS procedures

Performance Standards: Conduct various types of cargo and/or vehicle loading, securing, and unloading procedures IAW the cargo loading manual, NTTP 3-22.3-CH53, NATOPS, and any applicable NAVAIR white papers. Perform crew coordination along with all applicable hand and arm signals associated with vehicle loading and forklift procedures to direct simulated vehicle/forklift into the A/C. Discuss RMWS and ramp position considerations during cargo or vehicle on-load/off-load.

External Syllabus Support: Applicable cargo and/or vehicles, applicable support equipment, static CH-53

Prerequisite: ACAD-2050, (ACAD-2052 if conducted at night)

INT-2101 1.5 * B,R (N) * A 1 STATIC CH-53E

Goal: Introduce and practice passenger briefing, embark, securing, and debark procedures.

Requirement:

Instructor: TERFI required for all personnel in the Basic (B) and Refresher(R) POI.

Introduce:

CC vs. AO responsibilities during passenger embark/ debark
CRM and crew coordination during passenger operations
A/C danger zones
Cabin configuration
Litter considerations
NFM-900 Passenger briefing guide
Crew Coordination/ CRM
Hand and arm signals
Communication with passengers
ICS station for AFC or stick leader
Passenger embarking procedures
Passenger securing procedures
Passenger debarking procedures
ICS procedures during embark/debark
Passenger accountability
Scan pattern with passengers
Passenger embark/debark considerations with RMWS installed
Ramp/flipper position during passenger embark/debark
Terrain suitability for passenger embark/debark
NVG considerations
Cabin lighting considerations
Passenger lighting considerations
Passenger safety/weapons considerations
Problems encountered during embark, securing and debark
Emergency passenger egress
Crew responsibilities for flight over water with PAX
Abandon/ditching aircraft

Performance Standards: Conduct passenger briefing, embarking,

securing, and debarking procedures IAW applicable NATOPS. Demonstrate keeping personnel clear of all A/C danger zones. Discuss RMWS and ramp position considerations during passenger embark/debark.

External Syllabus Support: Static CH-53

Prerequisite: ACAD-2050, (ACAD-2052 if conducted at night)

INT-2105 1.5 365 B,R,M (N) * A 1 CH-53

Goal: Introduce and practice aircrew duties when loading, unloading and securing internal cargo and/or vehicles.

Requirement:

Instructor: TERFI required for all personnel in the Basic (B) and Refresher(R) POI.

Discuss:

- CC vs. AO responsibilities during cargo operations
- CRM and crew coordination during cargo operations
- Aircraft danger zones
- Aircraft limitations
- Cabin configuration
- CG limitations and considerations
- Cargo loading procedures
- Cargo winch operation w/snatch blocks
- Various types of support equipment
- Forklift procedures
- J-Bar usage
- Palletized vs. Non-palletized cargo
- Cargo securing procedures
- Safety precautions transporting various cargo
- Deceased casualties
- Petroleum, oxygen, lubricants (POL)
- Liquid oxygen (LOX)
- Pyrotechnics
- Class V cargo (ammunition)
- Cargo unloading procedures
- Taxi drop procedures
- Vehicle loading, securing, and off-load procedures
- Scan pattern with cargo/vehicles
- Hand and arm signals
- Cargo on-load/off-load with RMWS installed
- Ramp/flipper position during on-load/off-load/taxi drop
- Terrain suitability for cargo/vehicle on-load/off-load
- NVG considerations
- Cabin/cargo lighting considerations
- Safety precautions during cargo operations
- ICS procedures

Practice:

- CC vs. AO responsibilities during cargo operations
- CRM and crew coordination during cargo operations
- Cabin configuration
- Cargo loading procedures
- Cargo winch operation w/snatch blocks (if applicable)
- Support equipment utilization (if applicable)
- Cargo securing procedures
- Cargo unloading procedures

Taxi drop procedures
Vehicle loading, securing, and off-load procedures
Scan pattern with cargo/vehicles
Hand and arm signals
Cargo on-load/off-load with RMWS installed
Ramp/flipper position during on-load/off-load/taxi drop
Safety precautions during cargo operations
ICS procedures

Performance Standards: Conduct various types of cargo and/or vehicle loading, securing, and unloading procedures IAW above listed items, cargo loading manual, NTTP 3-22.3-CH53, NATOPS, and any applicable NAVAIR white papers. Perform crew coordination along with applicable hand and arm signals associated with vehicle loading and forklift procedures. Discuss RMWS and ramp position considerations during cargo or vehicle on-load/off-load.

Prerequisite: ACAD-2050, (ACAD-2052 if conducted at night), INT-2100

External Syllabus Support: Applicable cargo and/or vehicles

INT-2106 1.5 365 B,R,M (N) * A 1 CH-53

Goal: Introduce and practice passenger briefing, embark, securing, and debark procedures.

Requirement:

Instructor: TERFI required for all personnel in the Basic (B) and Refresher (R) POI.

Discuss:

CC vs. AO responsibilities during passenger embark/debark
CRM and crew coordination during passenger operations
A/C danger zones
Cabin configuration
Litter considerations
NFM-900 Passenger briefing guide
Hand and arm signals
Communication with passengers
ICS station for AFC or stick leader
Passenger embarking procedures
Passenger securing procedures
Passenger debarking procedures
ICS procedures during embark/debark
Passenger accountability
Scan pattern with passengers
Passenger embark/debark considerations with RMWS installed
Ramp/flipper position during passenger embark/debark
Terrain suitability for passenger embark/debark
NVG considerations
Cabin lighting considerations
Passenger lighting considerations
Passenger safety/weapons considerations
Problems encountered during embark, securing and debark
Emergency passenger egress
Crew responsibilities for flight over water with passengers
Abandon/ditching aircraft
Situational awareness
Communication

ICS procedures/failure
Crew coordination/CRM
Aircraft emergencies
Cabin security

Practice:

CC vs. AO responsibilities during passenger embark/debark
CRM and crew coordination during passenger operations
Cabin configuration
NFM-900 Passenger briefing guide
Hand and arm signals
Communication with passengers
Passenger embarking procedures
Passenger securing procedures
Passenger debarking procedures
ICS procedures during embark/debark
Passenger accountability
Scan pattern with passengers
Ramp/flipper position during passenger embark/debark
Cabin security

Performance Standards: Conduct passenger briefing, embark, securing, and debark procedures IAW above listed items, cargo loading manual, NTTP 3-22.3-CH53, and CH-53 NATOPS. Practice keeping personnel clear of all A/C danger zones. Discuss RMWS and ramp/flipper position considerations during passenger embark/debark.

Prerequisite: ACAD-2050, (ACAD-2052 if conducted at night), INT-2101

3.10.2 Formation (FORM)

3.10.2.1 Purpose: To introduce and practice aircrew responsibilities during formation flight and introduce responsibilities of tactical formation flight during the day.

3.10.2.2 Crew Requirement: P/P/CC/AO

3.10.2.3 Ground/Academic Training: All self paced readings and lectures pertaining to this stage shall be completed prior to flight initiation. Utilize academic courseware as outlined in the MAWTS-1 Course Catalog.

FORM-2110 1.5 365 B,R,M D * A 2 CH-53

Goal: Introduce and practice aircrew duties during basic formation flight and introduce tactical formation flight.

Requirement:

Instructor: TERFI required for all personnel in the Basic (B) and Refresher (R) POI.

Introduce:

Basic tactical formations
Closure rate
Wingman considerations
Wingman updates using standard terminology
"Visual" vs. "Blind"
Inadvertent Instrument Meteorological Conditions (IIMC)
Standard terminology
"Popeye"

"On board"
"Holding hands"
Comfort level
Emergency procedures
Combat cruise vs. Combat spread
Communication vs. No communication lead change
Tactical formation maneuvering
Tactical vs. Formation lead change
Tac turn
Center turn
In place turn
Split turn
Cross turn
Break turn
Dig and Pinch
Cover
Resume

Practice:

CC vs. AO responsibilities during formation flight
CRM and crew coordination during formation flight
Cabin configuration
Cabin security
Basic tactical formation maneuvering
Crew coordination/CRM
Situational awareness
Communication
Standard terminology
Identifying closure rate to wingman
ICS procedures

Performance Standards: Conduct aircrew duties and demonstrate proficient knowledge of aircrew considerations during tactical formation flight IAW above listed items, NATOPS and NTTP 3-22.3-CH53.

Prerequisite: ACAD-2050

3.10.3 Confined/Mountainous Area Landings (CAL/MAL)

3.10.3.1 Purpose: To introduce and practice aircrew responsibilities while conducting CAL/MAL operations with single ship and multiple aircraft during the day.

3.10.3.2 General: Aircrew may find a description of these maneuvers in the CH-53 NATOPS and NTTP 3-22.3-CH-53.

3.10.3.3 Crew Requirement: P/P/CC for CAL-2210, P/P/CC/AO for CAL-2211

3.10.3.4 Ground/Academic Training: The MAWTS-1 CH-53 Course Catalog contains all self-paced readings and lectures pertaining to this stage which shall be completed as outlined in the MAWTS-1 Course Catalog.

CAL-2210 1.5 365 B,R,M D * A 1 CH-53

Goal: Introduce and practice CALs/MALs using tactical approaches.

Requirement:

Instructor: TERFI required for all personnel in the Basic (B) and

Refresher(R) POI.

Introduce:

- CALs
- Pattern terminology, upwind, downwind, abeam, final
- Airspeed/altitude during landing approach
- Desert landing profile
- Effects of wind
- Tactical approaches
- Closure rate
- Lookout doctrine
- Scan pattern vs. sight fixation
- Aircraft/Obstacle clearance
- Tail rotor clearance
- Standard Terminology
- Landing on a slope
- A/C landing gear brake limitations
- Rotor wash effect on trees, bushes, tall grass, etc...
- Loose objects/blowing debris
- Terrain suitability
- Brown out/white out procedures
- Drift correction/Heading control
- Aircraft lighting
- Wave off procedures

Practice:

- CC vs. AO responsibilities during CAL/MAL operations
- CRM and crew coordination during CAL/MAL operations
- Cabin configuration
- Communication
- ICS procedure
- Tactical approaches
- Identifying closure rate to ground during landing
- Situational awareness
- Lookout doctrine
- Scan pattern
- Aircraft/Obstacle clearance
- Tail rotor clearance
- Identifying terrain suitability
- Standard Terminology
- Drift correction/Heading control
- Wave off procedures
- Cabin security

Performance Standards: Conduct CAL/MAL operations and considerations IAW above listed items and the CH-53 NATOPS and NTTP 3-22.3-53. Perform aircrew duties during tactical CAL/MAL operations IAW the above listed items and IAW CH-53 NATOPS and NTTP 3-22.3-53. Conduct a minimum of 5 confined area landings.

Prerequisite: ACAD-2050

Range Requirements: CAL/MAL site

CAL-2211	1.5	365	B,R,M	D	*	A	2	CH-53
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Goal: Introduce and practice CALs/MALs using tactical approaches within a section.

Requirement:

Instructor: TERFI required for all personnel in the Basic (B) and Refresher(R) POI.

Introduce:

- Wingman situational awareness
- Wingman terminology
- Wingman update
- Wingman crossover
- Section takeoffs
- Section approaches
- Section landings to a CAL/MAL site

Discuss:

- Section CALs
- Pattern terminology, upwind, downwind, abeam, final
- Airspeed/altitude during landing approach
- Desert landing profile
- Effects of wind
- Tactical approaches
- Closure rate
- Lookout doctrine
- Scan pattern vs. sight fixation
- Aircraft/Obstacle clearance
- Tail rotor clearance
- Standard Terminology
- Terrain suitability
- Landing on a slope
- A/C landing gear brake limitations
- Rotor wash effect on trees, bushes, tall grass, etc..
- Loose objects/blowing debris
- Brown out/white out procedures
- Drift correction/Heading control
- Aircraft lighting
- Wave off procedures
- Situational awareness
- Communication
- Identifying closure rate to ground during landing
- ICS procedures/failure
- Crew coordination/CRM
- Aircraft emergencies
- Cabin security

Practice:

- CC vs. AO responsibilities during section CAL/MAL operations
- CRM and crew coordination during section CAL/MAL operations
- Cabin configuration
- Communication
- ICS procedure
- Wingman situational awareness
- Wingman terminology
- Wingman update
- Tactical approaches
- Identifying closure rate to ground during landing
- Situational awareness
- Lookout doctrine
- Scan pattern
- Aircraft/Obstacle clearance

Tail rotor clearance
Identifying terrain suitability
Standard Terminology
Drift correction/Heading control
Wave off procedures
Cabin security

Performance Standards: Conduct CAL/MAL operations and considerations within a section IAW above listed items and the CH-53 NATOPS and NTTP 3-22.3-53. Perform aircrew duties during tactical CAL/MAL operations within a section IAW the above listed items and IAW CH-53 NATOPS and NTTP 3-22.3-53. Conduct a minimum of 5 confined area landings in lead position and 5 confined area landings in the wingman position.

Prerequisite: FORM-2110, CAL-2210

Range Requirements: CAL/MAL site

3.10.4 Terrain Flight (TERF)

3.10.4.1 Purpose: To enhance aircrew responsibilities and lookout doctrine with TERF maneuvers/navigation and introduce section maneuvering in the day TERF environment.

3.10.4.2 General: Currency restrictions per T&R Program Manual. Crew Chiefs will be considered TERF qualified at the completion of TERF-2311. AOUI will complete the TERF syllabus prior to being designated an AO. The AOUI shall not be considered TERF qualified until after they have completed the NATOPS and CRM evaluation flight and have been designated an AO.

3.10.4.3 Crew Requirement: P/P/CC/AO

3.10.4.4 Ground/Academic Training: All self-paced readings and lectures shall be completed prior to stage initiation. Utilize academic courseware as outlined in the CH-53 chapter of the MAWTS-1 Course Catalog.

TERF-2310 1.5 365 B,R,M D * A 1 CH-53

Goal: Introduce and practice maneuvers, clearance, standard terminology, and aircrew responsibilities while flying in the TERF environment.

Requirement:

Instructor: TERFI required for all personnel in the Basic (B) and Refresher(R) POI.

Introduce:

Low level flight
Contour flight
Nap of the Earth (NOE)
Crew comfort levels
Cockpit Scan
Aircraft limitations
Operational power checks
Weather Minimums
TERF Currency
Lookout doctrine
Navigational assistance
Terrain Flight Considerations

Terrain Flight Maneuvers
Bunt, Roll, TERF turn, Quick stop, Mask/Unmask
Safety considerations, Hazards
Standard terminology
Obstacle clearance

Practice:

CC vs. AO responsibilities during TERF
CRM and crew coordination during TERF
Cabin configuration
Situational awareness
Communication
ICS procedures
Crew comfort levels
Cockpit Scan
Lookout doctrine
Navigational assistance
Terrain Flight Maneuvers
Bunt, Roll, TERF turn, Quick stop, Mask/Unmask
Standard terminology
Obstacle clearance
Identifying closure rate to terrain
Cabin security

Performance Standards: Conduct aircrew duties and responsibilities during TERF/maneuvers and maintain aircraft clearance IAW above listed items, CH-53 NATOPS and NTP 3-22.3-CH53.

Prerequisite: ACAD-2050, ACAD-2051

Range Requirements: Approved TERF maneuver area/route

TERF-2311 1.5 365 B,R,M D E A 2 CH-53

Goal: Introduce and practice maneuvers, clearance and aircrew responsibilities for a section of aircraft in the TERF environment.

Requirement:

Instructor: TERFI required for all personnel in the Basic (B) and Refresher(R) POI.

Introduce:

Tactical section maneuvering within the TERF environment

Discuss:

Low level flight
Contour flight
Crew comfort levels
Crew coordination/CRM
Standard terminology
Operational Power Checks
Lookout doctrine
Cockpit Scan
Cabin security
Aircraft limitations
Weather Minimums
TERF Currency
Lookout Doctrine

Terrain Flight Considerations
Terrain Flight Maneuvers
Bunt, Roll, TERF turn, Quick stop, Mask/Unmask
Safety considerations, Hazards
ICS procedures/Failure
Obstacle clearance
Emergency procedures
Closure rate
Wingman terminology
Wingman situational awareness
Wingman Crossover

Practice:

CC vs. AO responsibilities during section TERF
CRM and crew coordination during section TERF
Cabin configuration
Situational awareness
Crew coordination/CRM
Communication
ICS procedures
Crew comfort levels
Cockpit Scan
Lookout doctrine
Navigational assistance
Terrain Flight Maneuvers
Bunt, Roll, TERF turn, Quick stop, Mask/Unmask
Standard terminology
Obstacle clearance
Identifying closure rate to terrain
Identifying closure rate to wingman
Wingman terminology
Wingman situational awareness
Wingman Crossover
Cabin security

Performance Standards: Conduct aircrew duties and responsibilities during TERF/maneuvers and maintain aircraft clearance IAW the NATOPS and NTPP 3-22.3-CH53.

Prerequisite: FORM-2110 and TERF-2310

Range Requirements: Approved TERF maneuver area/route.

3.10.5 External Operations (EXT)

3.10.5.1 Purpose:

3.10.5.2 To develop skills necessary to conduct external operations in confined areas.

3.10.5.3 Aerial Observers shall make the calls from the external hatch door while over the external load in order to receive attainment/proficiency for the event.

3.10.5.4 Crew Requirement: P/P/CC/AO

3.10.5.5 Ground/Academic Training: All self paced readings and lectures shall be completed prior to stage initiation. Utilize academic courseware as outlined in the CH-53 MAWTS-1 Course Catalog.

EXT-2410 1.5 365 B,R,M D * A 1 CH-53

Goal: Introduce and practice single point external operations.

Requirement:

Instructor: TERFI required for all personnel in the Basic (B) and Refresher(R) POI.

Introduce:

Single point cargo hook system
Pre-flight / hook checks
Associated caution/advisory lights
Cargo hook control panel/switches'
Aircrew portable pendant control
Cargo hook emergency release
Single point cargo auto-release
A/O setup of cabin while Crew Chief inspects the load
Cabin configuration/inspection prior to 1st external lift
Gunner's belt attachment location
Operational Power Checks
External procedures
Safety precautions
Brown out/white out procedures
Movement in the cabin with external hatch open
Multiservice Helicopter Sling Load Manual
Type of sling utilized
Load rigging/chain link count inspection
Weight limitation for external load (min & max)
Alternate pick-up procedures
HST brief per NTTP 3-22.5
HST considerations
Hand and arm signals
Static discharge precautions
Obstacle clearance on ingress/departure
Blowing debris in zone
Standard terminology
Hook placement in relation to HST personnel
Anticipation of aircraft/pilot tendencies
Drift identification/correction over the external load
Centering of the aircraft over the load prior to pick up
Safe pick up/drop off vs. perfect pick up/drop off
Hazards/damage of dragging of external load
Sling considerations during external load drop off
Wave off procedure before, during, & after hook is loaded
Flight with single point external loads
Load stability in flight
Airspeed/Altitude on approach path with EXT cargo
Terrain suitability for external drop off
ICS failure while in the single point external hatch
Aircraft emergency with external load
Emergency external jettison procedure
Standard external load vs. heavy lift load
A/O perform aircraft clearance during approach/takeoff/in zone
A/O monitors T5 and Ng gauges during pickup
A/O safety observer while over the load
A/O perform aircraft clearance and calls during landing

Practice:

CC vs. AO responsibilities during S/P EXT operations
CRM and crew coordination during S/P EXT operations
Cabin configuration
ICS procedures/failure
Situational awareness
Communication
Pre-flight / hook checks
A/O setup of cabin while Crew Chief inspects the load
Cabin configuration/inspection prior to 1st external lift
Gunner's belt attachment location
Operational Power Checks
Load rigging/chain link count inspection
HST brief per NTTP 3-22.5
Hand and arm signals
Obstacle clearance on ingress/departure
Standard terminology
Hook placement in relation to HST personnel
Anticipation of aircraft/pilot tendencies
Drift identification/correction over the external load
Centering of the aircraft over the load prior to pick up
Safe pick up/drop off vs. perfect pick up/drop off
Flight with single point external loads
Identifying airspeed/Altitude on approach path with EXT cargo
Identifying terrain suitability for external drop off
A/O perform aircraft clearance during approach/takeoff/in zone
A/O monitors T5 and Ng gauges during pickup
A/O safety observer while over the load
A/O perform aircraft clearance and calls during landing
Cabin security

Performance Standards: Conduct single point external operations as outlined in the NATOPS and NTTP 3-22.3-CH53. Perform all above listed items. Execute 5 pickups and 5 drop offs within 5 meters of intended point of delivery.

Prerequisite: CAL-2210

Range Requirements: Approved CAL/MAL site

External syllabus support: HST, certified single point load

EXT-2411 1.5 365 B,R,M D * A 1 CH-53E

Goal: Introduce and practice dual point external operations.

Requirement:

Instructor: TERFI required for all personnel in the Basic (B) and Refresher(R) POI.

Introduce:

Dual point cargo hook system
Pre-flight/hook checks
Associated caution/advisory lights
Cargo hook control panel
2 point flight vs. load unload

Discuss:

Aircrew portable pendant control

Cargo hook emergency release handle
Cargo hook control panel/switches
Pre-flight / hook checks
Associated caution/advisory lights
Cargo hook control panel/switches'
Aircrew portable pendant control
Cargo hook emergency release
A/O setup of cabin while Crew Chief inspects the load
Cabin configuration/inspection prior to 1st external lift
Gunner's belt attachment location
Operational Power Checks
External procedures
Safety precautions
Brown out/white out procedures
Movement in the cabin with external hatch open
Multiservice Helicopter Sling Load Manual
Type of sling utilized
Load rigging/chain link count inspection
Weight limitation for external load (min & max)
Alternate pick-up procedures
HST brief per NTTP 3-22.5
HST considerations
Hand and arm signals
Static discharge precautions
Obstacle clearance on ingress/departure
Blowing debris in zone
Standard terminology
Hook placement in relation to HST personnel
Anticipation of aircraft/pilot tendencies
Drift identification/correction over the external load
Centering of the aircraft over the load prior to pick up
Safe pick up/drop off vs. perfect pick up/drop off
Hazards/damage of dragging of external load
Sling considerations during external load drop off
Wave off procedure before, during, & after hook is loaded
Flight with single point external loads
Load stability in flight
Airspeed/Altitude on approach path with EXT cargo
Terrain suitability for external drop off
ICS failure while in the single point external hatch
Aircraft emergency with external load
Emergency external jettison procedure
Standard external load vs. heavy lift load
A/O perform aircraft clearance during approach/takeoff/in zone
A/O monitors T5 and Ng gauges during pickup
A/O safety observer while over the load
A/O perform aircraft clearance and calls during landing
A/O monitor 2pt flight and 2pt unarmed light
A/O release of forward dual point on drop-off
Safety observer while over the load

Practice:

CC vs. AO responsibilities during D/P EXT operations
CRM and crew coordination during D/P EXT operations
Cabin configuration
ICS procedures/failure
Situational awareness
Communication
Pre-flight/hook checks

A/O setup of cabin while Crew Chief inspects the load
Cabin configuration/inspection prior to 1st external lift
Gunner's belt attachment location
Operational Power Checks
Load rigging/chain link count inspection
HST brief per NTTP 3-22.5
Hand and arm signals
Obstacle clearance on ingress/departure
Standard terminology
Hook placement in relation to HST personnel
Anticipation of aircraft/pilot tendencies
Drift identification/correction over the external load
Centering of the aircraft over the load prior to pick up
Safe pick up/drop off vs. perfect pick up/drop off
Flight with single point external loads
Identifying airspeed/Altitude on approach path with EXT cargo
Identifying terrain suitability for external drop off
A/O perform aircraft clearance during approach/takeoff/in zone
A/O monitors T5 and Ng gauges during pickup
A/O safety observer while over the load
A/O perform aircraft clearance and calls during landing
A/O monitor 2pt flight and 2pt unarmed light
A/O release of forward dual point on drop-off
Cabin security

Performance Standards: Conduct dual point external operations as outlined in the NATOPS and NTTP 3-22.3-CH53. Perform all above listed items. Execute 5 pickups and 5 drop offs within 5 meters of intended point of delivery.

Prerequisite: CAL-2210

Range Requirements: Approved CAL/MAL site

External syllabus support: HST, certified dual point load

EXT-2420 1.5 180 B,R,M NS * A 1 CH-53

Goal: Introduce and practice single point external operations utilizing Night Systems in HLL conditions.

Requirement:

Instructor: NSI required for all personnel in the Basic (B) and Refresher(R) POI.

Introduce:

HLL NS considerations as applicable to external operations
Aircraft lighting considerations
Field of View (FOV) vs. Field of Regard (FOR)
Scan pattern/Sight fixation
Depth perception vs. Distance estimation
Closure rate
NVG misperceptions and illusions
Effects of shadows
Crows foot/NATO Y setup/usage
Use of chem. lights (S/P pendant, slings, load, HST personnel)

Discuss:

Single point cargo hook system
Pre-flight/hook checks
Associated caution/advisory lights
Cargo hook control panel/switches'
Aircrew portable pendant control
Cargo hook emergency release
Single point cargo auto-release
A/O setup of cabin while Crew Chief inspects the load
Cabin configuration/inspection prior to 1st external lift
Gunner's belt attachment location
Operational Power Checks
External procedures
Safety precautions
Brown out/white out procedures
Movement in the cabin with external hatch open
Multiservice Helicopter Sling Load Manual
Type of sling utilized
Load rigging/chain link count inspection
Weight limitation for external load (min & max)
Alternate pick-up procedures
HST brief per NTTP 3-22.5
HST considerations
Hand and arm signals
Static discharge precautions
Obstacle clearance on ingress/departure
Blowing debris in zone
Standard terminology
Hook placement in relation to HST personnel
Anticipation of aircraft/pilot tendencies
Drift identification/correction over the external load
Centering of the aircraft over the load prior to pick up
Safe pick up/drop off vs. perfect pick up/drop off
Hazards/damage of dragging of external load
Sling considerations during external load drop off
Wave off procedure before, during, & after hook is loaded
Flight with single point external loads
Load stability in flight
Airspeed/Altitude on approach path with EXT cargo
Terrain suitability for external drop off
ICS failure while in the single point external hatch
Aircraft emergency with external load
Emergency external jettison procedure
Standard external load vs. heavy lift load
A/O perform aircraft clearance during approach/takeoff/in zone
A/O monitors T5 and Ng gauges during pickup
A/O safety observer while over the load
A/O perform aircraft clearance and calls during landing

Practice:

CC vs. AO responsibilities during HLL S/P EXT operations
CRM and crew coordination during HLL D/P EXT operations
Cabin configuration
ICS procedures/failure
Situational awareness
Communication
Pre-flight/hook checks
A/O setup of cabin while Crew Chief inspects the load
Cabin configuration/inspection prior to 1st external lift
Gunner's belt attachment location

Operational Power Checks
Load rigging/chain link count inspection
HST brief per NTTP 3-22.5
Hand and arm signals
Obstacle clearance on ingress/departure
Standard terminology
Hook placement in relation to HST personnel
Anticipation of aircraft/pilot tendencies
Drift identification/correction over the external load
Centering of the aircraft over the load prior to pick up
Safe pick up/drop off vs. perfect pick up/drop off
Flight with single point external loads
Identifying airspeed/Altitude on approach path with EXT cargo
Identifying terrain suitability for external drop off
A/O perform aircraft clearance during approach/takeoff/in zone
A/O monitors T5 and Ng gauges during pickup
A/O safety observer while over the load
A/O perform aircraft clearance and calls during landing
Cabin security

Performance Standards: Conduct single point external operations while utilizing Night Systems in HLL conditions as outlined in the NATOPS and NTTP 3-22.3-CH53. Perform all above listed items. Execute 5 pickups and 5 drop offs within 5 meters of intended point of delivery.

Prerequisite: CAL-2220 and EXT-2410

Range Requirements: Approved CAL/MAL site

External Syllabus Support: HST, certified single point load

EXT-2421	1.5	180	B,R,M	NS	*	A	1	CH-53E
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Goal: Introduce and practice dual point external operations using NS in HLL conditions.

Requirement:

Instructor: NSI required for all personnel in the Basic (B) and Refresher(R) POI.

Introduce:

HLL NS considerations as applicable to external operations
Aircraft lighting considerations
Field of View (FOV) vs. Field of Regard (FOR)
Scan pattern/Sight fixation
Depth perception vs. Distance estimation
Closure rate
NVG misperceptions and illusions
Effects of shadows
Crows foot/NATO Y setup/usage
Use of chem. lights (S/P pendant, slings, load, HST personnel)

Discuss:

Aircrew portable pendant control
Cargo hook emergency release handle
Cargo hook control panel/switches
Pre-flight/hook checks
Associated caution/advisory lights
Cargo hook control panel/switches'

Aircrew portable pendant control
Cargo hook emergency release
A/O setup of cabin while Crew Chief inspects the load
Cabin configuration/inspection prior to 1st external lift
Gunner's belt attachment location
Operational Power Checks
External procedures
Safety precautions
Brown out/white out procedures
Movement in the cabin with external hatch open
Multiservice Helicopter Sling Load Manual
Type of sling utilized
Load rigging/chain link count inspection
Weight limitation for external load (min & max)
Alternate pick-up procedures
HST brief per NTTP 3-22.5
HST considerations
Hand and arm signals
Static discharge precautions
Obstacle clearance on ingress/departure
Blowing debris in zone
Standard terminology
Hook placement in relation to HST personnel
Anticipations of aircraft/pilot tendencies
Drift identification/correction over the external load
Centering of the aircraft over the load prior to pick up
Safe pick up/drop off vs. perfect pick up/drop off
Hazards/damage of dragging of external load
Sling considerations during external load drop off
Wave off procedure before, during, & after hook is loaded
Flight with single point external loads
Load stability in flight
Airspeed/Altitude on approach path with EXT cargo
Terrain suitability for external drop off
ICS failure while in the single point external hatch
Aircraft emergency with external load
Emergency external jettison procedure
Standard external load vs. heavy lift load
A/O perform aircraft clearance during approach/takeoff/in zone
A/O monitors T5 and Ng gauges during pickup
A/O safety observer while over the load
A/O perform aircraft clearance and calls during landing
A/O monitor 2pt flight and 2pt unarmed light
A/O release of forward dual point on drop-off
Safety observer while over the load

Practice:

CC vs. AO responsibilities during HLL D/P EXT operations
CRM and crew coordination during HLL D/P EXT operations
Cabin configuration
ICS procedures/failure
Situational awareness
Communication
Pre-flight/hook checks
A/O setup of cabin while Crew Chief inspects the load
Cabin configuration/inspection prior to 1st external lift
Gunner's belt attachment location
Operational Power Checks
Load rigging/chain link count inspection

HST brief per NTPP 3-22.5
Hand and arm signals
Obstacle clearance on ingress/departure
Standard terminology
Hook placement in relation to HST personnel
Anticipation of aircraft/pilot tendencies
Drift identification/correction over the external load
Centering of the aircraft over the load prior to pick up
Safe pick up/drop off vs. perfect pick up/drop off
Flight with single point external loads
Identifying airspeed/Altitude on approach path with EXT cargo
Identifying terrain suitability for external drop off
A/O perform aircraft clearance during approach/takeoff/in zone
A/O monitors T5 and Ng gauges during pickup
A/O safety observer while over the load
A/O perform aircraft clearance and calls during landing
A/O monitor 2pt flight and 2pt unarmed light
A/O release of forward dual point on drop-off
Cabin security

Performance Standards: Conduct dual point external operations while utilizing Night Systems in HLL conditions as outlined in the NATOPS and NTPP 3-22.3-CH53. Perform all above listed items. Execute 5 pickups and 5 drop offs within 5 meters of intended point of delivery.

Prerequisite: CAL-2220 and EXT-2411

Range Requirements: Approved CAL/MAL site

External Syllabus Support: HST, certified dual point load

EXT-2430 1.5 180 B,R,M NS * A 1 CH-53

Goal: Introduce and practice external operations in LLL conditions, dual point preferred.

Requirement:

Instructor: NSI required for all personnel in the Basic (B) and Refresher(R) POI.

Introduce:

LLL NS considerations as applicable to external operations:
Visual Acuity
Depth perception vs. Distance estimation
Optical Flow
Closure rate
Scintillation

Discuss:

Aircrew portable pendant control
Cargo hook emergency release handle
Cargo hook control panel/switches
Pre-flight/hook checks
Associated caution/advisory lights
Cargo hook control panel/switches'
Aircrew portable pendant control
Cargo hook emergency release
A/O setup of cabin while Crew Chief inspects the load
Cabin configuration/inspection prior to 1st external lift

Gunner's belt attachment location
Operational Power Checks
External procedures
Safety precautions
Brown out/white out procedures
Movement in the cabin with external hatch open
Multiservice Helicopter Sling Load Manual
Type of sling utilized
Load rigging/chain link count inspection
Weight limitation for external load (min & max)
Alternate pick-up procedures
HST brief per NTTP 3-22.5
HST considerations
Hand and arm signals
Static discharge precautions
Obstacle clearance on ingress/departure
Blowing debris in zone
Standard terminology
Hook placement in relation to HST personnel
Anticipation of aircraft/pilot tendencies
Drift identification/correction over the external load
Centering of the aircraft over the load prior to pick up
Safe pick up/drop off vs. perfect pick up/drop off
Hazards/damage of dragging of external load
Sling considerations during external load drop off
Wave off procedure before, during, & after hook is loaded
Flight with single point external loads
Load stability in flight
Airspeed/Altitude on approach path with EXT cargo
Terrain suitability for external drop off
ICS failure while in the single point external hatch
Aircraft emergency with external load
Emergency external jettison procedure
Standard external load vs. heavy lift load
A/O perform aircraft clearance during approach/takeoff/in zone
A/O monitors T5 and Ng gauges during pickup
A/O safety observer while over the load
A/O perform aircraft clearance and calls during landing
A/O monitor 2pt flight and 2pt unarmed light
A/O release of forward dual point on drop-off
Safety observer while over the load

Practice:

CC vs. AO responsibilities during LLL EXT operations
CRM and crew coordination during LLL EXT operations
Cabin configuration
ICS procedures/failure
Situational awareness
Communication
Pre-flight/hook checks
A/O setup of cabin while Crew Chief inspects the load
Cabin configuration/inspection prior to 1st external lift
Gunner's belt attachment location
Operational Power Checks
Load rigging/chain link count inspection
HST brief per NTTP 3-22.5
Hand and arm signals
Obstacle clearance on ingress/departure
Standard terminology

Hook placement in relation to HST personnel
Anticipation of aircraft/pilot tendencies
Drift identification/correction over the external load
Centering of the aircraft over the load prior to pick up
Safe pick up/drop off vs. perfect pick up/drop off
Flight with single point external loads
Identifying airspeed/Altitude on approach path with EXT cargo
Identifying terrain suitability for external drop off
A/O perform aircraft clearance during approach/takeoff/in zone
A/O monitors T5 and Ng gauges during pickup
A/O safety observer while over the load
A/O perform aircraft clearance and calls during landing
A/O monitor 2pt flight and 2pt unarmed light
A/O release of forward dual point on drop-off
Cabin security

Performance Standards: Conduct external operations while utilizing Night Systems during LLL conditions as outlined in the NATOPS and NTTP 3-22.3-CH53. Perform all above listed items. Execute 5 pickups and 5 drop offs within 5 meters of intended point of delivery.

Prerequisite: CAL-2230, EXT-2420, EXT-2421, NSQ-HLL

Range Requirement: Approved CAL/MAL site

External Syllabus Support: HST, certified load

3.10.6 Ground Threat Reaction (GTR)

3.10.6.1 Purpose: To introduce and develop proficiency in using Aircraft Survivability Equipment (ASE), tactics, and on board weapon systems to evade non-radar ground-to-air threats.

3.10.6.2 General: Aircrew shall conduct this stage against non-radar ground-based threats. Utilizing a range of threat simulation systems (e.g., Smokey SAMs, target lights, handheld pyrotechnics and AAR-47 stimulator) will greatly enhance aircrew training.

3.10.6.3 Crew Requirement: P/P/CC/AO

3.10.6.4 Ground/Academic Training: All self paced readings and lectures shall be completed prior to stage initiation. Utilize academic courseware as outlined in the CH-53 MAWTS-1 Course Catalog.

GTR-2540 1.5 365 B,R,M (NS) * A 2 CH-53

Goal: Introduce and practice non-radar ground based threat reactions and ASE familiarization.

Requirement:

Instructor: WTI or DMI required for all personnel in the Basic (B) and Refresher(R) POI. A WTI or DMI that is also a NSI required if conducted at night for all personnel in the Basic (B) and Refresher(R) POI.

Introduce:

Types of Non-Radar ground threat (Small arms, HMG, RPG, MANPAD)
Operation of AAR-47, ALE-47, and AAQ-24

- IR countermeasures
- MAWTS-1 GTR Program Guide
- GTR walkthrough
- Five axioms of survival
- Lookout doctrine and threat detection
- Threat evaluation
- Giving the attack warning
- Avoiding detection
- Evasive maneuvers/threat counter tactics
- Rules of engagement
- Inter- and intra-aircraft communications
- Weapons handling
- Weapons lead techniques
- Section tactical maneuvers to counter ground-based threat
- High, medium, and low altitude tactics
- Low altitude emergencies
- Tactical maneuvering and ASE employment to counter threat
- GTR specific line number training
- Standard Terminology

Practice:

- CC vs. AO responsibilities during Non-Radar ground threat reaction
- CRM and crew coordination during CC vs. AO responsibilities during
- CRM and crew coordination during section TERF
- Cabin configuration
- Cabin configuration
- Situational awareness
- Communication
- Crew coordination/CRM
- Tactical formation maneuvering
- Operation of AAR-47, ALE-47, and AAQ-24
- IR countermeasures
- Five axioms of survival
- Lookout doctrine and threat detection
- Threat evaluation
- Giving the attack warning
- Avoiding detection
- Evasive maneuvers/threat counter tactics
- Section tactical maneuvers to counter ground-based threat
- Weapons handling
- Weapons lead techniques
- High, medium, and low altitude tactics
- Tactical maneuvering and ASE employment to counter threat
- GTR specific line number training
- Standard Terminology
- Cabin security

Performance Standards: Conduct helicopter section tactics against a low altitude surface-to-air non-radar threat IAW the MAWTS-1 GTR Program Guide and NTTP 3-22.3-53. Utilize appropriate ASE and on board weapons in relation to the threat. Utilize standard terminology while giving the attack warning against various non-radar ground-based threats and during intra-aircraft communications. Execution of at least 1 line number should be accomplished using high or medium altitude tactics.

Prerequisite: ACAD-2004, ACAD-2019, ACAD-4051, ACAD-4052 TERFQ. HLL-2321~NS, LLL-2331~LLL.

Ordnance: 60 flares and 2 .50 Caliber machine guns

Range Requirements: Expendable capable range and approved TERF maneuver area/route

External Syllabus Support: Ground-based non-radar threat simulators (e.g., Smokey SAMs, AAR-47 stimulator, handheld pyrotechnics, target lights)

3.10.7 Field Carrier Landing Practice (FCLP)

3.10.7.1 Purpose: To develop skills and CRM required for shipboard operations.

3.10.7.2 General: Discuss and become familiar with all aspects of shipboard operations and CRM applicable to the carrier qualification stage as described in the CH-53 NATOPS Flight Manual, NWP-42, the LHA/LPH/LHD NATOPS, and OPNAVINST 3710.7.

3.10.7.3 Crew Requirement: FCLP-2710: P/P/CC and FCLP-2742: P/P/CC/AO. NS flights require 2 qualified crewmembers unless it is an instructional flight.

3.10.7.4 Ground/Academic Training: All self paced readings and lectures shall be completed prior to stage initiation. Utilize academic courseware as outlined in the CH-53 chapter of the MAWTS-1 Course Catalog.

FCLP-2710	1.5	365	B,R,M	D	*	A	1	CH-53
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Goal: Introduce and practice day FCLPs.

Requirement:

Instructor: TERFI required for all personnel in the Basic (B) and Refresher(R) POI.

Introduce:

- Shipboard operations
- Air space de-confliction
- Aircraft clearance
- Hand and arm signals
- Shipboard aircraft tie-down
- Shipboard refueling
- Shipboard passenger/cargo loading
- Safety procedures
- Ditching procedures
- Emergency procedures
- Parking brake procedures
- Heading and drift corrections
- Standard Terminology

Practice:

- CC vs. AO responsibilities during shipboard operations
- CRM and crew coordination during shipboard operations
- Cabin configuration
- Situational awareness
- Communication
- Identifying closure rate to ground during landing
- Crew coordination/CRM
- Cabin security

Performance Standards: Perform a minimum of 5 day FCLPs IAW appropriate shipboard NATOPS.

Prerequisite: CAL-2210

External Syllabus Support: FCLP pad

FCLP-2742 1.5 365 B,R,M NS * A 1 CH-53

Goal: Introduce and practice NS FCLPs.

Requirement:

Instructor: NSI required for all personnel in the Basic (B) and Refresher(R) POI.

Introduce:

NS considerations for appropriate light level
Shipboard lighting

Practice:

CC vs. AO responsibilities during NS shipboard operations
CRM and crew coordination during NS shipboard operations
Cabin configuration
Aircraft clearance
Hand and arm signals
Ditching procedures
Emergency procedures
Parking brake procedures
Heading and drift corrections
Safety procedures
Standard Terminology
Situational awareness
Communication
Identifying closure rate to ground during landing
Crew coordination/CRM
Cabin security

Performance Standards: Conduct a minimum of 5 NS FCLPs IAW appropriate shipboard NATOPS.

Prerequisite: HLL-2220~NS, LLL-2230~LLL, and FCLP-2710

External Syllabus Support: FCLP pad

3.10.8 Aerial Gunnery (AG)

3.10.8.1 Purpose: To demonstrate proficiency in delivering fire on targets of opportunity using the GAU-21 Medium Window Pintle Connection (MWPC) .50 caliber machine gun.

3.10.8.2 General:

(a) Aircrew shall be TERF qualified prior to beginning GAU-21 aerial gunnery stage of training.

(b) All aircrew employing weapons shall have the current A1-H53BE-NFM-900 with all of the interim changes incorporated, on their person.

(c) AG-2843 certifies the aircrew as an aerial gunner with the GAU-21 MWPC. Aircrew may be qualified an aerial gunner on the GAU-21 MWPC at the discretion of the Commanding Officer after completing AG-2843. If the commanding officer chooses to qualify aircrew as an aerial gunner a qualification letter signed by the commanding officer shall be issued and placed in both the individuals NATOPS & APR jacket.

(d) Aircrew may conduct night systems aerial gunnery events during either HLL or LLL conditions. If events are conducted during LLL conditions aircrew shall be NSQ HLL prior to conducting events.

(e) An AGI on the GAU-21 MWPC is required for all day aerial gunnery flight events until aircrew are Aerial Gunnery Qualified.

(f) An AGI on the GAU-21 MWPC who is also a NSI is required for all Night Systems (NS) aerial gunnery flight events until aircrew are Aerial Gunnery Qualified.

(g) Aircrew do not lose their aerial gunnery "Qualification" status due to loss of proficiency (re-fly interval) in an individual event (e.g. AG-2812). Aircrew must re-fly that individual event with another qualified aircrew member in order to regain proficiency in that event.

(h) Aircrew who lose proficiency in all associated aerial gunnery flight events (e.g. AG 2812-2843) automatically lose their "Qualification" status and must complete the Refresher(R) POI with the appropriately designated instructors.

(i) A designated AGI on the GAU-21 MWPC shall only act in the capacity of a AGI when "Qualified" and proficient in aerial gunnery.

(j) Approved laser aiming devices are required and shall be utilized during all night systems (NS) aerial gunnery flight events.

3.10.8.3 Crew Requirement: P/P/CC/AO

3.10.8.4 Ground/Academic Training: All self paced readings, lectures, and ground training events (STATIC/SIMULATED etc...) shall either be conducted or supervised by an AGI on the GAU-21 MWPC and shall be completed prior to beginning flight events. Self paced readings and lectures are outlined in the MAWTS-1 CH-53 Course Catalog.

AG-2800 3.0 * B,R D * * 1 GAU-21

Goal: Introduce and practice GAU-21 .50 caliber machine gun field stripping, cleaning, lubrication, and principles of operation IAW NAVAIR 11-95GAU21-1.

Requirement:

Instructor: AGI on the GAU-21 MWPC required for all personnel in the Basic (B) and Refresher(R) POI.

Discuss:

NAVAIR 11-95GAU21-1
NA 11-600-GAU21-1
NA 11-600-GAU21-2
A1-H53BE-NFM-900 Pre-Fire procedure
Conventional Ordnance Deficiency Report (CODR)

Introduce:

Field stripping
Cleaning and inspection
Cleaning tools for the bore, chamber, and firing pin hole
Nomenclature
Principles of operation
Changing feed direction
Lubrication criteria and application
Re-assembly

Performance Standards: Conduct field striping, cleaning, inspection, lubrication, and re-assembly of the weapon ensuring correct feed orientation IAW all applicable manuals.

Prerequisites: ACAD-2055

Ordnance Requirements: 1 GAU-21 .50 caliber machine gun per student.

AG-2801 2.0 * B,R D * A 1 STATIC CH-53

Goal: Introduce and practice pre-flight inspection, installation, removal, and in-flight removal and re-installation procedures for the GAU-21 MWPC and IZLID-200P LASER IAW A1-H53BE-NFM-900.

Requirement:

Instructor: AGI on the GAU-21 MWPC required for all personnel in the Basic (B) and Refresher(R) POI.

Discuss:

NAVAIR 11-53DA-2
A1-H53BE-NFM-900
NA 11-95IZLID-1
Conventional Ordnance Deficiency Report (CODR)

Introduce:

Installation IAW A1-H53BE-NFM-900
LASER installation IAW NA 11-95IZLID-1
Pre-flight IAW A1-H53be-NFM-900
In-flight removal and re-installation

Performance Standards: Conduct pre-flight inspection, installation, removal, and in-flight removal and re-installation procedures for the GAU-21 MWPC and IZLID-200P LASER IAW A1-H53BE-NFM-900.

Prerequisites: ACAD-2056, ACAD-2057, AG-2800

Ordnance Requirements: 2 GAU-21 MWPC .50 caliber machine guns, 1 left hand GAU-21 MWPC, 1 right hand GAU-21 MWPC, 2 IZLID-200P

AG-2802 2.0 * B,R D * A 1 CH-53

Goal: Introduce and practice normal firing operations, voice commands, weapons emergencies, troubleshooting techniques, egress considerations IAW A1-H53BE-NFM-900. All procedures shall be performed with dummy rounds and no batteries installed in the LASER aiming device.

Requirements:

Instructor: AGI on the GAU-21 MWPC required for all personnel in the Basic (B) and Refresher(R) POI.

Discuss:

A1-H53BE-NFM-900
Local hung ordnance procedures (SOP per STA/MAG/UNIT)
Egress considerations
Conventional Ordnance Deficiency Report (CODR)

Introduce:

Perform headspace and timing adjustments
GAU-21 function check
Ammunition inspection/preparation
Ammunition uploading
Principles of operation with dummy rounds
Pre-takeoff (post-arming)
Weapon status during in-flight voice commands
Hand signals
Lock and Load procedure
Open fire procedure
Cease fire procedure
Clear and safe procedure
Reload procedure
Final landing procedure
Post-flight inspection
Weapon stoppage procedure
Gun jam clearing procedure
Runaway gun procedure
Firing limitations
Troubleshooting techniques

Practice:

Installation IAW A1-H53BE-NFM-900
LASER installation IAW NA 11-95IZLID-1
Pre-flight IAW A1-H53BE-NFM-900
In-flight removal and re-installation

Performance Standards: Conduct weapon adjustments, normal firing operations, weapons emergencies, and troubleshooting procedures IAW A1-H53BE-NFM-900. Explain voice commands and egress considerations.

Prerequisites: AG-2801

Ordnance Requirements: 2 GAU-21 MWPC .50 caliber machine guns, 1 left hand MWPC, 1 right hand MWPC, 2 IZLID-200P and 10 dummy rounds.

AG-2812 1.5 180 B,R,M D * A 1 CH-53

Goal: Introduce and practice day aerial gunnery training with the GAU-21 MWPC during single ship operations.

Requirement:

Instructor: AGI on the GAU-21 MWPC required for all personnel in the Basic (B) and Refresher(R) POI.

Introduce:

Fire control voice commands
Non-verbal fire control signals

- Weapon capabilities
- Fields of fire versus sectors of fire
- Maximum effective range
- Maximum range
- Aiming techniques
- Ballistic considerations
- Normal firing operations
- Fire discipline
- Firing Limitations
- Weapon emergency procedures
- Troubleshooting techniques
- Egress considerations with weapons installed
- Ammunition inspection and preparation
- Ammunition uploading
- All flight procedures IAW A1-H53BE-NFM-900
- Positive control of weapon
- Muzzle awareness
- Aerial Gunnery flight patterns
- 300 feet AGL and below for all initial events
- 1500 feet AGL and below for all proficiency events
- Firing during straight and level flight
- Firing during a left or right turn in flight
- Firing during landing profile
- Firing during take off
- Firing during a hover
- Fields of fire versus sectors of fire

Practice:

- CC vs. AO responsibilities during aerial gunnery
- CRM and crew coordination during aerial gunnery
- Cabin configuration
- Use and application of A1-H53BE-NFM-900 weapons checklist
- Pre-fire of GAU-21 machine gun
- Pre-flight of MWPC
- ICS procedures/failure
- Standard Terminology
- Situational awareness
- Communication
- Identifying closure rate to ground during landing
- Cabin security

Performance Standards: Conduct aerial gunnery techniques while employing the GAU-21 MWPC IAW the NTTP 3-22.3-CH-53 and the A1-H53BE-NFM-900. Demonstrate positive weapons control, normal firing operations, weapon emergencies, troubleshooting technique, and ICS procedures. Demonstrate the ability to engage multiple targets during single ship aircraft operations. Point of aim, point of impact shall be within the following parameters.

>1500 meter range 50% or more of impacts within a 50 meter diameter of target

1000 meter range 70% or more of impacts within a 25 meter diameter of target

<500 meter range 70% or more of impacts within a 15 meter diameter of target

Prerequisites: ACAD-2053, TERF-2310, AG-2802

Ordnance: 600 rounds per aerial gunner, 2 GAU-21 MWPC .50 caliber machine guns, 1 left hand GAU-21 MWPC, 1 right hand GAU-21 MWPC

Range Requirements: Aerial gunnery range with SDZ approved for .50 Caliber for day shooting. Targets should range in size from personnel targets to APC size targets

AG-2813 1.5 180 B,R,M D * A 2+ CH-53

Goal: Introduce and practice day aerial gunnery with the GAU-21 MWPC during multi-ship operations.

Requirement:

Instructor: AGI on the GAU-21 MWPC required for all personnel in the Basic (B) and Refresher(R) POI.

Introduce:

- Wingman no fire areas (NFA)
- Limited sectors of fire
- Fire discipline within a section
- Target hand-off

Practice:

- CC vs. AO responsibilities during section AG
- CRM and crew coordination during section AG
- Cabin configuration
- Fire control voice commands
- Non-verbal fire control signals
- Weapon capabilities
- Fields of fire versus sectors of fire
- Maximum effective range
- Maximum range
- Aiming techniques
- Ballistic considerations
- Normal firing operations
- Firing Limitations
- Weapon emergency procedures
- Troubleshooting techniques
- Egress considerations with weapons installed
- Ammunition inspection and preparation
- Ammunition uploading
- All flight procedures IAW A1-H53BE-NFM-900
- Positive control of weapon
- Muzzle awareness
- Aerial Gunnery flight patterns
- 300 feet AGL and below for all initial events
- 1500 feet AGL and below for all proficiency events
- Firing during straight and level flight
- Firing during a left or right turn in flight
- Firing during landing profile
- Firing during take off
- Firing during a hover
- Fields of fire versus sectors of fire
- Use and application of A1-H53BE-NFM-900 weapons checklist
- Pre-fire of GAU-21 machine gun
- Pre-flight of MWPC
- ICS procedures/failure
- Standard Terminology
- Situational awareness

Communication
Identifying closure rate to ground during landing
Crew coordination/CRM
Cabin security

Performance Standards: Conduct aerial gunnery techniques while employing the GAU-21 MWPC during multi-ship operations IAW the NTTP 3-22.3-CH-53 and the A1-H53BE-NFM-900. Demonstrate positive weapons control, normal firing operations, weapon emergencies, troubleshooting technique, and ICS procedures. Demonstrate the ability to engage multiple targets during multi-ship operations from both the lead and wingman positions. Point of aim, point of impact shall be within the following parameters.

>1500 meter range 50% or more of impacts within a 50 meter diameter of target

1000 meter range 70% or more of impacts within a 25 meter diameter of target

<500 meter range 70% or more of impacts within a 15 meter diameter of target

Prerequisites: TERF-2311, AG-2812

Ordnance: 600 rounds per aerial gunner, 2 GAU-21 MWPC .50 caliber machine guns, 1 left hand GAU-21 MWPC, 1 right hand GAU-21 MWPC

Range Requirements. Aerial gunnery range with SDZ approved for .50 calibers for day shooting. Targets should range in size from personnel targets to APC size targets.

AG-2842 1.5 180 B,R,M NS * A 1 CH-53

Goal: Introduce and practice aerial gunnery with the GAU-21 MWPC while utilizing Night Systems during single ship operations.

Requirement

Instructor: AGI on the GAU-21 MWPC who is also a NSI required for all personnel in the Basic (B) and Refresher(R) POI.

Introduce:

Aiming techniques on NS
Target identification utilizing LASER aiming device
LASER safety/employment
LASER safety/employment
Nominal Ocular Hazard Distance (NOHD)
NVG considerations
Tracer burnout
Muzzle flash

Practice:

CC vs. AO responsibilities during NS AG
CRM and crew coordination during NS AG
Cabin configuration
Fire control voice commands
Non-verbal fire control signals
Weapon capabilities
Fields of fire versus sectors of fire

Maximum effective range
Maximum range
Aiming techniques
Ballistic considerations
Normal firing operations
Firing Limitations
Weapon emergency procedures
Troubleshooting techniques
Egress considerations with weapons installed
Ammunition inspection and preparation
Ammunition uploading
All flight procedures IAW A1-H53BE-NFM-900
Positive control of weapon
Muzzle awareness
Aerial Gunnery flight patterns
300 feet AGL and below for all initial events
1500 feet AGL and below for all proficiency events
Firing during straight and level flight
Firing during a left or right turn in flight
Firing during landing profile
Firing during take off
Firing during a hover
Fields of fire versus sectors of fire
Use and application of A1-H53BE-NFM-900 weapons checklist
Pre-fire of GAU-21 machine gun
Pre-flight of MWPC
ICS procedures/failure
Standard Terminology
Situational awareness
Communication
Identifying closure rate to ground during landing
Cabin security

Performance Standards: Conduct aerial gunnery techniques while employing the GAU-21 MWPC while utilizing night systems during single ship operations IAW the NTTP 3-22.3-CH-53 and the A1-H53BE-NFM-900. Demonstrate positive weapons control, normal firing operations, weapon emergencies, troubleshooting technique, and ICS procedures. Demonstrate the ability to engage multiple targets during single ship aircraft operations or while in the lead position during multi ship aircraft operations. Point of aim, point of impact shall be within the following parameters.

>1500 meter range 50% or more of impacts within a 50 meter diameter of target

1000 meter range 70% or more of impacts within a 25 meter diameter of target

<500 meter range 70% or more of impacts within a 15 meter diameter of target

Prerequisite: TERF-2320 if HLL, TERF-2330 if LLL, AG-2812

Ordnance: 600 rounds per aerial gunner, 2 GAU-21 MWPC .50 caliber machine guns, 1 left hand GAU-21 MWPC, 1 right hand GAU-21 MWPC, 2 IZLID-200P

Range Requirements: Aerial gunnery, laser safe range with SDZ approved for .50 calibers for day and night shooting. Targets should range in size from personnel targets to APC size targets.

AG-2843 1.5 180 B,R,M NS E A 2+ CH-53

Goal: Introduce and practice aerial gunnery with the GAU-21 MWPC while utilizing Night Systems during multi-ship operations.

Requirement:

Instructor: AGI on the GAU-21 MWPC who is also a NSI required for all personnel in the Basic (B) and Refresher(R) POI.

Introduce:

Target identification utilizing LASER aiming devices
Target hand-off utilizing LASER aiming devices

Practice:

CC vs. AO responsibilities during section NS AG
CRM and crew coordination during section NS AG
Cabin configuration
Fire control voice commands
Non-verbal fire control signals
Weapon capabilities
Fields of fire versus sectors of fire
Maximum effective range
Maximum range
Aiming techniques
Ballistic considerations
Normal firing operations
Firing Limitations
Weapon emergency procedures
Troubleshooting techniques
Egress considerations with weapons installed
Ammunition inspection and preparation
Ammunition uploading
All flight procedures IAW A1-H53BE-NFM-900
Positive control of weapon
Muzzle awareness
Aerial Gunnery flight patterns
300 feet AGL and below for all initial events
1500 feet AGL and below for all proficiency events
Firing during straight and level flight
Firing during a left or right turn in flight
Firing during landing profile
Firing during take off
Firing during a hover
Fields of fire versus sectors of fire
Use and application of A1-H53BE-NFM-900 weapons checklist
Pre-fire of GAU-21 machine gun
Pre-flight of MWPC
ICS procedures/failure
Standard Terminology
Situational awareness
Communication
Identifying closure rate to ground during landing
Cabin security
Aiming techniques on NS
Target identification utilizing LASER aiming device
LASER safety/employment
LASER safety/employment
Nominal Ocular Hazard Distance (NOHD)

NVG considerations
Tracer burnout
Muzzle flash

Performance Standards: Conduct aerial gunnery techniques while employing the GAU-21 MWPC while utilizing night systems during multi-ship operations IAW the NTTP 3-22.3-CH-53 and the A1-H53BE-NFM-900. Demonstrate positive weapons control, normal firing operations, LASER employment, weapon emergencies, troubleshooting technique, and ICS procedures. Demonstrate the ability to engage multiple targets during multi-ship aircraft operations from both the lead and wingman positions. Point of aim, point of impact shall be within the following parameters.

>1500 meter range 50% or more of impacts within a 50 meter diameter of target

1000 meter range 70% or more of impacts within a 25 meter diameter of target

<500 meter range 70% or more of impacts within a 15 meter diameter of target

Prerequisite: TERF-2321~HLL, TERF-2331~LLL, AG-2813, AG-2842

Ordnance: 600 rounds per aerial gunner, 2 GAU-21 MWPC .50 caliber machine guns, 1 left hand GAU-21 MWPC, 1 right hand GAU-21 MWPC, 2 IZLID-200P

Range Requirements: Aerial gunnery, laser safe range with SDZ approved for .50 calibers for day and night shooting. Targets should range in size from personnel targets to APC size targets.

3.10.9 Tactics (TAC)

3.10.9.1 Purpose: To introduce aircrew responsibilities for tactical missions.

3.10.9.2 Crew Requirement: P/P/CC/AO. If rounds are utilized and aircrews are not AGQ an AGI is required.

3.10.9 Ground/Academic Training: All self-paced readings and lectures shall be completed prior to stage initiation. Utilize academic courseware as outlined in the CH-53 chapter of the MAWTS-1 Course Catalog.

TAC-2910 2.0 365 B,R,M D * A 2 CH-53

Goal: Introduce and practice aircrew responsibilities during a low threat section tactical operation.

Requirement:

Instructor: TERFI required for all personnel in the Basic (B) and Refresher(R) POI. WTI's should be utilized to the max extent possible.

Introduce:

METT-TSL
Weather considerations for tactical operations
Low threat environment criteria
Flight leadership roles
Helicopter Aircraft Commander (HAC)

Assault Flight Leader (AFL)
Assault Force Commander (AFC)
Direct Air Support Center (DASC)
TACP, TAD, COMMS
Stick leader
Pick up Zone (PZ)/Marshaling Area Control Officer (MACO)
Mission planning products
Execution checklist
Go criteria/No-go criteria
Abort
Bump Plan/Late-join/straggle plan
Rules of engagement
FENCE procedures
Test fire area (TFA)
Threat anticipation
ASE utilization
Weapons control procedures
Scanning techniques (open terrain, dense vegetation)
Navigational assistance
Tactical flight techniques
Objective area considerations
Initial Terminal Guidance (ITG) Mirror Flash/Smoke
Initial Point (IP)/Landing zone (LZ)
"Winter vs. Devil" criteria
Sectors of fire
No Fire Areas (NFA)
Wave-off effects during insert
Immediate re-embarkation
Emergency extract
CASEVAC
Hostile area
Battle Damage Assessment (BDA)
Passenger embark/debark (if applicable)
Cargo and vehicle on-load/securing/off-load (if applicable)
External operations if applicable
Downed aircraft immediate actions
Egress considerations with weapons installed
Downed aircrew's wingman responsibilities

Practice:

CC vs. AO responsibilities during tactical operations
CRM and crew coordination during tactical operations
Mission analysis
Cabin configuration
Lookout doctrine
Scanning techniques (open terrain, dense vegetation)
Navigational assistance
Tactical formation maneuvering
Passenger embarking/debarking
Cargo and vehicle loading/securing/unloading
External operations
Weapons employment
Wingman considerations

Performance Standards: Conduct tactical operations in a low threat environment as stated in NTTP 3-22.3-53. Demonstrate knowledge/usage of mission planning products.

If rounds are utilized refer to AG-2813 per respective weapon system

for weapons performance standards.

Prerequisite: ACAD-2058, CAL-2211 and TERFQ

Ordnance: 2 GAU-21 MWPC .50 caliber machine guns, 1 left hand GAU-21 MWPC, 1 right hand GAU-21 MWPC are required to be installed. Rounds and firing of machine guns are optional though highly encouraged.

Range Requirements: Aerial gunnery range with SDZ approved for .50 calibers for day shooting, targets should range in size from personnel targets to APC size targets if rounds are utilized; Approved CAL/MAL site and TERF maneuver area/route.

External Syllabus Support: Ordnance request for weapons

TAC-2911 2.0 365 B,R,M D * A 2 CH-53

Goal: Introduce and practice aircrew responsibilities during day medium threat tactical operations with multiple aircraft.

Requirement:

Instructor: TERFI required for all personnel in the Basic (B) and Refresher(R) POI. WTI's should be utilized to the max extent possible.

Introduce:

- Low to Medium threat environment criteria
- Escort No Fire Area's (NFA's) in the objective area
- Escort Battle Positions
- Escort flight techniques
- Escort Flight Lead (EFL)
- Forward Air Controller (FAC)
- Forward Air Controller Airborne (FAC(A))
- Joint Tactical Air Controller (JTAC)
- Air Mission Commander (AMC)
- Fire support Coordinator (FSC)
- Control of Fires

Discuss:

- METT-TSL
- Weather considerations for tactical operations
- Flight leadership roles
- Helicopter Aircraft Commander (HAC)
- Assault Flight Leader (AFL)
- Direct Air Support Center (DASC)
- Stick leader
- Pick up Zone (PZ) / Marshaling Area Control Officer (MACO)
- Mission planning products
- Go criteria/No-go criteria
- Abort
- Bump Plan/Late-join/straggle plan
- Rules of engagement
- FENCE procedures
- Test fire area (TFA)
- Threat anticipation
- ASE utilization
- Weapons control procedures
- Scanning techniques (open terrain, dense vegetation)
- Navigational assistance
- Tactical flight techniques

Objective area considerations
Initial Terminal Guidance (ITG) Mirror Flash/Smoke
Initial Point (IP)/Landing zone (LZ)
"Winter/Devil" criteria
Sectors of fire
No Fire Areas (NFA)
Wave-off effects during insert
Immediate re-embarkation
Emergency extract
CASEVAC
Hostile area
Passenger embark/debark (if applicable)
Cargo and vehicle on-load/securing/off-load (if applicable)
External operations if applicable
Downed aircraft immediate actions
Egress considerations with weapons installed
Downed aircrew's wingman responsibilities
Lookout doctrine
Scanning techniques (open terrain, dense vegetation)
Navigational assistance
Tactical formation maneuvering
Passenger embarking/debarking
Cargo and vehicle loading/securing/unloading
External operations
Weapons employment
Wingman considerations

Practice:

CC vs. AO responsibilities during tactical operations
CRM and crew coordination during tactical operations
Mission analysis
Cabin configuration
Lookout doctrine
Scanning techniques (open terrain, dense vegetation)
Navigational assistance
Tactical formation maneuvering
Passenger embarking/debarking
Cargo and vehicle loading/securing/unloading
External operations
Weapons employment
Wingman considerations

Performance Standard: Conduct tactical operations in low to medium threat environment as stated in NTTP 3-22.3-53. Demonstrate knowledge/usage of mission planning products. If rounds are utilized refer to AG-2813 per respective weapon system for weapons performance standards.

Prerequisites: TAC-2910

Ordnance: 2 GAU-21 MWPC .50 caliber machine guns, 1 left hand GAU-21 MWPC, 1 right hand GAU-21 MWPC are required to be installed. Rounds and firing of machine guns are optional though highly encouraged.

Range Requirements: Aerial gunnery range with SDZ approved for .50 calibers for day shooting, targets should range in size from personnel targets to APC size targets if rounds are utilized; CAL/MAL site; Approved TERF maneuver area/route.

External Syllabus Support: Ordnance request for weapons.

Range/Ordnance/Escort request if utilized.

3.10.10 NS High Light Level (HLL)

3.10.10.1 Purpose: To develop skill in the use of NS under light levels greater than or equal to .0022 lux (HLL) as predicted by the Solar Lunar Almanac Prediction (SLAP) and to qualify aircrew in NS HLL operations.

3.10.10.2 General:

(a) Night systems lectures and initial instructional flights and refresher flights shall be conducted by a WTI or NSI.

(b) Aircrew not NSQ HLL requires supervision of an NSI for all events flown with NS.

(c) The aircrew under instruction is considered NSQ HLL (able to transport troops under HLL conditions) when the following 6 events have been completed: HLL-2120, HLL-2220, HLL-2221, HLL-2320, HLL-2321, and HLL-2920. Aircrew shall fly all NS events in the NSQ HLL syllabus under ambient light conditions of .0022 LUX or greater.

(d) Successful completion of HLL-2920 constitutes Night Systems Qualified (NSQ) HLL. A qualification letter signed by the commanding officer is required stating the aircrew is NSQ HLL to carry troops under HLL conditions. The original shall be placed in the aircrew's NATOPS jacket and a copy in the APR with a corresponding logbook entry.

3.10.10.3 Crew requirement: P/P/CC/AO

3.10.10.4 Ground/Academic Training. All self paced readings and lectures shall be completed prior to stage initiation. Utilize academic courseware as outlined in the CH-53 MAWTS-1 Course Catalog.

3.10.10.5 Prerequisites. The following events/designations are prerequisites prior to the commencement of the High Light Level stage:

Academic: ACAD-2052
Flight: CAL-2211, TERFQ

HLL-2120 1.5 180 B,R,M NS * A 2 CH-53

Goal: Introduce and practice aircrew duties during basic NS formation flight and introduce NS tactical formation flight.

Requirement:

Instructor: NSI required for all personnel in the Basic (B) and Refresher (R) POI.

Introduce:

Aircraft lighting (overt/covert/form)
FLIR usage
NVG usage
Scan pattern utilizing NVG
Depth perception
Closure rate
Section NS tactical formation

Identifying closure rate utilizing NVG
Lead change utilizing NVG
Tactical formation maneuvers while utilizing NVG

Discuss:

CC vs. AO responsibilities during HLL FORM
CRM and crew coordination during HLL FORM
Cabin configuration
Basic tactical formations
Scan pattern utilizing NVG
Identifying closure rate utilizing NVG
Wingman considerations
Wingman updates using standard terminology
"Visual" vs. "Blind"
Inadvertent Instrument Meteorological Conditions (IIMC)
Standard terminology
"Popeye"
"On board"
"Holding hands"
Comfort level
Tactical formation maneuvers
Emergency procedures
Combat cruise vs. Combat spread
Communications vs. No communication lead change
Tactical formation maneuvering
Tactical vs. Form lead change
Tac turn
Center turn
In place turn
Split turn
Cross turn
Break turn
Dig and Pinch
Cover
Resume
Situational awareness
Communication
ICS procedures/failure
Crew coordination/CRM
Aircraft emergencies
Cabin security

Practice:

CC vs. AO responsibilities during HLL FORM
CRM and crew coordination during HLL FORM
Cabin configuration
Basic tactical formations
Scan pattern utilizing NVG
Identifying closure rate utilizing NVG
Wingman updates using standard terminology
Standard terminology
Comfort level
Tactical formation maneuvers
Combat cruise vs. Combat spread
Communications vs. No communication lead change
Tactical vs. Form lead change
Situational awareness
Communication
ICS procedures

Cabin security

Performance Standards: Conduct aircrew duties and demonstrate proficient knowledge of aircrew considerations during tactical formation flight utilizing NS IAW NATOPS and NTTP 3-22.3-CH53.

Prerequisite: ACAD-2052, CAL-2211

HLL-2220 1.5 180 B,R,M NS * A 1 CH-53

Goal: Introduce and practice single ship CALs/MALs operations using NS under HLL conditions.

Requirement:

Instructor: NSI required for all personnel in the Basic (B) and Refresher(R) POI.

Introduce:

- CALs while utilizing NS in HLL
- NVG considerations/failures
- Depth perception/distance estimation
- HLL NS considerations as applicable to CAL operations
- Field of View vs. Field of Regard
- Dark adaptation
- Identifying closure rate while utilizing NVGs
- NVG misperceptions and illusions
- Effects of shadows on terrain suitability for CAL
- Use of chem lights to identify the landing zone

Discuss:

- CC vs. AO responsibilities during HLL CALs
- CRM and crew coordination during HLL CALs
- Cabin configuration
- Tactical approaches
- Situational awareness
- Communication
- Aircraft emergencies
- Aircraft lighting (overt/covert)
- FLIR usage
- Scan pattern
- Identifying closure rate to ground during landing
- ICS procedures/failures
- Crew coordination/CRM
- Aircraft clearance
- Obstacle clearance
- Terrain suitability
- Drift correction/Heading control
- Brown out/white out procedures
- Standard Terminology
- Terrain suitability
- Landing on a slope
- Pattern terminology, upwind, downwind, abeam, final
- Airspeed/altitude during landing approach
- Desert/NVG landing profile
- Effects of wind
- Closure rate
- Lookout doctrine
- Scan pattern vs. sight fixation with NVGs
- Aircraft/Obstacle clearance

- Tail rotor clearance
- A/C landing gear brake limitations
- Rotor wash effect on trees, bushes, tall grass, etc...
- Loose objects/blowing debris
- Wave off procedures

Practice:

- CC vs. AO responsibilities during HLL CALs
- CRM and crew coordination during HLL CALs
- Cabin configuration
- Tactical approaches
- Situational awareness
- Communication
- Aircraft lighting (overt/covert)
- Scan pattern
- Identifying closure rate to ground during landing
- ICS procedures
- Aircraft clearance
- Obstacle clearance
- Identifying terrain suitability
- Drift correction/Heading control
- Brown out/white out procedures
- Standard Terminology
- Pattern terminology, upwind, downwind, abeam, final
- Identifying airspeed/altitude during landing approach
- Desert/NVG landing profile
- Lookout doctrine
- Scan pattern vs. sight fixation with NVGs
- Aircraft/Obstacle clearance
- Tail rotor clearance
- Wave off procedures

Performance Standards: Conduct aircrew duties during CAL/MAL operations and considerations while utilizing NVGs IAW above listed discuss items and the CH-53 NATOPS and NTTP 3-22.3-53. Perform aircrew duties during tactical CAL/MAL operations while utilizing NVGs IAW the above listed discuss and practice items and IAW CH-53 NATOPS and NTTP 3-22.3-53. Conduct a minimum 5 confined area landings.

Prerequisite: ACAD-2052, CAL-2210

Range Requirements: CAL/MAL site

HLL-2221 1.5 180 B,R,M NS * A 2 CH-53

Goal: Introduce and practice CALs/MALs operations within a section while utilizing NS under HLL conditions.

Requirement:

Instructor: NSI required for all personnel in the Basic (B) and Refresher(R) POI.

Introduce:

- Wingman situational awareness while utilizing NS
- Wingman terminology while utilizing NS
- Wingman crossover while utilizing NS
- Section takeoffs while utilizing NS
- Section approaches while utilizing NS

Section landings to a CAL/MAL site while utilizing NS

Discuss:

CC vs. AO responsibilities during section HLL CALs
CRM and crew coordination during section HLL CALs
Cabin configuration
Tactical approaches
Situational awareness
Communication
Aircraft emergencies
Aircraft lighting (overt/covert)
FLIR usage
Scan pattern
Identifying closure rate to ground during landing
ICS procedures/failures
Crew coordination/CRM
Aircraft clearance
Obstacle clearance
Terrain suitability
Drift correction/Heading control
Brown out/white out procedures
Standard Terminology
Terrain suitability
Landing on a slope
Pattern terminology, upwind, downwind, abeam, final
Airspeed/altitude during landing approach
Desert/NVG landing profile
Effects of wind
Closure rate
Lookout doctrine
Scan pattern vs. sight fixation with NVGs
Aircraft/Obstacle clearance
Tail rotor clearance
A/C landing gear brake limitations
Rotor wash effect on trees, bushes, tall grass, etc..
Loose objects/blowing debris
Wave off procedures

Practice:

CC vs. AO responsibilities during section HLL CALs
CRM and crew coordination during section HLL CALs
Cabin configuration
Tactical approaches
Situational awareness
Communication
Aircraft lighting (overt/covert)
Scan pattern
Identifying closure rate to ground during landing
ICS procedures
Aircraft clearance
Obstacle clearance
Identifying terrain suitability
Drift correction/Heading control
Brown out/white out procedures
Standard Terminology
Pattern terminology, upwind, downwind, abeam, final
Identifying airspeed/altitude during landing approach
Desert/NVG landing profile
Lookout doctrine
Scan pattern vs. sight fixation with NVGs

Aircraft/Obstacle clearance
Tail rotor clearance
Wave off procedures

Performance Standards: Conduct CAL/MAL operations and considerations within a section while utilizing NS IAW above listed items and the CH-53 NATOPS and NTTP 3-22.3-53. Perform aircrew duties during tactical CAL/MAL operations within a section while utilizing NS IAW the above listed items and IAW CH-53 NATOPS and NTTP 3-22.3-53. Conduct a minimum of 5 confined area landings in lead position and 5 confined area landings in the wingman position.

Prerequisite: HLL-2120, HLL-2220, CAL-2211

Range Requirements: CAL/MAL site

HLL-2320 1.5 180 B,R,M NS * A 1 CH-53

Goal: Introduce and practice maneuvers and clearance while flying in a TERF regime using NS in HLL conditions.

Requirement:

Instructor: NSI required for all personnel in the Basic (B) and Refresher(R) POI.

Introduce:

TERF while utilizing NS in HLL
NVG considerations/failures
Depth perception/distance estimation
HLL NS considerations as applicable to CAL operations
Field of View vs. Field of Regard
Dark adaptation
Identifying closure rate while utilizing NVGs
NVG misperceptions and illusions
Effects of shadows on terrain suitability for CAL
Use of chem lights to identify the landing zone

Discuss:

CC vs. AO responsibilities during HLL TERF
CRM and crew coordination during HLL TERF
Cabin configuration
Low level flight/Contour flight
Crew comfort levels
Standard terminology
Operational Power Checks
Cockpit Scan
Cabin security
Aircraft limitations
Weather Minimums
TERF Currency
Lookout Doctrine
Terrain Flight Considerations
Bunt, Roll, Quick stop, Masking/unmasking TERF turn
Safety considerations/Hazards
ICS procedures/Failure
Emergency procedures
Identifying Closure rate
Aircraft lighting

Navigational assistance while utilizing NS

Practice:

CC vs. AO responsibilities during HLL TERF
CRM and crew coordination during HLL TERF
Cabin configuration
Low level flight/Contour flight
Crew comfort levels
Standard terminology
Operational Power Checks
Cockpit Scan
Cabin security
Lookout Doctrine
Bunt, Roll, Quick stop, Masking/unmasking TERF turn
ICS procedures
Identifying Closure rate
Aircraft lighting
Navigational assistance while utilizing NS

Performance Standards: Conduct aircrew duties in the TERF regime while utilizing NS in a HLL condition IAW above listed items, NATOPS and NTTP 3-22.3-CH53.

Prerequisite: ACAD-2052, TERF-2310, HLL-2120

Range Requirements: Approved TERF maneuver area/route

HLL-2321 1.5 180 B,R,M NS * A 2 CH-53

Goal: Introduce and practice maneuvers and clearance while flying within a section in the TERF regime using NS in HLL conditions.

Requirement:

Instructor: NSI required for all personnel in the Basic (B) and Refresher(R) POI.

Introduce:

TERF while utilizing NS in HLL
NVG considerations/failures
Depth perception/distance estimation
HLL NS considerations as applicable to CAL operations
Field of View vs. Field of Regard
Dark adaptation
Identifying closure rate while utilizing NVGs
NVG misperceptions and illusions
Effects of shadows on terrain suitability for CAL
Use of chem lights to identify the landing zone

Discuss:

CC vs. AO responsibilities during section HLL TERF
CRM and crew coordination during section HLL TERF
Cabin configuration
Low level flight/Contour flight
Crew comfort levels
Standard terminology
Operational Power Checks
Cockpit Scan
Cabin security
Aircraft limitations

Weather Minimums
TERF Currency
Lookout Doctrine
Terrain Flight Considerations
Bunt, Roll, Quick stop, Masking/unmasking TERF turn
Safety considerations/Hazards
ICS procedures/Failure
Emergency procedures
Identifying Closure rate
Aircraft lighting
Navigational assistance while utilizing NS

Practice:

CC vs. AO responsibilities during section HLL TERF
CRM and crew coordination during section HLL TERF
Cabin configuration
Low level flight/Contour flight
Crew comfort levels
Standard terminology
Operational Power Checks
Cockpit Scan
Cabin security
Lookout Doctrine
Bunt, Roll, Quick stop, Masking/unmasking TERF turn
ICS procedures
Identifying Closure rate
Aircraft lighting
Navigational assistance while utilizing NS

Performance Standards: Conduct aircrew duties in the TERF regime while utilizing NS in a HLL condition IAW above listed items, NATOPS and NTTP 3-22.3-CH53.

Prerequisite: HLL-2120, TERF-2311, HLL-2320

Range Requirements: Approved TERF maneuver area/route

HLL-2920 2.0 365 B,R,M NS E A 2 CH-53

Goal: Introduce and practice aircrew responsibilities during tactical operations with multiple aircraft during HLL using NS.

Requirement:

Instructor: NSI required for all personnel in the Basic (B) and Refresher(R) POI. WTI's should be utilized to the max extent possible.

Introduce:

Aircraft lighting conditions
Battlefield Illumination (BI)
NS ITG (IR Pointers, IR buzz saw, IR Strobe)
Light Discipline
Emissions Control (EMCON)
MACO Markings during HLL
RMWS / Ramp position considerations

Discuss:

CC vs. AO responsibilities during section HLL tactical operations

CRM and crew coordination during section HLL tactical operations
Cabin configuration
Low to Medium threat environment criteria
Escort No Fire Area's (NFA's) in the objective area
Escort Battle Positions
Escort flight techniques
Escort Flight Lead (EFL)
Forward Air Controller Airborne (FAC(A))
Forward Air Controller (FAC)
Air Mission Commander (AMC)
Fire support Coordinator (FSC)
Control of Fires
METT-TSL
Weather considerations for tactical operations
Flight leadership roles
Helicopter Aircraft Commander (HAC)
Assault Flight Leader (AFL)
Direct Air Support Center (DASC)
Stick leader
Pick up Zone (PZ)/Marshaling Area Control Officer (MACO)
Mission planning products
Go criteria/No-go criteria
Abort
Bump Plan/Late-join straggle plan
Rules of engagement
FENCE procedures
Test fire area (TFA)
Threat anticipation
ASE utilization
Weapons control procedures
Scanning techniques (open terrain, dense vegetation)
Navigational assistance
Tactical flight techniques
Objective area considerations
Initial Terminal Guidance (ITG) Mirror Flash/Smoke
Initial Point (IP)/Landing zone (LZ)
"Winter vs. Devil" criteria
Sectors of fire
No Fire Areas (NFA)
Wave-off effects during insert
Immediate re-embarkation
Emergency extract
CASEVAC
Hostile area
Passenger embark/debark (if applicable)
Cargo and vehicle on-load/securing/off-load (if applicable)
External operations if applicable
Downed aircraft immediate actions
Egress considerations with weapons installed
Downed aircrew's wingman responsibilities
Lookout doctrine
Scanning techniques (open terrain, dense vegetation)
Navigational assistance
Tactical formation maneuvering
Passenger embarking/debarking
Cargo and vehicle loading/securing/unloading
External operations
Weapons employment
Wingman considerations

Practice:

- CC vs. AO responsibilities during HLL tactical operations
- CRM and crew coordination during HLL tactical operations
- Mission analysis
- Cabin configuration
- Lookout doctrine
- Scanning techniques (open terrain, dense vegetation)
- Navigational assistance
- Tactical formation maneuvering
- Passenger embarking/debarking
- Cargo and vehicle loading/securing/unloading
- External operations
- Weapons employment
- Wingman considerations

Performance Standards: Conduct operations in a low threat environment on NS in a HLL as stated in NTTP 3-22.3-CH53. Demonstrate knowledge/usage of mission planning products. If rounds are utilized refer to AG-2843 per respective weapon system for weapons performance standards.

Prerequisite: HLL 2221, HLL 2321, TAC 2910

Ordnance: Two .50 caliber machine guns are required. Rounds and firing of machine guns are optional though highly encouraged.

Range Requirements: Live fire AG range (.50 caliber). Laser approved range.

External Syllabus Support: Ordnance request for weapons

3.10.11 NS Low Light Level (LLL)

3.10.11.1 Purpose: To develop skill in the use of NS under light levels less than .0022 lux (LLL) as predicted by the Solar Lunar Almanac Prediction (SLAP) and to qualify aircrew in NS LLL operations.

3.10.11.2 General

(a) Aircrew not NSQ LLL requires supervision of an NSI for all events flown with NS under .0022 lux (LLL).

(b) Aircrew will not begin the NSQ LLL syllabus until NSQ HLL

(c) The aircrew under instruction is considered NSQ LLL (able to transport troops under LLL conditions) when the following events have been completed: LLL-2230, LLL-2231, LLL-2330, LLL-2331, LLL-2930. Aircrew shall fly all NS events in the NSQ LLL syllabus under ambient light conditions of below .0022 LUX.

(d) Successful completion of LLL-2930 constitutes Night Systems Qualified (NSQ) LLL. A qualification letter signed by the commanding officer is required stating the aircrew is NSQ LLL to carry troops under LLL conditions. The original shall be placed in the aircrew's NATOPS jacket and a copy in the APR with a corresponding logbook entry.

3.10.11.3 Crew requirement: P/P/CC/AO

3.10.11.4 Ground/Academic Training: All self paced readings and lectures shall be completed prior to stage initiation. Utilize academic courseware as outlined in the CH-53 MAWTS-1 Course Catalog.

3.10.11.5 Prerequisites: The following events/designations are prerequisites prior to the commencement of the Low Light Level stage:

Designation: Crew Chief / Aerial Observer
Flight: NSQ-HLL

LLL-2230 1.5 180 B,R,M NS * A 1 CH-53

Goal: Introduce and practice single ship CALs/MALs operations using NS under LLL conditions.

Requirement:

Instructor: NSI required for all personnel in the Basic (B) and Refresher(R) POI.

Introduce:

CALs/MALs during LLL conditions

Discuss:

CC vs. AO responsibilities during LLL CALs
CRM and crew coordination during LLL CALs
Cabin configuration
CALs/MALs during LLL conditions
LLL NS considerations
Visual acuity degradation
Depth perception degradation
Distance estimation degradation
Contrast degradation
Effects of reduced or no shadows during CALs
Optical flow degradation
Scintillation
Tactical approaches
Situational awareness
Communication
Aircraft emergencies
Aircraft lighting (overt/covert)
FLIR usage
Scan pattern
Identifying closure rate to ground during landing
ICS procedures/failures
Crew coordination/CRM
Aircraft clearance
Obstacle clearance
Terrain suitability
Drift correction/Heading control
Brown out/white out procedures
Standard Terminology
Terrain suitability
Landing on a slope
Pattern terminology, upwind, downwind, abeam, final
Airspeed/altitude during landing approach
Desert/NVG landing profile
Effects of wind
Closure rate

Lookout doctrine
Scan pattern vs. sight fixation with NVGs
Aircraft/Obstacle clearance
Tail rotor clearance
A/C landing gear brake limitations
Rotor wash effect on trees, bushes, tall grass, etc...
Loose objects/blowing debris
Wave off procedures

Practice:

CC vs. AO responsibilities during LLL CALs
CRM and crew coordination during LLL CALs
Cabin configuration
Tactical approaches
Situational awareness
Communication
Aircraft lighting (overt/covert)
Scan pattern
Identifying closure rate to ground during landing
ICS procedures
Aircraft clearance
Obstacle clearance
Identifying terrain suitability
Drift correction/Heading control
Brown out/white out procedures
Standard Terminology
Pattern terminology, upwind, downwind, abeam, final
Identifying airspeed/altitude during landing approach
Desert/NVG landing profile
Lookout doctrine
Scan pattern vs. sight fixation with NVGs
Aircraft/Obstacle clearance
Tail rotor clearance
Wave off procedures

Performance Standards: Conduct aircrew duties during CAL/MAL operations and considerations while utilizing NVGs IAW above listed discuss items and the CH-53 NATOPS and NTTP 3-22.3-53. Perform aircrew duties during tactical CAL/MAL operations while utilizing NVGs IAW the above listed discuss and practice items and IAW CH-53 NATOPS and NTTP 3-22.3-53. Conduct a minimum 5 confined area landings.

Prerequisite: NSQ HLL

Range Requirements: CAL/MAL site

LLL-2231 1.5 180 B,R,M NS * A 2 CH-53

Goal: Introduce and practice CALs/MALs operations within a section while utilizing NS under LLL conditions.

Requirement:

Instructor: NSI required for all personnel in the Basic (B) and Refresher (R) POI.

Introduce:

CALs/MALS operations during LLL conditions

Discuss:

CC vs. AO responsibilities during section HLL CALs
CRM and crew coordination during section HLL CALs
Cabin configuration
Tactical approaches
Situational awareness
Communication
Aircraft emergencies
Aircraft lighting (overt/covert)
FLIR usage
Scan pattern
Identifying closure rate to ground during landing
ICS procedures/failures
Crew coordination/CRM
Aircraft clearance
Obstacle clearance
Terrain suitability
Drift correction/Heading control
Brown out/white out procedures
Standard Terminology
Terrain suitability
Landing on a slope
Pattern terminology, upwind, downwind, abeam, final
Airspeed/altitude during landing approach
Desert/NVG landing profile
Effects of wind
Closure rate
Lookout doctrine
Scan pattern vs. sight fixation with NVGs
Aircraft/Obstacle clearance
Tail rotor clearance
A/C landing gear brake limitations
Rotor wash effect on trees, bushes, tall grass, etc...
Loose objects/blowing debris
Wave off procedures

Practice:

CC vs. AO responsibilities during section HLL CALs
CRM and crew coordination during section HLL CALs
Cabin configuration
Tactical approaches
Situational awareness
Communication
Aircraft lighting (overt/covert)
Scan pattern
Identifying closure rate to ground during landing
ICS procedures
Aircraft clearance
Obstacle clearance
Identifying terrain suitability
Drift correction/Heading control
Brown out/white out procedures
Standard Terminology
Pattern terminology, upwind, downwind, abeam, final
Identifying airspeed/altitude during landing approach
Desert/NVG landing profile
Lookout doctrine
Scan pattern vs. sight fixation with NVGs
Aircraft/Obstacle clearance
Tail rotor clearance

Wave off procedures

Performance Standards: Conduct CAL/MAL operations and considerations within a section while utilizing NS IAW above listed items and the CH-53 NATOPS and NTTP 3-22.3-53. Perform aircrew duties during tactical CAL/MAL operations within a section while utilizing NS IAW the above listed items and IAW CH-53 NATOPS and NTTP 3-22.3-53. Conduct a minimum of 5 confined area landings in lead position and 5 confined area landings in the wingman position.

Prerequisite: LLL-2230

Range Requirements: CAL/MAL site

LLL-2330 1.5 180 B,R,M NS * A 1 CH-53

Goal: Introduce and practice maneuvers and clearance while flying in a TERF regime using NS in LLL conditions.

Requirement:

Instructor: NSI required for all personnel in the Basic (B) and Refresher(R) POI.

Introduce:

TERF while utilizing NS in LLL

Discuss:

CC vs. AO responsibilities during LLL TERF
CRM and crew coordination during LLL TERF
Cabin configuration
LLL NS considerations
NVG considerations/failures
Depth perception/distance estimation
Field of View vs. Field of Regard
Dark adaptation
Identifying closure rate while utilizing NVGs
NVG misperceptions and illusions
Effects of shadows on terrain
Visual acuity degradation
Depth perception degradation
Distance estimation degradation
Contrast degradation
Effects of reduced or no shadows during TERF
Optical flow degradation
Scintillation
Low level flight/Contour flight
Crew comfort levels
Standard terminology
Operational Power Checks
Cockpit Scan
Cabin security
Aircraft limitations
Weather Minimums
TERF Currency
Lookout Doctrine
Terrain Flight Considerations
Bunt, Roll, Quick stop, Masking/unmasking TERF turn

Safety considerations/Hazards
ICS procedures/Failure
Emergency procedures
Identifying Closure rate
Aircraft lighting
Navigational assistance while utilizing NS

Practice:

CC vs. AO responsibilities during LLL TERF
CRM and crew coordination during LLL TERF
Cabin configuration
Low level flight/Contour flight
Crew comfort levels
Standard terminology
Operational Power Checks
Cockpit Scan
Cabin security
Lookout Doctrine
Bunt, Roll, Quick stop, Masking/unmasking TERF turn
ICS procedures
Identifying Closure rate
Aircraft lighting
Navigational assistance while utilizing NS

Performance Standards: Conduct aircrew duties in the TERF regime while utilizing NS in a LLL condition IAW above listed items, NATOPS and NTPP 3-22.3-CH53.

Prerequisite: NSQ HLL

Range Requirements: Approved TERF maneuver area/route

LLL-2331	1.5	180	B,R,M	NS	*	A	2 CH-53
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Goal: Introduce and practice maneuvers and clearance while flying in a TERF regime using NS in LLL conditions.

Requirement:

Instructor: NSI required for all personnel in the Basic (B) and Refresher(R) POI.

Introduce:

Multiple aircraft operations in the TERF regime while utilizing NS in LLL.

Discuss:

CC vs. AO responsibilities during LLL TERF
CRM and crew coordination during LLL TERF
Cabin configuration
LLL NS considerations
NVG considerations/failures
Depth perception/distance estimation
Field of View vs. Field of Regard
Dark adaptation
Identifying closure rate while utilizing NVGs
NVG misperceptions and illusions
Effects of shadows on terrain
Visual acuity degradation

Depth perception degradation
Distance estimation degradation
Contrast degradation
Effects of reduced or no shadows during TERF
Optical flow degradation
Scintillation
Low level flight/Contour flight
Crew comfort levels
Standard terminology
Operational Power Checks
Cockpit Scan
Cabin security
Aircraft limitations
Weather Minimums
TERF Currency
Lookout Doctrine
Terrain Flight Considerations
Bunt, Roll, Quick stop, Masking/unmasking TERF turn
Safety considerations/Hazards
ICS procedures/Failure
Emergency procedures
Identifying Closure rate
Aircraft lighting
Navigational assistance while utilizing NS

Practice:

CC vs. AO responsibilities during LLL TERF
CRM and crew coordination during LLL TERF
Cabin configuration
Low level flight/Contour flight
Crew comfort levels
Standard terminology
Operational Power Checks
Cockpit Scan
Cabin security
Lookout Doctrine
Bunt, Roll, Quick stop, Masking/unmasking TERF turn
ICS procedures
Identifying Closure rate
Aircraft lighting
Navigational assistance while utilizing NS

Performance Standards: Conduct aircrew duties in the TERF regime while utilizing NS in a LLL condition IAW above listed items, NATOPS and NTP 3-22.3-CH53.

Prerequisite: LLL-2330

Range Requirements: Approved TERF maneuver area/route

LLL-2930 2.0 365 B,R,M NS E A 2+ CH-53

Goal: Introduce and practice aircrew responsibilities during medium threat tactical operations with multiple aircraft utilizing NS in the LLL environment.

Requirement:

Instructor: WTI required for all personnel in the Basic (B) and

Refresher(R) POI.

Discuss:

CC vs. AO responsibilities during section LLL tactical operations
CRM and crew coordination during section LLL tactical operations
Cabin configuration
Aircraft lighting conditions
Battlefield Illumination (BI)
NS ITG (IR Pointers, IR buzz saw, IR Strobe)
Light Discipline
Emissions Control (EMCON)
MACO Markings during HLL
RMWS / Ramp position considerations
Low to Medium threat environment criteria
Escort No Fire Area's (NFA's) in the objective area
Escort Battle Positions
Escort flight techniques
Escort Flight Lead (EFL)
Forward Air Controller Airborne (FAC(A))
Forward Air Controller (FAC)
Air Mission Commander (AMC)
Fire support Coordinator (FSC)
Control of Fires
METT-TSL
Weather considerations for tactical operations
Flight leadership roles
Helicopter Aircraft Commander (HAC)
Assault Flight Leader (AFL)
Direct Air Support Center (DASC)
Stick leader
Pick up Zone (PZ)/Marshaling Area Control Officer (MACO)
Mission planning products
Go criteria/No-go criteria
Abort
Bump Plan/Late-join straggle plan
Rules of engagement
FENCE procedures
Test fire area (TFA)
Threat anticipation
ASE utilization
Weapons control procedures
Scanning techniques (open terrain, dense vegetation)
Navigational assistance
Tactical flight techniques
Objective area considerations
Initial Terminal Guidance (ITG) Mirror Flash/Smoke
Initial Point (IP)/Landing zone (LZ)
"Winter vs. Devil" criteria
Sectors of fire
No Fire Areas (NFA)
Wave-off effects during insert
Immediate re-embarkation
Emergency extract
CASEVAC
Hostile area
Passenger embark/debark (if applicable)
Cargo and vehicle on-load/securing/off-load (if applicable)
External operations if applicable
Downed aircraft immediate actions

Egress considerations with weapons installed
Downed aircrew's wingman responsibilities
Lookout doctrine
Scanning techniques (open terrain, dense vegetation)
Navigational assistance
Tactical formation maneuvering
Passenger embarking/debarking
Cargo and vehicle loading/securing/unloading
External operations
Weapons employment
Wingman considerations

Practice:

CC vs. AO responsibilities during LLL tactical operations
CRM and crew coordination during LLL tactical operations
Mission analysis
Cabin configuration
Lookout doctrine
Scanning techniques (open terrain, dense vegetation)
Navigational assistance
Tactical formation maneuvering
Passenger embarking/debarking
Cargo and vehicle loading/securing/unloading
External operations
Weapons employment
Wingman considerations

Performance Standards: Conduct operations in a medium threat environment on NS in a LLL environment as stated in NTTP 3-22.3-CH53. Demonstrate knowledge/usage of mission planning products. If rounds are utilized refer to AG-2843 per respective weapon system for weapons performance standards.

Prerequisite: LLL-2231, LLL-2331

Ordnance: Two .50 Caliber machine guns are required. Rounds and firing of machine guns are optional though highly encouraged.

Range Requirements: Live fire AG range (.50 Caliber). Laser approved range.

External Syllabus Support: Ordnance request for weapons

3.11 MISSION SKILL PHASE (3000)

3.11.1 Purpose: To introduce and develop proficiency in tactical planning, briefing and execution of a Marine Heavy Helicopter squadron's assigned Marine Corps Tasks. Mission Skills have been developed to ensure that squadrons are capable of performing the Marine Corps Tasks (MCTs) assigned to a Marine Heavy Helicopter Squadron. Core Skills are the enablers that allow crews to perform Mission Skills.

3.11.2 General:

(a) For initial, refresher, or when the aircrew under instruction are not proficient in a particular Mission Skill, training codes shall be given by an instructor pilot that is proficient in that Mission Skill code(s). Mission skill codes should be given to all those aircrew (Pilots, Crew Chief, AO)

within the aircraft that meet the prerequisite. Additionally, for larger flights, any flight lead, (SL, DL, AFL, AMC) that is proficient in that Mission Skill can give the Mission Skill code to all aircrew within the flight that meet the prerequisite.

(b) It is the intent that all TACEX scenarios in the Core Skill and Core Plus Skill Phase be based on a minimum of one of the Mission Skills. If aircrew under instruction does not meet the prerequisite for the Mission Skill event, they will not log the Mission Skill event. However, the instructor of the Core Skill or Core Plus Skill TACEX will log both the Core Skill or Core Plus Skill event and the Mission Skill event (i.e.: NSI logs a LLL-2930 and AT-3340.. CC/AO in the LLL syllabus logs a LLL-2930). Once aircrew have been designated NSQ LLL, all subsequent TACEXs should be coded with the appropriate Core Skill or Core Plus Skill and Mission Skill event provided aircrew under instruction meet all core skill prerequisites. Aircrew that are not proficient in a Core Skill or Core Plus Skill event may update both the Core Skill or Core Plus Skill and the Mission Skill event on the same sortie.

(c) Prior to the commencement of this phase, aircrew under instruction shall be NSQ-LLL and Aerial Gunnery Stage Complete.

(d) The aircrew under instruction will assist in the mission analysis, planning, briefing, execution and debriefing of each flight. Aircrew shall use the NTTP series and NATOPS as source documents for planning, briefing, execution and debriefing.

(e) Multiple Mission Skill training events may be logged per sortie (e.g. EXP-3240, AT-3340, AD-3540) as long as the requirement(s) is (are) met for each code. Mission Skill phase training events are intended to be flown and logged in conjunction with other T&R syllabus events (e.g. for pilots: EXP-3240, AT-3340, AD-3540, LLL-2930, EXT-2430, EXT-2440, EXT-2441 and LLL-2331).

(f) The CC/AO not eligible for the Mission Skill code will log the TAC code and the instructor will log both the TAC code and the Mission Skill event(s) that applies. Initial TAC events shall be accomplished as a section; subsequent evolutions (when logged in conjunction with a Mission Skill) may be done single ship, based on the tactical scenario.

(g) Mission Skill events shall be flown with operational ASE, installed .50 calibers (as required for the tactical scenario), (rounds and expendables optional), whenever practical.

(h) Initial attempts to complete Mission Skills should be made in the aircraft; subsequent attempts may be accomplished in the simulator.

(i) As of the signing of this manual, the current HMH Core MCTs are as follows:

Aviation Operations from Expeditionary Shore-Based Sites (MCT 1.3.3.3.2) (EXP)

Combat Assault Transport (MCT 1.3.4.1) (AT)

Air Delivery (MCT 4.3.4) (AD)

Aviation Support of Tactical Recovery of Aircraft and Personnel (MCT 6.2.2.1) (TRAP)

Air Evacuation (MCT 6.2.2) (AE)

3.11.3 Crew Requirements: P/P/CC/AO

3.11.4 Academic Training:

3.11.4.1 Purpose: Prior to commencement of each event within the Mission Skill Phase the required academic syllabus shall be completed in accordance with this Manual and the MAWTS-1 CH-53 Course Catalog.

3.11.4.2 Upon completion, the CC/AO shall report to the designated representative(s), who will then manually update the training code in M-SHARP and log the academic/ground training event in section 3 (Aircrew Ground School Training) of the APR, using the Enlisted Aircrew Performance Record/Qualification Jacket Academic Tracker beginning on Pg 3-183 of this document.

3.11.4.3 NIPR 2000-6000 classes are located at the MAWTS-1 NIPR website under ASD, CH-53, T&R:

<https://vcepub.tecom.usmc.mil/sites/msc/magtftc/mawts1/>

3.11.4.4 SIPR 2000-6000 classes are located at the MAWTS-1 SIPR website under ASD, CH-53, T&R:

<http://www.mawts1.usmc.smil.mil/>

T&R	ACADEMIC SYLLABUS
	CORE MISSION SKILL PHASE (3000)
ACAD-3002	(U) NEO EXECUTION
ACAD-3004	(S) PERSONNEL RECOVERY
ACAD-3005	(S) CH-53 SPECIFIC TRAP TTPS
ACAD-3006	(U) CASEVAC

3.11.5 Prerequisites: The following events/designations are prerequisites prior to the commencement of the Core Mission Skill Phase.

Academic: See event
 Flight: LLL-2930, AG-2843, GTR-2540
 Designation: NSQ-LLL, AGQ

3.11.6 Mission Skill Phase (3000) Flight Events

EXP-3140 2.0 365 B,R,M (NS) * A 1+ CH-53

Goal: Demonstrate the capability to operate from a shore-based site under a low to medium threat environment. Marine aviation units maintain the

capability to operate from expeditionary shore-based sites (in line with unit/platform capabilities) to include Forward Operating Bases (FOBs), Expeditionary Airfields (EAFs), Forward Arming and Refueling Points (FARPS), austere forward operating sites, Tactical Landing Zones (TLZ), Helicopter Landing Zones (HLZs), etc. The Marine Air Traffic Control Mobile Team (MMT) can support operations at expeditionary shore-based sites by providing initial rapid response air traffic control (ATC), and command, control, and communications (C3). (JP 3-1, NDP 1, MCWP 3-2, MCWP 3-25.8)

Requirement:

Instructor: Any flight lead, (SL, DL, AFL, AMC) that is proficient in that Mission Skill can give the Mission Skill code to all aircrew within the flight that meet the prerequisite. Additionally any Crew Chief instructor who is proficient in the Mission skill can give the Mission Skill Code to all enlisted Crew members who meet the prerequisites.

Review:

TAC-2910
TAC-2911
HLL-2920 (as applicable)
LLL-2930 (as applicable)

Introduce:

MMT operations
EAF, FOB, FARP, LAAGER site operations

Performance Standard: Plan, brief and execute a tactical mission to or from expeditionary shore-based (Airbase, EAF, FOB, COB, FARP, LAAGER site). Ensure aircrews properly plan for and demonstrate knowledge of the requirements of operating in an austere environment.

Prerequisite: NSQ LLL, AGQ

Ordnance: Two .50 caliber machine guns are required (Tail gun is optional) Rounds and firing of the machine guns are optional.

Range Requirement: Live fire and expendable range as required

External Syllabus Support: ATC, DASC, ASLT and/or MMT for airspace control are preferred. AGS for expeditionary shore-based site setup preferred

AT-3240 2.0 365 B,R,M (NS) * A 1+ CH-53

Goal: Demonstrate the capability to conduct assault transport operations in a low to medium threat environment. Aviation combat assault transport operations provide mobility to the MAGTF. It is used to deploy forces (air-landed or air-delivered) efficiently in offensive maneuver warfare, bypass obstacles, or quickly redeploy forces. Combat assault support allows the MAGTF Commander to build up his forces rapidly at a specific time and location, and allows him to apply and sustain combat power and strike the enemy where he is unprepared. This function comprises those actions required for the airlift of personnel, supplies and equipment into or within the battle area by helicopter, tilts rotor or fixed-wing aircraft;(JP 3-0, 4-0, MCWP 3-2, MAWTS-1).

Requirement:

Instructor: Any flight lead, (SL, DL, AFL, AMC) that is proficient in that Mission Skill can give the Mission Skill code to all aircrew within the flight that meet the prerequisite. Additionally any Crew Chief instructor who is proficient in the Mission skill can give the Mission Skill Code to all enlisted Crew members who meet the prerequisites.

Review:

INT-2105
INT-2106
TAC-2910
TAC-2911
HLL-2920 (as applicable)
LLL-2930 (as applicable)

Performance Standard: Plan, brief and execute a tactical assault support mission (MARLOG, general support, NEO, resupply, insert, extract). If an L-Hour is utilized arrive in the LZ +/- 30 sec in the best position to support the ground combat element. Demonstrate a thorough understanding of objective area mechanics, command and control procedures, and fire support control measures.

Prerequisite: NSQ LLL, AGQ, ACAD-3002, GTR-2540

Ordnance: Two .50 caliber machine guns are required (Tail gun is Optional), rounds and firing of the machine guns are optional.

Range Requirement: Live fire range as required.

External Syllabus Support: Escort and/or Command and Control aircraft are preferred if available. Ground combat element preferred if available.

AD-3340 2.0 365 B,R,M (NS) * A 1+ CH-53

Goal: Demonstrate the ability to conduct air delivery in a low to medium threat environment. Air delivery is in-flight transportation of equipment and supplies to remote areas or expeditionary sites [tactical landing zones, austere forward operating sites, Naval shipping, Forward Operating Bases (FOBs), Expeditionary Airfields (EAFs), Forward Arming and Refueling Points (FARPs), etc.]. Air delivery operations are performed by fixed-wing, tilt rotor or rotary-wing aircraft. Delivery can be accomplished with aircraft internal/external loads, or loads can be air dropped using specially rigged aerial delivery equipment and systems. Air drops are normally used when surface of helicopter transports cannot be used because of range, closed lines of communications, a lack of adequate airfields, a prohibitive ground tactical situation, high tonnage, or reduced response time. The Helicopter Support Team (HST) may be used during air delivery operations. Air delivery operations require detailed planning and integration at all levels and must support units in a rapidly changing environment. (JP 1, 3-0, 4-0, MCWP 3-2, 3-11.4, 3-21.2, 4-1, 4-11, 4-11.3, NDP-4, NWP 4-01, NAVSUP PUB Series)

Requirement:

Instructor: Any flight lead, (SL, DL, AFL, AMC) that is proficient in that Mission Skill can give the Mission Skill code to all aircrew within the flight that meet the prerequisite. Additionally any Crew Chief instructor who is proficient in the Mission skill can give the Mission Skill Code to all enlisted Crew members who meet the prerequisites.

Review:

EXT-2410, EXT-2411, TEXT-4412 (as required)
EXT-2420, EXT-2421, EXT-2430, TEXT-4440 (as required)
HIE-4141 or HIE-4110 (as required)
TAC-2910
TAC-2911
HLL-2920 (as applicable)
LLL-2930 (as applicable)

Performance Standard: Plan, brief and execute a tactical aerial delivery mission (External operations, internal cargo operations, or air drop) in a low to medium threat environment. If an L-Hour is utilized arrive in the LZ +/- 30 sec.

Prerequisite: Aircrew must be proficient in the appropriate aerial delivery method being executed, EXT-2430, NSQ LLL, AGQ, GTR-2540.

Ordnance: Two .50 caliber machine guns are required (Tail gun is optional). Rounds and firing of the machine guns are optional.

Range Requirement: Live fire range and approved drop zone as required.

External Syllabus Support: HST. Jump master and ground safety personnel as required.

TRAP-3440 2.0 365 B,R,M (NS) * A 1+ CH-53

Goal: Demonstrate the ability to conduct Tactical Recovery of Aircraft and Personnel (TRAP) in a low to medium threat environment. Tactical Recovery of Aircraft and Personnel (TRAP) is performed for the specific purpose of the recovery of personnel, equipment, and/or aircraft. TRAP is conducted to locate and extract distressed personnel and sensitive equipment from enemy controlled area during wartime or contingency operations to prevent capture. TRAP is performed by an assigned and briefed aircrew and is a subcomponent of combat search and rescue (CSAR) and/or joint combat search and rescue (JCSAR) missions, but is only executed once the location of survivors is confirmed. A TRAP mission may include personnel to conduct the search portion of CSAR or the over water portion of search and rescue missions. The composition of a tactical recovery mission may vary from a single aircraft and aircrew to an assault support mission package that consists of multiple fixed-wing and rotary-wing aircraft with an onboard compliment of security, ground search, and medical personnel. (JP 1, 3-0, 3-50.2, MCWP 2-6, 3-2, 3-11.4, 3-24, 3-25.4, NDP 1, NWP 3-05)

Requirement:

Instructor: Any flight lead, (SL, DL, AFL, AMC) that is proficient in that Mission Skill can give the Mission Skill code to all aircrew within the flight that meet the prerequisite. Additionally any Crew Chief instructor who

is proficient in the Mission skill can give the Mission Skill Code to all enlisted Crew members who meet the prerequisites.

Introduce:

- TRAP template from ASTACSOP
- ISR employment
- Rescort considerations
- Rescue vehicle responsibilities
- ISOPREP verification considerations
- RMC command and control considerations
- Survival Radio operation
- ACEOI

Performance Standard: Plan, brief and execute a TRAP mission. Properly employ TRAP template. Effectively communicate with Isolated Personnel, Rescort, RMC and other supporting aircraft.

Prerequisite: NSQ LLL, AGQ, ACAD-3004, ACAD-3005, GTR-2540

Ordnance: Two .50 caliber machine guns are required (Tail gun is Optional). Rounds and firing of the machine guns are optional.

Range Requirement: Live fire range as required

External Syllabus Support: Escort and/or Command and Control aircraft are preferred if available. Isolated personnel in the objective area are preferred. Use of survival radios is preferred. Ground combat element is preferred if available.

AE-3540 2.0 365 B,R,M (NS) * A 1+ CH-53

Goal: Demonstrate the ability to conduct an air evacuation operation in a low to medium threat environment. Air evacuation is the transportation of personnel and equipment from areas of operations to secure rear areas, to include casualty evacuations (CASEVAC), extraction of forces, or civilians. Transport helicopters, tilt rotor, and fixed-wing transport aircraft perform air evacuations. (JP 3-10.1, MCDP 1-0, MCWP 3-2, 3-11.4, 3-16, 3-24, 3-25, 3-27, 3-36)

Requirement:

Instructor: Any flight lead, (SL, DL, AFL, AMC) that is proficient in that Mission Skill can give the Mission Skill code to all aircrew within the flight that meet the prerequisite. Additionally any Crew Chief instructor who is proficient in the Mission skill can give the Mission Skill Code to all enlisted Crew members who meet the prerequisites.

Review:

INT-2106

Introduce:

- Casualty priorities
- Medical facility levels
- Aircraft configuration considerations
- Mass Casualty aircraft configuration

Performance Standard: Plan, brief and execute a tactical air evacuation mission. If an L-Hour is utilized arrive in the LZ +/- 30 sec in a position to best support the ground combat element.

Prerequisite: NSQ LLL, AGQ, ACAD-3006, GTR-2540s

Ordnance: Two .50 caliber machine guns are required (Tail gun is Optional); Rounds and firing of the machine guns are optional.

Range Requirement: Live fire range as required.

3.12 CORE PLUS SKILL PHASE (4000)

3.12.1 Purpose: To introduce and develop proficiency in the execution of the Core Plus Skills and Missions required as a crew chief/aerial observer within a Marine Heavy Helicopter Squadron (HMH). Core Plus skills have a low probability of execution or are theater specific and are not included in the unit readiness evaluation.

3.12.1.1 General: All Core Plus Mission events shall follow the guideline of the Mission Skill section.

3.12.1.2 Stages: The following stages are included in the Core Skill Plus Phase of training:

- (4000) Core Plus Phase Academics
- (4100) Helicopter Insertion and Extraction Techniques
- (4200) Aviation Delivered Ground Refueling (ADGR)
- (4400) Terrain Flight External (TERF EXT)
- (4500) Defensive Measures / Ground Threat Reaction
- (4600) Chemical, Biological, Radiation, Nuclear
- (4700) Carrier Qualification
- (4800) Tail Gunnery / Moving Target Gunnery
- (4900) Tactics & Core Plus Mission Skills

3.12.1.3 Conditions: Within the stages all training codes are further broken down according to ambient conditions.

- (XX00) Sim
- (XX10) Daylight
- (XX20) High Light Level
- (XX30) Low Light Level
- (XX40) Can be done High or Low Light Level

3.12.1.4 Ground/Academic Training

3.12.1.5 Purpose: Within the Core Plus Skill Phase the required academic syllabus shall be completed in accordance with this Manual and the MAWTS-1 CH-53 Course Catalog.

3.12.1.6 Upon completion, the CC/AO shall report to the designated representative(s), who will then manually update the training code in M-SHARP and log the academic/ground training event in section 3 (Aircrew Ground

School Training) of the APR, using the Enlisted Aircrew Performance Record/Qualification Jacket Academic Tracker starting on Pg 1-183 of this document.

3.12.1.7 2000-6000 classes are located at the MAWTS-1 NIPR website under ASD, CH-53, T&R:

<https://vcepub.tecom.usmc.mil/sites/msc/magtftc/mawts1/>

3.12.1.8 SIPR 2000-6000 classes are located at the MAWTS-1 SIPR website under ASD, CH-53, T&R:

<http://www.mawts1.usmc.smil.mil/>

T&R CODE	ACADEMIC SYLLABUS
	CORE PLUS SKILL PHASE (4000)
ACAD-4011	(U) EA Aviation Delivered Ground Refueling
ACAD-4050	(U) EA Basic principles of electronic warfare
ACAD-4051	(U) EA DM/GTR part 1
ACAD-4052	(U) EA DM/GTR part 2
ACAD-4053	(U) EA Training the tail gunner

3.12.1.9 Prerequisites: The following events/designations are prerequisites prior to the commencement of the Core Plus Skill Phase.

Academic: See event
Flight: see event
Designation: CC/AO

3.12.2 Helicopter Insertion/Extraction Techniques (HIE)

3.12.2.1 Purpose: To introduce HIE methods required in executing special operations.

3.12.2.2 General: The CC shall conduct a brief with the specific team leader, then the entire team prior to take off to discuss mission requirements and aircraft safety procedures.

3.12.2.3 Crew Requirement: P/P/CC/AO

3.12.2.4 Ground/Academic Training: All self paced readings and lectures shall be completed prior to stage initiation. Utilize academic courseware as outlined in the CH-53 MAWTS-1 Course Catalog.

3.12.2.5 Prerequisites. The following events/designations are prerequisites prior to the commencement of the Helicopter Insertion & Extraction Techniques:

Academic: See event
Flight: see event
Designation: CC/AO

HIE-4110 1.5 365 B,R,M D * A 1 CH-53

Goal: Introduce and practice procedures for tactical insertion

helocast.

Requirement:

Instructor: TERFI required for all personnel in the Basic (B) and Refresher(R) POI.

Discuss:

- CC vs. AO responsibilities during helocast operations
- CRM and crew coordination during helocast operations
- Cabin configuration
- Safety considerations with ramp open and passengers onboard
- Crew coordination/CRM with jump master
- Hand and arm signals with jump master
- Altitude for helocast boat release
- Time to disconnect the boat from its A/C attachment point
- Tail rotor clearance
- Ramp position
- Airspeed for helocast
- Responsibilities and duties of Helocast Master
- Responsibilities and duties of the HAC
- Responsibilities and duties of the Crew Chief
- Standard terminology
- Vertigo and visual illusions while hovering over water
- Emergency procedures for helocast operations

Practice:

- CC vs. AO responsibilities during helocast operations
- CRM and crew coordination during helocast operations
- Cabin configuration
- Safety procedures
- Emergency procedures
- Cabin configuration
- ICS procedures/failure
- Situational awareness

Performance Standards: Conduct procedures for a tactical insertion via Helocast IAW applicable NTTP 3-22.3-53.

Prerequisite: TERFQ, INT-2106

External Syllabus Support: Jump master, safety boat and safety personnel

HIE-4140 1.5 365 B,R,M (NS) * A 1 CH-53

Goal: Introduce and practice tactical insertion and/or extraction of a ground force via fast rope, rappelling, or SPIE.

Requirement:

Instructor: TERFI required for all personnel in the Basic (B) and Refresher(R) POI.

Introduce:

- CC vs. AO responsibilities during HRST operations
- CRM and crew coordination during HRST operations
- Cabin configuration

Safety considerations with door/ramp open and passengers onboard
Obstacle clearance
DZ/PZ Selection
Wooded and mountain HRST operations
Night operations
Tactical insertions
Effects of rotor downwash
Static electricity build-up
Associated equipment
Mandatory commands
Advisory commands
Hand and arm signals
Lost communications/ICS failure
Responsibilities and duties of HRST Master
Responsibilities and duties of the HAC
Responsibilities and duties of the Crew Chief
Helicopter rappel operations
Hung roper procedures
Fouled rappel line procedures
Fast rope operations
Fouled fast rope procedures
Special Patrol Insertion/Extraction (SPIE) System
Night SPIE
SPIE from water
Sequence of events
Fouled SPIE rope
Hung Roper
Jacobs Ladder operations
Sequence of events
Hung climber
Fouled ladder
Emergency procedures for HIE operations
Safety

Practice:

CC vs. AO responsibilities during HRST operations
CRM and crew coordination during HRST operations
Cabin configuration
ICS procedures
Safety procedures
Hand and arm signals
Obstacle clearance
Associated equipment

Performance Standards: Conduct tactical insertion and/or extraction of a ground force via rappelling, fast-rope or SPIE IAW applicable NATOPS and NTTP 3-22.3-53.

Prerequisite: CAL-2210, (HLL-2920~NS or LLL-2930~LLL)

External Syllabus Support: HRST Master and ground safety personnel

HIE-4141 1.5 365 B,R,M (NS) * A 1 CH-53

Goal: Introduce and practice procedures for tactical insertion via paraops.

Requirement:

Instructor: TERFI required for all personnel in the Basic (B) and Refresher(R) POI.

Introduce:

CC vs. AO responsibilities during HRST operations
CRM and crew coordination during HRST operations
Cabin configuration
Safety considerations with door/ramp open and passengers onboard
Paradrop operations
Paraops
Sequence of events
Paraops Terminology
Container delivery system
Fouled/hung jumper/container
Responsibilities and duties of Jumpmaster
Responsibilities and duties of the HAC
Responsibilities and duties of the Crew Chief
Emergency procedures

Practice:

CC vs. AO responsibilities during PARAOPS
CRM and crew coordination during PARAOPS
Cabin configuration
Safety procedures
Emergency procedures
ICS procedures
Cabin preparation
Hand and arm signals
Obstacle clearance
Associated equipment
Cabin preparation

Performance Standards: Conduct procedures for tactical insertion via Paraops IAW applicable NTTP 3-22.3-53.

Prerequisite: HLL-2920~NS or LLL-2930~LLL

External Syllabus Support: Jump master and ground safety personnel

3.12.3 Aviation Delivered Ground Refueling (ADGR)

3.12.3.1 Purpose: To introduce aircrew duties in loading, securing, unloading, internal procedures and use of the Tactical Bulk Fuel Delivery System (TBFDS) for the CH-53E.

3.12.3.2 Crew Requirement: P/P/CC/AO

3.12.3.3 Ground/Academic Training: All self-paced readings and lectures shall be completed prior to stage initiation. Utilize academic courseware as outlined in the CH-53 MAWTS-1 Course Catalog.

3.12.3.4 Prerequisites: The following events/designations are prerequisites prior to the commencement of the Terrain Flight External stage:

Academic: See event
Flight: see event
Designation: CC/AO

ADGR-4200 1.5 * B,R,SC D * A 1 STATIC CH-53

Goal: Introduce and practice internal loading procedures and utilization of the TBFDS.

Requirement:

Instructor: TERFI required for all personnel in the Basic (B) and Refresher(R) POI.

Introduce:

- CC vs. AO responsibilities during ADGR operations
- CRM and crew coordination during ADGR operations
- Cabin configuration
- TBFDS
- TBFDS manual and pocket check list
- Installation considerations for TBFDS
- Various TBFDS loading and unloading methods
- Various TBFDS tank configurations and considerations
- TBFDS restraint system
- TBFDS refueling methods (gravity/pressure/aerial)
- Switchology for fuel delivery/range extension/refuel
- Types of FARPs
- Crew member/MMT responsibilities
- FARP setup/pre-flight
- FARP day/night operations
- Taxi of aircraft/vehicle
- A/C Lighting considerations/configurations
- Chem light utilization (TBFDS components/personnel/ITG)
- Refueling procedures
- Fuel connection ports for various type aircraft/vehicles
- Danger zones for various type aircraft/vehicles
- FARP post flight and clean up
- Fire fighting equipment/procedures

Practice:

- CC vs. AO responsibilities during ADGR operations
- CRM and crew coordination during ADGR operations
- Cabin configuration
- TBFDS loading, restraint, and unloading methods
- Switchology for fuel delivery/range extension/refuel
- Crew member responsibilities
- FARP setup/pre-flight
- FARP day/night operations
- Taxi of aircraft/vehicle
- Refueling procedures
- FARP post flight and clean up
- Safety procedures
- ICS procedures
- Emergency procedures
- Hand and arm signals

Performance Standards: Conduct TBFDS setup and aviation ground delivered refueling operations IAW above listed items, NTP 3-22.3-53, and APCL-CH53.

Prerequisite: INT-2105, ACAD-4011

External Syllabus Support: TBFDS, ground assets to refuel, aviation assets to refuel

ADGR-4240 1.5 365 B,R,M (NS) * A 1 CH-53

Goal: Introduce and practice installation and set up of TBFDS system and become familiar with FARP operations.

Requirement:

Instructor: TERFI required for all personnel in the Basic (B) and Refresher(R) POI.

Introduce:

- CC vs. AO responsibilities during ADGR operations
- CRM and crew coordination during ADGR operations
- Cabin configuration
- TBFDS
- TBFDS manual and pocket check list
- Installation considerations for TBFDS
- Various TBFDS loading and unloading methods
- Various TBFDS tank configurations and considerations
- TBFDS restraint system
- TBFDS refueling methods (gravity/pressure/aerial)
- Switchology for fuel delivery/range extension/refuel
- Types of FARPs
- Crew member/MMT responsibilities
- FARP setup/pre-flight
- FARP day/night operations
- Taxi of aircraft/vehicle
- A/C Lighting considerations/configurations
- Chem light utilization (TBFDS components/personnel/ITG)
- Refueling procedures
- Fuel connection ports for various type aircraft/vehicles
- Danger zones for various type aircraft/vehicles
- FARP post flight and clean up
- Fire fighting equipment/procedures

Practice:

- CC vs. AO responsibilities during ADGR operations
- CRM and crew coordination during ADGR operations
- Cabin configuration
- TBFDS loading, restraint, and unloading methods
- Switchology for fuel delivery/range extension/refuel
- Crew member responsibilities
- FARP setup/pre-flight
- FARP day/night operations
- Taxi of aircraft/vehicle
- Refueling procedures
- FARP post flight and clean up
- Safety procedures
- ICS procedures
- Emergency procedures
- Hand and arm signals

Performance Standards: Conduct TBFDS setup and aviation ground delivered refueling operations IAW above listed items, NTP 3-22.3-53, and APCL-CH53.

Prerequisite: INT-2105, HLL-2210, HLL-2920~NS, LLL-2930~LLL, ACAD-

4011, ADGR-4200

External Syllabus Support: TBFDS, ground assets to refuel, aviation assets to refuel

3.12.4 Terrain Flight External Loads (TERF EXT)

3.12.4.1 Purpose: To develop skills necessary to conduct external operations in the terrain flight regime under all ambient conditions.

3.12.4.2 General: Review operational and safety considerations discussed in the appropriate NATOPS Flight Manual, NTTP series and MCRP 4-11.3E Multi-Service Helicopter Sling Load Manual.

3.12.4.3 Crew Requirement:
P/P/CC/AO

NOTE

It is recommended that consideration should be given to adding a third crewmember in the cabin in order to maintain a full 360 degree lookout capability while conducting external operations in a TERF environment.

3.12.4.4 Academic Training: All self paced readings and lectures shall be completed prior to stage initiation. Utilize academic courseware as outlined in the CH-53 MAWTS-1 Course Catalog.

3.12.4.5 Prerequisites:
Academic: See event
Flight: 2411, 2421, 2430
Designation: CC/AO

TERF EXT-4412 1.5 365 B,R,M D * A 1 CH-53

Goal: Introduce and practice external operations while in the TERF environment.

Requirement:

Instructor: TERFI required for all personnel in the Basic (B) and Refresher(R) POI.

Review:
TERF-2310
EXT-2410 or EXT-2411 as applicable

Introduce:
Single/dual point external operations while in the TERF environment

Discuss:
CC vs. AO responsibilities during TERF EXT operations
CRM and crew coordination during TERF EXT operations
Cabin configuration
Standard terminology
ICS procedures/failure
External load clearance during TERF
External load clearance while conducting TERF maneuvers
Radar altimeter utilization

External load stability in flight while in the TERF regime
Cargo pendant release procedures
Safety considerations
Aircraft emergency with external load during TERF
Emergency external jettison procedure

Practice:

CC vs. AO responsibilities during TERF EXT operations
CRM and crew coordination during TERF EXT operations
Cabin configuration
Standard terminology
ICS procedures
External load clearance during TERF
External load clearance while conducting TERF maneuvers
Radar altimeter utilization
External load stability in flight while in the TERF regime
Cargo pendant release procedures
Safety considerations

Performance Standards: Conduct single or dual point external operations while in the TERF regime IAW above listed items, NATOPS and NTTP 3-22.3-CH53. Execute a minimum of 1 pickup and 1 drop off within 5 meters of intended point of delivery.

Prerequisite: TERF-2310, EXT-2410~single point or EXT-2411~dual points.

Range Requirements: Approved CAL/MAL site, approved TERF maneuver area/route

External Syllabus Support: HST, certified external load

TERF EXT-4440	1.5	180	B,R,M	NS	*	A	1	CH-53
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Goal: Introduce and practice external operations while in the TERF regime and utilizing Night Systems in any ambient light condition.

Requirement:

Instructor: NSI required for all personnel in the Basic (B) and Refresher(R) POI.

Review:

TERF-2320 or 2330 as applicable
EXT-2420 thru EXT-2430 as applicable
TERF EXT-4412

Introduce:

Single/dual point external operations while in the TERF environment utilizing Night Systems

Discuss:

CC vs. AO responsibilities during TERF EXT operations
CRM and crew coordination during TERF EXT operations
Cabin configuration
Standard terminology
ICS procedures/failure
External load clearance during TERF

External load clearance while conducting TERF maneuvers
Radar altimeter utilization
External load stability in flight while in the TERF regime
Cargo pendant release procedures
Safety considerations
Aircraft emergency with external load during TERF
Emergency external jettison procedure

Practice:

CC vs. AO responsibilities during TERF EXT operations
CRM and crew coordination during TERF EXT operations
Cabin configuration
Standard terminology
ICS procedures
External load clearance during TERF
External load clearance while conducting TERF maneuvers
Radar altimeter utilization
External load stability in flight while in the TERF regime
Cargo pendant release procedures
Safety considerations

Performance Standards: Conduct single or dual point external operations while in the TERF regime and utilizing Night Systems as outlined in the NATOPS and NTTP 3-22.3-CH53. Perform all above listed items. Execute a minimum of 1 pickup and 1 drop off within 5 meters of intended point of delivery.

Prerequisite: TERF-2320~NS, EXT-2420~NS, TERF-2330~LLL and EXT-2430~LLL. EXT-2421 if dual points are utilized.

Range Requirements: Approved CAL/MAL site, approved TERF maneuver area/route

External Syllabus Support: HST, certified external load

3.12.5 Defensive Measures (DM)

3.12.5.1 Purpose: To introduce aircrew responsibilities during section DM against helicopter and fixed-wing aggressor aircraft. Upon completion of this stage the aircrew should have an understanding of the maneuvers and employment techniques necessary to counter air-to-air threat. Aircrew may be designated DMQ by the Commanding Officer after completing DM-4510 and DM-4511.

3.12.5.2 Crew Requirement: P/P/CC/AO

3.12.5.3 Ground Academic Training: All self paced readings and lectures shall be completed prior to stage initiation. Utilize academic courseware as outlined in the CH-53 MAWTS-1 Course Catalog.

3.12.5.4 Prerequisites:

Academic: See event
Flight: TERF-2311
Designation: CC/AO
Qualification: TERFQ

DM-4510	1.5	365	B,R,M	D	E	A	2	CH-53
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Goal: Introduce and practice aircrew responsibilities as a section against an adversary helicopter.

Requirement:

Instructor: DMI required for all personnel in the Basic (B) and Refresher(R) POI.

Discuss:

- CC vs. AO responsibilities during DM
- CRM and crew coordination during DM
- Cabin configuration
- Section helicopter DM against an adversary helicopter attacking from pre-briefed and unknown locations
- Rotary wing attack profiles
- DM Program Guide
- Five axioms of survival
- Lookout doctrine and threat detection
- Threat evaluation
- Giving the attack warning
- Avoiding detection
- Air combat maneuvering
- Rules of engagement
- Standard terminology
- DM training rules
- DM walk through
- DM line numbers
- Section tactical maneuvers
- Mutual support/wingman position
- Free and engaged roles and responsibilities
- Crew Comfort
- Aircraft limitations
- Weapons handling
- Weapons lead techniques
- 1/2 Time of flight for .50 caliber ordnance
- ASE utilization
- Aircraft performance categories
- Adversary weapons envelope
- ACM in comparison to DM training
- Aircraft emergency procedures
- ICS procedures/failure

Practice:

- CC vs. AO responsibilities during DM
- CRM and crew coordination during DM
- Cabin configuration
- Section helicopter DM against an adversary helicopter attacking from pre-briefed and unknown locations
- Five axioms of survival
- Lookout doctrine and threat detection
- Threat evaluation
- Giving the attack warning
- Avoiding detection
- Air combat maneuvering
- Rules of engagement
- Standard terminology
- DM walk through
- DM line numbers

Section tactical maneuvers
Mutual support/wingman position
Free and engaged roles and responsibilities
Crew Comfort
Aircraft limitations
Weapons handling
Weapons lead techniques
ASE utilization
ICS procedures/failure
Tactical formation maneuvers

Performance Standards: Conduct helicopter section tactics against a helicopter adversary threat IAW above listed items, MAWTS-1 DM Program Guide and NTTP 3-22.3-53. Explain/Demonstrate utilization of the appropriate ASE and on board weapons in relation to the threat. Display situational awareness during all DM training line numbers. Demonstrate attack warning and suggested maneuver against helicopter threats. Utilize standard terminology in intra-aircraft communications.

Prerequisite: TERFQ, ACAD-2004, ACAD-2019, ACAD-4051, ACAD-4052

Ordnance: 60 flares and 2 .50 Caliber machine guns

Range Requirements: Expendable capable range, TERF maneuver area/route

External Syllabus Support: Rotary wing aggressor

DM-4511 1.5 365 B,R,M D * E 2 CH-53

Goal: Introduce and practice aircrew responsibilities as a section against a fixed wing adversary.

Requirement:

Instructor: DMI required for all personnel in the Basic (B) and Refresher(R) POI.

Discuss:

CC vs. AO responsibilities during DM
CRM and crew coordination during DM
Cabin configuration
Section helicopter DM against a fixed wing adversary attacking from pre-briefed and unknown locations
Rotary wing attack profiles
DM Program Guide
Five axioms of survival
Lookout doctrine and threat detection
Threat evaluation
Giving the attack warning
Avoiding detection
Air combat maneuvering
Rules of engagement
Standard terminology
DM training rules
DM walk through
DM line numbers
Section tactical maneuvers
Mutual support/wingman position

Free and engaged roles and responsibilities
Crew Comfort
Aircraft limitations
Weapons handling
Weapons lead techniques
1/2 Time of flight for .50 caliber ordnance
ASE utilization
Aircraft performance categories
Adversary weapons envelope
ACM in comparison to DM training
Aircraft emergency procedures
ICS procedures/failure

Practice:

CC vs. AO responsibilities during DM
CRM and crew coordination during DM
Cabin configuration
Section helicopter DM against a fixed wing adversary attacking from pre-briefed and unknown locations
Five axioms of survival
Lookout doctrine and threat detection
Threat evaluation
Giving the attack warning
Avoiding detection
Air combat maneuvering
Rules of engagement
Standard terminology
DM walk through
DM line numbers
Section tactical maneuvers
Mutual support/wingman position
Free and engaged roles and responsibilities
Crew Comfort
Aircraft limitations
Weapons handling
Weapons lead techniques
ASE utilization
ICS procedures/failure
Tactical formation maneuvers

Performance Standards: Explain helicopter section tactics against a fixed wing adversary threat IAW the MAWTS-1 DM Program Guide and NTTP 3-22.3-53. Explain/Demonstrate utilization of the appropriate ASE and on board weapons in relation to the threat. Display situational awareness during all DM training line numbers. Demonstrate attack warning and suggested maneuver against fixed wing threats. Utilize standard terminology in intra-aircraft communications.

Prerequisite: TERFQ, ACAD-2004, ACAD-2019, ACAD-4051, ACAD-4052

Ordinance: 60 flares or 30 chaff/30 flares and 2 .50 caliber machine guns

Range Requirements: Expendable capable range, TERF maneuver area/route

External Syllabus Support: Fixed wing aggressor

3.12.6 Ground Threat Reaction (GTR)

3.12.6.1 Purpose: To introduce and develop proficiency in using ASE and tactics to defeat ground-based radar threats.

3.12.6.2 Crew Requirement: P/P/CC/AO

3.12.6.3 Ground Academic Training: All self paced readings and lectures shall be completed prior to stage initiation. Utilize academic courseware as outlined in the CH-53 MAWTS-1 Course Catalog.

3.12.6.4 Prerequisites:

Academic: See event
Flight: TERF-2311
Designation: CC/AO
Qualification: TERFQ

GTR-4540 1.5 365 B,R,M (NS) * A 2 CH-53

Goal: Conduct RADAR ground based threat reactions, TTP validation, and ASE familiarization.

Requirement:

Instructor: WTI or DMI required for all personnel in the Basic (B) and Refresher(R) POI. A WTI or DMI that is also a NSI required for all personnel in the Basic (B) and Refresher(R) POI if conducted at night.

Introduce:

CC vs. AO responsibilities during GTR
CRM and crew coordination during GTR
Cabin configuration
Various threat signatures
Threat recognition and detection
Evasive maneuvers coordinated with dispensing of chaff
Section threat avoidance
Masking and use of chaff and flares
Operation of AAR-47, ALE-47, AAQ-24, and APR-39
MAWTS-1 GTR program guide
GTR training rules
GTR Walk through
Five axioms of survival
Lookout doctrine and threat detection
Threat evaluation
Giving the attack warning
Avoiding detection
Evasive maneuvers/threat counter tactics
Rules of engagement
Inter- and intra-aircraft communications
Standard terminology
Section tactics and maneuvers to counter radar threat
High, medium, and low altitude tactics
Low altitude emergencies
Use of radar horizon, ground clutter, radar resolution cells, and radar masking techniques

Practice:

Weapons handling

Weapons lead techniques
Crew coordination/CRM
ICS procedures/failure
Aircraft emergency procedures
Communication
Cabin configuration
Safety considerations
Wingman considerations
Tactical formation maneuvers

Performance Standards: Explain helicopter section tactics against a low altitude surface-to-air radar threat IAW the MAWTS-1 GTR Program Guide and NTP 3-22.3-53. Explain/Demonstrate utilization of the appropriate ASE and on board weapons in relation to the threat. Demonstrate attack warning against various surface-to-air radar threats. Utilize standard terminology in intra-aircraft communications. Execution of at least 1 line number should be accomplished using high or medium altitude tactics.

Prerequisite: ACAD-2004, ACAD-2019, ACAD-4051, ACAD-4052 TERFQ. TERF-2321~NS, TERF-2331~LLL, TERF-2311

Ordnance: 30 chaff, 30 flares and 2 .50 Caliber machine guns

Range Requirements: Expendable capable range, TERF maneuver area/route

External Syllabus Support: Ground emitter

3.12.7 Chemical, Biological, Radiological and Nuclear (CBRN)

3.12.7.1 Purpose: To conduct flight operations while wearing NBC protective equipment.

3.12.7.2 General: For the safe execution of initial CBRN flights, one pilot and one air crewman shall remain unmasked.

3.12.7.3 Crew Requirement: P/P/CC if done in the aircraft

3.12.7.4 Academic Training: The MAWTS-1 CH-53 Course Catalog contains the required readings, lectures and chalk talks which shall be completed IAW the Chemical, Biological, Radiological and Nuclear stage event descriptions.

3.12.7.5 Prerequisites: The following events/designations are prerequisites prior to the commencement of the Chemical, Biological, Radiological and Nuclear stage:

Academic:

Flight: FAM-2105

Designation/Qualification: CC/AO

CBRN-4600 1.5 * B (NS) * * 1 CH-53

Goal: Conduct flight in a simulated CBRN environment

Requirement

Instructor: TERFI required for all personnel in the Basic (B) and Refresher(R) POI. NSI required if conducted at night.

Discuss

CRM
Comfort level
Wearing of CBRN equipment in the aircraft
Distortion of vision
Communications
Proper use of CBRN defensive equipment
NS concerns with CBRN equipment

Introduce

Taxi, low work, pattern work
Confined area landings
Communications

Performance Standards: Conduct Air Crew responsibilities while wearing CBRN gear. Communicate effectively while wearing CBRN gear.

Prerequisite: CAL-2210, CAL-2220~NS, CAL-2230~LLL

Range Requirements: CAL/MAL site

3.12.8 Carrier Qualification (CQ)

3.12.8.1 Purpose. To qualify aircrew for day and NS shipboard operations; the term "carrier qualification" encompasses all shipboard landing operations.

3.12.8.2 General:

(a) Discuss and become familiar with all aspects of shipboard operations and CRM applicable to the Carrier Qualification stage as described in the appropriate NATOPS Flight Manual, NAVMC 3500.14, NWP-42, LHA/LHD NATOPS, and OPNAVINST 3710.7. Briefing should include patterns, altitudes, airspeeds and Helicopter director signals.

(b) 5 day and 5 night FCLPs shall be accomplished within 30 days prior to shipboard qualifications. Refer to CH-53E NATOPS, Chapter 8, Shipboard Procedures.

(c) Initial day/night carrier qualification shall be made under ideal weather conditions to include a visible horizon.

(d) Each initial or refresher instructional flight requires a minimum of 5 CQs; additional CQs as required to demonstrate proficiency.

(f) At least 2 day shipboard landings must be made on the day of the night qualification. Initial Night Systems Carrier Qualification training shall be accomplished under High Light Level conditions. IAW the Aviation Program Manual, any requalification and proficiency training may be accomplished under any light level condition. CQ-2742 requires an NSI when not NS qualified in the light level event is conducted.

3.12.8.3 Crew Requirement. CQ-4711: P/P/CC/AO; CQ- 4743: P/P/CC/AO

3.12.8.4 Ground Academic Training: Aircrew should read and be familiar with topics contained in the CH-53 NATOPS, LHA/LHD NATOPS, and OPNAVINST 3710.7 regarding shipboard operations.

3.12.8.5 Prerequisites. The following events/designations are prerequisites prior to the commencement of the Carrier Qualification stage:

CQ-4711 1.5 365 B,R,M D * A 1 CH-53

Goal: Introduce and practice day CQs.

Requirement:

Instructor: TERFI required for all personnel in the Basic (B) and Refresher (R) POI.

Introduce:

- CC vs. AO responsibilities during day CQ
- CRM and crew coordination during day CQ
- Cabin configuration
- Day Carrier Qualifications
- Shipboard operations
- Comfort level
- Feet wet/landing checklist
- Closure rate
- Wind envelopes
- Aircraft lighting procedures
- Deck markings
- LSE signals
- Voice procedures/Lost communication procedures
- Shipboard landing patterns
- Shipboard holding patterns
- Shipboard instrument patterns
- Shipboard emergencies
- Air space control in the shipboard environment
- Hand and arm signals
- Safety procedures
- Ditching procedures
- Parking brake procedures
- Heading and drift corrections
- Standard Terminology

Practice:

- CC vs. AO responsibilities during day CQ
- CRM and crew coordination during day CQ
- Cabin configuration
- ICS procedures
- Aircraft clearance
- Shipboard operations
- Comfort level
- Feet wet/landing checklist
- Identifying closure rate
- Aircraft lighting procedures
- Voice procedures/Lost communication procedures
- Shipboard landing patterns
- Shipboard holding patterns
- Shipboard instrument patterns

Air space control in the shipboard environment
Hand and arm signals
Safety procedures
Parking brake procedures
Heading and drift corrections
Standard Terminology
Parking brake procedures
Heading and drift corrections

Performance Standards: Conduct 5 day CQs IAW above listed items, CH-53 NATOPS and appropriate shipboard NATOPS.

Prerequisite: FCLP-2710

External Syllabus Support: Helicopter capable ship

CQ-4743 1.5 365 B,R,M NS * A 1 CH-53

Goal: Introduce and practice NS CQs.

Requirement

Instructor: NSI required for all personnel in the Basic (B) and Refresher(R) POI.

Introduce: NS considerations for appropriate light level Shipboard lighting

Practice

CC vs. AO responsibilities during NS CQ
CRM and crew coordination during NS CQ
Cabin configuration
ICS procedures
Aircraft clearance
Shipboard operations
Comfort level
Feet wet/landing checklist
Identifying closure rate
Aircraft lighting procedures
Voice procedures/Lost communication procedures
Shipboard landing patterns
Shipboard holding patterns
Shipboard instrument patterns
Air space control in the shipboard environment
Hand and arm signals
Safety procedures
Parking brake procedures
Heading and drift corrections
Standard Terminology
Parking brake procedures
Heading and drift corrections

Performance Standards: Conduct 5 day CQs IAW above listed items, CH-53 NATOPS and appropriate shipboard NATOPS.

Prerequisite: NSQ HLL, NSQ LLL~LLL, FCLP-2742, and CQ-4711.

External Syllabus Support: NS compatible helicopter capable ship

3.12.9 Tail Gunnery (TG)

3.12.9.1 Purpose: To demonstrate proficiency in delivering fire on targets of opportunity using the GAU-21 Ramp Mounted Weapon System (RMWS) .50 caliber machine gun.

3.12.9.2 General:

(a) Aircrew shall be AGQ on the GAU-21 MWPC prior to beginning the tail gunnery stage of training.

(b) No portion of the GAU-21 AG stage shall be waived or deferred.

(c) All aircrew employing weapons shall have the current A1-H53BE-NFM-900 with all of the interim changes incorporated, on their person.

(d) TG-4840 certifies the aircrew as a tail gunner with the GAU-21 RMWS. Aircrew may be qualified a tail gunner at the discretion the commanding officer after completing TG-4840. If the Commanding Officer chooses to qualify aircrew as tail gunner a qualification letter signed by the Commanding Officer shall be issued and placed in both the individuals NATOPS & APR jacket.

(e) Aircrew may conduct night systems tail gunnery events during either HLL or LLL conditions. If events are conducted during LLL conditions aircrew shall be NSQ HLL prior to conducting events.

(f) An AGI able to conduct training on both the GAU-21 MWPC and RMWS is required for all day tail gunnery flight events until aircrew are Tail Gunnery Qualified.

(g) An AGI able to conduct training on both the GAU-21 MWPC and RMWS who is also a NSI is required for all night systems (NS) tail gunnery flight events until aircrew are Aerial Gunnery Qualified.

(h) Aircrew does not lose their tail gunnery "Qualification" status due to loss of proficiency (re-fly interval) in an individual event (e.g. TG-4840). Aircrew must re-fly that individual event with another qualified aircrew member in order to regain proficiency in that event.

(i) Aircrew who lose proficiency in all associated tail gunnery flight events (TG 4810-4840) automatically lose their "Qualification" status and must complete the Refresher(R) POI with the appropriately designated instructors.

(j) A designated AGI shall only act in the capacity of an AGI when "Qualified" and proficient in tail gunnery.

(k) Approved laser aiming devices are required and shall be utilized during all night systems (NS) tail gunnery flight events.

3.12.9.3 Crew Requirements: P/P/CC/AO/AO

3.12.9.4 Ground/Academic Training: All self paced readings and lectures shall be completed prior to stage initiation. Utilize academic courseware as outlined in the CH-53 MAWTS-1 Course Catalog.

TG-4800 1.5 * B,R (N) * A 1 STATIC CH-53

Goal: Introduce and practice pre-flight inspection, installation, removal procedures, and operating procedures for the RMWS IAW A1-H53BE-NFM-900. All procedures shall be performed with dummy rounds and no batteries installed in the LASER aiming device.

Requirement:

Instructor: AGI able to conduct training on the GAU-21 RMWS required for all personnel in the Basic (B) and Refresher(R) POI.

Discuss:

NAVAIR 11-53DA-1
A1-H53BE-NFM-900

Introduce:

Installation IAW A1-H53BE-NFM-900
LASER installation
Pre-flight IAW A1-H53BE-NFM-900
Cargo loading and unloading techniques
Passenger loading and unloading techniques
Install and configuration of aircrew restraint system
Cabin Configuration with ramp level considerations
Cabin Security with ramp level considerations
ICS cord discipline
Ammunition re-loading
Ammunition cans retention
Safety hazards with ramp level during flight
Egress considerations

Practice:

Installation IAW A1-H53BE-NFM-900
LASER installation
Pre-flight IAW A1-H53BE-NFM-900
Cargo loading and unloading techniques
Passenger loading and unloading techniques
Normal firing operations
Ammunition re-loading
Ammunition can retention
Weapons emergencies
Troubleshooting
Reloading
Crew Coordination/CRM

Performance Standards: Conduct pre-flight, installation, removal and re-installation of the RMWS for cargo loading IAW all applicable manuals. Demonstrate the ability to conduct normal firing operations, weapon emergencies, troubleshooting, and reloading utilizing dummy rounds.

Prerequisites: ACAD-4053, AGQ

Ordnance Requirements: 1 GAU-21 RMWS .50 caliber machine guns, approved LASER aiming device, 10 dummy rounds

TG-4810 1.5 * B,R D * A 1 CH-53

Goal: Introduce and practice RMWS operational considerations, safety precautions, and crew coordination for conducting multi-crew served weapons operations during the day.

Requirement:

Instructor: AGI able to conduct training on the GAU-21 RMWS required for all personnel in the Basic (B) and Refresher(R) POI.

Introduce:

- CC vs. AO responsibilities during tail gunnery operations
- CRM and crew coordination during tail gunnery operations
- Cabin configuration
- ICS procedures
- Aiming techniques firing from the rear hemisphere
- Range considerations firing from the rear hemisphere
- Cargo loading and unloading techniques
- Passenger loading and unloading techniques
- Weapon employment from the rear hemisphere
- Aerial ballistics firing in the rear hemisphere
- Firing during straight and level flight
- Firing during a left or right turn in flight
- Firing during landing profile
- Firing during take off
- Firing during a hover
- Reloading procedures
- Post flight

Practice:

- CC vs. AO responsibilities during tail gunnery operations
- CRM and crew coordination during tail gunnery operations
- Cabin configuration
- ICS procedures
- Normal firing operations
- Aiming techniques firing from the rear hemisphere
- Weapon employment from the rear hemisphere
- Weapon emergencies
- Troubleshooting
- Positive weapons control
- Muzzle awareness
- Firing limitations
- Aiming techniques
- Firing during straight and level flight
- Firing during a left or right turn in flight
- Firing during landing profile
- Firing during take off
- Firing during a hover
- Sectors of fire
- Target hand-off
- Ammunition can retention
- Egress considerations

Performance Standards: Conduct aerial gunnery operations while employing the GAU-21 RMWS IAW the NTP 3-22.3-CH-53 and the A1-H53BE-NFM-900. Demonstrate positive weapons control, normal firing operations, weapon emergencies, troubleshooting technique, and ICS procedures. Demonstrate the ability to engage multiple targets during single ship aircraft operations or while in the wingman position during multi ship aircraft operations. Point

of aim, point of impact shall be within the following parameters.

>1500 meter range 50% or more of impacts within a 50 meter diameter
of target

1000 meter range 70% or more of impacts within a 25 meter diameter
of target

<500 meter range 70% or more of impacts within a 15 meter diameter
of target

Prerequisites: AGQ, TG-4800

Ordnance: 1 GAU-21 RMWS .50 caliber machine gun, 600 rounds .50
caliber ordnance for the RMWS, 2 GAU-21 MWPC .50 caliber machine guns, 600
rounds .50 caliber ordnance per MWPC

Range Requirements: Aerial gunnery range with SDZ approved for .50 CAL
for day shooting. Targets should range in size from personnel targets to APC
size targets.

TG-4811 1.5 180 B,R,M D * A 2 CH-53

Goal: Introduce and practice day aerial gunnery with the GAU-21 RMWS
during multi-ship operations.

Requirement:

Instructor: AGI able to conduct training on the GAU-21 RMWS required
for all personnel in the Basic (B) and Refresher(R) POI.

Introduce:

Wingman NFAs
Section responsibilities
Sectors of fire
Target hand-off within a section

Practice:

CC vs. AO responsibilities during tail gunnery operations
CRM and crew coordination during tail gunnery operations
Cabin configuration
ICS procedures
Aiming techniques firing from the rear hemisphere
Range considerations firing from the rear hemisphere
Cargo loading and unloading techniques
Passenger loading and unloading techniques
Weapon employment from the rear hemisphere
Aerial ballistics firing in the rear hemisphere
Normal firing operations
Weapon emergencies
Troubleshooting
Positive weapons control
Muzzle awareness
Firing limitations
Firing during straight and level flight
Firing during a left or right turn in flight
Firing during landing profile
Firing during take off
Firing during a hover

Ammunition can retention
Egress considerations
Post flight

Performance Standards: Conduct aerial gunnery while employing the GAU-21 RMWS IAW the NTTP 3-22.3-CH-53 and the A1-H53BE-NFM-900. Demonstrate positive weapons control, normal firing operations, weapon emergencies, troubleshooting technique, and ICS procedures. Demonstrate the ability to engage multiple targets from the lead position during multi-ship aircraft operations. Point of aim, point of impact shall be within the following parameters.

>1500 meter range 50% or more of impacts within a 50 meter diameter of target

1000 meter range 70% or more of impacts within a 25 meter diameter of target

<500 meter range 70% or more of impacts within a 15 meter diameter of target

Prerequisites: TG-4810

Ordnance: 1 GAU-21 RMWS .50 caliber machine gun, 600 rounds .50 caliber ordnance for the RMWS, 2 GAU-21 MWPC .50 caliber machine guns, 600 rounds .50 caliber ordnance per MWPC

Range Requirements: Aerial gunnery range with SDZ approved for .50 cal for day shooting. Targets should range in size from personnel targets to APC size targets.

TG-4840 1.5 180 B,R,M NS E A 2 CH-53

Goal: Introduce and practice aerial gunnery with the GAU-21 RMWS while utilizing Night Systems during multi-ship operations.

Requirement:

Instructor: AGI able to conduct training on the GAU-21 RMWS who is also a NSI required for all personnel in the Basic (B) and Refresher(R) POI.

Introduce:

Aiming techniques in a section while utilizing NS
Target identification utilizing LASER aiming device
Effects of chaff and flares while utilizing NS
Laser safety/employment/setup while on ramp
RMWS scan pattern while utilizing NS
Effects of muzzle flash utilizing NS
Cargo loading and unloading techniques utilizing NS
Passenger loading and unloading techniques utilizing NS
Light discipline
Wingman NFAs while utilizing NS
Section responsibilities utilizing NS
Sectors of fire utilizing NS
Target hand-off within a section utilizing NS

Practice:

CC vs. AO responsibilities during tail gunnery operations
CRM and crew coordination during tail gunnery operations
Cabin configuration

- ICS procedures
- Normal firing operations
- Weapon emergencies
- Troubleshooting
- Positive weapons control
- Muzzle awareness in a section while utilizing NS
- Target handoff while utilizing NS
- Weapons employment in a section
- LASER employment in a section
- RMWS scan pattern while utilizing NS
- Firing limitations
- Weapon reloading procedures while utilizing NS
- Ammunition can retention
- ICS cord discipline
- Firing during straight and level flight
- Firing during a left or right turn in flight
- Firing during landing profile
- Firing during take off
- Firing during a hover
- Firing while expending chaff/flares
- Post flight

Performance Standards: Conduct aerial gunnery while employing the GAU-21 RMWS while utilizing night systems during multi-ship operations IAW the NTTP 3-22.3-CH-53 and the A1-H53BE-NFM-900. Demonstrate positive weapons control, normal firing operations, weapon emergencies, troubleshooting technique, and ICS procedures. Demonstrate the ability to engage multiple targets from the lead position during multi-ship aircraft operations. Point of aim, point of impact shall be within the following parameters.

>1500 meter range 50% or more of impacts within a 50 meter diameter of target

1000 meter range 70% or more of impacts within a 25 meter diameter of target

<500 meter range 70% or more of impacts within a 15 meter diameter of target

Prerequisites: TG-4811

Ordnance: 1 GAU-21 RMWS .50 caliber machine gun, 600 rounds .50 caliber ordnance for the RMWS, 2 GAU-21 MWPC .50 caliber machine guns, 600 rounds .50 caliber ordnance per MWPC.

Range Requirements: Laser safe aerial gunnery range with SDZ approved for .50 CAL for night shooting. Targets should range in size from personnel targets to APC size targets.

3.12.10 Moving Target Gunnery (MTG)

3.12.10.1 Purpose: To introduce techniques and profiles in conducting MTG.

3.12.10.2 General

(a) Aircrews shall fly this stage IAW NTTP 3-22.3-53.

(b) Aircrew employing weapons shall have the current A1-H53BE-NFM-900 with all of the interim changes incorporated, on their person.

(c) Aircrew may conduct night systems moving target gunnery events during either HLL or LLL conditions. If events are conducted during LLL conditions aircrew shall be NSQ HLL prior to conducting events.

(d) Moving Target Gunnery may be conducted utilizing the GAU-21 MWPC or the GAU-21 RMWS. If the GAU-21 RMWS is utilized aircrew shall be at a minimum AGQ on the GAU-21 MWPC and in the TG syllabus.

(e) An AGI on the GAU-21 MWPC is required for all day moving target gunnery flight events when utilizing the GAU-21 MWPC.

(f) An AGI able to conduct training on both the GAU-21 MWPC and RMWS is required for all day moving target gunnery flight events if utilizing the GAU-21 RMWS.

(g) An AGI on the GAU-21 MWPC who is also a NSI is required for all moving target gunnery flight events conducted utilizing the GAU-21 MWPC and Night Systems.

(h) An AGI able to conduct training on both the GAU-21 MWPC and RMWS who is also a NSI is required for all moving target gunnery flight events conducted utilizing the GAU-21 RMWS and Night Systems.

(i) Laser aiming devices are required if event is flown at night.

3.12.10.3 Crew Requirements: P/P/CC/AO

3.12.10.4 Ground/Academic Training: All self paced readings and lectures shall be completed prior to stage initiation. Utilize academic courseware as outlined in the CH-53 MAWTS-1 Course Catalog.

MTG-4841 1.5 365 B,R,M (NS) * A 1+ CH-53

Goal: Introduce and practice moving target gunnery.

Requirement:

Instructor: AGI able to conduct training on the GAU-21 MWPC and on the GAU-21 RMWS as appropriate required for all personnel in the Basic(B) and Refresher(R) POI NSI who is also an AGI is required if conducted at night.

Review:

AG-2812-2843 as applicable
TG-4810-4840 as applicable

Introduce:

Different moving target profiles
Moving land target
Shadow gunnery
Towed banner
Moving water target
IR spotlight
LASER aiming device as moving target
Dart Applicable MTG
Aiming techniques
Lead compensation

Practice:

CC vs. AO responsibilities during moving target gunnery

CRM and crew coordination during moving target gunnery
Cabin configuration
ICS procedures
Safety procedures
Different moving target profiles

Performance Standards: Conduct aerial gunnery vs. a moving target while employing the GAU-21 MWPC or the GAU-21 RMWS during single or multi-ship operations IAW the NTTP 3-22.3-CH-53 and the A1-H53BE-NFM-900. Demonstrate positive weapons control, normal firing operations, LASER employment, weapon emergencies, troubleshooting technique, and ICS procedures. Demonstrate the ability to engage moving targets with point of aim, point of impact within the following parameters.

>1500 meter range 50% or more of impacts within a 50 meter diameter of target
1000 meter range 70% or more of impacts within a 25 meter diameter of target
<500 meter range 70% or more of impacts within a 15 meter diameter of target

Prerequisite: AG-2812~DAY, AG-2842~NS, TG-4810~DAY, TG-4840~NS.

Ordnance: 600 rds .50 caliber per crew member. 2 GAU-21 MWPC; 1 GAU-21 RMWS if applicable; Approved LASER aiming devices if flown at night

Range Requirements: Aerial gunnery, laser safe (if applicable) range with SDZ approved for .50 caliber for day and night shooting. Targets should range in size from personnel targets to APC size targets.

External Syllabus Support: Approved moving target; Moving land target preferred method.

3.12.11 Tactics (TAC)

3.12.11.1 Purpose: To conduct practical application exercises using skills developed through the syllabus. These exercises will include planning, briefing, and execution of an assault support mission in a low to medium threat environment.

3.12.11.2 General: Aircrew may conduct these flights in high or low light level conditions if flown at night.

3.12.11.3 Crew Requirement: P/P/CC/AO

3.12.11.4 Ground/Academic Training: All self paced readings and lectures shall be completed prior to stage initiation. Utilize academic courseware as outlined in the CH-53 MAWTS-1 Course Catalog.

TAC-4940 2.0 365 B,R,M (NS) * A 3+ CH-53

Goal: Develop integrated tactical flight proficiency in a low to medium threat environment within a division.

Requirement:

Instructor: TERFI required for all personnel in the Basic (B) and Refresher(R) POI. NSI required if conducted at night. WTI's should be utilized to the max extent possible.

Review:

TAC-2911
HLL-2920 (if applicable)
LLL-2930 (if applicable)

Introduce:

Division Tactics

Practice:

CC vs. AO responsibilities during multi-ship tactical operations
CRM and crew coordination during multi-ship tactical operations
Cabin configuration
ICS procedures
Escort integration, i.e. Battle Positions
Sectors of fire consideration for entire flight
Section Responsibilities, i.e. free/engaged aircraft
Operations in LZ
ICS procedures/failure
Situational awareness
Communication

Performance Standards: Conduct multi-aircraft flight in a low to medium threat environment as stated in the NTTP 3-22.3-53. Demonstrate knowledge/usage of mission planning products.

Prerequisite: TAC-2911, HLL-2920~NS, LLL-2930~LLL.

Ordnance: Two .50 Caliber machine guns are required; Rounds and firing of machine guns are optional though highly encouraged.

External Syllabus Support: Escort aircraft if available; Live fire range as required

TAC-4941 2.0 365 B,R,M NS * A 2 CH-53

Goal: Develop tactical flight proficiency in urban terrain operations at night.

Requirement:

Instructor: TERFI required for all personnel in the Basic (B) and Refresher(R) POI. NSI required if conducted at night. WTI's should be utilized to the max extent possible.

Review:

TAC-2911
HLL-2920 (if applicable)
LLL-2930 (if applicable)

Introduce:

Effects of ambient lighting on night systems in an urban area
Obstacle clearance in urban area
Scan techniques in urban area, i.e. dense vegetation scan

Practice:

CC vs. AO responsibilities during multi-ship tactical operations
CRM and crew coordination during multi-ship tactical operations
Cabin configuration
ICS procedures

Escort integration, i.e. Battle Positions
Sectors of fire consideration for entire flight
Section Responsibilities, i.e. free/engaged aircraft
Operations in LZ
Situational awareness
Communication

Performance Standards: Demonstrate understanding of CH-53 operations in urban areas as stated in the MAWTS-1 MOUT Manual. Demonstrate knowledge/usage of mission planning products.

Prerequisite: HLL-2920~HLL or LLL-2930~LLL

Ordnance: Two .50 Cal machine guns are required. Rounds and firing of machine guns are optional though highly encouraged.

Syllabus Support: Escort aircraft if available

3.13 MISSION PLUS SKILL PHASE (4000)

3.13.1 Purpose: To plan, brief, and execute Mission Plus events in a low to medium threat environment.

3.13.1.1 General:

(a) For initial, refresher, or when the aircrew under instruction are not proficient in a particular Mission Plus Skill, training codes shall be given by an instructor pilot that is proficient in that Mission Plus Skill. Mission Plus Skill events should be given to all those aircrew (Pilots, Crew Chief, AO) within the aircraft that meet the prerequisite. Additionally, for larger flights, any flight lead, (SL, DL, AFL, AMC) that is proficient in that Mission Plus Skill can give the Mission Plus Skill code to all aircrew within the flight that meet the prerequisite.

(b) It is the intent that all TACEX scenarios in the Mission Skill and Mission Plus Skill Phase be based on a minimum of one of the Mission Skills. If aircrew under instruction does not meet the prerequisite for the Mission Skill event, they will not log the Mission Skill event. However, the instructor of the Core Skill or Core Plus Skill TACEX will log both the Core Skill or Core Plus Skill event and the Mission Skill event (EX: NSI logs a LLL-2930, AT-3340, and RIE-4980). The PUI in the LLL syllabus logs a LLL-2930). Once aircrew have been designated NSQ-LLL, all subsequent TACEXs should be coded with the appropriate Core Skill or Core Plus Skill and Mission Skill code or Mission Plus Skill. Aircrew that are not proficient in a Core Skill or Core Plus Skill event may update both the Core Skill or Core Plus Skill and the Mission Skill or Mission Plus Skill event on the same sortie.

(c) Prior to the commencement of this phase, aircrew under instruction shall be NSQ-LLL and AGQ.

(d) The aircrew under instruction will assist in the mission analysis, planning, briefing, execution and debriefing of each flight. Aircrew shall use the ANTTP series and NATOPS as source documents for planning, briefing, execution and debriefing.

(e) Multiple Mission Skill and Mission Plus Skill training events may be logged per sortie (e.g. EXP-3240, AT-3340, AD-3540, RAID-4980, SEA-4982) as long as the requirement(s) is met for each event. Mission and Mission Plus training events are intended to be flown and logged in conjunction with other T&R syllabus events (e.g. for pilots: EXP-3240, AT-3340, AD-3540, RAID-4980, ADGR-4981, LLL-2930, EXT-2430, EXT-2440, EXT-2441 and LLL-2331).

(f) The aircrew not eligible to receive the TAC code and the instructor will log both the TAC code and the Mission Skill and/or Mission Plus Skill event(s) that applies. Initial TAC codes shall be accomplished as a section; subsequent evolutions (when logged in conjunction with a Mission Skill or Mission Plus Skill) may be done single ship, based on the tactical scenario.

(g) Mission Plus Skill events shall be flown with operational ASE, .50 calibers (as required for the tactical scenario) installed at a minimum (rounds and expendables optional), whenever practical.

(h) Initial attempts to complete Mission Skills and Mission Plus Skills should be made in the aircraft, subsequent attempts may be accomplished in the simulator.

(i) As of the signing of this manual, the current HMH Core MCTs are as follows:

- MCT 1.3.4.1.1 Conduct Airborne Rapid Insertion/Extraction (RIE)
- MCT 1.3.4.2.1 Provide Aviation-Delivered Ground Refueling (ADGR)
- MCT 1.3.3.3.1 Aviation Operations from Expeditionary Sea-Based Sites (SEA)

3.13.1.2 Crew Requirements: P/P/CC/AO

3.13.1.3 Academic Training

(a) Prior to commencement of each event within the Mission Plus Skill Phase, the required academic syllabus shall be completed in accordance with this Manual and the MAWTS-1 CH-53 Course Catalog.

(b) The Mission Plus Skill academic/ground training shall be completed IAW the POI requirements and prerequisites. Upon completion, the PUI shall report to the PTO or designated representative(s), who will then manually update the training code in M-SHARP and log the academic/ground training event in section 3, Aircrew Ground School Training of the APR, using the format listed in Enclosure 1 of this document.

3.13.1.4 Prerequisites: The following events/designations are prerequisites prior to the commencement of the Core Plus Tactics stage:

- Academic: See event description
- Flight: LLL-2930, GAUAG-2843
- Designation: CC/AO
- Qualification: NSQ LLL, AGQ

3.13.1.5 Flight Events:

RIE-4980	2.0	365	B,R,M	(NS)	*	A	1+ CH-53
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Goal: Demonstrate the ability to conduct tactical airborne rapid insertion/extraction operations in a low to medium threat environment.

Helicopter Rope Suspension Techniques (HRST) provides Marines with the ability to conduct insertions and extractions where landings are impractical. Airborne rapid insertion/extraction includes methods such as rappelling, fast rope, special patrol insertion and extractions, etc. (MCWP 3-2, 3-11.4, 3-24, MCRP 3-11.4A)

Requirement: Conduct a rapid insertion/extraction operation utilizing fast rope, rappelling, paraops, helocast, or special insertion and extraction techniques.

Instructor: TERFI required for all personnel in the Basic (B) and Refresher(R) POI. NSI required if conducted at night. WTI's should be utilized to the max extent possible.

Review: TAC-2930

Introduce: Tactical airborne rapid insert/extract operations in a low to medium threat environment

Practice:

- CC vs. AO responsibilities during RIE operations
- CRM and crew coordination during RIE operations
- Cabin configuration
- ICS procedures
- Situational awareness
- Communication

Performance Standard: Plan, brief and execute a tactical airborne rapid insertion/extraction mission. If a L-Hour is utilized arrive in the LZ +/- 30 sec in the best position to support the ground combat element. Execute an approach and hover within +/- 5' of intended altitude and within 10' of intended spot and/or fly with +/- 50' of designated altitude and +/- 5 kts of designated airspeed.

Prerequisite: NSQ LLL, AGQ, GTR-2540; Proficiency in HIE-4110 if helocast is utilized, HIE-4140 if SPIE, fast rope or rappelling is utilized, or HIE-4141 if paraops are utilized.

Ordnance: Two .50 caliber machine guns are required (Tail gun is optional); Rounds and firing of the machine guns are Optional though highly encouraged.

Range Requirement: Suitable CAL/MAL site.

External Syllabus Support: HRST Master and ground safety personnel if applicable.

ADGR-4981 2.0 365 B,R,M (NS) * A 1+ CH-53

Goal: Demonstrate the ability to provide aviation-delivered ground refueling to combat aircraft or tactical vehicles in a low to medium threat environment. Aviation-delivered ground refueling is a method of providing fuel to aircraft and tactical ground vehicles (TGV) utilizing CH-53 aircraft in austere locations, where no other source of fuel is readily available. This method of refueling permits operation of fixed-wing and rotary-wing aircraft and TGV without the requirement to commit the significant logistical

assets necessary to operate helicopter expeditionary refueling systems (HERS), or tactical airfield fuel dispensing systems (TAFDS). ADGR can also quickly resupply established forward-arming and refueling point (FARP) sites and forward-operating bases (FOB). The capability of the CH-53 to operate as a tactical ground refueler enhances MAGTF operations. (NTTP 3-22.3-CH-53)

Requirement:

Instructor: TERFI required for all personnel in the Basic (B) and Refresher(R) POI. NSI required if conducted at night. WTI's should be utilized to the max extent possible.

Review:

ADGR-4240

Introduce:

ADGR in a low to medium threat environment
Urban vs. open terrain areas
Site/zone selection
Security personnel/considerations/look out
Small arms/ADA recognition
Enemy contact
Emergency break away (fire or enemy)

Practice:

CC vs. AO responsibilities during tactical ADGR operations
CRM and crew coordination during tactical ADGR operations
Cabin configuration
ICS procedures
Installation of TBFDS
FARP operations
Situational awareness
Communication

Performance Standard: Plan, brief and execute a tactical TBFDS refueling evolution. Calculate accurate fuel requirements; ensure aircraft integration and FARP site security.

Prerequisite: NSQ LLL, AGQ, ADGR-4240

Ordnance: Two .50 caliber machine guns are required (Tail gun is optional). Rounds and firing of the machine guns are optional.

Range Requirement: Live fire range as required

External Syllabus Support: TBFDS system, escort, MMT and/or Command and Control aircraft are optional

SEA-4982 2.0 365 B,R,M (NS) * A 1+ CH-53

Goal: Demonstrate the capability to operate from Expeditionary Sea based sites. Marine aviation units maintain the capability to operate from Naval shipping (amphibious platforms, carriers, etc.) in line with platform and unit capabilities. (JP 3-0, MCWP 3-2)

Requirement:

Instructor: TERFI required for all personnel in the Basic (B) and Refresher(R) POI. NSI required if conducted at night. WTI's should be utilized to the max extent possible.

Discuss:

Same as FCLP-2743
Deck cycles
Cargo/troop loading considerations while in shipboard environments
Airspace considerations
IFF procedures

Performance Standard: Plan, brief and execute a tactical mission to or from sea based site or FCLP pad. Ensure aircrew properly plans for and demonstrate knowledge of the particulars of operating in the shipboard environment.

Prerequisite: NSQ-LLL, AGQ, GTR-2540, and appropriate CQ/FCLP event.

Ordnance: Two .50 caliber machine guns are required (Tail gun is optional). Rounds and firing of the machine guns are optional.

Range Requirement: Live fire range as required.

External Syllabus Support: Ship or FCLP pad as required.

3.14 INSTRUCTOR TRAINING PHASE (5000)

3.14.1 Purpose: This phase contains instructor workup and evaluations certification syllabus events.

3.14.2 General: Upon the successful completion of the check flight, the instructor will be designated in writing by the squadron commanding officer. Copies of the designation or qualification shall be placed in the APR and NATOPS.

3.14.3 Academic/Ground Training

3.14.3.1 Within the Instructor Training Phase the required academic syllabus shall be completed in accordance with this Manual and the MAWTS-1 CH-53 Course Catalog.

3.14.3.2 The Instructor Training Phase academic/ground training shall be complete IAW the POI requirements and prerequisites for the stage and IAW this manual. Upon completion, the Instructor Under Training (IUT) shall report to the EATM or designated representative(s), who will then manually update the training code in MSHARP and log the academic/ground training event in section 3, Aircrew Ground School Training of the APR, using the form found starting on Pg 1-183 of this document.

3.14.3.3 2000-6000 classes are located at the MAWTS-1 NIPR website under ASD, CH-53, T&R:

<https://vcepub.tecom.usmc.mil/sites/msc/magtftc/mawts1/>

3.14.3.4 SIPR 2000-6000 classes are located at the MAWTS-1 SIPR website under ASD, CH-53, T&R:

<http://www.mawts1.usmc.smil.mil/>

3.14.4 Fleet Replacement Squadron Instructor CH-53E

3.14.4.1 Purpose: To develop proficiency in instructional procedures and techniques to support CC training.

3.14.4.2 General:

(a) All instructors under training flights emphasize standardization of CC procedures and techniques. The CCIUT should be capable of demonstrating all training objectives associated with Core Skill Introduction flight instruction.

(b) IUT events 5100 through 5107 shall be complete prior to being designated a FRSI. Upon completion of FRSI-5107 and designation by the commanding officer, the FRSI is capable of instructing all Core Skill Introduction phase events to include TERF events.

(c) FRSI-5107 can be flown in conjunction with any Core Skill Introduction phase event.

3.14.5 Crew Requirement: P/P/FRSI/CCIUT.

FRSI-5100	1.5	*	B	D	*	A	2	CH-53
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Goal: Demonstrate CC responsibilities and instructional techniques during day formation flight.

Requirement:

Discuss:
Parade position
Formations
Closure rate
Hand and arm signals
In-flight emergency procedures
Standard terminology

Performance Standards: Demonstrate proper FRSI responsibilities and instructional techniques during day formation flights IAW requirements outlined in this Chapter.

FRSI-5101	1.5	*	B	NS	*	A	2	CH-53
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Goal: Demonstrate CC responsibilities and instructional techniques during night formation flight.

Requirement:

Discuss:
Closure rate
Aircraft lighting
Light signals
Lookout responsibilities
Target fixation
Standard terminology
NS considerations

Performance Standards: Demonstrate proper FRSI responsibilities and instructional techniques during NS formation flights IAW requirements outlined in this Chapter.

FRSI-5102 1.5 * B D * A 1 CH-53

Goal: Demonstrate CC responsibilities and instructional techniques during CALs.

Requirement:

Discuss:

CALs
CRM
Landing gear system failures
Vibrations
Engine failures in flight

Performance Standards: Demonstrate proper FRSI techniques and responsibilities for day CALs IAW requirements outlined in this Chapter.

Range Requirements: CAL/MAL site

FRSI-5103 1.5 * B NS * A 1 CH-53E

Goal: Demonstrate FRSI responsibilities and instructional techniques during HLL NS CALs.

Requirement:

Discuss:

NS
NS considerations
Lighting
CALs
CRM
Landing gear system failures
Vibrations
Engine failures in flight

Performance Standards: Demonstrate proper FRSI techniques and responsibilities for HLL NS CALS IAW requirements outlined in this Chapter.

Range Requirements: CAL/MAL site

FRSI-5104 1.5 * B D * A 1 CH-53

Goal: Demonstrate FRSI responsibilities and instructional techniques during day maneuvers and navigation while flying in the TERF environment.

Requirement:

Discuss:

TERF maneuvers
Aircraft clearances
Standard terminology
CALs
CRM
Landing gear system failures
Vibrations
Engine failures in flight

Performance Standards: Demonstrate proper FRSI techniques and responsibilities during maneuvers and navigation while flying in the TERF environment IAW requirements outlined in this Chapter.

Range Requirements: TERF maneuver area/route

FRSI-5105 1.5 * B D * A 1 CH-53

Goal: Demonstrate FRSI responsibilities and instructional techniques used during day single or dual point (53E) external operations.

Requirement:

Discuss:

- CC duties
- Standard terminology
- External operations
- CALs
- CRM
- Landing gear system failures
- Emergencies

Performance Standards: Demonstrate proper FRSI techniques and responsibilities used during external operations IAW requirements outlined in this Chapter.

Range Requirements: CAL/MAL site

External Syllabus Support: HST, certified load

FRSI-5106 1.5 * B NS * A 1 CH-53

Goal: Demonstrate FRSI responsibilities and instructional techniques used during HLL NS external operations.

Requirement:

Discuss:

- NS considerations
- Lighting
- CC duties
- Standard terminology
- External operations
- CALs
- CRM
- Landing gear system failures
- Emergencies

Performance Standards: Demonstrate proper FRSI techniques and responsibilities used during HLL NS external operations IAW requirements outlined in this Chapter.

Range Requirements: Approved CAL/MAL site

External Syllabus Support: HST, certified load

FRSI-5107 1.5 * B (NS) E A 1 CH-53

Goal: CC standardization check

Requirement:

Review:

Applicable 1000 series codes

Discuss:

CCUI duties/responsibilities
Standard terminology
External operations
CALs
CRM
Emergency procedures
Instructional techniques

Performance Standards: Demonstrate standard FRSI procedures, techniques and responsibilities IAW requirements outlined in this Chapter.

Prerequisite: FRSI-5100, FRSI-5101, FRSI-5102, FRSI-5103, FRSI-5104, FRSI-5105, FRSI-5106

Ordinance: N/A

External Syllabus Support: As required

3.14.6 FLEET SQUADRON INSTRUCTORS:

<u>AGI 5400-5408</u>	See MAWTS-1 Course Catalog
<u>NSFI 5600-5602</u>	See MAWTS-1 Course Catalog
<u>TERFI 5700-5701</u>	See MAWTS-1 Course Catalog
<u>DMI 5800-5802</u>	See MAWTS-1 Course Catalog
<u>NSI 5900-5902</u>	See MAWTS-1 Course Catalog

3.15 REQUIREMENTS, QUALIFICATIONS, AND DESIGNATIONS (RQD) PHASE (6000)

3.15.1 CH-53 NATOPS POI

3.15.1.1 Purpose: To evaluate aircrew knowledge of aircraft systems, performance limitations, emergency procedures, flight and ground operations IAW OPNAV 3710.7 and CH-53 NATOPS.

3.15.1.2 General:

(a) The evaluating CC shall be a NATOPS Evaluator, NATOPS Instructor, or Assistant NATOPS Instructor. The CC evaluator shall conduct the NATOPS evaluation in accordance with OPNAV 3710.7 series and other applicable directives, instructions, and orders.

(b) The NATOPS Evaluator shall utilize the NATOPS Model Manager generated NATOPS Aviation Training Form (ATF) and the evaluation metrics required for the accomplishment and performance of the standardized criterion to determine whether the aircrew completed the sortie.

(c) 6100 is an annual flight requirement per OPNAVINST 3710.7 and the CH-53 NATOPS Manual. 6100 is the initial check ride for an AO to be designated.

(d) Aircrew shall complete and have a graded open book, closed book, and oral evaluation prior to the commencement of the flight event.

3.15.1.3 Crew Requirements: P/P/CC/AO (as required)

3.15.1.4 Ground Academic Training: Open, closed book and oral evaluation IAW OPNAV 3710.7 and the CH-53 NATOPS.

NTPS-6000 3.0 365 B,R,M * E Open Book Examination

Goal: Open book written examination to evaluate the airman's NATOPS knowledge IAW 3710.

Performance Standard: IAW OPNAV 3710

NTPS-6001 1.0 365 B,R,M * E Closed Book Examination

Goal: Closed book written examination to evaluate the airman's NATOPS knowledge IAW 3710 and CH-53 NATOPS.

Performance Standard: IAW OPNAV 3710 and CH-53 NATOPS

Prerequisites: NTPS-6000.

NTPS-6002 2.0 365 B,R,M * E Oral Examination

Goal: Oral examination to evaluate the airman's NATOPS knowledge IAW 3710 and CH-53 NATOPS.

Requirement:

Instructor: NATOPS Instructor or Assistant NATOPS Instructor required

Performance Standard: IAW OPNAV 3710 and CH-53 NATOPS

Prerequisites: NTPS-6001

NTPS-6100 1.5 365 B,R,M (NS) E A 1 CH-53

Goal: Completion of the annual NATOPS evaluation

Requirement:

Instructor: NATOPS Instructor or Assistant NATOPS Instructor required. NSI is required if not NS qualified in the light level event is conducted.

Discuss:

Crew Brief
Aerial Observer responsibilities
Cabin configuration
Weapons configuration

Demonstrate:

Aircraft systems knowledge

Pre/post flight procedures
In-flight procedures
Emergency procedures
CRM

Performance Standards: Demonstrate proficiency and knowledge of all flight skills and systems of the CH-53 as a CC or AO as applicable.

Prerequisites: NTPS-6002

External Syllabus Support: As required

3.15.2 CRM Training

3.15.2.1 Purpose: To conduct annual CRM training

3.15.2.2 General:

(a) CRM Flight may be flown concurrent with any operational or training flight or simulator, including NTPS-6100.

(b) The CRM Flight Evaluator must be designated a CRM Facilitator or CRM Instructor.

3.15.2.3 Crew Requirements: P/P/CC/AO (as required)

3.15.2.4 Ground Academic Training. Annual CH-53 CRM Ground Training IAW CH-53 NATOPS, OPNAV 3710.7 and OPNAVINST 1542.7.

CRM-6003	1.5	365	B,R,M	*	E	*	CRM Class
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Goal: Conduct annual CH-53 CRM ground training IAW CH-53 NATOPS, OPNAV 3710.7 and OPNAVINST 1542.7

Requirement:

Instructor:

CRMI or CRMF required

Discuss:

Situational awareness
Assertiveness
Decision making
Communication
Leadership
Adaptability/Flexibility
Mission analysis

Performance Standards: Per CH-53 NATOPS, OPNAV 3710.7 and OPNAVINST 1542.7

CRM-6101	1.5	365	B,R,M	(NS)	E	A	1+ CH-53
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Goal: Practice/review CRM principles presented in the CH-53 annual CRM ground training during flight evaluation.

Requirement:

Instructor:

CRMI or CRMF required

Discuss:

Situational awareness
Assertiveness
Decision making
Communication
Leadership
Adaptability/Flexibility
Mission analysis

Evaluate:

Situational awareness
Assertiveness
Decision making
Communication
Leadership
Adaptability/Flexibility
Mission analysis

Performance Standards: Demonstrate effective use of the 7 CRM critical skills and IAW CH-53 NATOPS, OPNAV 3710.7, OPNAVINST 1542.7.

Prerequisite: CRM-6003

3.16 GRADUATE LEVEL COURSES

3.16.1 There are 5 graduate level courses that certify CCIs for tactical portions of the T&R syllabus. These courses are as follows:

- (a) Crew Chief Aerial Gunnery Instructor (AGI)
- (b) Crew Chief Terrain Flight Instructor (TERFI)
- (c) Crew Chief Defensive Measures Instructor (DMI)
- (d) Crew Chief Night Systems Instructor (NSI)
- (e) Crew Chief Weapons and Tactics Instructor (WTI Sec MOS 6177)

3.16.2 The above courses and applicable training syllabi are listed in the current MAWTS-1 Course Catalog. There will be no re-fly requirement for these instructor flights. T&R syllabus proficiency in stages is considered sufficient to maintain proficiency as an instructor. WTIs are only certified at the Weapons and Tactics Instructor course provided at MAWTS-1.

3.17 The following pages contain CH-53E CREW CHIEF T&R MATRIX (1000 & 5000 PHASE)

CH-53E CREW CHIEF T&R MATRIX (1000 and 5000 PHASE)																					
CH-53E CORE SKILL INTRODUCTION T&R MATRIX (1000 PHASE)																					
SKILL	STAGE	TRNG CODE	DESCRIPTION	B	R	SC	FRS	CIUT	#	ACAD	#	SIM	#	FLT	CON	DEVIC	#	REFLY	PREREQUISITE	PREREQ NOTES	EVENT CONV
ACAD	CBT	0100	(U) CH-53E HISTORY	X			X	X		1.0						G		*	0200		0100
	CBT	0102	(U) INTERIOR FAM	X			X	X		1.0						G		*	0100		0102
	CBT	0103	(U) EXTERIOR FAM	X			X	X		1.0						G		*	0102		0103
	CBT	0118	(U) APP OPERATION	X			X	X		1.5						G		*	0103		0118
	CBT	0119	(U) AFCS	X			X	X		1.0						G		*	0103		0119
	CBT	0120	(U) BLADE SPREAD/FOLD	X			X	X		1.0						G		*	0103		0120
	CBT	0124	(U) EMERGENCY PROCEDURES	X			X	X		1.0						G		*	0103		0124
	CBT	0126	(U) TAXI / TAKEOFF	X			X	X		1.0						G		*	0103		0126
	CBT	0130	(U) INTERNAL CARGO HANDLING	X			X	X		1.0						G		*	0103		0130
	CBT	0190	(U) BEARING MONITOR SYSTEM	X			X	X		1.0						G		*			0190
	ACAD	0200	(U) COURSE INTRODUCTION BRIEF	X			X	X		2.0						G		*		CHECK-IN	0200
	ACAD	0201	(U) BASIC GROUND HANDLING	X			X	X		1.5						G		*	0103		0201
	ACAD	0202	(U) AIRCRAFT INTERIOR	X			X	X		1.0						G		*	0201		0202
	ACAD	0203	(U) ELECTRONICS COMPARTMENTS	X			X	X		1.5						G		*	0201		0203
	ACAD	0204	(U) LANDING GEAR	X			X	X		1.0						G		*	0201		0204
	ACAD	0205	(U) REFUEL, AUX TANKS	X			X	X		1.5						G		*	0201		0205
	ACAD	0206	(U) ENGINES	X			X	X		1.5						G		*	0201		0206
	ACAD	0207	(U) AFT MAIN ROTOR PYLON	X			X	X		1.5						G		*	0201		0207
	ACAD	0208	(U) TAIL DRIVE SHAFTS	X			X	X		1.0						G		*	0201		0208
	ACAD	0209	(U) TAIL SKID,	X			X	X		1.5						G		*	0201		0209
	ACAD	0210	(U) TAIL ROTOR HEAD	X			X	X		1.0						G		*	0201		0210
	ACAD	0211	(U) MGB	X			X	X		1.5						G		*	0201		0211
	ACAD	0212	(U) 2 ND STAGE, UTILITY HYD	X			X	X		1.5						G		*	0201		0212
	ACAD	0213	(U) APP OPERATION	X			X	X		1.5						G		*	0201		0213
	ACAD	0214	(U) MAIN ROTOR HEAD & BLADES	X			X	X		1.0						G		*	0201		0214
	ACAD	0215	(U) MISSION SYSTEMS	X			X	X		1.0						G		*	0201,0130		0215
	ACAD	0216	(U) TURNAROUND INSPECTION	X			X	X		1.0						G		*	0201		0216
	ACAD	0217	(U) REFUELING AND DEFUELING	X			X	X		1.0						G		*	0201		0217
	ACAD	0218	(U) APP OPERATION	X			X	X		1.0						G		*	0201,0118		0218
ACAD	0219	(U) FLIGHT CONTROLS, AFCS	X			X	X		1.0						G		*	0201,0119		0219	

CH-53E CREW CHIEF T&R MATRIX (1000 and 5000 PHASE)																					
CH-53E CORE SKILL INTRODUCTION T&R MATRIX (1000 PHASE)																					
SKILL	STAGE	TRNG CODE	DESCRIPTION	B	R	SC	FRST	CIUT	#	ACAD	#	SIM	#	FLT	CON	DEVIC	#	REFLY	PREREQUISITE	PREREQ NOTES	EVENT CONV
	ACAD	0220	(U) BLADE AND PYLON FOLD	X			X	X		1.0						G		*	0201,0120		0220
	ACAD	0221	(U) PLANE CAPTAIN RESP	X			X	X		2.5						G		*	0201		0221
	ACAD	0222	(U) NATOPS FLIGHT PROCEDURES	X			X	X		4.0						G		*	0201		0222
	ACAD	0223	(U) PRE/POST FLIGHT INSP	X			X	X		4.0						G		*	0201		0223
	ACAD	0224	(U) EGRESS PROCEDURES	X			X	X		4.0						G		*	0201		0224
	ACAD	0225	(U) CRM	X			X	X		2.5						G		*			0225
	ACAD	0226	(U) START UP/SHUT DOWN	X			X	X		1.0						G		*	0126,0201,0222		0226
	ACAD	0227	(U) SINGLE POINT ENGINE	X			X	X		1.0						G		*	0201		0227
	ACAD	0228	(U) T&R MANUAL	X			X	X		1.0						G		*			0228
	ACAD	0229	(U) .50 CALIBER MACHINE GUN	X			X	X		1.0						G		*			0229
	ACAD	0230	(U) CARGO LOADING	X			X	X		1.0						G		*	0130,0201,0215		0230
	ACAD	0270	(U) EXTERNAL TRANSPORTATION	X			X	X		1.0						G		*	0201		0270
	ACAD	0280	(U) TERRAIN FLIGHT MANUVERS	X			X	X		1.0						G		*	0201		0280
	ACAD	0290	(U) AIRCRAFT TRACK AND BAL	X			X	X		2.0						G		*	0227		0290
	ACAD	0291	(U) IMDS	X			X	X		2.0						G		*	0227		0291
	SLAB	0301	(U) BASIC GRD HAND	X			X	X		2.5						G		*	0201		0301
	SLAB	0302	(U) AIRCRAFT INTERIOR	X			X	X		2.5						G		*	0202		0302
	SLAB	0303	(U) ELECTRONICS COMPARTMENTS	X			X	X		1.5						G		*	0203		0303
	SLAB	0304	(U) LANDING GEAR	X			X	X		1.5						G		*	0204		0304
	SLAB	0305	(U) REFUEL, AUX TANKS	X			X	X		1.0						G		*	0205		0305
	SLAB	0306	(U) ENGINES	X			X	X		2.0						G		*	0206		0306
	SLAB	0307	(U) AFT MAIN ROTOR PYLON	X			X	X		1.5						G		*	0207		0307
	SLAB	0308	(U) TAIL DRIVE SHAFTS	X			X	X		1.0						G		*	0208		0308
	SLAB	0309	(U) TAIL SKID	X			X	X		1.5						G		*	0209		0309
	SLAB	0310	(U) TAIL ROTOR HEAD	X			X	X		1.0						G		*	0210		0310
	SLAB	0311	(U) MGB	X			X	X		1.5						G		*	0211		0311
	SLAB	0312	(U) 2 ND STAGE, UTILITY HYD	X			X	X		1.5						G		*	0212		0312
	SLAB	0313	(U) APP	X			X	X		1.5						G		*	0213		0313
	SLAB	0314	(U) MAIN ROTOR HEAD	X			X	X		1.5						G		*	0214		0314
	SLAB	0315	(U) MISSION SYSTEMS	X			X	X		1.5						G		*	0215		0315
	SLAB	0316	(U) TURNAROUND INSPECTION	X			X	X		1.5						G		*	0216		0316
	SLAB	0317	(U) REFUELING AND DEFUELING	X			X	X		1.0						G		*	0217		0317

CH-53E CREW CHIEF T&R MATRIX (1000 and 5000 PHASE)																					
CH-53E CORE SKILL INTRODUCTION T&R MATRIX (1000 PHASE)																					
SKILL	STAGE	TRNG CODE	DESCRIPTION	B	R	SC	FRSI	CIUT	#	ACAD	#	SIM	#	FLT	CON	DEVIC	#	REFLY	PREREQUISITE	PREREQ NOTES	EVENT CONV
	SLAB	0318	(U) APP OPERATION	X			X	X		1.0						G		*	0218		0318
	SLAB	0319	(U) FLIGHT CONTROLS, AFCS	X			X	X		1.0						G		*	0219		0319
	SLAB	0321	(U) DAILY INSPECTION	X			X	X		4.0						G		*	0221		0321
	SLAB	0322	(U) TURNAROUND INSPECTION	X			X	X		1.0						G		*	0222		0322
	SLAB	0323	(U) FLIGHT EQUIPMENT	X			X	X		1.0						G		*	0223		0323
	SLAB	0324	(U) EGRESS PROCEDURES	X			X	X		1.5						G		*	0224, 0323		0324
	FRSI	0500	(U) COMPUTER AIDED INST				X			2.0						G		*		FSIC, BITC	0500
	FRSI	0501	(U) LAB PERIOD OF INST				X			2.0						G		*	0500		0501
	FRSI	0502	(U) INSTRUCTIONAL SKILLS				X			2.0						G		*	0501		0502
	FRSI	0503	(U) PERIOD OF INSTRUCTION				X			2.0						G		*	0502		0503
	EVAL	0600	PLANE CAPT	X				X		2.0						G		*	0321, 0322		0600
	EVAL	0601	PLANE CAPTAIN REV	X				X		2.0						G		*	0600		0601
									74	112.5	0	0.0	0	0.0							
FAMILIARIZATION (FAM)																					
	FAM	1100	AIRCREW DUTIES	X										1.5	D	A/S	1	*			1100
	FAM	1101	AIRCREW DUTIES 2	X										1.5	D	A	1	*	1100		1101
	FAM	1102	EMERGENCY PROCEDURES	X										1.5	D	A	1	*	1101		1102
	FAM	1103	AIRCREW DUTIES 3	X										1.5	D	A	1	*	1102		1103
	FAM	1104	AIRCREW DUTIES/CRM	X										1.5	D	A/S	1	*	1103		1104
	NFAM	1200	NIGHT SYSTEMS FAM	X										1.5	NS	A/S	1	*		NITE LAB	1200
	NFAM	1201	NIGHT SYSTEMS FAM	X										1.5	NS	A	1	*	1200		1201
FAM TOTAL									0	0.0	0	0.0	7	10.5							
INTERNAL LOADS (INT)																					
	INT	1300	INTERNAL PLANNING	X										1.5	(N)	A/S	1	*	1104		1300
	INT	1301	PASSENGERS/CARGO	X										1.5	(N)	A	1	*	1300		1301
INT TOTAL									0	0.0	0	0.0	2	3.0							
FORMATION (FORM)																					
	FORM	1500	FORMATION FLIGHT	X										2.0	D	A	2	*	1103		1500
	FORM	1501	NIGHT FORMATION FLIGHT	X										2.0	NS	A	2	*	1201, 1500		1501
FORM TOTAL									0	0.0	0	0.0	2	4.0							

CH-53E CREW CHIEF T&R MATRIX (1000 and 5000 PHASE)																					
CH-53E CORE SKILL INTRODUCTION T&R MATRIX (1000 PHASE)																					
SKILL	STAGE	TRNG CODE	DESCRIPTION	B	R	SC	FRST	CIUT	#	ACAD	#	SIM	#	FLT	CON	DEVIC	#	REFLY	PREREQUISITE	PREREQ NOTES	EVENT CONV
CONFINED AREA LANDING (CAL)																					
CAL	CAL	1600	CONFINED AREA LANDING	X										1.5	D	A/S	1	*			1600
	CAL	1601	SECTION CONFINED AREA LANDING	X										1.5	D	A	2	*	1104,1600		1601
	CAL	1602	NIGHT SYSTEMS (CAL)	X										1.5	NS	A	1	*	1201,1601		1602
	CAL	1603	SECTION NIGHT SYSTEMS (CAL)	X										1.5	NS	A	2	*	1602		1603
CAL TOTAL									0	0.0	0	0.0	4	6.0							
EXTERNAL (EXT)																					
EXT	SEXT	1700	SINGLE-POINT EXTERNAL	X								1.5			D	S		*	1600		1700
	SEXT	1701	DUAL-POINT EXTERNAL	X								1.5			D	S		*	1700		1701
	EXT	1703	SINGLE-POINT EXTERNAL	X										1.5	D	A	1	*	1601,1702		1703
	EXT	1704	DUAL-POINT EXTERNAL	X										1.5	D	A	1	*	1703		1704
	EXT	1705	(NS) SINGLE-POINT EXTERNAL	X										1.5	NS	A	1	*	1603,1704		1705
	EXT	1706	(NS) DUAL-POINT EXTERNAL	X										1.5	NS	A	1	*	1705		1706
EXT TOTAL									0	0.0	2	3.0	4	6.0							
TERRAIN FLIGHT (TERF)																					
TERF	TERF	1801	INTRO TERF	X										1.5	D	A	1	*	1600		1801
TERF TOTAL									0	0.0	0	0.0	1	1.5							
REVIEW (REV)																					
REV	REV	1900	STAN CHECK REV	X										2.0	(NS)	A	1	*	ALL 1000 FLTS		1900
REV TOTAL									0	0.0	0	0.0	1	2.0							
CORE SKILL INTRODUCTION CHECKRIDE (CSIX)																					
CSIX	CSIX	1901	STAN CHECK	X										1.5	(NS)	A	1	*	1900		1901
CSIX TOTAL									0	0.0	0	0.0	1	1.5							
TOTAL CORE SKILL INTRODUCTION PHASE									74	112.5	2	3.0	22	34.5							

CH-53E CREW CHIEF T&R MATRIX (1000 and 5000 PHASE)																					
CH-53E CORE SKILL INTRODUCTION T&R MATRIX (1000 PHASE)																					
SKILL	STAGE	TRNG CODE	DESCRIPTION	B	R	SC	FRSI	CIUT	#	ACAD	#	SIM	#	FLT	CON	DEVIC	#	REFLY	PREREQUISITE	PREREQ NOTES	EVENT CONV
INSTRUCTOR TRAINING (5000 PHASE)																					
FLEET REPLACEMENT SQUADRON INSTRUCTOR (FRSI)																					
FRSI	FRSI	5100	DAY FORM	X										1.5	D	A	2	*			5100
	FRSI	5101	NIGHT FORM	X										1.5	NS	A	2	*	5100		5101
	FRSI	5102	DAY CAL	X										1.5	D	A	1	*			5102
	FRSI	5103	NIGHT CAL	X										1.5	NS	A	1	*	5102		5103
	FRSI	5104	DAY TERF	X										1.5	D	A	1	*			5104
	FRSI	5105	DAY EXT	X										1.5	D	A	1	*	5102		5105
	FRSI	5106	NIGHT EXT	X										1.5	NS	A	1	*	5105		5106
	FRSI	5107	STANDARDIZATION CHECK	X										1.5	(NS)	A	1	*	5100-5106		5107
FRSI TOTAL									0	0.0	0	0.0	8	12.0							
NIGHT SYSTEMS FAM INSTRUCTOR (NSFI)																					
NSFI	NSFI	5600	HLL FAM	X										1.5	NS	A	1	*	SEE CC		5600
	NSFI	5601	HLL FORM/SECTION CALS	X										1.5	NS	A	2	*	SEE CC		5601
	NSFI	5602	HLL EXT	X										1.5	NS	A	1	*	SEE CC		5602
NSFI TOTAL									0	0.0	0	0.0	3	4.5							

3.18 CH-53E CREW CHIEF ATTAIN AND MAINTAIN MATRIX (2000-6000 PHASE)

CH-53E CREW CHIEF ATTAIN AND MAINTAIN MATRIX (1000-8000 PHASE)									
SKILL	STAGE	DESCRIPTION	BASIC POI	REFRESHER POI	SERIES CONV POI	MAINTAIN POI	REPLY	PREREQUISITE	CHAINING
2000 PHASE - CORE SKILL BASIC									
ACADEMICS (ACAD)									
ACAD	ACAD	AAR / ALE 47	2004				*		
	ACAD	APR-39	2012				*		
	ACAD	AAQ-24	2019				*		
	ACAD	TAC AIRCREW CON	2050				*		
	ACAD	EA TERF	2051				*		
	ACAD	EA NS TRAINING	2052				*		
	ACAD	AERIAL GUNNERY	2053				*		
	ACAD	EA GAU-21	2055				*		
	ACAD	EA LASER AIMING	2056				*		
	ACAD	LASER BORESIGHT	2057				*		
	ACAD	EA ESCORT OPS	2058				*		
INTERNAL LOADS (INT)									
INT	INT	CARGO LAB	2100	2100			*	2050,2052~N	
	INT	PAX LAB	2101	2100			*	2050,2052~N	
	INT	CARGO	2105	2105		2105	365	2050,2052~N,2100	
	INT	PAX	2106	2106		2106	365	2050,2052~N,2101	
FORMATION (FORM)									
FORM	FORM	DAY FORM	2110	2110		2110	365	2050	
CONFINED AREA LANDING (CAL)									
CAL	CAL	CALS	2210	2210		2210	365	2050	
	CAL	SECTION CALS	2211	2211		2211	365	2110,2210	2110,2210
TERRAIN FLIGHT (TERF)									
TERF	TERF	TERF	2310	2310		2310	365	2050,2051	
	TERF	SECTION TERF	2311	2311		2311	365	2110,2310	2110,2310
EXTERNAL (EXT)									
EXT	EXT	SINGLE POINT	2410	2410		2410	365	2210	2210
	EXT	DUAL POINT	2411	2411		2411	365	2210	2210,2410
	EXT	HLL SINGLE POINT	2420	2420		2420	180	2220,2410	2210,2220,2410
	EXT	HLL DUAL POINT	2421	2421		2421	180	2220,2411	2210,2220,2410,2411,2420
	EXT	LLL EXTERNALS	2430	2430		2430	180	2230,2420,2421, NSQ-HLL	2210,2220,2230,2410,2411,2420,2421
GROUND THREAT REACTION (GTR)									
GTR	GTR	NON RADAR GTR	2540	2540		2540	365	2004,2019,4051,4052,2311,2321~NS,2331	2110,2310,2311,HLL~2320,HLL~2321,LLL~2330,LLL~2331
HELICOPTER AIR TO AIR REFUELING (HAAR)									
FCLP	FCLP	DAY FCLP	2710	2710		2710	365	2210	2210

CH-53E CREW CHIEF ATTAIN AND MAINTAIN MATRIX (1000-8000 PHASE)									
SKILL	STAGE	DESCRIPTION	BASIC FOI	REFRESHER FOI	SERIES CONV FOI	MAINTAIN FOI	REFLY	PREREQUISITE	CHAINING
	FCLP	NS FCLP	2742	2742		2742	365	2220~NS, 2230~LLL, 2710	2210, HLL~2220, LLL~2230, 2710
AERIAL GUNNERY GAU-21 (AG)									
AG	AG	GAU-21 LAB	2800	2800			*	2055	
	AG	GAU-21 MWPC LAB	2801	2801			*	2056, 2057, 2800	
	AG	Weapon Proc LAB	2802	2802			*	2801	
	AG	DAY AG	2812	2812		2812	180	2053, 2310, 2802	
	AG	DAY SEC AG	2813	2813		2813	180	2311, 2812	2812
	AG	NIGHT AG	2842	2842		2842	180	2320~NS, 2330~LLL, 2812	2812
	AG	NIGHT SEC AG	2843	2843		2843	180	2321~NS, 2331~LLL, 2813, 2842	2812, 2813, 2842
TACTICS (TAC)									
TAC	TAC	DAY LOW THREAT	2910	2910		2910	365	2058, 2211, TERFQ	2106, 2110, 2210, 2211
	TAC	DAY MED THREAT	2911	2911		2911	365	2910	2106, 2110, 2210, 2211, 2910
NIGHT SYSTEM HIGH LIGHT LEVEL (HLL)									
HLL	HLL	HLL FORM	2120	2120		2120	180	2052, 2110	2110
	HLL	HLL CALS	2220	2220		2220	180	2052, 2210	2210
	HLL	HLL SEC CALS	2221	2221		2221	180	2120, 2211, 2220	2110, 2120, 2210, 2211, 2220
	HLL	HLL TERF	2320	2320		2320	180	2052, 2310, 2120	2110, 2120, 2310
	HLL	HLL SEC TERF	2321	2321		2321	180	2120, 2311, 2320	2110, 2120, 2310, 2311, 2320
	HLL	HLL LOW THREAT	2920	2920		2920	365	2221, 2321, 2910	2105, 2106, 2110, 2120, 2210, 2211, 2220, 2221, 2910
NIGHT SYSTEMS LOW LIGHT LEVEL STAGE (NS LLL)									
LLL	LLL	LLL CALS	2230	2230		2230	180	NSQ HLL	2210, 2220
	LLL	LLL SEC CALS	2231	2231		2231	180	2230	2110, 2120, 2210, 2211, 2220, 2221, 2230
	LLL	LLL TERF	2330	2330		2330	180	NSQ HLL	2310, 2320
	LLL	LLL SEC TERF	2331	2331		2331	180	2330	2110, 2120, 2310, 2311, 2320, 2321, 2330
	LLL	LLL MED THREAT	2930	2930		2930	365	2231, 2331	2105, 2106, 2110, 2120, 2210, 2211, 2220, 2221, 230, 2231, 2910, 2911, 2920
3000 PHASE - MISSION SKILLS									
ACADEMICS (ACAD)									
ACAD	ACAD	NEO EXECUTION	3002				*		
	ACAD	PERSONNEL RECOVERY	3004				*		
	ACAD	CH-53 TRAP TTPS	3005				*		
	ACAD	CASEVAC	3006				*		

CH-53E CREW CHIEF ATTAIN AND MAINTAIN MATRIX (1000-8000 PHASE)									
SKILL	STAGE	DESCRIPTION	BASIC POI	REFRESHER POI	SERIES CONV POI	MAINTAIN POI	REFLY	PREREQUISITE	CHAINING
EXPEDITIONARY (EXP)									
EXP	GTR	NON RADAR GTR	2540	2540		2540	365	2004, 2019, 4051, 4052, TERFQ, 2321~NS, 2331~LLL	2110, 2310, 2311, HLL~2320, HLL~2321, LLL~2330, LLL~2331
	AG	NIGHT SEC AG	2843	2843		2843	180	2321~NS, 2331~LLL, 2813, 2842	2812, 2813, 2842
	LLL	LLL SEC CALS	2231	2231		2231	180	2230	2110, 2120, 2210, 2211, 2220, 2221, 2230
	LLL	LLL SEC TERF	2331	2331		2331	180	2330	2110, 2120, 2310, 2311, 2320, 2321, 2330
	EXP	EXP SHORE BASED OPS	3140	3140		3140	365	NSQ LLL, AGQ	
ASSAULT TRANSPORT (AT)									
AT	GTR	NON RADAR GTR	2540	2540		2540	365	2004, 2019, 4051, 4052, TERFQ, 2321~NS, 2331~LLL	2110, 2310, 2311, HLL~2320, HLL~2321, LLL~2330, LLL~2331
	AG	NIGHT SEC AG	2843	2843		2843	180	2321~NS, 2331~LLL, 2813, 2842	2812, 2813, 2842
	LLL	LLL SEC CALS	2231	2231		2231	180	2230	2110, 2120, 2210, 2211, 2220, 2221, 2230
	LLL	LLL SEC TERF	2331	2331		2331	180	2330	2110, 2120, 2310, 2311, 2320, 2321, 2330
	ACAD	NEO EXECUTION	3002						
	AT	ASSAULT TRANSPORT	3240	3240		3240	365	NSQ LLL, AGQ, 2540, 2843, 3002	
AERIAL DELIVERY (AD)									
AD	EXT	LLL EXTERNALS	2430	2430		2430	180	2230, 2420, 2421, NSQ-HLL	2210, 2220, 2230, 2410, 2411, 2420, 2421
	GTR	NON RADAR GTR	2540	2540		2540	365	2004, 2019, 4051, 4052, TERFQ, 2321~NS, 2331~LLL	2110, 2310, 2311, HLL~2320, HLL~2321, LLL~2330, LLL~2331
	AG	NIGHT SEC AG	2843	2843		2843	180	2321~NS, 2331~LLL, 2813, 2842	2812, 2813, 2842
	LLL	LLL SEC CALS	2231	2231		2231	180	2230	2110, 2120, 2210, 2211, 2220, 2221, 2230
	LLL	LLL SEC TERF	2331	2331		2331	180	2330	2110, 2120, 2310, 2311, 2320, 2321, 2330
	AD	AERIAL DELVIERY	3340	3340		3340	365	NSQ LLL, AGQ, 2430, 2540	
TACTICAL RECOVERY OF AIRCRAFT AND PERSONNEL (TRAP)									
TRAP	EXT	LLL EXTERNALS	2430	2430		2430	180	2230, 2420, 2421, NSQ-HLL	2210, 2220, 2230, 2410, 2411, 2420, 2421
	GTR	NON RADAR GTR	2540	2540		2540	365	2004, 2019, 4051, 4052, TERFQ, 2321~NS, 2331~LLL	2110, 2310, 2311, HLL~2320, HLL~2321, LLL~2330, LLL~2331
	AG	NIGHT SEC AG	2843	2843		2843	180	2321~NS, 2331~LLL, 2813, 2842	2812, 2813, 2842
	LLL	LLL SEC CALS	2231	2231		2231	180	2230	2110, 2120, 2210, 2211, 2220, 2221, 2230
	LLL	LLL SEC TERF	2331	2331		2331	180	2330	2110, 2120, 2310, 2311, 2320, 2321, 2330
	ACAD	PERSONNEL RECOVERY	3004					*	
	ACAD	CH-53 TRAP TTPS	3005					*	
	TRAP	TRAP	3440	3440		3440	365	NSQ LLL, AGQ, 3004, 3005, 2540	

CH-53E CREW CHIEF ATTAIN AND MAINTAIN MATRIX (1000-8000 PHASE)									
SKILL	STAGE	DESCRIPTION	BASIC POI	REFRESHER POI	SERIES CONV POI	MAINTAIN POI	REFLY	PREREQUISITE	CHAINING
AERIAL EVACUATION (AE)									
AE	GTR	NON RADAR GTR	2540	2540		2540	365	2004, 2019, 4051, 4052, TERFQ, 2321~NS, 2331~LLL	2110, 2310, 2311, HLL~2320, HLL~2321, LLL~2330, LLL~2331
	AG	NIGHT SEC AG	2843	2843		2843	180	2321~NS, 2331~LLL, 2813, 2842	2812, 2813, 2842
	LLL	LLL SEC CALS	2231	2231		2231	180	2230	2110, 2120, 2210, 2211, 2220, 2221, 2230
	LLL	LLL SEC TERF	2331	2331		2331	180	2330	2110, 2120, 2310, 2311, 2320, 2321, 2330
	ACAD	(U) CASEVAC	3006					*	
AE	AERIAL EVACUATION	3540	3540		3540	365	NSQ LLL, AGQ, 3006, 2540		
4000 PHASE - CORE PLUS									
ACADEMICS (ACAD)									
ACAD	ACAD	EA ADGR	4011					*	
	ACAD	EA EW	4050					*	
	ACAD	EA DM/GTR PART 1	4051					*	
	ACAD	EA DM/GTR PART 2	4052					*	
	ACAD	EA TAIL GUNNER	4053					*	
HELICOPTER INSERTION & EXTRACTION (HIE)									
HIE	HIE	HELOCAST	4110	4110		4110	365	TERFQ, 2106	2106
	HIE	RAPPEL	4140	4140				* 2210, 2920~NS, 2930~LLL	2106
	HIE	PARAOPS	4141	4141				* 2920~NS, 2930~LLL	2106
AVIATION DELIVERED GROUND REFUELING (ADGR)									
ADGR	ADGR	TBFDS STATIC TRNG	4200	4200				* 2105, 4011	
	ADGR	TBFDS OPERATION	4240	4240		4201	365	2105, 2210, 2920~NS, 2930~LLL, 4011, 4200	2105, 2210
TERRAIN FLIGHT EXTERNALS (TERF EXT)									
TERF EXT	TERF EXT	DAY TERF EXTERNALS	4412	4412		4412	365	2310, 2410~SINGLE POINT, 2411~DUAL POINT	2310, 2410~SINGLE POINT, 2411~DUAL POINT
	TERF EXT	NS TERF EXTERNALS	4440	4440		4440	180	2320~NS, 2420~NS, 2330~LLL, 2430~LLL,	
DEFENSIVE MEASURES (DM)									
DM	DM	RW DM	4510	4510		4510	365	TERFQ, 2004, 2019, 4051, 4052	2110, 2310, 2311
	DM	FW DM	4511	4511		4511	365	TERFQ, 2004, 2019, 4051, 4052	2110, 2310, 2311
GROUND THREAT REACTIONS (GTR)									
GTR	GTR	RADAR GTR	4540	4540		4540	365	2004, 2019, 4051, 4052, 2311, 2321~NS, 2331~LLL	2110, 2310, 2311
CHEMICAL, BIOLOGICAL, RADIOLOGICAL, AND NUCLEAR (CBRN)									
CBRN	CBRN	CBRN	4600					* 2210, 2220~NS, 2230~LLL	
CARRIER QUALIFICATION (CQ)									
CQ	CQ	DAY CQ	4711	4711		4711	365	2710	2210, 2710
	CQ	NIGHT CQ	4743	4743		4743	365	2742, NSQ-HLL, NSQ-LLL~LLL	2742, HLL~2220, LLL~2230, 4711

CH-53E CREW CHIEF ATTAIN AND MAINTAIN MATRIX (1000-8000 PHASE)									
SKILL	STAGE	DESCRIPTION	BASIC POI	REFRESHER POI	SERIES CONV POI	MAINTAIN POI	REFLY	PREREQUISITE	CHAINING
TAIL GUNNERY (TG)									
TG	TG	STATIC TG TRAINING	4800	4800			*	AGQ, 4053	
	TG	DAY TG	4810	4810			*	AGQ, 4800	2812
	TG	DAY SECTION TG	4811	4811		4811	180	4810	2812, 2813
	TG	NIGHT SECTION TG	4840	4840		4840	180	4811	2812, 2813, 2842, 2843, 4810, 4811
MOVING TARGET GUNNERY (MTG)									
MTG	MTG	MTG	4841	4841		4841	365	2812~D, 2842~NS, 4810~D, 4840~NS	2813~SEC, 284~NS SEC, 4810~TG, 4811~SEC TG, 4840~NS TG
TACTICS (TAC)									
TAC	TAC	DIV TAC	4940	4940		4940	365	2911, 2920~NS, 2930~LLL	2110, 2210, 2211, 2910, 2911
	TAC	URBAN TAC	4941	4941		4941	365	2920~NS, 2930~LLL	2110, 2120, 2210, 2211, 2220, 2221, 2910, 2911, 2920
RAID (RAID)									
RIE	GTR	NON RADAR GTR	2540	2540		2540	365	2004, 2019, 4051, 4052, TERFQ, 2321~NS, 2331~LLL	2110, 2310, 2311, HLL~2320, HLL~2321, LLL~2330, LLL~2331
	AG	NIGHT SEC AG	2843	2843		2843	180	2321~NS, 2331~LLL, 2813, 2842	2812, 2813, 2842
	RIE	RIE	4980	4980		4980	365	NSQ LLL, AGQ	
AVIATION DELIVERED GROUND REFUELING (ADGR)									
ADGR	GTR	NON RADAR GTR	2540	2540		2540	365	2004, 2019, 4051, 4052, TERFQ, 2321~NS, 2331~LLL	2110, 2310, 2311, HLL~2320, HLL~2321, LLL~2330, LLL~2331
	AG	NIGHT SEC AG	2843	2843		2843	180	2321~NS, 2331~LLL, 2813, 2842	2812, 2813, 2842
	ADGR	TBFDS OPERATION	4240	4240		4201	365	2105, 2210, 2920~NS, 2930~LLL, 4011, 4200	2105, 2210
	ADGR	ADGR TACTICS	4981	4981		4981	365	NSQ LLL, AGQ, 4240	4240
SEA	GTR	NON RADAR GTR	2540	2540		2540	365	2004, 2019, 4051, 4052, TERFQ, 2321~NS, 2331~LLL	2110, 2310, 2311, HLL~2320, HLL~2321, LLL~2330, LLL~2331
	AG	NIGHT SEC AG	2843	2843		2843	180	2321~NS, 2331~LLL, 2813, 2842	2812, 2813, 2842
	SEA	SEA BASED	4982	4982		4982	365	NSQ LLL, AGQ,	
INSTRUCTOR TRAINING (5000 PHASE)									
AERIAL GUNNERY INSTRUCTOR (AGI)									
AGI	AGI	AGI STATIC TRNG	5400	5400			*	SEE COURSE CATALOG	
	AGI	AGI STATIC TRNG	5401	5401			*	SEE COURSE CATALOG	
	AGI	AGI STATIC TRNG	5402	5402			*	SEE COURSE CATALOG	
	AGI	DAY MTG	5403				*	SEE COURSE CATALOG	
	AGI	NS SEC AG	5404				*	SEE COURSE CATALOG	
	AGI	DAY SEC TG	5405				*	SEE COURSE CATALOG	
	AGI	NS SEC TG	5406				*	SEE COURSE CATALOG	
	AGI	NS SEC AG	5407	5407			*	SEE COURSE CATALOG	
AGI	NS SEC TG	5408	5408			*	SEE COURSE CATALOG		

CH-53E CREW CHIEF ATTAIN AND MAINTAIN MATRIX (1000-8000 PHASE)									
SKILL	STAGE	DESCRIPTION	BASIC POI	REFRESHER POI	SERIES CONV POI	MAINTAIN POI	REFLY	PREREQUISITE	CHAINING
TERRAIN FLIGHT INSTRUCTOR (TERFI)									
TERFI	TERFI	DAY TERF/NAV/EXT	5700	5700			*	SEE COURSE CATALOG	
	TERFI	NS SEC TERF/NAV	5701	5701			*	SEE COURSE CATALOG	
DEFENSIVE MEASURES INSTRUCTOR (DMI)									
DMI	DMI	2 V GRND THREAT	5800				*	SEE COURSE CATALOG	
	DMI	2 V FW/RW	5801				*	SEE COURSE CATALOG	
	DMI	2 V FW/RW	5802	5802			*	SEE COURSE CATALOG	
NIGHT SYSTEMS INSTRUCTOR (NSI)									
NSI	NSI	NS FAM/CAL/EXT	5900				*	SEE COURSE CATALOG	
	NSI	NS SEC CALS/TERF	5901				*	SEE COURSE CATALOG	
	NSI	NS SEC CALS/TERF/EXT/TAC	5902	5902			*	SEE COURSE CATALOG	
6000 PHASE - REQUIREMENTS, CERTIFICATIONS, QUALIFICATIONS, DESIGNATIONS (RQD)									
NATOPS (NTPS)									
NTPS	NTPS	OPEN BOOK EXAM	6000	6000		6000	365		
	NTPS	CLOSED BOOK EXAM	6001	6001		6001	365	6000	
	NTPS	ORAL EXAM	6002	6002		6002	365	6001	
	NTPS	NATOPS EVAL FLT	6100	6100		6100	365	6002	
CRM									
CRM	CRM	CRM GRND CLASS	6003	6003		6003	365		
	CRM	CRM FLT	6101	6101		6101	365	6003	

3.19 CH-53E CREW CHIEF T&R MATRIX (2000-6000 Phase)

CH-53E CREW CHIEF T&R MATRIX (2000-6000 PHASE)																				
SKILL	STAGE	TRNG CODE	T&R DESCRIPTION	POI				ACADEMIC		SIMULATOR		FLIGHT		CON	DEVICE	# A/C	REFLY	EVAL	EOM	EVENT CONV
				B	R	SC	M	#	ACAD	#	SIM	#	FLT							
2000 PHASE - CORE SKILL BASIC																				
ACADEMICS (ACAD)																				
ACAD	ACAD	2004	(S) AAR / ALE 47	X					1.0					G		*			2004	
	ACAD	2012	(S) APR-39	X					1.0					G		*			2012	
	ACAD	2019	(S) AAQ-24	X					1.0					G		*			2019	
	ACAD	2050	(U) EA TACTICAL AIRCREW CON	X					1.0					G		*			2050	
	ACAD	2051	(U) EA TERF	X					1.0					G		*			2051	
	ACAD	2052	(U) EA NS TRAINING	X					1.0					G		*			2052	
	ACAD	2053	(U) EA AERIAL GUNNERY	X					1.0					G		*			2053	
	ACAD	2055	(U) EA GAU-21	X					1.0					G		*			2055	
	ACAD	2056	(U) EA LASER AIMING	X					1.0					G		*			2056	
ACAD	2057	(U) EA LASER BORESIGHTING	X					1.0					G		*			2057		
ACAD	2058	(U) EA ESCORT OPERATIONS	X					1.0					G		*			2058		
ACAD TOTAL								11	11.0	0	0.0	0	0.0							
INTERNAL LOADS (INT)																				
INT	INT	2100	CARGO LAB	X	X						0.0		(N)	A	1	*			2100	
	INT	2101	PAX LAB	X	X						0.0		(N)	A	1	*			2101	
	INT	2105	CARGO	X	X		X					1.5	(N)	A	1	365			2105	
	INT	2106	PAX	X	X		X					1.5	(N)	A	1	365			2106	
INT TOTAL								0	0.0	2	0.0	2	3.0							
FORMATION (FORM)																				
FORM	FORM	2110	DAY FORM	X	X		X					1.5	D	A	2	365			2110	
FORM TOTAL								0	0.0	0	0.0	1	1.5							
CONFINED AREA LANDING (CAL)																				
CAL	CAL	2210	CALS	X	X		X					1.5	D	A	1	365			2210	
	CAL	2211	SECTION CALS	X	X		X					1.5	D	A	2	365			2211	
CAL TOTAL								0	0.0	0	0.0	2	3.0							
TERRAIN FLIGHT (TERF)																				
TERF	TERF	2310	TERF	X	X		X					1.5	D	A	1	365			2310	
	TERF	2311	SECTION TERF	X	X		X					1.5	D	A	2	365	E		2311	
TERF TOTAL								0	0.0	0	0.0	2	3.0							
EXTERNAL (EXT)																				
EXT	EXT	2410	SINGLE POINT	X	X		X					1.5	D	A	1	365			2410	
	EXT	2411	DUAL POINT	X	X		X					1.5	D	A	1	365			2411	
	EXT	2420	HLL SINGLE POINT	X	X		X					1.5	NS	A	1	180			2420	
	EXT	2421	HLL DUAL POINT	X	X		X					1.5	NS	A	1	180			2421	
	EXT	2430	LLL EXTERNALS	X	X		X					1.5	NS	A	1	180			2430	
EXT TOTAL								0	0.0	0	0.0	5	7.5							

CH-53E CREW CHIEF T&R MATRIX (2000-6000 PHASE)																				
SKILL	STAGE	TRNG CODE	T&R DESCRIPTION	POI				ACADEMIC		SIMULATOR		FLIGHT		CON	DEVICE	# A/C	REFLY	EVAL	EOM	EVENT CONV
				B	R	SC	M	#	ACAD	#	SIM	#	FLT							
GROUND THREAT REACTION (GTR)																				
GTR	GTR	2540	NON RADAR GTR	X	X		X					1.5	(NS)	A	2	365			2540	
GTR TOTAL								0	0.0	0	0.0	1	1.5							
HELICOPTER AIR TO AIR REFUELING (HAAR)																				
FCLP	FCLP	2710	DAY FCLP	X	X		X					1.5	D	A	1	365			2710	
	FCLP	2742	NS FCLP	X	X		X					1.5	NS	A	1	365			2742	
FCLP TOTAL								0	0.0	0	0.0	2	3.0							
AERIAL GUNNERY GAU-21 (AG)																				
AG	AG	2800	GAU-21 LAB	X	X								D	G	1	*			N/A	
	AG	2801	GAU-21 MWPC LAB	X	X								D	G	1	*			N/A	
	AG	2802	Weapon Procedures LAB	X	X								D	G	1	*			N/A	
	AG	2812	DAY AG	X	X		X					1.5	D	A	1	180			2812	
	AG	2813	DAY SEC AG	X	X		X					1.5	D	A	2+	180			2813	
	AG	2842	NIGHT AG	X	X		X					1.5	NS	A	1	180			2842	
	AG	2843	NIGHT SEC AG	X	X		X					1.5	NS	A	2+	180	E		2843	
AG TOTAL								3	7.0	0	0.0	4	6.0							
TACTICS (TAC)																				
TAC	TAC	2910	DAY LOW THREAT	X	X		X					2.0	D	A	2	365			2910	
	TAC	2911	DAY MED THREAT	X	X		X					2.0	D	A	2	365			2911	
TOTAL TAC STAGE								0	0.0	0	0.0	2	4.0							
NIGHT SYSTEM HIGH LIGHT LEVEL (HLL)																				
HLL	HLL	2120	HLL FORM	X	X		X					1.5	NS	A	2	180			2120	
	HLL	2220	HLL CALS	X	X		X					1.5	NS	A	1	180			2220	
	HLL	2221	HLL SEC CALS	X	X		X					1.5	NS	A	2	180			2221	
	HLL	2320	HLL TERF	X	X		X					1.5	NS	A	1	180			2320	
	HLL	2321	HLL SEC TERF	X	X		X					1.5	NS	A	2	180			2321	
	HLL	2920	HLL LOW THREAT	X	X		X					2.0	NS	A	2	365	E		2920	
TOTAL NS HLL STAGE								0	0.0	0	0.0	6	9.5							
NIGHT SYSTEMS LOW LIGHT LEVEL STAGE (NS LLL)																				
LLL	LLL	2230	LLL CALS	X	X		X					1.5	NS	A	1	180			2230	
	LLL	2231	LLL SEC CALS	X	X		X					1.5	NS	A	2	180			2231	
	LLL	2330	LLL TERF	X	X		X					1.5	NS	A	1	180			2330	
	LLL	2331	LLL SEC TERF	X	X		X					1.5	NS	A	2	180			2331	
	LLL	2930	LLL MED THREAT	X	X		X					2.0	NS	A	2+	365	E		2930	
TOTAL NS LLL STAGE								0	0.0	0	0.0	5	8.0							
CORE SKILL PHASE TOTAL								14	18.0	2	0.0	32	50.0							

CH-53E CREW CHIEF T&R MATRIX (2000-6000 PHASE)																				
SKILL	STAGE	TRNG CODE	T&R DESCRIPTION	POI				ACADEMIC		SIMULATOR		FLIGHT		CON	DEVICE	# A/C	REFLY	EVAL	EOM	EVENT CONV
				B	R	SC	M	#	ACAD	#	SIM	#	FLT							
3000 PHASE - MISSION SKILLS																				
ACADEMICS (ACAD)																				
ACAD	ACAD	3002	(U) NEO EXECUTION	X					0.8					G		*			3002	
	ACAD	3004	(S) PERSONNEL RECOVERY	X					1.0					G		*			3004	
	ACAD	3005	(S) CH53 SPECIFIC TRAP TTPS	X					0.8					G		*			3005	
	ACAD	3006	(U) CASEVAC	X					0.5					G		*			3006	
ACAD TOTAL								4	3.1	0	0.0	0	0.0							
EXPEDITIONARY (EXP)																				
EXP	GTR	2540	NON RADAR GTR	X	X		X						(NS)	A	2	365			2540	
	AG	2843	NIGHT SEC AG	X	X		X						NS	A	2+	180			2843	
	LLL	2231	LLL SEC CALS	X	X		X						NS	A	2	180			2231	
	LLL	2331	LLL SEC TERF	X	X		X						NS	A	2	180			2331	
	EXP	3140	EXP SHORE BASED OPS	X	X		X					2.0	(NS)	A	1+	365			3140	
EXP TOTAL								0	0.0	0	0.0	1	2.0							
ASSAULT TRANSPORT (AT)																				
AT	GTR	2540	NON RADAR GTR	X	X		X						(NS)	A	2	365			2540	
	AG	2843	NIGHT SEC AG	X	X		X						NS	A	2+	180			2843	
	LLL	2231	LLL SEC CALS	X	X		X						NS	A	2	180			2231	
	LLL	2331	LLL SEC TERF	X	X		X						NS	A	2	180			2331	
	ACAD	3002	NEO EXECUTION	X					1.5										3002	
	AT	3240	ASSAULT TRANSPORT	X	X		X					2.0	(NS)	A	1+	365			3240	
AT TOTAL								1	1.5	0	0.0	1	2.0							
AERIAL DELIVERY (AD)																				
AD	EXT	2430	LLL EXTERNALS	X	X		X						NS	A	1	180			2430	
	GTR	2540	NON RADAR GTR	X	X		X						(NS)	A	2	365			2540	
	AG	2843	NIGHT SEC AG	X	X		X						NS	A	2+	180			2843	
	LLL	2231	LLL SEC CALS	X	X		X						NS	A	2	180			2231	
	LLL	2331	LLL SEC TERF	X	X		X						NS	A	2	180			2331	
	AD	3340	AERIAL DELVIERY	X	X		X					2.0	(NS)	A	1+	365			3340	
AD TOTAL								0	0.0	0	0.0	1	2.0							
TACTICAL RECOVERY OF AIRCRAFT AND PERSONNEL (TRAP)																				
TRAP	EXT	2430	LLL EXTERNALS	X	X		X						NS	A	1	180			2430	
	GTR	2540	NON RADAR GTR	X	X		X						(NS)	A	2	365			2540	
	AG	2843	NIGHT SEC AG	X	X		X						NS	A	2+	180			2843	
	LLL	2231	LLL SEC CALS	X	X		X						NS	A	2	180			2231	
	LLL	2331	LLL SEC TERF	X	X		X						NS	A	2	180			2331	
	ACAD	3004	(S) PERSONNEL RECOVERY	X					1.0					G		*			3004	
	ACAD	3005	(S) CH53 SPECIFIC TRAP TTPS	X					0.8					G		*			3005	
	TRAP	3440	TRAP	X	X		X					2.0	(NS)	A	1+	365			3440	
TRAP TOTAL								2	1.8	0	0.0	1	2.0							

CH-53E CREW CHIEF T&R MATRIX (2000-6000 PHASE)																				
SKILL	STAGE	TRNG CODE	T&R DESCRIPTION	POI				ACADEMIC		SIMULATOR		FLIGHT		CON	DEVICE	# A/C	REFLY	EVAL	EOM	EVENT CONV
				B	R	SC	M	#	ACAD	#	SIM	#	FLT							
AERIAL EVACUATION (AE)																				
AE	GTR	2540	NON RADAR GTR	X	X		X						(NS)	A	2	365			2540	
	AG	2843	NIGHT SEC AG	X	X		X						NS	A	2+	180			2843	
	LLL	2231	LLL SEC CALS	X	X		X						NS	A	2	180			2231	
	LLL	2331	LLL SEC TERF	X	X		X						NS	A	2	180			2331	
	ACAD	3006	(U) CASEVAC	X					0.5					G		*			3006	
	AE	3540	AERIAL EVACUATION	X	X		X						2.0	(NS)	A	1+	365			3540
AE TOTAL								1	0.5	0	0.0	1	2.0							
TOTAL MISSION PHASE								4	3.8	0	0.0	5	10.0							
4000 PHASE - CORE PLUS																				
ACADEMICS (ACAD)																				
ACAD	ACAD	4011	(U) EA ADGR	X					1.0					G		*			4011	
	ACAD	4050	(U) EA ELECTRONIC WARFARE	X					1.0					G		*			4050	
	ACAD	4051	(U) EA DM/GTR PART 1	X					1.0					G		*			4051	
	ACAD	4052	(U) EA DM/GTR PART 2	X					1.0					G		*			4052	
	ACAD	4053	TRAINING THE TAIL GUNNER	X					1.0					G		*			4053	
ACAD TOTAL								5	5.0	0	0.0	0	0.0							
HELICOPTER INSERTION & EXTRACTION (HIE)																				
HIE	HIE	4110	HELOCAST	X	X		X					1.5	D	A	1	365			4110	
	HIE	4140	RAPPEL	X	X		X					1.5	(NS)	A	1	365			4140	
	HIE	4141	PARAOPS	X	X		X					1.5	(NS)	A	1	365			4141	
HIE TOTAL								0	0.0	0	0.0	3	4.5							
AVIATION DELIVERED GROUND REFUELING (ADGR)																				
ADGR	ADGR	4200	TBFDS STATIC TRAINING	X	X	X						1.5	D	A		*			4200	
	ADGR	4240	TBFDS OPERATION	X	X		X					1.5	(NS)	A	1	365			4201	
ADGR TOTAL								0	0.0	0	0.0	2	3.0							
TERRAIN FLIGHT EXTERNALS (TERF EXT)																				
TERF EXT	TERF EXT	4412	DAY TERF EXTERNALS	X	X		X					1.5	D	A	1	365			4412	
	TERF EXT	4440	NS TERF EXTERNALS	X	X		X					1.5	NS	A	1	180			4440	
T								0	0.0	0	0.0	2	3.0							
DEFENSIVE MEASURES (DM)																				
DM	DM	4510	RW DM	X	X		X					1.5	D	A	2	365	E		4510	
	DM	4511	FW DM	X	X		X					1.5	D	A	2	365	E		4511	
DN TOTAL								0	0.0	0	0.0	2	3.0							
GROUND THREAT REACTIONS (GTR)																				
GTR	GTR	4540	RADAR GTR	X	X		X					1.5	(NS)	A	2	365			4540	
GTR TOTAL								0	0.0	0	0.0	1	1.5							
CHEMICAL, BIOLOGICAL, RADIOLOGICAL, AND NUCLEAR (CBRN)																				
CBRN	CBRN	4600	CBRN	X							1.5		(NS)	S/A		*			4640	
CBRN TOTAL								0	0.0	1	1.5	0	0.0							

CH-53E CREW CHIEF T&R MATRIX (2000-6000 PHASE)																				
SKILL	STAGE	TRNG CODE	T&R DESCRIPTION	POI				ACADEMIC		SIMULATOR		FLIGHT		CON	DEVICE	# A/C	REFLY	EVAL	EOM	EVENT CONV
				B	R	SC	M	#	ACAD	#	SIM	#	FLT							
CARRIER QUALIFICATION (CQ)																				
CQ	CQ	4711	DAY CQ	X	X		X						1.5	D	A	1	365			4711
	CQ	4743	NIGHT CQ	X	X		X						1.5	NS	A	1	365			4743
CQ TOTAL								0	0.0	0	0.0	2	3.0							
TAIL GUNNERY (TG)																				
TG	TG	4800	STATIC TG TRAINING	X	X				1.5					D	A	1	*			4800
	TG	4810	DAY TG	X	X								1.5	D	A	1	*			4810
	TG	4811	DAY SECTION TG	X	X		X						1.5	D	A	2	180			4811
	TG	4840	NIGHT SECTION TG	X	X		X						1.5	NS	A	2	180	E		4840
TG TOTAL								1	1.5	0	0.0	3	4.5							
MOVING TARGET GUNNERY (MTG)																				
MTG	MTG	4841	MTG	X	X		X						1.5	(NS)	A	1+	365			4841
MTG TOTAL								0	0.0	0	0.0	1	1.5							
TACTICS (TAC)																				
TAC	TAC	4940	DIV TAC	X	X		X						2.0	(NS)	A	3+	365			4940
	TAC	4941	URBAN TAC	X	X		X						2.0	NS	A	2	365			4941
TAC TOTAL								0	0.0	0	0.0	2	4.0							
RAID (RAID)																				
RIE	GTR	2540	NON RADAR GTR	X	X		X						1.5	(NS)	A	2	365			2540
	AG	2843	NIGHT SEC AG	X	X		X						1.5	NS	A	2+	180			2843
	RIE	4980	RIE	X	X		X						2.0	(NS)	A	1+	365			4980
RAID TOTAL								0	0.0	0	0.0	3	5.0							
AVIATION DELIVERED GROUND REFUELING (ADGR)																				
ADGR	GTR	2540	NON RADAR GTR	X	X		X						1.5	(NS)	A	2	365			2540
	AG	2843	NIGHT SEC AG	X	X		X						1.5	NS	A	2+	180			2843
	ADGR	4240	TBFDS OPERATION	X	X		X						1.5	(NS)	A	1	365			4201
	ADGR	4981	ADGR TACTICS	X	X		X						2.0	(NS)	A	1+	365			4981
ADGR TOTAL								0	0.0	0	0.0	4	6.5							
SEA	GTR	2540	NON RADAR GTR	X	X		X						1.5	(NS)	A	2	365			2540
	AG	2843	NIGHT SEC AG	X	X		X						1.5	NS	A	2+	180			2843
	SEA	4982	SEA BASED	X	X		X						2.0	(NS)	A	1+	365			4982
SEA TOTAL								0	0.0	0	0.0	3	5.0							
TOTAL CORE PLUS PHASE								6	6.5	1	1.5	28	44.5							

CH-53E CREW CHIEF T&R MATRIX (2000-6000 PHASE)																				
SKILL	STAGE	TRNG CODE	T&R DESCRIPTION	POI				ACADEMIC		SIMULATOR		FLIGHT		CON	DEVICE	# A/C	REFLY	EVAL	EOM	EVENT CONV
				B	R	SC	M	#	ACAD	#	SIM	#	FLT							
INSTRUCTOR TRAINING (5000 PHASE)																				
AERIAL GUNNERY INSTRUCTOR (AGI)																				
AGI	AGI	5400	AGI STATIC TRAINING	X	X				3.0					D	A	1	*		N/A	
	AGI	5401	AGI STATIC TRAINING	X	X				1.0					D	A	1	*		N/A	
	AGI	5402	AGI STATIC TRAINING	X	X				3.0					D	A	1	*		N/A	
	AGI	5403	DAY MTG	X								1.5		D	A	1+	*		5412	
	AGI	5404	NS SEC AG	X								1.5		NS	A	2	*		N/A	
	AGI	5405	DAY SEC TG	X								1.5		NS	A	2	*		5431	
	AGI	5406	NS SEC TG	X								1.5		NS	A	2	*		5413	
	AGI	5407	NS SEC AG	X	X							1.5		NS	A	2	*	E	N/A	
AGI	5408	NS SEC TG	X	X							1.5		NS	A	2	*	E	N/A		
AGI TOTAL								3	7.0	0	0.0	6	9.0							
TERRAIN FLIGHT INSTRUCTOR (TERFI)																				
TERFI	TERFI	5700	DAY TERF/NAV/EXT	X	X							2.0		D	A	1	*	E	5700	
	TERFI	5701	NS SECTION TERF/NAV	X	X							2.0		NS	A	2	*	E	5701	
TERFI TOTAL								0	0.0	0	0.0	2	4.0							
DEFENSIVE MEASURES INSTRUCTOR (DMI)																				
DMI	DMI	5800	2 V GRND THREAT	X								1.5		(NS)	A	2	*		5800	
	DMI	5801	2 V FW/RW	X								1.5		D	A	2	*		5801	
	DMI	5802	2 V FW/RW	X	X							2.0		D	A	2	*	E	5802	
DMI TOTAL								0	0.0	0	0.0	3	5.0							
NIGHT SYSTEMS INSTRUCTOR (NSI)																				
NSI	NSI	5900	NS FAM/CAL/EXT	X								1.5		NS	A	1	*		5900	
	NSI	5901	NS SEC CALS/TERF	X								1.5		NS	A	2	*		5901	
	NSI	5902	NS SEC CALS/TERF/EXT/TAC	X	X							3.0		NS	A	2	*	E	5902	
NSI TOTAL								0	0.0	0	0.0	3	6.0							
6000 PHASE - REQUIREMENTS, CERTIFICATIONS, QUALIFICATIONS, DESIGNATIONS (RQD)																				
NATOPS (NTPS)																				
NTPS	NTPS	6000	OPEN BOOK EXAM	X	X		X		3.0								365	X	X	6000
	NTPS	6001	CLOSED BOOK EXAM	X	X		X		1.0								365	X	X	6001
	NTPS	6002	ORAL EXAM	X	X		X		2.0								365	X	X	6002
	NTPS	6100	NATOPS EVALUATION FLIGHT	X	X		X					1.5		(NS)	A	1	365	X	X	6100
NTPS TOTAL								3	6.0	0	0.0	1	1.5							
CRM																				
CRM	CRM	6003	CRM GRND CLASS	X	X		X		1.5								365	X	X	6003
	CRM	6101	CRM FLT	X	X		X					1.5		(NS)	A	1	365	X	X	6101
CRM TOTAL								1	1.5	0	0.0	1	1.5							

3.20 AIRCREW PERFORMANCE RECORD/ QUALIFICATION JACKET ACEDMIC TRACKER (0000-4000)

ENLISTED AIRCREW PERFORMANCE RECORD/QUALIFICATION JACKET ACEDMIC TRACKER					
SECTION IIIB-AIRCREW ACADEMIC/GROUND SCHOOL TRAINING					
NAME (Last, first, middle initial)			Last 4 SSN		
T&R CODE	ACADEMIC SYLLABUS		DATE	INSTRUCTOR	ENTERED BY
	FRS ACADEMIC PHASE (0000)		DD/MM/YY	NAME OR SELF PACED	NAME
CBT-0100	(U) CH-53E HISTORY				
CBT-0102	(U) INTERIOR FAMILIARIZATION				
CBT-0103	(U) EXTERIOR FAMILIARIZATION				
CBT-0118	(U) APP OPERATION				
CBT-0119	(U) AFCS				
CBT-0120	(U) BLADE SPREAD/FOLD PROCEDURES				
CBT-0124	(U) EMERGENCY PROCEDURES				
CBT-0126	(U) TAXI / TAKEOFF / IN-FLIGHT CHECKS & PROCEDURES				
CBT-0130	(U) INTERNAL CARGO HANDLING				
CBT-0190	(U) BEARING MONITOR SYSTEM				
ACAD-0200	(U) COURSE INTRODUCTION BRIEF				
ACAD-0201	(U) BASIC GROUND HANDLING AND AIRCRAFT MOVEMENT				
ACAD-0202	(U) AIRCRAFT INTERIOR				
ACAD-0203	(U) ELECTRONICS COMPARTMENTS				
ACAD-0204	(U) LANDING GEAR				
ACAD-0205	(U) REFUEL, AUX TANKS, L/R FUSELAGE				
ACAD-0206	(U) ENGINES, NOSE GEAR BOX, EAPS				
ACAD-0208	(U) TAIL DRIVE SHAFTS				
ACAD-0209	(U) TAIL SKID, IGB, TGB, TAIL SERVO				
ACAD-0210	(U) TAIL ROTOR HEAD, ROTOR BLADES				
ACAD-0211	(U) MGB, FLIGHT CONTROL MIXER UNIT				

ACAD-0212	(U) 2 ND STAGE, UTILITY HYDRAULIC			
ACAD-0213	(U) AUXILIARY POWER PLANT			
ACAD-0214	(U) MAIN ROTOR HEAD AND BLADES			

ENLISTED AIRCREW PERFORMANCE RECORD/QUALIFICATION JACKET ACADEMIC TRACKER					
SECTION IIIB-AIRCREW ACADEMIC/GROUND SCHOOL TRAINING					
NAME (Last, first, middle initial)			Last 4 SSN		
T&R CODE	ACADEMIC SYLLABUS		DATE	INSTRUCTOR	ENTERED BY
	FRS ACADEMIC PHASE (0000)		DD/MM/YY	NAME OR SELF PACED	NAME
ACAD-0215	(U)	MISSION SYSTEMS			
ACAD-0216	(U)	TURNAROUND INSPECTION			
ACAD-0217	(U)	REFUELING AND DEFUELING			
ACAD-0218	(U)	APP OPERATION			
ACAD-0219	(U)	FLIGHT CONTROLS, AFCS			
ACAD-0220	(U)	BLADE AND PYLON FOLD AND SPREAD PROCEDURES			
ACAD-0221	(U)	PLANE CAPTAIN RESPONSIBILITIES			
ACAD-0222	(U)	NATOPS FLIGHT PROCEDURES			
ACAD-0223	(U)	PRE/POST FLIGHT INSPECTION			
ACAD-0224	(U)	EGRESS PROCEDURES			
ACAD-0225	(U)	CRM			
ACAD-0226	(U)	START UP/SHUT DOWN PROCEDURES			
ACAD-0227	(U)	SINGLE POINT ENGINE PLOT/OPERATIONAL POWER CHECK			
ACAD-0228	(U)	READINESS MANUAL			
ACAD-0229	(U)	.50 CALIBER MACHINE GUN			
ACAD-0230	(U)	CARGO LOADING			
ACAD-0270	(U)	EXTERNAL TRANSPORTATION			
ACAD-0280	(U)	TERRAIN FLIGHT MANUVERS			
ACAD-0290	(U)	AIRCRAFT TRACK AND BALANCE			

ACAD-0291	(U) IMDS			
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ENLISTED AIRCREW PERFORMANCE RECORD/QUALIFICATION JACKET ACADEMIC TRACKER					
SECTION IIIB-AIRCREW ACADEMIC/GROUND SCHOOL TRAINING					
NAME (Last, first, middle initial)			Last 4 SSN		
T&R CODE	ACADEMIC SYLLABUS		DATE	INSTRUCTOR	ENTERED BY
	FRS ACADEMIC PHASE (0000)		DD/MM/YY	NAME OR SELF PACED	NAME
LAB-0301	(U) BASIC GROUND HANDLING AND AIRCRAFT MOVEMENT				
LAB-0302	(U) AIRCRAFT INTERIOR				
LAB-0303	(U) ELECTRONICS COMPARTMENTS				
LAB-0304	(U) LANDING GEAR				
LAB-0305	(U) REFUEL, AUX TANKS, L/R FUSELAGE				
LAB-0306	(U) ENGINES, NOSE GEAR BOX, EAPS				
LAB-0307	(U) AFT MAIN ROTOR PYLON				
LAB-0308	(U) TAIL DRIVE SHAFTS				
LAB-0309	(U) TAIL SKID, IGB, TGB, TAIL SERVO				
LAB-0310	(U) TAIL ROTOR HEAD, ROTOR BLADES				
LAB-0311	(U) MGB, FLIGHT CONTROL MIXER UNIT				
LAB-0312	(U) 2 ND STAGE, UTILITY HYDRAULIC				
LAB-0313	(U) AUXILIARY POWER PLANT				
LAB-0314	(U) MAIN ROTOR HEAD AND BLADES				
LAB-0315	(U) MISSION SYSTEMS				
LAB-0316	(U) TURNAROUND INSPECTION				
LAB-0317	(U) REFUELING AND DEFUELING				
LAB-0318	(U) APP OPERATION				
LAB-0319	(U) FLIGHT CONTROLS, AFCS				

LAB-0321	(U) DAILY INSPECTION			
LAB-0322	(U) TURNAROUND INSPECTION			
LAB-0323	(U) FLIGHT EQUIPMENT			
LAB-0324	(U) EGRESS PROCEDURES			
INST-0500	(U) COMPUTER AIDED INSTRUCTION			
INST-0501	(U) LAB PERIOD OF INSTRUCTION			
INST-0502	(U) INSTRUCTIONAL SKILLS			
INST-0503	(U) PERIOD OF INSTRUCTION			
EVAL-0600	(U) PLANE CAPTAIN DUTIES			
EVAL-0601	(U) PLANE CAPTAIN DUTIES REVIEW			

AIRCREW PERFORMANCE RECORD/QUALIFICATION JACKET ACADEMIC TRACKER					
SECTION IIIB-AIRCREW ACADEMIC/GROUND SCHOOL TRAINING					
NAME (Last, first, middle initial)			Last 4 SSN		
T&R CODE	ACADEMIC SYLLABUS		DATE	INSTRUCTOR	ENTERED BY
	CORE SKILL PHASE (2000)		DD/MM/YY	NAME OR SELF PACED	NAME
ACAD-2004	(S)	AAR / ALE 47			
ACAD-2012	(S)	APR-39			
ACAD-2019	(S)	AAQ-24			
ACAD-2050	(U)	EA Tactical AC considerations & responsibility			
ACAD-2051	(U)	EA Terrain flight for enlisted aircrew			
ACAD-2052	(U)	EA Night vision training			
ACAD-2053	(U)	EA Fundamentals of aerial gunnery			
ACAD-2055	(U)	EA GAU-21 .50 cal machine gun			
ACAD-2056	(U)	EA Laser aiming devices			
ACAD-2057	(U)	EA Laser bore sighting			
ACAD-2058	(U)	EA Basic principles of Escort operations			
MISSION SKILL PHASE (3000)					
ACAD-3002	(U)	NEO EXECUTION			
ACAD-3004	(S)	PERSONNEL RECOVERY			
ACAD-3005	(S)	CH53 SPECIFIC TRAP TTPS			
ACAD-3006	(U)	CASEVAC			
CORE PLUS SKILL PHASE (4000)					
ACAD-4011	(U)	EA Aviation Delivered Ground Refueling TBFDS (CH-53E)			
ACAD-4050	(U)	EA Basic principles of Electronic Warfare			
ACAD-4051	(U)	EA Defensive Measures			
ACAD-4052	(U)	EA Defensive Measures part 2 (CH-53)			
ACAD-4053	(U)	EA Training the Tail Gunner			

CHAPTER 4

CH-53 AERIAL OBSERVER (MOS 6199)

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CHAPTER 4

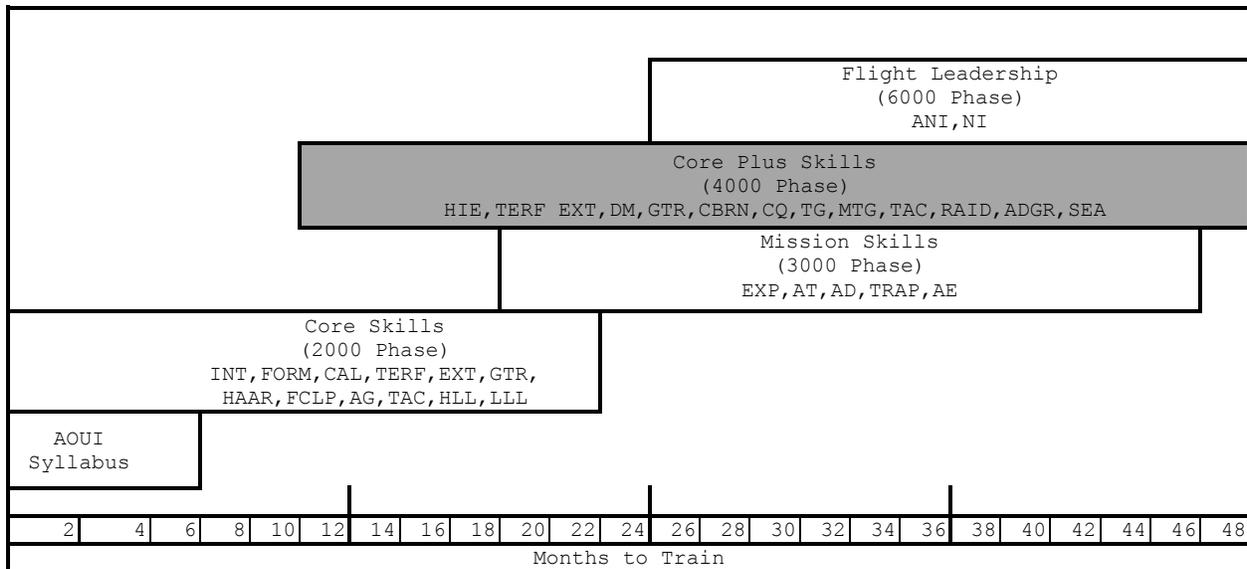
CH-53E AERIAL OBSERVER (MOS 6199)

4.0 AERIAL OBSERVER INDIVIDUAL TRAINING AND READINESS REQUIREMENTS.

This T&R Syllabus is based on specific goals and performance standards designed to ensure individual proficiency in Core Skills, and Mission Skills, and Core Plus Skills. The goal of this chapter is to develop individual and unit war fighting capabilities.

4.1 AERIAL OBSERVER (6199) TRAINING PROGRESSION MODEL. This model

represents the recommended training progression for the average Aerial Observer (6199) crewmember. Units should use the model as a point of departure to generate individual training plans.



4.2 ABBREVIATIONS. Refer to Chapter 3.

4.3 DEFENITIONS. Refer to Chapter 3.

4.4 INDIVIDUAL CORE/MISSION/CORE PLUS SKILL PROFICIENCY REQUIREMENTS

4.1.1 Management of individual CSP/MSP/CPSP/CPMP serves as the foundation for developing proficiency requirements in DRRS.

4.1.2 Individual CSP/MSP is a "Yes/No" status assigned to an individual by Core/Mission Skill. When an individual attains and maintains CSP/MSP in a Core/Mission Skill, the individual counts towards CMMR Unit MSP requirements for that Mission Skill.

4.1.3 Proficiency is attained by individual Core/Mission/Core Plus skill where the training events for each skill are determined by POI assignment.

4.1.4 Once proficiency has been attained by Core/Mission/Core Plus Skill (by any POI assignment) then the individual maintains proficiency by executing those events noted in the maintain table and in the "Maintain POI" column of the T&R syllabus matrix. An individual maintains proficiency by individual Core/Mission/Core Plus Skill.

Note

Individual may be attaining proficiency in some Core/Mission/Core Plus Skills while maintaining proficiency in other Core/Mission/Core Plus Skills.

4.1.5 Once proficiency has been attained, should one lose proficiency in an event in the "Maintain POI" column, proficiency can be re-attained by demonstrating proficiency in the delinquent event. Should an individual lose proficiency in all events in the "Maintain POI" column by Core/Mission/Core Plus Skill, the individual will be assigned to the Refresher POI for that Skill. To regain proficiency for that Core/Mission/Core Plus Skill the individual must demonstrate proficiency in all R-coded events for that Skill.

CH-53E AERIAL OBSERVER ATTAIN AND MAINTAIN PROFICIENCY (2000-4000)						
SKILL	STAGE	TRNG CODE	T&R DESCRIPTION	ATTAIN PROFICIENCY		MAINTAIN POI
				BASIC POI	REFRESHER POI	
CORE SKILLS (2000 Phase)						
INT	INT	2100	CARGO LAB	2100	2100	
	INT	2101	PAX LAB	2101	2100	
	INT	2105	CARGO	2105	2105	2105
	INT	2106	PAX	2106	2106	2106
FORM	FORM	2110	DAY FORM	2110	2110	2110
CAL	CAL	2210	CALS	2210	2210	2210
	CAL	2211	SECTION CALS	2211	2211	2211
TERF	TERF	2310	TERF	2310	2310	2310
	TERF	2311	SECTION TERF	2311	2311	2311
EXT	EXT	2410	SINGLE POINT	2410	2410	2410
	EXT	2411	DUAL POINT	2411	2411	2411
	EXT	2420	HLL SINGLE POINT	2420	2420	2420
	EXT	2421	HLL DUAL POINT	2421	2421	2421
	EXT	2430	LLL EXTERNALS	2430	2430	2430
GTR	GTR	2540	NON RADAR GTR	2540	2540	2540
FCLP	FCLP	2710	DAY FCLP	2710	2710	2710
	FCLP	2742	NS FCLP	2742	2742	2742
AG	AG	2800	GAU-21 LAB	2800	2800	
	AG	2801	GAU-21 MWPC LAB	2801	2801	
	AG	2802	Weapon Proc LAB	2802	2802	
	AG	2812	DAY AG	2812	2812	2812
	AG	2813	DAY SEC AG	2813	2813	2813
	AG	2842	NIGHT AG	2842	2842	2842
	AG	2843	NIGHT SEC AG	2843	2843	2843
TAC	TAC	2910	DAY LOW THREAT	2910	2910	2910
	TAC	2911	DAY MED THREAT	2911	2911	2911

CH-53E AERIAL OBSERVER ATTAIN AND MAINTAIN PROFICIENCY (2000-4000)						
SKILL	STAGE	TRNG CODE	T&R DESCRIPTION	ATTAIN PROFICIENCY		MAINTAIN POI
				BASIC POI	REFRESHER POI	
NS HLL	HLL	2120	HLL FORM	2120	2120	2120
	HLL	2220	HLL CALS	2220	2220	2220
	HLL	2221	HLL SEC CALS	2221	2221	2221
	HLL	2320	HLL TERF	2320	2320	2320
	HLL	2321	HLL SEC TERF	2321	2321	2321
NS LLL	HLL	2920	HLL LOW THREAT	2920	2920	2920
	LLL	2230	LLL CALS	2230	2230	2230
	LLL	2231	LLL SEC CALS	2231	2231	2231
	LLL	2330	LLL TERF	2330	2330	2330
	LLL	2331	LLL SEC TERF	2331	2331	2331
LLL	2930	LLL MED THREAT	2930	2930	2930	
MISSION SKILLS (3000 Phase)						
EXP	GTR	2540	NON RADAR GTR	2540	2540	2540
	AG	2843	NIGHT SEC AG	2843	2843	2843
	LLL	2231	LLL SEC CALS	2231	2231	2231
	LLL	2331	LLL SEC TERF	2331	2331	2331
	EXP	3140	EXP SHORE BASED OPS	3140	3140	3140
AT	GTR	2540	NON RADAR GTR	2540	2540	2540
	AG	2843	NIGHT SEC AG	2843	2843	2843
	LLL	2231	LLL SEC CALS	2231	2231	2231
	LLL	2331	LLL SEC TERF	2331	2331	2331
	ACAD	3002	NEO EXECUTION	3002		
AT	3240	ASSAULT TRANSPORT	3140	3140	3140	
AD	EXT	2430	LLL EXTERNALS	2430	2430	2430
	GTR	2540	NON RADAR GTR	2540	2540	2540
	AG	2843	NIGHT SEC AG	2843	2843	2843
	LLL	2231	LLL SEC CALS	2231	2231	2231
	LLL	2331	LLL SEC TERF	2331	2331	2331
AD	3340	AERIAL DELVIERY	3340	3340	3340	
TRAP	EXT	2430	LLL EXTERNALS	2430	2430	2430
	GTR	2540	NON RADAR GTR	2540	2540	2540
	AG	2843	NIGHT SEC AG	2843	2843	2843
	LLL	2231	LLL SEC CALS	2231	2231	2231
	LLL	2331	LLL SEC TERF	2331	2331	2331
	ACAD	3004	(S) PERSONNEL RECOVERY	3004		
	ACAD	3005	CH53 SPECIFIC TRAP TTPS	3005		
TRAP	3440	TRAP	3440	3440	3440	
AE	GTR	2540	NON RADAR GTR	2540	2540	2540
	AG	2843	NIGHT SEC AG	2843	2843	2843
	LLL	2231	LLL SEC CALS	2231	2231	2231
	LLL	2331	LLL SEC TERF	2331	2331	2331
	ACAD	3006	(U) CASEVAC	3006		
	AE	3540	AERIAL EVACUATION	3540	3540	3540
CORE PLUS (4000 Phase)						
HIE	HIE	4110	HELOCAST	4110	4110	4110
	HIE	4140	RAPPEL	4140	4140	4140
	HIE	4141	PARAOPS	4141	4141	4141
ADGR	ADGR	4200	TBFDS STATIC TRAINING	4200	4200	
	ADGR	4240	TBFDS OPERATION	4240	4240	4201
TERF EXT	TERF EXT	4412	DAY TERF EXTERNALS	4412	4412	4412
	TERF EXT	4440	NS TERF EXTERNALS	4440	4440	4440
DM	DM	4510	RW DM	4510	4510	4510
	DM	4511	FW DM	4511	4511	4511
GTR	GTR	4540	RADAR GTR	4540	4540	4540
CBRN	CBRN	4600	CBRN	4600		
CQ	CQ	4711	DAY CQ	4711	4711	4711
	CQ	4743	NIGHT CQ	4743	4743	4743
TG	TG	4800	STATIC TG TRAINING	4800	4800	

CH-53E AERIAL OBSERVER ATTAIN AND MAINTAIN PROFICIENCY (2000-4000)						
SKILL	STAGE	TRNG CODE	T&R DESCRIPTION	ATTAIN PROFICIENCY		MAINTAIN POI
				BASIC POI	REFRESHER POI	
	TG	4810	DAY TG	4810	4810	
	TG	4811	DAY SECTION TG	4811	4811	4811
	TG	4840	NIGHT SECTION TG	4840	4840	4840
MTG	MTG	4841	MTG	4841	4841	4841
TAC	TAC	4940	DIV TAC	4940	4940	4940
	TAC	4941	URBAN TAC	4941	4941	4941
RIE	GTR	2540	NON RADAR GTR	2540	2540	2540
	AG	2843	NIGHT SEC AG	2843	2843	2843
	RIE	4980	RIE	4980	4980	4980
ADGR	GTR	2540	NON RADAR GTR	2540	2540	2540
	AG	2843	NIGHT SEC AG	2843	2843	2843
	ADGR	4240	TBFDS OPERATION	4240	4240	4201
	ADGR	4981	ADGR TACTICS	4981	4981	4981
SEA	GTR	2540	NON RADAR GTR	2540	2540	2540
	AG	2843	NIGHT SEC AG	2843	2843	2843
	SEA	4982	SEA BASED	4982	4982	4982

4.5 REQUIREMENTS, CERTIFICATIONS, QUALIFICATIONS AND DESIGNATION TABLES.

The tables below delineate T&R events required to be completed to attain proficiency for select certifications, qualifications and designations. In addition to event requirements, all required stage lectures, briefs; squadron training, prerequisites, and other criteria shall be completed prior to completing final events. Certifications, qualification and designation letters signed by the commanding officer shall be placed in training Performance Records and NATOPS. See Chapter 6 of the Aviation T&R Program manual on regaining lost qualifications.

4.5.1 Individual Qualification Requirements

INDIVIDUAL QUALIFICATION REQUIREMENTS	
Qualification	Event Requirements
TERF	2310, 2311
NSQ HLL	2120, 2220, 2221, 2320, 2321, 2920
NSQ LLL	2230, 2231, 2330, 2331, 2930
AG	2800, 2801, 2802, 2812, 2813, 2842, 2843
DM	4510, 4511
TG	4810, 4811, 4840
NATOPS	6100

4.5.2 Individual Designation Requirements

INDIVIDUAL DESIGNATION REQUIREMENTS	
Designation	Event Requirements
AO CH-53E	S2100, S2101, 2105, 2106, 2110, 2120, 2210, 2211, 2220, 2221, 2310, 2311, 2320, 2321, 2411, 2421, 2812, 2813, 2842, 2843, 2910, 6000, 6001, 6002, 6003, 6100, 6101
NATOPS	6000R, 6001R, 6002R, 6101R
CRM	6003R, 6101R

4.6 AERIAL OBSERVER PROGRAMS OF INSTRUCTION (POI). These tables reflect the average time-to-train versus the minimum to maximum time-to-train parameters in the Training Progression Model.

4.6.1 Basic, Conversion, and Transition POI

CH-53E AERIAL OBSERVER Basic POI		
Weeks	Phase of Instruction	Unit
4-12	Aerial Observer Under Instruction (AOUI)	Tactical Squadron
12-24	Core Skill Training	Tactical Squadron
24-36	Mission Skill Training	Tactical Squadron
52+	Core Plus Training	Tactical Squadron

4.6.2 Refresher POI

CH-53E AERIAL OBSERVER Refresher POI		
Weeks	Phase of Instruction	Unit
4-12	Core Skill Training	Tactical Squadron
12-24	Mission Skill Training	Tactical Squadron
52+	Core Plus Training	Tactical Squadron

4.7 SYLLABUS NOTES

4.7.1 AIRCREW TRAINING REFERENCES. Aircrew shall use the following references to ensure safe and standardized training procedures, grading criteria, and aircraft operation.

AIRCREW TRAINING REFERENCES	
Designator	Title
OPNAVINST 3710.7	NATOPS General Flight and Operating Instructions
NAVAIR H53BE-NFM-000	CH-53E NATOPS Flight manual
NAVMC 3500.14	Aviation Training and Readiness (T&R) Program manual
MCO 4790.20	Individual training standards
MCRP 4-23E	Multiservice helicopter sling load manual

ANTTP 3-22.3-53	CH-53 Air Naval Tactics Techniques and Procedures
ANTTP 3-22.5-ASTACSOP	USMC Assault Support Tactical SOP
ANTTP 3-22.5-CH-53	CH-53 Tactical Pocket Guide
NVD manual	USN/USMC Helicopter Night Vision Device
A1-H53BE-CLG-000	Cargo loading manual
TM HM-020-800-23&P-M	Tactical Bulk Fuel Delivery System
TBFDS APCL-CH53E	TBFDS Aircrew Pocket Checklist
EA Academic support package	MAWTS-1 EA ASP
EA Instructor support package	MAWTS-1 Course Catalog
GTR program guide	MAWTS-1 Ground Threat Reaction program guide
DM program guide	MAWTS-1 Defensive Measures program guide
NTRP 3-22.4	Naval Aviation Technical Information

4.7.2.1.1 General

4.7.2.2 This Manual is written to allow for local conditions and yet remain unclassified.

4.7.2.3 All events shall terminate with a comprehensive debrief with emphasis on aircrew performance using all evaluation techniques.

4.7.2.4 Aircrew shall fly events annotated with an N at least 30 minutes after official sunset.

4.7.2.5 Aircrew shall fly night events in accordance with the table of acronyms for environmental conditions.

4.7.2.6 The Aerial Observer/Aerial Observer Under Instruction (AO/AOUI) is an assistant to the Crew Chief. Their crew position is associated with the left window in the A/C cabin. It is highly encouraged to train the AO/AOUI to the same standards as a Crew Chief but at no time will their training take precedence over that of a Crew Chief. The following is a list of the general responsibilities that the AO shall assist the Crew Chief in. This list is not all inclusive.

- (A) Daily/Turnaround inspections of A/C
- (B) Pre-flight inspections/maintenance of A/C
- (C) A/C preparation
- (D) Weapons preparation
- (E) Cabin setup/configuration for mission
- (F) Cabin security
- (G) A/C startup/shutdown
- (H) On/Off load of passenger/cargo
- (I) Security of passengers/cargo
- (J) Obstacle clearance of left side and tail rotor of A/C
- (K) Post-flight inspections/maintenance of A/C

4.7.3 Designation as an Aerial Observer.

4.7.3.1 An individual desiring to become an Aerial Observer (AO) shall be nominated by the squadrons Enlisted Aircrew Training Manager (EATM) to the squadrons Standardization (STAN) board. If the STAN board concurs with the nomination their recommendation will be forwarded to the squadrons Commanding Officer for approval. If approved by the Commanding Officer the individual shall be annotated on the authorized to fly list and begin the AO syllabus.

4.7.3.2 Once approved by the Commanding Officer the individual will become an Aerial Observer Under Instruction (AOUI) until they are designated as an Aerial Observer (AO). The AOUI will not conduct any of the Core Skill

Introduction phase and will begin training in the Core Skill phase at the tactical unit. The AOUI shall complete all academic and flight training as appropriate per the T&R Program of Instruction (POI).

4.7.3.3 Prior to the first flight the individual shall complete the aviation physical examination, Naval Aviation Survival Training (NTSP), and NITE lab indoctrination training per OPNAVIST 3710.7.

4.7.3.4 The AOUI shall complete the following T&R events per the Individual Designation table prior to flying any T&R events other than those listed below: 2100, 2101, 2105, 2106, 2110, 2120, 2210, 2211, 2220, 2221, 2310, 2311, 2320, 2321, 2410, 2411, 2420, 2421, 2800, 2801, 2802, 2812, 2813, 2842, 2843, 2910, 6000, 6001, 6002, 6003, 6100, 6101.

4.7.3.5 The AOUI shall conduct all above T&R events under the supervision of the appropriate level Crew Chief Instructor per the T&R event.

4.7.3.6 In addition to the Crew Chief Instructor and the AOUI there shall be another designated aircrew member on board the aircraft in order to fulfill the crew requirement. The additional crew member maybe another designated Crew Chief or a designated AO. The designated crew member does not need to be qualified for the specific event but shall meet all prerequisites and be eligible to conduct training in the event.

4.7.3.7 The AOUI shall conduct all events in the AOUI syllabus in the appropriate order per the required prerequisites of the individual T&R events.

4.7.3.8 All events shall be logged appropriately in M-SHARP.

4.7.3.9 All events shall require an ATF filled out and signed by the Crew Chief Instructor for that event and logged in the AOUIs APR jacket.

4.7.3.10 The AOUI shall not complete the 6000 phase events until all other events in the AOUI syllabus have been completed. The 6000 phase of training shall be instructed and evaluated by a NATOPS Instructor or Assistant NATOPS Instructor and a Crew Resource Management Instructor or Facilitator as appropriate per the event.

4.7.3.11 The AOUI shall not fly any event outside of the AOUI syllabus and act in the capacity of an AO nor fulfill the crew requirement for that event. If the AOUI is scheduled in addition to a qualified crew for any event outside the AOUI syllabus the AOUI shall not act in the capacity of an AO for that portion of the event and shall not log that event.

4.7.3.12 The AOUI will complete the TERF and AG syllabi prior to the initial NTPS-6100. However, the AOUI shall not be issued qualification letters or utilized as a qualified crewmember (not under the supervision of the appropriate level Crew Chief Instructor for that event, and not able to carry passengers) until after the completion of NTPS-6100 and CRM-6101.

4.7.3.13 After successful completion of NTPS-6100, and CRM-6101 the AOUI may be designated an Aerial Observer at the discretion of the Commanding Officer. At this time a designation letter as an Aerial Observer along with a qualification letter for TERF and AG shall be routed to the commanding officer for signature. The original designation/qualification letters, signed by the commanding officer shall be placed in the AO's NATOPS jacket along with a copy in their APR jacket with a corresponding logbook entry. An AMOS code of 6199 shall be run on the AO thru the unit S-1/IPAC.

4.7.3.14 All paperwork shall be properly logged prior to utilizing the newly designated AO as a qualified crewmember (to carry passengers, or without the supervision of the appropriated level Crew Chief Instructor).

4.7.3.15 Once the commanding officer has designated the AOUI as an AO they may be awarded and will be authorized to wear the Naval Aircrew Wings badge.

4.7.3.16 The designated AO may continue and conduct all training in Core Skill/Mission Skill/Core Plus/Mission Plus Skill phases of training, attaining any and all qualifications associated with these phases of training.

4.7.3.17 The AO shall not conduct any of the Instructor Phase of training and shall hold no instructor qualifications.

4.7.4 Program of Instruction (POI) Assignment

PROGRAM ON INSTRUCTION MATRIX		
Program of Instruction (POI)	Symbol	Aviation Flying
Basic	B	Initial MOS/Skill Training
Transition*	T	Moving from one Type to another (Tilt-Rotor to Rotary-Wing)e.g. MV-22 to CH-53
Conversion*	C	Moving from one Model to another (CH-46 to CH-53)
Refresher	R	Non-flying status for 366 days or longer
Maintain	M	All individual who have attained CSP/MSP/CPD by initial POI assignment are re-assigned to the M POI to maintain proficiency.
*Transition and Conversion aerial observers shall be assigned to the Basic POI.		

4.7.4.1 Basic, Conversion, and Transition POI. AOs assigned to Basic (B), Conversion (C), and Transition (T) POIs shall fly the entire Basic (B) POI. All events shall have an ATF filled out and signed by the crew chief instructor for that event and shall be logged in section 3 of the individuals APR jacket. The Enlisted Aircrew Training Manager (EATM) shall ensure all ATFs are properly logged within a 24 hour period after completion of the event.

4.7.4.2 Refresher POI. The Refresher (R) POI is predicated on the experience of the Refresher Aerial Observer. Previously designated Aerial Observers returning to a flying status after being in a non-flying status for a period greater than 365 days shall be assigned to the Refresher (R) POI and fly all (R) coded events. The Squadron Commanding Officer may tailor the individual's Refresher POI per the squadron standardization board recommendations and IAW NAVMC 3500.14. When the (R) coded events within a stage of training are complete, the AO may be credited with the entire stage of training. This assumes the AO has previous proficiency in a stage of training. If the AO has no previous proficiency in a stage or particular event (i.e. event Never Been Attempted (NBA)), then the Refresher AO shall fly the entire stage or all events not previously attempted.

4.7.4.3 Re-Qualification (TERFQ, AGQ, NSQ HLL, NSQ LLL, TGO, DMQ). Upon demonstration of proficiency, by flying those (R) coded events, IAW the Program Manual NAVMC 3500.14, within the applicable stage in a specific core skill, aircrew may be re-qualified at the discretion of the Squadron Commanding Officer.

4.7.5 Aviation Training Forms (ATF)

4.7.5.1 All Basic (B), Conversion (C), and Transition (T) POI events shall require an ATF. The ATF shall be filled out and signed by the Crew Chief Instructor as outlined by the instructor requirement per the individual T&R event. All ATFs shall have the NAVFLIR number logged and be marked either "SATISFACTORY" or "UNSATISFACTORY".

4.7.5.2 All Refresher (R) POI events shall require an ATF. The ATF shall be filled out and signed by the Crew Chief Instructor as outlined by the instructor requirement per the individual T&R event. All Refresher ATFs shall be annotated with a (R) after the T&R event code to annotate that the event was a refresher. All ATFs shall have the NAVFLIR number logged and be marked either "SATISFACTORY" or "UNSATISFACTORY".

4.7.5.3 All POI events deemed to be "UNSATISFACTORY" shall require an ATF. The ATF shall be filled out and signed by the Crew Chief Instructor as outlined by the instructor requirement per the individual T&R event. These events shall not be logged on the NAVFLIR for the individual nor shall they receive credit for conducting these events.

4.7.5.4 All individual instructors shall report to the Enlisted Aircrew Training Manager (EATM) within a 24 hour period and provide them with the completed ATFs for the event. The EATM shall ensure that all ATFs are properly logged in the individual's APR within 48 hours after the event has been completed.

All ATFs shall be logged in section 3 of the individual's APR jacket under the T&R Evaluated Flights tab.

The ATFs shall be logged in order of the "T&R Tracker Table" with the highest numbered T&R code place on top.

All Refresher ATFs shall be logged in the same manner except that they shall all be grouped together and placed on the top of the other ATFs and have the refresher syllabus letter signed by the Squadron Commanding Officer placed on top.

All "UNSATISFACTORY" ATFs shall be logged in the same order and shall remain the individuals APR jacket.

The T&R Tracker Table shall be placed in section 3 of the APR and placed on top of the T&R Evaluated Flights Tab.

4.7.6 Regaining CSP/MSP Proficiency

4.7.6.1 Individual. For an individual to regain proficiency of a single "delinquent event" (i.e. event re-fly interval exceeded) in a Core/Mission/Core Plus Skill, the individual is required to complete that "delinquent event" with another crewmember who is proficient in that event.

NOTE

See NAVMC 3500.14 Chapter 3 for specific requirements in Low Level Flight/TERF, Night Systems, and Air Combat Maneuvering/DM.

4.7.6.2 If all events in the Maintain Table/POI for a Core/Mission/Core Plus Skill are delinquent, the individual must re-fly all delinquent R-coded events in the Attain Table for that Core/Mission/Core Plus Skill.

4.7.7 Unit. If an entire unit loses proficiency, unit instructors shall regain proficiency by completing event(s) with instructors from another like unit; if not feasible, proficiency shall be regained by completing event(s) with another instructor. If a unit has only one instructor and another instructor is not available, instructor proficiency shall be regained as designated by the Squadron Commanding Officer.

4.7.8 Qualifications. Qualifications are assigned to personnel based on demonstration of proficiency in a specific skill (i.e. FORM, CALS, TERF, EXT, HLL, LLL, etc.). All qualifications are assigned one or more T&R qualification events. When all qualifications requirements and events are completed, the individual may be granted the respective qualification by the commanding officer. Proficiency statuses of these qualification events are used to determine qualification status; an individual qualification status may be either "Qualified" or "Not Qualified".

4.7.8.1 Loss of Qualifications. If an individual goes delinquent in all associated qualification events, the qualification is lost and the status automatically reverts to "Not Qualified." Individuals do not lose a qualification as a function of re-fly factor for individual events. Loss of proficiency resulting from being delinquent on all associated qualification events (events with measurable re-fly factor; excluding one-time events '*') constitutes loss of that qualification.

4.7.8.2 Re-Qualification. Re-qualification requires demonstration of proficiency in a specific skill. To regain a lost qualification due to delinquency, the individual must re-complete all R-coded qualifications events. Upon completion, the qualification status automatically reverts back to "Qualified." Normally qualification regained in this manner requires no additional documentation.

4.7.9 Acronyms for crew requirements

Acronyms for Crew Requirements	
Acronym	Definition
CC	Crew Chief
AOUI	Aerial Observer Under Instruction
AO	Aerial Observer

4.7.10 Environmental Conditions Matrix

Environmental Conditions	
Code	Meaning
D	Shall be flown daytime
N	Shall be flown at night, may be aided or unaided.
N*	Shall be flown at night, must be flown unaided.
(N*)	May be flown at night - If flown at night, must be flown unaided.
(N)	May be flown at night - If flown at night; may be flown aided or unaided.
NS	Shall be flown at night - Mandatory use of Night Vision Devices.
(NS)	May be flown at night - If flown at night; must be flown with Night Vision Devices.
Note - Aircrew shall fly all night time events at least 30 minutes after official sunset.	
Note - If the event is to be flown in the simulator the Instructor shall set the desired environmental conditions for the event.	

4.7.11 Event Terms

EVENT TERMS	
TERM	DESCRIPTION
Discuss	An explanation of systems, procedures, or maneuvers during the brief, in flight, or post flight. Student is responsible for knowledge or procedures.

Demonstrate	The description and performance of a particular maneuver/event by the instructor, observed by the student. The student is responsible for knowledge of the procedures prior to the demonstration of a required maneuver.
Introduce	The instructor may demonstrate a procedure or maneuver to a student, or may coach the student through the maneuver without demonstration. The student performs the procedures or maneuver with coaching as necessary. The student is responsible for knowledge of the procedures.
Practice	The performance of a maneuver or procedure by the student that may have been previously introduced in order to attain a specified level of performance.
Review	Demonstrated proficiency of a maneuver by the student.
Evaluate	Any flight designed to evaluate aircrew standardization that does not fit another category.
E-Coded	An event evaluation form is required each time the event is logged. Requires evaluation by a certified standardization instructor (NATOPS I, Assistant NATOPS I, WTI, etc.)

4.7.12 Academic Training

4.7.12.1 The Academic syllabus is designed to ensure aircrew receive the proper academic training prior to starting a new phase and stage of training. Within each phase of training (2000-6000) there are corresponding stages, each stage has an academic syllabus. The required academic syllabus for each stage of training is further delineated in the beginning paragraphs of each phase. Each phase and stage contain specific academic requirements which must be completed either prior to phase and/or stage initiation or prior to phase and/or stage completion. Academic/ground training events can either be accomplished by an individual utilizing self paced courseware or presented by a qualified instructor. The Enlisted Aircrew Training Manager shall ensure that the appropriate academic/ground training event is manually updated in MSHARP and logged in the APR.

4.7.12.2 The purpose of the academic syllabus is to ensure that required academic courses for each phase/stage of training are completed and logged in M-SHARP for each Crew Member. A summary of academic classes required for all of the phases of training (0000-6000) are listed below with their corresponding T&R code. Where indicated, standardized academic training materials exist and may be obtained from the sponsoring activity.

4.7.12.3 The academic/ground training shall be complete IAW the phase and/or stage requirements and prerequisites. Upon completion, the Crew Chief shall report to the Enlisted Aircrew Training Manager (EATM) in the Operations Department.

4.7.12.4 The EATM shall manually update the training code in MSHARP.

4.7.12.5 The EATM shall log the academic/ground training event on the Academic Tracker located in Chapter 3 of this manual starting on Pg 1-183.

4.7.12.6 The EATM shall ensure that the Academic Tracker is located in the individuals APR jacket in section 3 under the ground school tab.

4.7.12.7 Additional academic/ground training classes not listed as requirements in the T&R shall be logged on the Additional Academic Tracker located In Chapter 3 of this manual starting on Pg 1-183 and shall be logged in section 3 of the individuals APR jacket under the ground school tab.

4.8 CORE SKILL PHASE (2000). For Individual T&R events refer to Chapter 3 of this manual.

4.9 MISSION SKILL PHASE (3000). For Individual T&R events refer to Chapter 3 of this manual.

4.10 CORE PLUS PHASE (4000). For Individual T&R events refer to Chapter 3 of this manual.

4.11 INSTRUCTOR TRAINING PHASE (5000). Not applicable to AOs.

4.12 REQUIREMENTS, QUALIFICATIONS, AND DESIGNATIONS (RQD) PHASE (6000). For Individual T&R events refer to Chapter 3 of this manual

4.13 AERIAL OBSERVER ATTAIN AND MAINTAIN MATRIX (2000-6000 PHASE)

CH-53E AERIAL OBSERVER ATTAIN AND MAINTAIN MATRIX (2000-6000 PHASE)									
SKILL	STAGE	DESCRIPTION	BASIC POI	REFRESHER POI	SERIES CONV POI	MAINTAIN POI	REFLY	PREREQUISITE	CHAINING
2000 PHASE - CORE SKILL BASIC									
ACADEMICS (ACAD)									
ACAD	ACAD	AAR / ALE 47	2004				*		
	ACAD	APR-39	2012				*		
	ACAD	AAQ-24	2019				*		
	ACAD	TAC AIRCREW CON	2050				*		
	ACAD	EA TERF	2051				*		
	ACAD	EA NS TRAINING	2052				*		
	ACAD	AERIAL GUNNERY	2053				*		
	ACAD	EA GAU-21	2055				*		
	ACAD	EA LASER AIMING	2056				*		
ACAD	LASER BORESIGHT	2057				*			
ACAD	EA ESCORT OPS	2058				*			
INTERNAL LOADS (INT)									
INT	INT	CARGO LAB	2100	2100			*	2050,2052~N	
	INT	PAX LAB	2101	2100			*	2050,2052-N	
	INT	CARGO	2105	2105		2105	365	2050,2052-N,2100	
	INT	PAX	2106	2106		2106	365	2050,2052-N,2101	
FORMATION (FORM)									
FORM	FORM	DAY FORM	2110	2110		2110	365	2050	
CONFINED AREA LANDING (CAL)									
CAL	CAL	CALS	2210	2210		2210	365	2050	
	CAL	SECTION CALS	2211	2211		2211	365	2110,2210	2110,2210
TERRAIN FLIGHT (TERF)									
TERF	TERF	TERF	2310	2310		2310	365	2050,2051	
	TERF	SECTION TERF	2311	2311		2311	365	2110,2310	2110,2310
EXTERNAL (EXT)									
EXT	EXT	SINGLE POINT	2410	2410		2410	365	2210	2210
	EXT	DUAL POINT	2411	2411		2411	365	2210	2210,2410
	EXT	HLL SINGLE POINT	2420	2420		2420	180	2220,2410	2210,2220,2410
	EXT	HLL DUAL POINT	2421	2421		2421	180	2220,2411	2210,2220,2410,2411,2420
	EXT	LLL EXTERNALS	2430	2430		2430	180	2230,2420,2421, NSQ-HLL	2210,2220,2230,2410,2411,2420,2421
GROUND THREAT REACTION (GTR)									
GTR	GTR	NON RADAR GTR	2540	2540		2540	365	2004,2019,4051,4052,2311,2321~NS,2331	2110,2310,2311,HLL~2320,HLL~2321,LLL~2330,LLL~2331

CH-53E AERIAL OBSERVER ATTAIN AND MAINTAIN MATRIX (2000-6000 PHASE)									
SKILL	STAGE	DESCRIPTION	BASIC POI	REFRESHER POI	SERIES CONV POI	MAINTAIN POI	REFLY	PREREQUISITE	CHAINING
FIELD CARRIER LANDING PRACTICE (FCLP)									
FCLP	FCLP	DAY FCLP	2710	2710		2710	365	2210	2210
	FCLP	NS FCLP	2742	2742		2742	365	2220~NS, 2230~LLL, 2710	2210, HLL~2220, LLL~2230, 2710
AERIAL GUNNERY GAU-21 (AG)									
AG	AG	GAU-21 LAB	2800	2800			*	2055	
	AG	GAU-21 MWPC LAB	2801	2801			*	2056, 2057, 2800	
	AG	Weapon Proc LAB	2802	2802			*	2801	
	AG	DAY AG	2812	2812		2812	180	2053, 2310, 2802	
	AG	DAY SEC AG	2813	2813		2813	180	2311, 2812	2812
	AG	NIGHT AG	2842	2842		2842	180	2320~NS, 2330~LLL, 2812	2812
	AG	NIGHT SEC AG	2843	2843		2843	180	2321~NS, 2331~LLL, 2813, 2842	2812, 2813, 2842
TACTICS (TAC)									
TAC	TAC	DAY LOW THREAT	2910	2910		2910	365	2058, 2211, TERFQ	2106, 2110, 2210, 2211
	TAC	DAY MED THREAT	2911	2911		2911	365	2910	2106, 2110, 2210, 2211, 2910
NIGHT SYSTEM HIGH LIGHT LEVEL (HLL)									
HLL	HLL	HLL FORM	2120	2120		2120	180	2052, 2110	2110
	HLL	HLL CALS	2220	2220		2220	180	2052, 2210	2210
	HLL	HLL SEC CALS	2221	2221		2221	180	2120, 2211, 2220	2110, 2120, 2210, 2211, 2220
	HLL	HLL TERF	2320	2320		2320	180	2052, 2310, 2120	2110, 2120, 2310
	HLL	HLL SEC TERF	2321	2321		2321	180	2120, 2311, 2320	2110, 2120, 2310, 2311, 2320
	HLL	HLL LOW THREAT	2920	2920		2920	365	2221, 2321, 2910	2105, 2106, 2110, 2120, 2210, 2211, 2220, 2221, 2910
NIGHT SYSTEMS LOW LIGHT LEVEL STAGE (NS LLL)									
LLL	LLL	LLL CALS	2230	2230		2230	180	NSQ HLL	2210, 2220
	LLL	LLL SEC CALS	2231	2231		2231	180	2230	2110, 2120, 2210, 2211, 2220, 2221, 2230
	LLL	LLL TERF	2330	2330		2330	180	NSQ HLL	2310, 2320
	LLL	LLL SEC TERF	2331	2331		2331	180	2330	2110, 2120, 2310, 2311, 2320, 2321, 2330
	LLL	LLL MED THREAT	2930	2930		2930	365	2231, 2331	2105, 2106, 2110, 2120, 2210, 2211, 2220, 2221, 230, 2231, 2910, 2911, 2920
3000 PHASE - MISSION SKILLS									
ACADEMICS (ACAD)									
ACAD	ACAD	NEO EXECUTION	3002				*		
	ACAD	PERSONNEL REC	3004				*		
	ACAD	CH-53 TRAP TTPS	3005				*		
	ACAD	CASEVAC	3006				*		

CH-53E AERIAL OBSERVER ATTAIN AND MAINTAIN MATRIX (2000-6000 PHASE)									
SKILL	STAGE	DESCRIPTION	BASIC POI	REFRESHER POI	SERIES CONV POI	MAINTAIN POI	REFLY	PREREQUISITE	CHAINING
EXPEDITIONARY (EXP)									
EXP	GTR	NON RADAR GTR	2540	2540		2540	365	2004, 2019, 4051, 4052, TERFQ, 2321~NS, 2331~LLL	2110, 2310, 2311, HLL~2320, HLL~2321, LLL~2330, LLL~2331
	AG	NIGHT SEC AG	2843	2843		2843	180	2321~NS, 2331~LLL, 2813, 2842	2812, 2813, 2842
	LLL	LLL SEC CALS	2231	2231		2231	180	2230	2110, 2120, 2210, 2211, 2220, 2221, 2230
	LLL	LLL SEC TERF	2331	2331		2331	180	2330	2110, 2120, 2310, 2311, 2320, 2321, 2330
	EXP	EXP SHORE BASED OPS	3140	3140		3140	365	NSQ LLL, AGQ	
ASSAULT TRANSPORT (AT)									
AT	GTR	NON RADAR GTR	2540	2540		2540	365	2004, 2019, 4051, 4052, TERFQ, 2321~NS, 2331~LLL	2110, 2310, 2311, HLL~2320, HLL~2321, LLL~2330, LLL~2331
	AG	NIGHT SEC AG	2843	2843		2843	180	2321~NS, 2331~LLL, 2813, 2842	2812, 2813, 2842
	LLL	LLL SEC CALS	2231	2231		2231	180	2230	2110, 2120, 2210, 2211, 2220, 2221, 2230
	LLL	LLL SEC TERF	2331	2331		2331	180	2330	2110, 2120, 2310, 2311, 2320, 2321, 2330
	ACAD	NEO EXECUTION	3002						
AT	ASSAULT TRANSPORT	3240	3240		3240	365	NSQ LLL, AGQ, 2540, 2843, 3002		
AERIAL DELIVERY (AD)									
AD	EXT	LLL EXTERNALS	2430	2430		2430	180	2230, 2420, 2421, NSQ-HLL	2210, 2220, 2230, 2410, 2411, 2420, 2421
	GTR	NON RADAR GTR	2540	2540		2540	365	2004, 2019, 4051, 4052, TERFQ, 2321~NS, 2331~LLL	2110, 2310, 2311, HLL~2320, HLL~2321, LLL~2330, LLL~2331
	AG	NIGHT SEC AG	2843	2843		2843	180	2321~NS, 2331~LLL, 2813, 2842	2812, 2813, 2842
	LLL	LLL SEC CALS	2231	2231		2231	180	2230	2110, 2120, 2210, 2211, 2220, 2221, 2230
	LLL	LLL SEC TERF	2331	2331		2331	180	2330	2110, 2120, 2310, 2311, 2320, 2321, 2330
	AD	AERIAL DELVIERY	3340	3340		3340	365	NSQ LLL, AGQ, 2430, 2540	
TACTICAL RECOVERY OF AIRCRAFT AND PERSONNEL (TRAP)									
TRAP	EXT	LLL EXTERNALS	2430	2430		2430	180	2230, 2420, 2421, NSQ-HLL	2210, 2220, 2230, 2410, 2411, 2420, 2421
	GTR	NON RADAR GTR	2540	2540		2540	365	2004, 2019, 4051, 4052, TERFQ, 2321~NS, 2331~LLL	2110, 2310, 2311, HLL~2320, HLL~2321, LLL~2330, LLL~2331
	AG	NIGHT SEC AG	2843	2843		2843	180	2321~NS, 2331~LLL, 2813, 2842	2812, 2813, 2842
	LLL	LLL SEC CALS	2231	2231		2231	180	2230	2110, 2120, 2210, 2211, 2220, 2221, 2230
	LLL	LLL SEC TERF	2331	2331		2331	180	2330	2110, 2120, 2310, 2311, 2320, 2321, 2330
	ACAD	PERSONNEL RECOVERY	3004				*		
	ACAD	CH-53 TRAP TTPS	3005				*		
TRAP	TRAP	3440	3440		3440	365	NSQ LLL, AGQ, 3004, 3005, 2540		

CH-53E AERIAL OBSERVER ATTAIN AND MAINTAIN MATRIX (2000-6000 PHASE)									
SKILL	STAGE	DESCRIPTION	BASIC POI	REFRESHER POI	SERIES CONV POI	MAINTAIN POI	REFLY	PREREQUISITE	CHAINING
AERIAL EVACUATION (AE)									
AE	GTR	NON RADAR GTR	2540	2540		2540	365	2004, 2019, 4051, 4052, TERFQ, 2321~NS, 2331~LLL	2110, 2310, 2311, HLL~2320, HLL~2321, LLL~2330, LLL~2331
	AG	NIGHT SEC AG	2843	2843		2843	180	2321~NS, 2331~LLL, 2813, 2842	2812, 2813, 2842
	LLL	LLL SEC CALS	2231	2231			180	2230	2110, 2120, 2210, 2211, 2220, 2221, 2230
	LLL	LLL SEC TERF	2331	2331		2331	180	2330	2110, 2120, 2310, 2311, 2320, 2321, 2330
	ACAD	(U) CASEVAC	3006					*	
	AE	AERIAL EVACUATION	3540	3540		3540	365	NSQ LLL, AGQ, 3006, 2540	
4000 PHASE - CORE PLUS									
ACADEMICS (ACAD)									
ACAD	ACAD	EA ADGR	4011				*		
	ACAD	EA EW	4050				*		
	ACAD	EA DM/GTR PART 1	4051				*		
	ACAD	EA DM/GTR PART 2	4052				*		
	ACAD	EA TAIL GUNNER	4053				*		
HELICOPTER INSERTION & EXTRACTION (HIE)									
HIE	HIE	HELOCAST	4110	4110		4110	365	TERFQ, 2106	2106
	HIE	RAPPEL	4140	4140			*	2210, 2920~NS, 2930~LLL	2106
	HIE	PARAOPS	4141	4141			*	2920~NS, 2930~LLL	2106
AVIATION DELIVERED GROUND REFUELING (ADGR)									
ADGR	ADGR	TBFDS STATIC TRNG	4200	4200			*	2105, 4011	
	ADGR	TBFDS OPERATION	4240	4240		4201	365	2105, 2210, 2920~NS, 2930~LLL, 4011, 4200	2105, 2210
TERRAIN FLIGHT EXTERNALS (TERF EXT)									
TERF EXT	TERF EXT	DAY TERF EXTERNALS	4412	4412		4412	365	2310, 2410~SINGLE POINT, 2411~DUAL POINT	2310, 2410~SINGLE POINT, 2411~DUAL POINT
	TERF EXT	NS TERF EXTERNALS	4440	4440		4440	180	2320~NS, 2420~NS, 2330~LLL, 2430~LLL,	
DEFENSIVE MEASURES (DM)									
DM	DM	RW DM	4510	4510		4510	365	TERFQ, 2004, 2019, 4051, 4052	2110, 2310, 2311
	DM	FW DM	4511	4511		4511	365	TERFQ, 2004, 2019, 4051, 4052	2110, 2310, 2311
GROUND THREAT REACTIONS (GTR)									
GTR	GTR	RADAR GTR	4540	4540		4540	365	2004, 2019, 4051, 4052, 2311, 2321~NS, 2331~LLL	2110, 2310, 2311
CHEMICAL, BIOLOGICAL, RADIOLOGICAL, AND NUCLEAR (CBRN)									
CBRN	CBRN	CBRN	4600				*	2210, 2220~NS, 2230~LLL	
CARRIER QUALIFICATION (CQ)									
CQ	CQ	DAY CQ	4711	4711		4711	365	2710	2210, 2710
	CQ	NIGHT CQ	4743	4743		4743	365	2742, NSQ-HLL, NSQ-LLL~LLL	2742, HLL~2220, LLL~2230, 4711

CH-53E AERIAL OBSERVER ATTAIN AND MAINTAIN MATRIX (2000-6000 PHASE)										
SKILL	STAGE	DESCRIPTION	BASIC POI	REFRESHER POI	SERIES CONV POI	MAINTAIN POI	REFLY	PREREQUISITE	CHAINING	
TAIL GUNNERY (TG)										
TG	TG	STATIC TG TRAINING	4800	4800			*	AGQ, 4053		
	TG	DAY TG	4810	4810			*	AGQ, 4800	2812	
	TG	DAY SECTION TG	4811	4811		4811	180	4810	2812, 2813	
	TG	NIGHT SECTION TG	4840	4840		4840	180	4811	2812, 2813, 2842, 2843, 4810, 4811	
MOVING TARGET GUNNERY (MTG)										
MTG	MTG	MTG	4841	4841		4841	365	2812~D, 2842~NS, 4810~D, 4840~NS	2813~SEC, 284~NS SEC, 4810~TG, 4811~SEC TG, 4840~NS TG	
TACTICS (TAC)										
TAC	TAC	DIV TAC	4940	4940		4940	365	2911, 2920~NS, 2930~LLL	2110, 2210, 2211, 2910, 2911	
	TAC	URBAN TAC	4941	4941		4941	365	2920~NS, 2930~LLL	2110, 2120, 2210, 2211, 2220, 2221, 2910, 2911, 2920	
RAID (RAID)										
RIE	GTR	NON RADAR GTR	2540	2540		2540	365	2004, 2019, 4051, 4052, TERFQ, 2321~NS, 2331~LLL	2110, 2310, 2311, HLL~2320, HLL~2321, LLL~2330, LLL~2331	
	AG	NIGHT SEC AG	2843	2843		2843	180	2321~NS, 2331~LLL, 2813, 2842	2812, 2813, 2842	
	RIE	RIE	4980	4980		4980	365	NSQ LLL, AGQ		

CH-53E AERIAL OBSERVER ATTAIN AND MAINTAIN MATRIX (2000-6000 PHASE)									
SKILL	STAGE	DESCRIPTION	BASIC POI	REFRESHER POI	SERIES CONV POI	MAINTAIN POI	REFLY	PREREQUISITE	CHAINING
AVIATION DELIVERED GROUND REFUELING (ADGR)									
ADGR	GTR	NON RADAR GTR	2540	2540		2540	365	2004, 2019, 4051, 4052, TERFQ, 2321~NS, 2331~LLL	2110, 2310, 2311, HLL~2320, HLL~2321, LLL~2330, LLL~2331
	AG	NIGHT SEC AG	2843	2843		2843	180	2321~NS, 2331~LLL, 2813, 2842	2812, 2813, 2842
	ADGR	TBFDS OPERATION	4240	4240		4201	365	2105, 2210, 2920~NS, 2930~LLL, 4011, 4200	2105, 2210
	ADGR	ADGR TACTICS	4981	4981		4981	365	NSQ LLL, AGQ, 4240	4240
SEA									
SEA	GTR	NON RADAR GTR	2540	2540		2540	365	2004, 2019, 4051, 4052, TERFQ, 2321~NS, 2331~LLL	2110, 2310, 2311, HLL~2320, HLL~2321, LLL~2330, LLL~2331
	AG	NIGHT SEC AG	2843	2843		2843	180	2321~NS, 2331~LLL, 2813, 2842	2812, 2813, 2842
	SEA	SEA BASED	4982	4982		4982	365	NSQ LLL, AGQ,	
INSTRUCTOR TRAINING (5000 PHASE)									
AERIAL GUNNERY INSTRUCTOR (AGI)									
AGI	AGI	AGI STATIC TRNG	5400	5400			*	SEE COURSE CATALOG	
	AGI	AGI STATIC TRNG	5401	5401			*	SEE COURSE CATALOG	
	AGI	AGI STATIC TRNG	5402	5402			*	SEE COURSE CATALOG	
	AGI	DAY MTG	5403				*	SEE COURSE CATALOG	
	AGI	NS SEC AG	5404				*	SEE COURSE CATALOG	
	AGI	DAY SEC TG	5405				*	SEE COURSE CATALOG	
	AGI	NS SEC TG	5406				*	SEE COURSE CATALOG	
	AGI	NS SEC AG	5407	5407			*	SEE COURSE CATALOG	
AGI	NS SEC TG	5408	5408			*	SEE COURSE CATALOG		
6000 PHASE - REQUIREMENTS, CERTIFICATIONS, QUALIFICATIONS, DESIGNATIONS (RQD)									
NATOPS (NTPS)									
NTPS	NTPS	OPEN BOOK EXAM	6000	6000		6000	365		
	NTPS	CLOSED BOOK EXAM	6001	6001		6001	365	6000	
	NTPS	ORAL EXAM	6002	6002		6002	365	6001	
	NTPS	NATOPS EVAL FLT	6100	6100		6100	365	6002	
CRM									
CRM	CRM	CRM GRND CLASS	6003	6003		6003	365		
	CRM	CRM FLT	6101	6101		6101	365	6003	

4.14 AERIAL OBSERVER T&R MATRIX (2000-6000 PHASE)

CH-53E AERIAL OBSERVER T&R MATRIX (2000-6000 PHASE)																				
SKILL	STAGE	TRNG CODE	T&R DESCRIPTION	POI				ACADEMIC		SIMULATOR		FLIGHT		CON	DEVICE	# A/C	REFLY	EVAL	EOM	EVENT CONV
				B	R	SC	M	#	ACAD	#	SIM	#	FLT							
2000 PHASE - CORE SKILL BASIC																				
ACADEMICS (ACAD)																				
ACAD	ACAD	2004	(S) AAR / ALE 47	X					1.0					G		*			2004	
	ACAD	2012	(S) APR-39	X					1.0					G		*			2012	
	ACAD	2019	(S) AAQ-24	X					1.0					G		*			2019	
	ACAD	2050	(U)EA TACTICAL AIRCREW CON	X					1.0					G		*			2050	
	ACAD	2051	(U) EA TERF	X					1.0					G		*			2051	
	ACAD	2052	(U) EA NS TRAINING	X					1.0					G		*			2052	
	ACAD	2053	(U) EA AERIAL GUNNERY	X					1.0					G		*			2053	
	ACAD	2055	(U) EA GAU-21	X					1.0					G		*			2055	
	ACAD	2056	(U) EA LASER AIMING	X					1.0					G		*			2056	
ACAD	2057	(U) EA LASER BORESIGHTING	X					1.0					G		*			2057		
ACAD	2058	(U) EA ESCORT OPERATIONS	X					1.0					G		*			2058		
ACAD TOTAL								11	11.0	0	0.0	0	0.0							
INTERNAL LOADS (INT)																				
INT	INT	2100	CARGO LAB	X	X						0.0		(N)	A	1	*			2100	
	INT	2101	PAX LAB	X	X						0.0		(N)	A	1	*			2101	
	INT	2105	CARGO	X	X		X						(N)	A	1	365			2105	
	INT	2106	PAX	X	X		X						(N)	A	1	365			2106	
INT TOTAL								0	0.0	2	0.0	2	3.0							
FORMATION (FORM)																				
FORM	FORM	2110	DAY FORM	X	X		X						1.5	D	A	2	365		2110	
FORM TOTAL								0	0.0	0	0.0	1	1.5							
CONFINED AREA LANDING (CAL)																				
CAL	CAL	2210	CALS	X	X		X						1.5	D	A	1	365		2210	
	CAL	2211	SECTION CALS	X	X		X						1.5	D	A	2	365		2211	
CAL TOTAL								0	0.0	0	0.0	2	3.0							
TERRAIN FLIGHT (TERF)																				
TERF	TERF	2310	TERF	X	X		X						1.5	D	A	1	365		2310	
	TERF	2311	SECTION TERF	X	X		X						1.5	D	A	2	365	E	2311	
TERF TOTAL								0	0.0	0	0.0	2	3.0							
EXTERNAL (EXT)																				
EXT	EXT	2410	SINGLE POINT	X	X		X						1.5	D	A	1	365		2410	
	EXT	2411	DUAL POINT	X	X		X						1.5	D	A	1	365		2411	
	EXT	2420	HLL SINGLE POINT	X	X		X						1.5	NS	A	1	180		2420	
	EXT	2421	HLL DUAL POINT	X	X		X						1.5	NS	A	1	180		2421	
	EXT	2430	LLL EXTERNALS	X	X		X						1.5	NS	A	1	180		2430	
EXT TOTAL								0	0.0	0	0.0	5	7.5							

CH-53E AERIAL OBSERVER T&R MATRIX (2000-6000 PHASE)																				
SKILL	STAGE	TRNG CODE	T&R DESCRIPTION	POI				ACADEMIC		SIMULATOR		FLIGHT		CON	DEVICE	# A/C	REFLY	EVAL	EOM	EVENT CONV
				B	R	SC	M	#	ACAD	#	SIM	#	FLT							
GROUND THREAT REACTION (GTR)																				
GTR	GTR	2540	NON RADAR GTR	X	X		X					1.5	(NS)	A	2	365			2540	
GTR TOTAL								0	0.0	0	0.0	1	1.5							
HELICOPTER AIR TO AIR REFUELING (HAAR)																				
FCLP	FCLP	2710	DAY FCLP	X	X		X					1.5	D	A	1	365			2710	
	FCLP	2742	NS FCLP	X	X		X					1.5	NS	A	1	365			2742	
HAAR TOTAL								0	0.0	0	0.0	2	3.0							
AERIAL GUNNERY GAU-21 (AG)																				
AG	AG	2800	GAU-21 LAB	X	X				3.0				D	G	1	*			N/A	
	AG	2801	GAU-21 MWPC LAB	X	X				2.0				D	G	1	*			N/A	
	AG	2802	Weapon Procdures LAB	X	X				2.0				D	G	1	*			N/A	
	AG	2812	DAY AG	X	X		X					1.5	D	A	1	180			2812	
	AG	2813	DAY SEC AG	X	X		X					1.5	D	A	2+	180			2813	
	AG	2842	NIGHT AG	X	X		X					1.5	NS	A	1	180			2842	
AG TOTAL								3	7.0	0	0.0	4	6.0							
TACTICS (TAC)																				
TAC	TAC	2910	DAY LOW THREAT	X	X		X					2.0	D	A	2	365			2910	
	TAC	2911	DAY MED THREAT	X	X		X					2.0	D	A	2	365			2911	
TAC TOTAL								0	0.0	0	0.0	2	4.0							
NIGHT SYSTEM HIGH LIGH LEVEL (HLL)																				
HLL	HLL	2120	HLL FORM	X	X		X					1.5	NS	A	2	180			2120	
	HLL	2220	HLL CALS	X	X		X					1.5	NS	A	1	180			2220	
	HLL	2221	HLL SEC CALS	X	X		X					1.5	NS	A	2	180			2221	
	HLL	2320	HLL TERF	X	X		X					1.5	NS	A	1	180			2320	
	HLL	2321	HLL SEC TERF	X	X		X					1.5	NS	A	2	180			2321	
	HLL	2920	HLL LOW THREAT	X	X		X					2.0	NS	A	2	365	E		2920	
NS HLL TOTAL								0	0.0	0	0.0	6	9.5							
NIGHT SYSTEMS LOW LIGHT LEVEL STAGE (NS LLL)																				
LLL	LLL	2230	LLL CALS	X	X		X					1.5	NS	A	1	180			2230	
	LLL	2231	LLL SEC CALS	X	X		X					1.5	NS	A	2	180			2231	
	LLL	2330	LLL TERF	X	X		X					1.5	NS	A	1	180			2330	
	LLL	2331	LLL SEC TERF	X	X		X					1.5	NS	A	2	180			2331	
	LLL	2930	LLL MED THREAT	X	X		X					2.0	NS	A	2+	365	E		2930	
NS LLL TOTAL								0	0.0	0	0.0	5	8.0							
CORE SKILL PHASE TOTAL								14	18.0	2	0.0	32	50.0							

CH-53E AERIAL OBSERVER T&R MATRIX (2000-6000 PHASE)																				
SKILL	STAGE	TRNG CODE	T&R DESCRIPTION	POI				ACADEMIC		SIMULATOR		FLIGHT		CON	DEVICE	# A/C	REFLY	EVAL	EOM	EVENT CONV
				B	R	SC	M	#	ACAD	#	SIM	#	FLT							
3000 PHASE - MISSION SKILLS																				
ACADEMICS (ACAD)																				
ACAD	ACAD	3002	(U) NEO EXECUTION	X					0.8					G		*			3002	
	ACAD	3004	(S) PERSONNEL RECOVERY	X					1.0					G		*			3004	
	ACAD	3005	(S) CH53 SPECIFIC TRAP TTPS	X					0.8					G		*			3005	
	ACAD	3006	(U) CASEVAC	X					0.5					G		*			3006	
ACAD TOTAL								4	3.1	0	0.0	0	0.0							
EXPEDITIONARY (EXP)																				
EXP	GTR	2540	NON RADAR GTR	X	X		X						(NS)	A	2	365			2540	
	AG	2843	NIGHT SEC AG	X	X		X						NS	A	2+	180			2843	
	LLL	2231	LLL SEC CALS	X	X		X						NS	A	2	180			2231	
	LLL	2331	LLL SEC TERF	X	X		X						NS	A	2	180			2331	
	EXP	3140	EXP SHORE BASED OPS	X	X		X					2.0	(NS)	A	1+	365			3140	
EXP TOTAL								0	0.0	0	0.0	1	2.0							
ASSAULT TRANSPORT (AT)																				
AT	GTR	2540	NON RADAR GTR	X	X		X						(NS)	A	2	365			2540	
	AG	2843	NIGHT SEC AG	X	X		X						NS	A	2+	180			2843	
	LLL	2231	LLL SEC CALS	X	X		X						NS	A	2	180			2231	
	LLL	2331	LLL SEC TERF	X	X		X						NS	A	2	180			2331	
	ACAD	3002	NEO EXECUTION	X					1.5										3002	
	AT	3240	ASSAULT TRANSPORT	X	X		X					2.0	(NS)	A	1+	365			3240	
AT TOTAL								1	1.5	0	0.0	1	2.0							
AERIAL DELIVERY (AD)																				
AD	EXT	2430	LLL EXTERNALS	X	X		X						NS	A	1	180			2430	
	GTR	2540	NON RADAR GTR	X	X		X						(NS)	A	2	365			2540	
	AG	2843	NIGHT SEC AG	X	X		X						NS	A	2+	180			2843	
	LLL	2231	LLL SEC CALS	X	X		X						NS	A	2	180			2231	
	LLL	2331	LLL SEC TERF	X	X		X						NS	A	2	180			2331	
	AD	3340	AERIAL DELVIERY	X	X		X					2.0	(NS)	A	1+	365			3340	
AD TOTAL								0	0.0	0	0.0	1	2.0							
TACTICAL RECOVERY OF AIRCRAFT AND PERSONNEL (TRAP)																				
TRAP	EXT	2430	LLL EXTERNALS	X	X		X						NS	A	1	180			2430	
	GTR	2540	NON RADAR GTR	X	X		X						(NS)	A	2	365			2540	
	AG	2843	NIGHT SEC AG	X	X		X						NS	A	2+	180			2843	
	LLL	2231	LLL SEC CALS	X	X		X						NS	A	2	180			2231	
	LLL	2331	LLL SEC TERF	X	X		X						NS	A	2	180			2331	
	ACAD	3004	(S) PERSONNEL RECOVERY	X					1.0					G		*			3004	
	ACAD	3005	(S) CH53 SPECIFIC TRAP TTPS	X					0.8					G		*			3005	
TRAP	3440	TRAP	X	X		X					2.0	(NS)	A	1+	365			3440		
TRAP TOTAL								2	1.8	0	0.0	1	2.0							

CH-53E AERIAL OBSERVER T&R MATRIX (2000-6000 PHASE)																				
SKILL	STAGE	TRNG CODE	T&R DESCRIPTION	POI				ACADEMIC		SIMULATOR		FLIGHT		CON	DEVICE	# A/C	REFLY	EVAL	EOM	EVENT CONV
				B	R	SC	M	#	ACAD	#	SIM	#	FLT							
AERIAL EVACUATION (AE)																				
AE	GTR	2540	NON RADAR GTR	X	X		X						(NS)	A	2	365			2540	
	AG	2843	NIGHT SEC AG	X	X		X						NS	A	2+	180			2843	
	LLL	2231	LLL SEC CALS	X	X		X						NS	A	2	180			2231	
	LLL	2331	LLL SEC TERF	X	X		X						NS	A	2	180			2331	
	ACAD	3006	(U) CASEVAC	X					0.5					G		*			3006	
AE	3540	AERIAL EVACUATION	X	X		X						2.0	(NS)	A	1+	365			3540	
AE TOTAL								1	0.5	0	0.0	1	2.0							
TOTAL MISSION PHASE								4	3.8	0	0.0	5	10.0							
4000 PHASE - CORE PLUS																				
ACADEMICS (ACAD)																				
ACAD	ACAD	4011	(U) EA ADGR	X					1.0					G		*			4011	
	ACAD	4050	(U) EA ELECTRONIC WARFARE	X					1.0					G		*			4050	
	ACAD	4051	(U) EA DM/GTR PART 1	X					1.0					G		*			4051	
	ACAD	4052	(U) EA DM/GTR PART 2	X					1.0					G		*			4052	
	ACAD	4053	TRAINING THE TAIL GUNNER	X					1.0					G		*			4053	
ACAD TOTAL								5	5.0	0	0.0	0	0.0							
HELICOPTER INSERTION & EXTRACTION (HIE)																				
HIE	HIE	4110	HELOCAST	X	X		X					1.5	D	A	1	365			4110	
	HIE	4140	RAPPEL	X	X		X					1.5	(NS)	A	1	365			4140	
	HIE	4141	PARAOPS	X	X		X					1.5	(NS)	A	1	365			4141	
HIE TOTAL								0	0.0	0	0.0	3	4.5							
AVIATION DELIVERED GROUND REFUELING (ADGR)																				
ADGR	ADGR	4200	TBFDS STATIC TRAINING	X	X	X						1.5	D	A		*			4200	
	ADGR	4240	TBFDS OPERATION	X	X		X					1.5	(NS)	A	1	365			4201	
ADGR TOTAL								0	0.0	0	0.0	2	3.0							
TERRAIN FLIGHT EXTERNALS (TERF EXT)																				
TERF EXT	TERF EXT	4412	DAY TERF EXTERNALS	X	X		X					1.5	D	A	1	365			4412	
	TERF EXT	4440	NS TERF EXTERNALS	X	X		X					1.5	NS	A	1	180			4440	
TERF EXT TOTAL								0	0.0	0	0.0	2	3.0							
DEFENSIVE MEASURES (DM)																				
DM	DM	4510	RW DM	X	X		X					1.5	D	A	2	365	E		4510	
	DM	4511	FW DM	X	X		X					1.5	D	A	2	365	E		4511	
DM TOTAL								0	0.0	0	0.0	2	3.0							
GROUND THREAT REACTIONS (GTR)																				
GTR	GTR	4540	RADAR GTR	X	X		X					1.5	(NS)	A	2	365			4540	
GTR TOTAL								0	0.0	0	0.0	1	1.5							
CHEMICAL, BIOLOGICAL, RADIOLOGICAL, AND NUCLEAR (CBRN)																				

CH-53E AERIAL OBSERVER T&R MATRIX (2000-6000 PHASE)																				
SKILL	STAGE	TRNG CODE	T&R DESCRIPTION	POI				ACADEMIC		SIMULATOR		FLIGHT		CON	DEVICE	# A/C	REFLY	EVAL	EOM	EVENT CONV
				B	R	SC	M	#	ACAD	#	SIM	#	FLT							
CBRN	CBRN	4600	CBRN	X							1.5		(NS)	S/A		*			4640	
CBRN TOTAL								0	0.0	1	1.5	0	0.0							
CARRIER QUALIFICATION (CQ)																				
CQ	CQ	4711	DAY CQ	X	X		X					1.5	D	A	1	365			4711	
	CQ	4743	NIGHT CQ	X	X		X					1.5	NS	A	1	365			4743	
CQ TOTAL								0	0.0	0	0.0	2	3.0							
TAIL GUNNERY (TG)																				
TG	TG	4800	STATIC TG TRAINING	X	X				1.5				D	A	1	*			4800	
	TG	4810	DAY TG	X	X							1.5	D	A	1	*			4810	
	TG	4811	DAY SECTION TG	X	X		X					1.5	D	A	2	180			4811	
	TG	4840	NIGHT SECTION TG	X	X		X					1.5	NS	A	2	180	E		4840	
TG TOTAL								1	1.5	0	0.0	3	4.5							
MOVING TARGET GUNNERY (MTG)																				
MTG	MTG	4841	MTG	X	X		X					1.5	(NS)	A	1+	365			4841	
MTG TOTAL								0	0.0	0	0.0	1	1.5							
TACTICS (TAC)																				
TAC	TAC	4940	DIV TAC	X	X		X					2.0	(NS)	A	3+	365			4940	
	TAC	4941	URBAN TAC	X	X		X					2.0	NS	A	2	365			4941	
TAC TOTAL								0	0.0	0	0.0	2	4.0							
RAID (RIE)																				
RIE	GTR	2540	NON RADAR GTR	X	X		X					1.5	(NS)	A	2	365			2540	
	AG	2843	NIGHT SEC AG	X	X		X					1.5	NS	A	2+	180			2843	
	RIE	4980	RIE	X	X		X					2.0	(NS)	A	1+	365			4980	
RIE TOTAL								0	0.0	0	0.0	3	5.0							
AVIATION DELIVERED GROUND REFUELING (ADGR)																				
ADGR	GTR	2540	NON RADAR GTR	X	X		X					1.5	(NS)	A	2	365			2540	
	AG	2843	NIGHT SEC AG	X	X		X					1.5	NS	A	2+	180			2843	
	ADGR	4240	TBFDS OPERATION	X	X		X					1.5	(NS)	A	1	365			4201	
	ADGR	4981	ADGR TACTICS	X	X		X					2.0	(NS)	A	1+	365			4981	
ADGR TOTAL								0	0.0	0	0.0	4	6.5							
SEA	GTR	2540	NON RADAR GTR	X	X		X					1.5	(NS)	A	2	365			2540	
	AG	2843	NIGHT SEC AG	X	X		X					1.5	NS	A	2+	180			2843	
	SEA	4982	SEA BASED	X	X		X					2.0	(NS)	A	1+	365			4982	
SEA TOTAL								0	0.0	0	0.0	3	5.0							
TOTAL CORE PLUS PHASE								6	6.5	1	1.5	28	44.5							

CH-53E AERIAL OBSERVER T&R MATRIX (2000-6000 PHASE)																				
SKILL	STAGE	TRNG CODE	T&R DESCRIPTION	POI				ACADEMIC		SIMULATOR		FLIGHT		CON	DEVICE	# A/C	REFLY	EVAL	EOM	EVENT CONV
				B	R	SC	M	#	ACAD	#	SIM	#	FLT							
INSTRUCTOR TRAINING (5000 PHASE)																				
AERIAL GUNNERY INSTRUCTOR (AGI)																				
AGI	AGI	5400	AGI STATIC TRAINING	X	X				3.0					D	A	1	*		N/A	
	AGI	5401	AGI STATIC TRAINING	X	X				1.0					D	A	1	*		N/A	
	AGI	5402	AGI STATIC TRAINING	X	X				3.0					D	A	1	*		N/A	
	AGI	5403	DAY MTG	X								1.5		D	A	1+	*		5412	
	AGI	5404	NS SEC AG	X								1.5		NS	A	2	*		N/A	
	AGI	5405	DAY SEC TG	X								1.5		NS	A	2	*		5431	
	AGI	5406	NS SEC TG	X								1.5		NS	A	2	*		5413	
	AGI	5407	NS SEC AG	X	X							1.5		NS	A	2	*	E	N/A	
AGI	5408	NS SEC TG	X	X							1.5		NS	A	2	*	E	N/A		
AGI TOTAL								3	7.0	0	0.0	6	9.0							
6000 PHASE - REQUIREMENTS, CERTIFICATIONS, QUALIFICATIONS, DESIGNATIONS (RQD)																				
NATOPS (NTPS)																				
NTPS	NTPS	6000	OPEN BOOK EXAM	X	X		X		3.0					G			365	X	X	6000
	NTPS	6001	CLOSED BOOK EXAM	X	X		X		1.0					G			365	X	X	6001
	NTPS	6002	ORAL EXAM	X	X		X		2.0					G			365	X	X	6002
	NTPS	6100	NATOPS EVALUATION FLIGHT	X	X		X					1.5		(NS)	A	1	365	X	X	6100
NTPS TOTAL								3	6.0	0	0.0	1	1.5							
CRM																				
CRM	CRM	6003	CRM GRND CLASS	X	X		X		1.5								365	X	X	6003
	CRM	6101	CRM FLT	X	X		X					1.5		(NS)	A	1	365	X	X	6101
CRM TOTAL								1	1.5	0	0.0	1	1.5							

Such overflow maintenance will be contingent on the availability of maintenance resources at the supporting activity and agreement between the support activity and the supported organization.

8. Exceptional Maintenance Practices. Exceptional maintenance practices require continual monitoring in order to ensure these practices do not become common place. Within the Marine Corps there are two exceptional maintenance practices; Cannibalization and Selective Interchange. When reviewing requests for the conduct of cannibalization and selective interchange each should be reviewed on a case-by-case basis, and authorized only when operational availability of the equipment is essential to mission accomplishment. Cannibalization and selective interchange are exceptions to established Marine Corps maintenance practices. These practices increase maintenance workload, complicates lifecycle planning and serialized management of materiel, increase the potential for degraded asset performance and reliability relative to established standards, and may result in the failure of demand to be registered within the supply chain. Due to these challenges and risks, approval of request to conduct will be closely scrutinized and authority to execute will be granted when it is absolutely necessary for mission accomplishment. These practices will be documented, recorded and reported as directed in reference (x) and outlined below.

a. Cannibalization. The removal of serviceable parts or components, without replacement, from one unserviceable end item of equipment in order to install them on another unserviceable end item of equipment in order to restore equipment to an operational condition. The purpose of cannibalization is to restore equipment when those items are required for mission accomplishment and the required repair parts are not readily available through the supply chain.

(1) Authority. Marine Corps Logistics Command (MARCORLOGCOM), as the Marine Corps Ground Asset Manager for military equipment, is the sole approval authority for cannibalization. Commands and maintenance activities will submit requests for cannibalization via the disposition process to MARCORLOGCOM. MARCORLOGCOM will provide an appropriate response approving/disapproving the removal of repair parts.

(2) Commands and maintenance activities will not conduct cannibalization with the objective of building an inventory of

operational stocks. When cannibalization has been authorized by a MARCORLOGCOM item inventory manager, serviceable parts will be returned to the supply system for accountability and reissue.

(3) Organizations conducting maintenance on Marine Corps ground equipment via memoranda of agreement or maintenance contract will not conduct cannibalization without prior approval from the appropriate MARCORLOGCOM inventory manager.

(4) Commands and maintenance activities will implement strict internal control procedures to ensure that cannibalization is not conducted unless authorized by MARCORLOGCOM. Commands and maintenance activities will also publish standard operating procedures for conducting, capturing and recording cannibalization.

(5) Documentation of cannibalization. The MAIS will capture the minimum data requirements for use by HQMC to report to the Office of the Assistant Secretary of Defense (OASD) as required by reference (x).

(6) Reporting. Commands and maintenance activities will capture when parts or components are removed from equipment that will not be returned to service and applied to other equipment in order to render it operational.

(7) Cannibalization of Small Arms/Light Weapons (SA/LW) is not authorized.

b. Selective Interchange. The controlled removal and replacement of an unserviceable repair part or component from one end item with a serviceable part or component from another end item to return the end item to an operational status. Parts or components must be exchanged between end items for the action to qualify as selective interchange. A requisition for the replacement part or component may be used in lieu of the actual unserviceable part or component in the exchange. Selective Interchange is a lesser degree of Cannibalization as defined by the Marine Corps.

(1) Authority

(a) Operating Forces. Battalion/squadron commanders are authorized to approve selective interchange.

are authorized to coordinate in order to ensure the most effective use of maintenance resources within their respective capabilities, and will incorporate local standard operating procedures to ensure the same. Additionally, commanders must consider their impacts not only to their own operations and resources, but also on those of their supporting/supported units.

(2) Depot LOM. Maintenance actions taken on material or software involving the inspection, repair, overhaul, or the modification or reclamation (as necessary) of weapons systems, equipment end items, parts, components, assemblies, and subassemblies that are beyond field maintenance capabilities, and/or are authorized and directed by HQMC.

2. Maintenance Phases. Appendix C provides a series of steps depicting a logical sequence necessary to complete the various types of maintenance functions, which are described below.

a. Acceptance Phase. The acceptance phase is the initial step of the maintenance production process. It consists of inspection, scheduling, and assignment within the maintenance activity.

(1) Inspection. The purpose of the acceptance inspection is to verify that the equipment is complete and prepared for the required maintenance service and is conducted upon initial receipt by the maintenance activity. The procedures to be followed in the acceptance inspection are as follows:

(a) Determine that the equipment is complete by locating, identifying, and inventorying equipment and its components and ensuring that appropriate operator maintenance, including cleaning, configuration and application of appropriate modification has been performed. Remove and store collateral materiel and annotate accompanying documentation unless collateral equipment is required during the active maintenance phase. Equipment incomplete or not properly prepared by the unit or activity requesting maintenance should be reported to the owning unit via the MMO.

(b) Verify the request for maintenance has been properly prepared in order to facilitate any maintenance requirements.

(c) Accept the equipment for the required service.

(d) Assign a production priority for use within the maintenance section. This priority will be based upon the Urgency of Need Designator (UND) assigned and as outlined in reference (m).

(2) Acceptance Scheduling. The purpose of acceptance scheduling is to have equipment requiring maintenance arrive at the maintenance facility at or after the time that the required maintenance resources are available. This procedure allows the equipment owner maximum operational use of this equipment while avoiding needlessly large concentrations of equipment awaiting maintenance at the maintenance facility. Acceptance scheduling applies to maintenance functions performed at the field level. To be effective close coordination between the equipment owner and the maintenance section is required. Acceptance scheduling normally applies to all PMCS, modification, calibration, or routine repairs. Procedures for acceptance scheduling are as follows:

(a) Initiation of requests through local procedures.

(b) Validate and or assign the UND in accordance with reference (m).

(c) Acceptance by the maintenance section includes establishment, when appropriate, of the date for delivery of the equipment for the required service.

(d) Tentative scheduling of the equipment to a specific maintenance section/shop within the maintenance activity.

(e) Determining the parts required for the service and initiating requisitions to ensure availability of parts at the time of the service.

(3) Shop Assignment. The assignment of equipment to a specific maintenance section/shop within the maintenance activity occurs upon completion of the acceptance inspection and scheduling, when appropriate. In maintenance activities comprised of only one maintenance shop, shop assignment occurs at the time of acceptance of the equipment during the acceptance inspection. Procedures to be followed in the shop assignments are as follows:

(a) Identify the type of shop to perform the required service.

(b) Review the workloads and available resources of individual shops within the maintenance section and determine which shop should be assigned responsibility for repairs.

(c) Assign the responsibility to a specific maintenance shop. When assigning, always consider the UND assigned to ensure that the equipment readiness of supported units is not impaired.

(d) Assign the DSI required for the service to ensure availability at the time of induction.

b. Induction Phase

(1) Induction is the physical delivery of the equipment requiring service to the maintenance activity.

(2) Induction of equipment into a specified maintenance activity must be by the priority established in the equipment acceptance phase.

c. Active Maintenance Phase. Production actions performed following induction of the equipment into a maintenance shop constitute the active maintenance phase and the beginning of the repair process. This phase is performed in a sequence of logical steps designed to ensure that the required services are conducted in an efficient and effective manner. During this phase, continual emphasis is placed on quality control of the actions and tasks performed. The frequency of quality control inspections will depend on the skill and experience of the individual technicians or mechanics and the overall complexity of the actions. The steps to be followed in the conduct of active maintenance are described in the following:

(1) Inspection. Maintenance personnel assigned to perform the service will perform a detailed inspection of the equipment upon its induction into the maintenance activity. This inspection serves as a basis for the performance of the maintenance and includes verifying all equipment records associated with the required service is current.

(2) Preparation. Preparation includes the assembly of the appropriate technical publications and other technical

information, support equipment, and Test Measurement and Diagnostic Equipment (TMDE) to perform required service. Adequate preparation reduces the actual time required to perform the maintenance and ensures that maintenance actions are not initiated when the required resources are not available.

(3) Performance. Maintenance tasks such as PMCS, CM, calibrations, and modifications will be performed per the appropriate technical publication by qualified personnel.

(4) Quality Control (QC). QC requires a complete inspection of equipment to determine completion of maintenance actions and update of equipment records within the MAIS (if required). Equipment will be inspected by assigned quality control personnel. Equipment not performing satisfactorily will be rejected and recommendations made for further maintenance action. Acceptable performance results in the completion of the active maintenance phase and the movement of the equipment to the closeout phase.

d. Maintenance Closeout Phase

(1) The closeout phase of the maintenance process commences when equipment has been repaired or disposition has been executed. Maintenance personnel will ensure that the closeout process is accurate, complete, and coordinated.

(2) The closeout phase requires close coordination with owning unit personnel to ensure that they are notified as soon as the equipment is ready for pickup. Special packaging, preservation, transportation, and shipping requirements must be taken care of at this time. Adhering to the UND timelines established in reference (m) the using unit must make every effort to pick up completed equipment promptly.

(3) In the closeout phase, owning unit maintenance and supply personnel must ensure that equipment records accountability records have been updated; this includes but not limited to ensuring proper accounting of class IX, documenting maintenance tasks performed, level of effort (time) to conduct the tasks, and updating of equipment readiness status.

3. Maintenance Cycle Time (MCT). Maintenance Cycle Time is the period of time covered from the initiation of maintenance actions until repairs and maintenance records are complete. Maintenance cycle time begins when the equipment is

(b) (2)

R} APPENDIX E
Maintenance Documentation Codes

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ACTION TAKEN (AT) CODES

All codes listed below may be used for both on-equipment or off-equipment work unless otherwise noted.

A. Items of Repairable Material or Weapon/Support System Discrepancy Checked No Repair Required.

This code is used for all discrepancies which are checked and found that either the reported deficiency cannot be duplicated, or the equipment is operating within allowable tolerances. Adjustments may be made under this code if the purpose of the adjustment is to peak or optimize performance. When adjustments are made, the MAL code should reflect the reason for the adjustment, for example, A-127, A-281, A-282. If the purpose of the adjustment is to bring the equipment within allowable tolerances, AT Code C should be used, for example, C-127, C-281, C-282. Additionally, this code will be used on all MAF work requests for documenting local manufacture/fabrication.

B. Repair or replacement of items, such as attaching units, seals, gaskets, packing, tubing, hose, and fittings, that are not integral parts of work unit coded items or components.

These parts are not identified by WUCs and are normally a connecting or attaching link between two or more components that do have WUCs assigned. Therefore, when items of this nature are repaired or replaced, this AT Code is used. In case of doubt regarding which component to identify, the WUC of the component serviced will be used.

C. Repair

This code is entered when a repairable item of material which is identified by WUC is repaired. Repair includes cleaning, disassembly, inspection, reassembly, lubrication, and replacement of integral parts; adjustments are included in this definition if the purpose of the adjustment is to bring the equipment within allowable tolerances (see AT Code A). This code also applies to the correction of a discrepancy on a weapon/support system (when appropriate).

D. Work Stoppage, Post and Predeployment, and Inter-Intermediate Maintenance Activity (IMA) Support

This code is entered to closeout MAF Copy 1 when component repair is to be performed at another facility (see Note).

F. Failure of Items Undergoing Check and Test

(Work Request and I-level Assisting Work Center MAFs only.)

J. Calibrated - No Adjustment Required

This code is used when an item is calibrated and found serviceable without need for adjustment. If the item requires adjustment to meet calibration standards, use code K. This code applies to PME only.

K. Calibrated - Adjustment Required

This code is used when an item must be adjusted to meet calibration standards. If the item needs repair in addition to calibration and adjustment, use another code indicating the proper maintenance action. This code applies to PME only.

L. Work Stoppage - Awaiting Parts

This code is entered when a maintenance action must be stopped or delayed while awaiting parts which are not available locally, and a component goes into an awaiting parts status. Use of this code is restricted to the I-level. No entries will be made in the (H-Z) Failed/Required Material block of the close out MAF.

N. Work In Progress - Close out

This code is entered by an organizational activity when it becomes necessary to close out a maintenance action during or at the end of a reporting period for any reason, including SCIR change, WO close out. This code will be entered by an IMA to close out for any reason except awaiting parts (see AT Code L).

P. Removed

This code is entered when an item of material is removed and only the removal is to be accounted for. In this instance delayed or additional actions are accounted for separately (see also codes R, S, and T).

Q. Installed

This code is entered when an item is installed and only the installation action is to be accounted for.

R. Remove and Replace

This code is entered when an item of material is removed due to a suspected malfunction and the same or a like item is reinstalled (see Note).

S. Remove and Reinstall

This code is entered when an item of material is removed to facilitate other maintenance and the same item is reinstalled. AT Code S is limited to MAL Codes 800, 804, and 811.

T. Removed and Replaced for Cannibalization

This code is used when an item of material is removed and replaced as a cannibalization action.

Y. Troubleshooting

This code is used when the time expended in locating a discrepancy is great enough to warrant separating troubleshooting time from repair time. Use of this code necessitates completion of two separate documents, one for the troubleshooting phase and one for the repair phase. When recording the troubleshooting time separately from the repair time, the total time taken to isolate the primary cause of the discrepancy is recorded on a separate MAF, using the system, subsystem, or assembly WUC (as appropriate).

Z. Corrosion Treatment

Includes cleaning, treatment, priming, and painting of corroded items that require no other repair. This code is always used when actually treating corroded items, either on equipment or in the shop.

0.

The numeric 0 will be used in the Action Taken block on all source documents recording look phase man-hours for acceptance, transfer, special, conditional, major aircraft and combined airframe and engine special inspections; and corrosion, preservation, and depreservation including the close out of man-hours on the look phase of those inspections at the end of the reporting period.

NOTE: AT Code D is used only when the TRANS Code in block A32 of the MAF is 31 or 32. AT Code R may be used when the TRANS Code in block A32 of the MAF is 11, 12, 18, 19, 23, or 25. The use of AT Code R may be used in block A35 if one of the following conditions is met: (1) if item removed is identified by a WUC; (2) for TRANS Code 11 an assisting work center, when the primary work center used AT Code R. For the assisting work center the item processed (block 39) must be "0"; (3) for TRANS Code 18 or 19 only when the work unit coded items are time sensitive or require entries in logbooks/AESR, such as spark plugs and CADs; (4) for TRANS Codes (block A32) 23 or 25. AT Codes P, 0, and S are also used for engine identification in the (H-Z) Failed/Required Material section of the MAF.

AT Codes 1 through 9 are restricted to those repairable items of material which have been administratively or technically screened and found to be nonrepairable at an IMA (by designated I-level personnel authorized to make these determinations). In keeping with the philosophy of repair at the lowest practicable level, the IMA is authorized to perform any and all functions for which it has or can be granted authority and the capability to perform and meet performance specifications. If more than one BCM code applies, the code reflecting the most serious logistic support deficiency will be used.

BCM 1 - Repair Not Authorized

This code is entered only when the activity is specifically not authorized to repair the item in applicable directives, for example, required maintenance function not assigned by SM&R code, MIM, maintenance plan, other technical decision, peculiar item from an aircraft not supported by an activity, and SM&R coded XXXXD.

BCM 2 - Lack of Equipment, Tools, or Facilities

This code is entered when the repair is authorized but cannot be performed because of a lack of equipment, tools, or facilities, for example, required equipment is on IMRL but authorized quantity is zero, receipt of authorized IMRL equipment not expected within 30 days (zero quantity on hand), return of required equipment from repair or calibration not expected within 30 days, non-IMRL tools and equipment not on hand, lack of permanently installed facilities, specifically directed by the ACC/TYCOM.

BCM 3 - Lack of Technical Skills

This code is entered when repair is authorized but cannot be performed because of a lack of technical skills, for example, permanent billet will be vacant for more than 30 days; TAD billet will be vacant for more than 30 days; billet incumbent absent, for example, TAD or leave; formal technical training is nonexistent; formal technical training exists but cannot be used due to lack of quota or funds; rating, NEC, or MOS required is not reflected on manpower authorization; rating, NEC, or MOS is on board but billet not assigned to IMA.

BCM 4 - Lack of Parts

This code is entered when repair is authorized but cannot be performed because required parts will not be available within guidelines established by applicable directives.

BCM 5 - Fails Check and Test

This code is entered when the activity's authorized level of maintenance is limited to check and test only and repair is required.

BCM 6 - Lack of Technical Data

This code is entered when repair is authorized but cannot be performed because of a lack of technical data, for example, maintenance manuals or test program sets exist but cannot be obtained within 30 days,

maintenance manuals or test program sets do not exist or cannot be identified within 30 days, applicable manuals or test program sets are available but do not provide adequate technical information.

BCM 7 - Beyond Authorized Repair Depth

This code is entered when some level of repair beyond check and test is authorized but the maintenance function required to return the item to a RFI condition is not assigned by SM&R code, MIMs, maintenance plan, or other technical decision.

BCM 8 - Administrative

This code is entered when repair is authorized and feasible but not attempted due to an EI exhibit, SRC data unknown and cannot be determined, item under warranty, excessive backlog, budgetary limitations, materials in excess of requirements, or specifically directed by the ACC/TYCOM.

NOTE: The determination to use BCM 8 for excessive backlog will be made jointly by the maintenance and supply officers. BCM 8 for materials in excess of requirements and budgetary limitations require ACC/TYCOM approval.

BCM 9 - Condemned

This code is entered when a repairable item is so severely worn or damaged that repair is not feasible, as determined by local maintenance personnel, or specifically directed by ACC/TYCOM. The item is locally condemned and returned to the Supply Department for survey, retrograde, or scrap (as appropriate) per applicable directives.

AWAITING MAINTENANCE (AWM) REASON CODES

M1. Awaiting or Undergoing Depot Repair at the Reporting Custodian Site

This code will be documented when no further maintenance can be performed due to D-level repair at the reporting custodian site.

M2. Support Equipment, Hangar, Hangar Deck Spaces, or Facilities

Lack of adequate SE, maintenance area, or utility services, such as electricity or air pressure.

M3. Backlog

Workload in excess of work center capability.

M4. Off-shift Hours

Maintenance requirement exists beyond normal working hours. This applies only to activities which do not normally schedule work assignments during the reported period, such as 0001 to 0800, or during weekend or holiday periods in which personnel are not normally working.

M5. Other

Performance of maintenance precluded by weather, operational conditions, general drill, training, ceremonies, open house, shipboard/shore station imposed restrictions, etc.

M6. Awaiting Aircraft Intermediate Maintenance Department Maintenance

Awaiting the return of an engine or component from the AIMD during an NMCM period. This code would be annotated when no further work could be accomplished without the engine or component in process in AIMD. Subsystem capability impact report will reflect the control JCN for the airframe and the WUC of the delinquent item.

M7. Flight Operations/Operational Utilization

Weapon systems or equipment unavailable for maintenance due to flight operations or equivalent.

M8. Awaiting Other Shops or Maintenance Actions

This code will be documented when no further maintenance can be performed due to other shops or maintenance actions, for example, Work Center 120 unable to complete functional check on flight controls due to Work Center 110 having engine removed. This code should not be confused with Reason Code 3 (backlog).

M9. Awaiting Maintenance Funding

This code will be used when the item cannot be repaired due to a lack of support funding for required repair parts or for BCM action. This code may also be used for non-Supply Officer, TYCOM controlled assets such as SE, test benches, and engines determined to be in excess of demand or uneconomical to repair. Non-RFI assets held in M9 status will be tracked in BMT as "Non DIFM" workload and will not be available to the maintenance activity for use in further trouble shooting or cannibalization.

CT. Awaiting Maintenance Cure Time

This code will be used when a maintenance task requires time for curing of an adhesive, sealant, or paint before the maintenance can continue or be completed.

**Job Status Codes; Naval Aviation Logistics Command Management Information System
(NALCOMIS)**

A1.	Pre-Induction Screening.	M6.	AWM Awaiting AIMD.
CC.	MAF Canceled.	M7.	AWM Flight/Operational.
CM.	Contractor Maintenance.	M8.	AWM Awaiting Other Shops.
CP.	Contractor Parts.	M9.	AWM Funding
DD.	Analyst Delete.	CT.	AWM Cure Time (Adhesives, Sealant, Paint)
IW.	In Work.	WB.	In Transit from AWP Locker.
JC.	Job Complete.	WD.	Awaiting Disposition.
M1.	AWM In Depot.	WP.	AWP In Shop.
M2.	AWM SE/Hangar.	WQ.	AWP In AWP Locker.
M3.	AWM Backlog.	WS.	AWP Work Stoppage.
M4.	AWM Off Shift.	WT.	In Transit to AWP Locker.
M5.	AWM Other.		

GENERAL WORK UNIT CODES (WUCS)

The following WUCs are used on the MAF when documenting general maintenance actions:

- 030 - Maintenance Inspections. Used for acceptance, transfer, and conditional inspections.
- 040 - Corrosion Prevention. Used when documenting unscheduled corrosion prevention, including unscheduled aircraft washing.
- 049 - Preservation and Depreservation. Used when end items are preserved for temporary or long term storage or shipment, and for depreservation. Refer to Chapter 15 for specific documentation procedures.

The following WUCs are used on the MAF Work Request or the Intra-Activity Support MAF:

These codes should be used only when a specific WUC does not apply.

- 050 - General Functions. Includes aeronautical related functions, such as painting, stenciling, lettering, and installing decals; fabric and metal tests; calibration of mechanical devices; reclamation and salvage; local manufacture and fabrication; and oil analysis. Use code 050 only if none of the following codes apply.
- 051 - Wheel and Tire Buildup and Teardown.
- 052 - Check, Test, and Service. Includes items other than those listed in code 050 or those power plant and life support items listed under codes 060 and 080, respectively.
- 060 - Propulsion System Support. Includes tasks such as the handling of engines, propellers and rotor heads. Use the appropriate specific code from the following list; if none of these apply, use code 060.
- 061 - Quick Engine Change Assembly and Quick Engine Change Kit Buildup and Teardown.
- 062 - Propeller and Rotor Head Buildup and Teardown.
- 063 - Engine Test Stand Operation.

NOTE: 06 Series WUCs may not be used on the Intra-Activity Support MAF.

- 080 - Inspection of Aviators Equipment, Safety and Survival Equipment. For work in this general category use the appropriate specific code from the following list; if none of these apply, use code 080.
- 081 - Check, Test, Service, and Repack of Parachutes. Includes personnel, cargo, and drag parachutes.
- 082 - Check, Test, and Service of Flotation Equipment. Includes life rafts and life vests.
- 083 - Check, Test, and Service of Personal Equipment. Includes torso harnesses, pressure suits, general flight clothing, and helmets.
- 084 - Check, Test, and Service of Oxygen Equipment. Includes oxygen masks, oxygen regulators, and liquid oxygen converters.
- 090 - Nonaeronautical Work. Nonaeronautical work is defined as work that cannot be properly charged to aircraft, power plants, SE, missiles, trainers or other aeronautical equipment within the scope of TECs "A" through "Y". It includes manufacture, repair, assembly, disassembly, painting, or other productive labor that contributes to the overall state of readiness of the reporting unit. Used only with TEC "Z" series.
- 091 - Surface PMS. Used with TEC "Z" series to document man-hours consumed in performing scheduled and unscheduled surface PMS functions.
- 8XX Weapons Handling Intra-Activity Support Work Order codes (8 series) are used when documenting Aviation Weapons Operational demands in support of AIRWINGs/MAWs or squadrons.

INVENTORY CODES

The alphanumeric, one position inventory codes listed below are to be entered in block F21 of the MAF. Inventory codes denote the status of the aircraft or equipment at the time of inventory, for example, GAIN, LOSS, or change in MCRS. Inventory codes are as follows:

0 - INVENTORY ONLY

Equipment that is inventoried but for which no mission capability data is collected. These items will only be gained or lost and will require no change in MCRS reporting. This code is used for SE, training devices, and missile target inventory reporting and is not applicable to aircraft.

A - FULLY OPERATIONAL

Aircraft or equipment in the inventory system that are in a fully operational status. For aircraft, those in OPNAV XRAY status A series.

1 - STANDARD DEPOT LEVEL MAINTENANCE (SDLM)

Aircraft or equipment that are enroute to, awaiting, or undergoing SDLM.

2 - SPECIAL REWORK AT THE DEPOT FACILITY

Aircraft or equipment that are enroute to, awaiting, or undergoing special rework (modification, modernization, conversion, or repair) in the physical custody of the depot repair activity.

3 - SPECIAL REWORK AT THE REPORTING CUSTODIAN SITE

Aircraft undergoing depot special rework consisting of modernization, modification, conversions, or incorporating D-level TDs while in the physical custody of the reporting custodian.

4 - OTHER

(Decision to Strike, Remove from Service, Bailment, Loan, etc.). Aircraft or equipment that are affected by reasons other than standard or special rework.

NOTE: Inventory Codes 5 through 8 are for future use.

9 - INVENTORY LOSS

(REPORTING ACTIVITIES ARE NOT AUTHORIZED TO USE THIS CODE). This code is computer generated for the SCIR-3 Report and 79 Records to indicate inventory loss as reported by the TRANS Code 03 for equipment no longer in reporting custody as of the last day of the month.

MALFUNCTION (MAL) CODES

Fiber Optics Components

The following MAL codes are prescribed for fiber optic component defects only.

F01	Fiber Optic connector loose
F02	Fiber Optic terminus dirty
F03	Fiber Optic terminus uncleanable
F04	Fiber Optic terminus end face scratched, shattered, or cracked
F05	Fiber Optic cable broken
F06	Fiber Optic cable improper installation

NOTE: Legacy NALCOMIS OMA will not be updated to reflect these codes.

Wiring and Wiring Components

The following MAL codes are prescribed for use in the MDS for wiring and wiring component defects only. The codes are divided into two groups to aid in finding the most applicable code. The MAL code takes on added significance when used in conjunction with items under warranty since it may be used to determine a breach of warranty by the government. Therefore, it is imperative that the code most applicable to the malfunction be selected from the following groups.

Inspection (Potential) Failure Group

Use these codes when a need for maintenance exists to prevent an actual wiring or wiring component failure.

Harness/Wire Chafing

W00	Chafing against combustible/bleed airlines
W01	Chafing against structure/components/non-combustible line
W02	Chafing against control cables/flight control components
W03	Chafing against other wire/wire bundle assembly
W04	Chafing against chafe protection material/components
W05	Chafed/frayed grounding/bonding strap

Circuit Breakers/Relays

W06	Loose circuit breaker (not properly secured)
W07	Improper terminals
W08	Loose terminals
W09	Loose relay terminal
W10	Missing/damaged relay cover
W11	Loose relay (not properly secured)
W12	Corroded relay/hardware

Connectors

W13	Corroded connector/backshell (external)
W14	Loose/improper/missing/damaged hardware
W15	Improper/damaged/missing potting, seal plugs, or sealant
W16	Missing/damaged rubber boot
W17	Improper/damaged/loose connector (including keyway)

Dielectric (Insulation)

W18	Cracked/brittle/deteriorated insulation
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- W19 Fluid soaked insulation
- W20 Nicked insulation
- W21 Torn insulation
- W22 Peeling/flaking topcoat insulation
- W23 Evidence of carbon tracking/arcing

Installation/Security

- W24 Improper wire routing (for example, under flammable fluid carrying line(s))
- W25 Incorrect bend radius
- W26 Improper wire bundle slack
- W27 Damaged/missing/improper potting at feed through
- W28 Improper /damaged/missing chafe prevention material - includes grommets, strips, tubing, insulation sheeting, and insulation tape
- W29 Loose/missing/broken standoff
- W30 Insufficient clearance
- W31 Improperly installed wire bundle assembly cushion clamp, includes rubber slipped, wires against metal, wires clamped to metal, missing clamp, or clamp cushioning material
- W32 Loose/improper or damaged clamp
- W33 Missing/broken/improper ties
- W34 Loose/missing/broken safety wire
- W35 Oversized/undersized clamps
- W36 Fluid soaked/deteriorated clamps

Terminal Boards/Modules/Points

- W37 Terminal boards - improper/damaged/loose terminals (studs)
- W38 Terminal modules - missing sealing plugs
- W39 Damaged/missing terminal boards, modules, separators, or covers
- W40 Loose terminal boards, modules, or points
- W41 Loose solder joints and crimps
- W42 Overstripping/understripping
- W43 Improper/missing endcaps
- W44 Improper/damaged/loose terminals (does not include relays or circuit breakers)
- W45 Corroded terminals, posts, etc.

Functional Failure Group

Use these codes when a need for maintenance exists because of an actual wiring or wiring component failure.

- W46 Arced/burned/shorted wiring - due to chafing against structure, equipment or fluid/pneumatic lines (including overheat detection elements)
- W47 Arced/burned/shorted wiring - due to unknown or other causes (including overheat detection elements)
- W48 Broken/open wiring (including overheat detection elements)
- W49 Broken splice
- W50 Broken terminal lugs/studs
- W51 Broken grounding/bonding strap
- W52 Connectors - missing, recessed, bent or broken pins/contacts
- W53 Connectors - fluid contaminated
- W54 Connectors - corroded (internal)
- W55 Burned/overheated terminal lugs/studs
- W56 Damaged relay/circuit breaker terminals
- W57 Damaged/defective relays
- W58 Damaged/defective circuit breakers
- W59 Damaged wiring (chafed through/gouged/pinched/nicked/torn) with center conductor exposed/bare
- W60 Terminal modules - bent or recessed pin(s)
- W61 Fluid soaked insulation with center conductor exposed
- W62 Defective fuse(s), switches, diodes, light bulbs, and other consumables

Alphabetical List

The following MAL codes are prescribed for use in the MDS. The codes are divided into three logical groups to aid in finding the most applicable code. The MAL code takes on added significance when used in conjunction with items under warranty since it may be used to determine a breach of warranty by the government. Therefore, it is imperative that the code most applicable to the malfunction be selected from the following groups.

NOTE: MAL codes provided by NALCOMIS may not exactly match definitions from this appendix due to data field limitations.

Conditional (No Fault) Group

(Use these codes when a nondefective item is removed, or when the defect or malfunction is not the fault of the item in question.)

- 578 ACOUSTICAL COIN - TAP TEST
- 000 ADMINISTRATIVE - look portion of an inspection; or, work request for manufacture
- 731 BATTLE DAMAGE
- 817 CANNIBALIZATION - consumable part not carried or not in stock (NIS)
- 813 CANNIBALIZATION - directed by higher authority (above squadron level inter-activity transfer of equipment or item). NOTE: Use MAL Code 801 for mission essential equipment regarding aircraft deconfiguration/reconfiguration only.
- 818 CANNIBALIZATION - lack of available deck space/SE/test equipment for troubleshooting (unit left installed in second aircraft)
- 814 CANNIBALIZATION - operation launch/turnaround requirements (part not readily available within required time constraints)
- 812 CANNIBALIZATION - removed for fault isolation/troubleshooting (unit left installed in second aircraft)
- 815 CANNIBALIZATION - repairable part carried but not on hand in local supply system
- 816 CANNIBALIZATION - repairable part not carried in local supply system
- 437 DAMAGED DUE TO OPERATOR ERROR - improper selection, positioning, release, shutdown, activation, or like activities.
- 174 DELIVERED AIRCRAFT QUALITY - manufacturing related quality issues
- 572 EDDY CURRENT INSPECTION
- 602 FAILED, DAMAGED OR REPLACED - due to malfunction of associated equipment or item
- 574 FIBER-OPTIC BORESCOPE INSPECTION
- 301 FOD - use 374 for internal failure
- 302 FOREIGN OBJECT - safety wire, fasteners, tools, or other objects discovered in aeronautical equipment which could lead to foreign object damage (FOD) if not removed
- 577 GASEOUS LEAK TEST
- 311 HARD LANDING
- 573 HARMONIC BOND INSPECTION
- 246 IMPROPER /FAULTY MAINTENANCE
- 086 IMPROPER HANDLING
- 087 IMPROPER IDENTIFICATION
- 158 LAUNCH DAMAGE
- 576 LIQUID PENETRANT INSPECTION
- 105 LOOSE, MISSING OR FAULTY - bolts, nuts, screws, rivets, safety wire, cotter keys, fasteners, and like items
- 571 MAGNETIC PARTICLE INSPECTION
- 030 MISHAP DAMAGE
- 092 MISMATCHED - electronic part
- 093 MISSING PART - except code 105 or 110
- 140 MISSING SRC CARD, ASR, MSR, OR AESR
- 800 NO DEFECT - component removed/reinstalled to facilitate other maintenance
- 801 NO DEFECT - installation or removal of nonexpendable equipment to reconfigure the aircraft or SE to

perform a specific mission - AIRCRAFT MISSION OR SE RECONFIGURATION
807 NO DEFECT - component removal/reinstallation directed by higher authority
806 NO DEFECT - removed as part of a matched set - NOT FOR USE AT THE O-LEVEL
805 NO DEFECT - removed for pool stock
804 NO DEFECT - removed/installed due to scheduled maintenance, modification, or high time
811 NO DEFECT - removed for troubleshooting and reinstalled on original equipment
440 OVERAGE, OBSOLETE OR SURPLUS
579 OTHER NDI METHODS
570 RADIOGRAPHIC INSPECTION
787 TIRE REMOVAL - normal wear
877 TRANSPORTATION DAMAGE
575 ULTRASONIC INSPECTION
110 UNINTENTIONAL DEPARTURE OF OBJECTS FROM AIRCRAFT, AIRBORNE, OR ON THE GROUND

Reason for Removal Group

(This group of codes generally describe trouble symptoms or apparent defects prompting removal of malfunctioning items for repair.)

956 ABNORMAL FUNCTION - of computer mechanical equipment
314 ACCELERATION/DECELERATION IMPROPER
693 AUDIO/VIDEO FAULTY
652 AUTOMATIC ALIGN TIME EXCESSIVE
780 BENT, BUCKLED, DENTED, COLLAPSED, DISTORTED, OR TWISTED
135 BINDING, STUCK, JAMMED
070 BROKEN, BURST, RUPTURED, PUNCTURED, TORN, CUT (See note.)
900 BURNED OR OVERHEATED (See note.)
150 CHATTERING
185 CONTAMINATION - metallic
306 CONTAMINATION - nonmetallic
307 CONTAMINATION - Chemical or Biological
308 CONTAMINATION - Radiological
170 CORRODED (See note.)
190 CRACKED, CRAZED (See note.)
782 DEFECTIVE OR DAMAGED TIRE SIDEWALL, TREAD, BEAD, ETC.
846 DELAMINATED
117 DETERIORATED/ERODED (See note.)
932 DOES NOT ENGAGE, LOCK OR UNLOCK PROPERLY (See note.)
320 ENGINE COMPRESSOR STALLS, BUZZ, CHUG, THUMP
922 ENGINE MONITORING SYSTEM INDICATES OVERTEMP LIMIT EXCEEDED
959 FAILS TO TRANSFER TO REDUNDANT EQUIPMENT
051 FAILS TO TUNE/DRIFTS
069 FLAME OUT
037 FLUCTUATES, OSCILLATES - frequency/RPM unstable, intermittent, weak/no stabilization
327 FLUCTUATING ENGINE OIL PRESSURE INDICATION
696 FLUID LOW
188 GLAZED
653 GROUND SPEED ERROR EXCESSIVE
329 HIGH ENGINE OIL PRESSURE INDICATION
281 HIGH OUTPUT
916 IMPENDING OR INCIPIENT FAILURE - indicated by oil analysis (JOAP)
381 LEAKING - internal or external
383 LOCK - ON MALFUNCTION
989 LOW COOLANT FLOW

328 LOW ENGINE OIL PRESSURE INDICATION
282 LOW OUTPUT
537 LOW POWER OR THRUST - mechanical
425 NICKED OR CHIPPED (See note.)
682 NO AZIMUTH OR DRIFT
326 NO ENGINE OIL PRESSURE INDICATION
325 NON-RECOVERABLE IN-FLIGHT SHUTDOWN - Engine
958 NO OR INCORRECT DISPLAY/SCOPE PRESENTATION
255 NO OUTPUT
823 NO START, STALLED/HUNG START, HOT START, DETONATION, OR HARD/LATE
AFTERBURNER LIGHT
257 OFF COLOR
398 OIL CONSUMPTION EXCESSIVE
464 OVERSPEED/RUNAWAY OPERATION
429 PEELED OR BLISTERED (See note.)
520 PITTED
010 POOR OR NO FOCUS
525 PRESSURE/VACUUM/COMPRESSION INCORRECT
935 SCORED, SCRATCHED, GOUGED, BURRED (See note.)
585 SHEARED
681 SHUTTER HUNG/NO TRIP
503 SUDDEN STOP
649 SWEEP MALFUNCTION
334 TEMPERATURE INCORRECT
781 TIRE LEAKAGE EXCESSIVE OR BLOWOUT
599 TRAVEL OR EXTENSION INCORRECT
561 UNABLE TO ADJUST TO LIMITS
465 UNDERSPEED
690 VIBRATION EXCESSIVE
622 WET (See note.)
020 WORN, STRIPPED, CHAFED, FRAYED - except electrical wiring (See note.)

NOTE: Use codes W00 through W62 for wiring and wiring components.

Reasons for Failure Group

(This group of codes generally describe underlying defects or basic failure reasons determined during repair of items exhibiting trouble symptoms.)

127 ADJUSTMENT OR ALIGNMENT IMPROPER
651 AIR IN SYSTEM
007 ARCING, ARCED (See note.)
710 BEARING FAULTY
720 BRUSH, SLIP RING/COMMUTATOR WORN EXCESSIVELY/FAILURE
969 CANNOT RESONATE - input cavity, magnetron
180 CLOGGED, OBSTRUCTED, PLUGGED - use code 306 for contamination
028 CONDUCTANCE INCORRECT
029 CURRENT INCORRECT
192 ENGINE OIL PRESSURE TRANSMITTER FAILS DUE TO CONNECTOR, CONNECTOR
CORROSION, BENT PINS
194 ENGINE OIL PRESSURE TRANSMITTER FAILS DUE TO HIGH INDICATION
195 ENGINE OIL PRESSURE TRANSMITTER FAILS DUE TO LOW INDICATION
193 ENGINE OIL PRESSURE TRANSMITTER FAILS DUE TO OIL CONTAMINATION
196 ENGINE OIL PRESSURE TRANSMITTER FAILS DUE TO TRANSMITTER SHORT
191 ENGINE OIL PRESSURE TRANSMITTER FAILS DUE TO VIBRATION(S)
292 FAILS - acceptance check
295 FAILS - check/test

290 FAILS - diagnostic/automatic tests
698 FAULTY - card/micrologic device
177 FUEL FLOW INCORRECT
088 GAIN OR STANDING WAVE RATIO INCORRECT
350 INSULATION BREAKDOWN (See note.)
374 INTERNAL FAILURE - use 301 for FOD
481 KEY WAY OR SPLINE DAMAGED/WORN (See note.)
410 LACK OF/IMPROPER LUBRICATION
697 MAGNETIC TAPE BROKEN/FAULTY
064 MODULATION INCORRECT
799 NO DEFECT - malfunction could not be duplicated, item checks good
008 NOISY, MICROPHONIC, GASSY, HIGH ANODE CURRENT, LOW GM/EMISSION, OR OPEN
FILAMENT/TUBE CIRCUIT
450 OPEN (See note.)
458 OUT OF BALANCE
991 OUT OF FREQUENCY - does not track tuning curve, poor spectrum
416 OUT OF ROUND
766 OUT OF SPECIFICATION/CHANGE OF VALUE
962 POWER OUTPUT DIP/LOW - electronic
703 PROGRAM FAILURE
567 RESISTANCE/IMPEDANCE HIGH
568 RESISTANCE/IMPEDANCE LOW
128 RIGGING/INDEXING INCORRECT
615 SHORTED - including internal (See note.)
679 SIGNAL DISTORTION - input/output pulse, data link errors, etc.
420 SPAR SPLINTERING
279 SPRAY PATTERN DEFECTIVE OR FUEL NOZZLE COKED
695 SYNC ABSENT OR FAULTY
167 TORQUE INCORRECT
169 VOLTAGE INCORRECT
447 WRONG LOGIC - program or computer

NOTE: Use codes W00 through W62 for wiring and wiring components.

Numerical List

The following MAL description codes are prescribed for use in the MDS. The codes are divided into three logical groups to aid in finding the most applicable code. The MAL code takes on added significance when used in conjunction with items under warranty since it may be used to determine a breach of warranty by the government. Therefore, it is imperative that the code most applicable to the malfunction be selected from the following groups.

NOTE: MAL codes provided by NALCOMIS may not exactly match definitions from this appendix due to data field limitations.

Conditional (No Fault) Group

(Use these codes when a nondefective item is removed, or when the defect/malfunction is not the fault of the item in question.)

- 000 ADMINISTRATIVE - look portion of an inspection; or, work request for manufacture
- 030 MISHAP DAMAGE
- 086 IMPROPER HANDLING
- 087 IMPROPER IDENTIFICATION
- 092 MISMATCHED - electronic part
- 093 MISSING PART - except code 105 or 110
- 105 LOOSE, MISSING, OR FAULTY - bolts, nuts, screws, rivets, safety wire, cotter keys, fasteners, and like items. (See note.)
- 110 UNINTENTIONAL DEPARTURE OF OBJECTS FROM AIRCRAFT, AIRBORNE, OR ON THE GROUND
- 140 MISSING SRC CARD, ASR, MSR, OR AESR
- 158 LAUNCH DAMAGE
- 174 DELIVERED AIRCRAFT QUALITY - manufacturing related quality issue
- 246 IMPROPER/FAULTY MAINTENANCE (See note.)
- 301 FOD - use 374 for internal failure
- 302 FOREIGN OBJECT - safety wire, fasteners, tools, or other objects discovered in aeronautical equipment which could lead to FOD if not removed
- 311 HARD LANDING
- 437 DAMAGED DUE TO OPERATOR ERROR - improper selection, positioning, release, shutdown, activation, or like activities
- 440 OVERAGE, OBSOLETE OR SURPLUS
- 570 RADIOGRAPHIC INSPECTION
- 571 MAGNETIC PARTICLE INSPECTION
- 572 EDDY CURRENT INSPECTION
- 573 HARMONIC BOND INSPECTION
- 574 FIBER-OPTIC BORESCOPE INSPECTION
- 575 ULTRASONIC INSPECTION
- 576 LIQUID PENETRANT INSPECTION
- 577 GASEOUS LEAK TEST
- 578 ACOUSTICAL COIN-TAP TEST
- 579 OTHER NDI METHODS
- 602 FAILED, DAMAGED OR REPLACED - due to malfunction of associated equipment/item
- 731 BATTLE DAMAGE
- 787 TIRE REMOVAL - normal wear
- 800 NO DEFECT - component removed and reinstalled to facilitate other maintenance

- 801 NO DEFECT - installation or removal of nonexpendable equipment to reconfigure the aircraft or SE to perform a specific mission - AIRCRAFT MISSION OR SE RECONFIGURATION
- 804 NO DEFECT - removed and installed due to scheduled maintenance, modification, or high time
- 805 NO DEFECT - removed for pool stock

- 806 NO DEFECT - removed as part of a matched set - NOT FOR USE AT THE O-LEVEL
- 807 NO DEFECT - component removal and reinstallation directed by higher authority
- 811 NO DEFECT - removed for troubleshooting and reinstalled on original equipment
- 812 CANNIBALIZATION - removed for fault isolation or troubleshooting (unit left installed in second aircraft)
- 813 CANNIBALIZATION - directed by higher authority (above squadron level inter-activity transfer of equipment or item). NOTE: Use MAL Code 801 for mission essential equipment regarding aircraft deconfiguration/reconfiguration only.
- 814 CANNIBALIZATION - Operation launch/turnaround requirements (part not readily available within required time constraints)
- 815 CANNIBALIZATION - repairable part carried but not on hand in local supply system
- 816 CANNIBALIZATION - repairable part not carried in local supply system
- 817 CANNIBALIZATION - consumable part not carried or NIS
- 818 CANNIBALIZATION - lack of available deck space/SE/test equipment for troubleshooting (unit left installed in second aircraft.)
- 877 TRANSPORTATION DAMAGE

NOTE: Use codes W00 through W62 for wiring and wiring components.

Reason for Removal Group

(This group of codes generally describes trouble symptoms or apparent defects prompting removal of malfunctioning items for repair.)

- 010 POOR OR NO FOCUS
- 020 WORN, STRIPPED, CHAFED, FRAYED - except electrical wiring
- 037 FLUCTUATES, OSCILLATES - frequency or RPM unstable, intermittent, weak, or no stabilization
- 051 FAILS TO TUNE/DRIFTS
- 069 FLAME OUT
- 070 BROKEN, BURST, RUPTURED, PUNCTURED, TORN, CUT (See note.)
- 117 DETERIORATED/ERODED (See note.)
- 135 BINDING, STUCK, JAMMED
- 150 CHATTERING
- 170 CORRODED (See note.)
- 185 CONTAMINATION - metallic
- 188 GLAZED
- 190 CRACKED, CRAZED (See note.)
- 255 NO OUTPUT
- 257 OFF COLOR
- 281 HIGH OUTPUT
- 282 LOW OUTPUT
- 306 CONTAMINATION - nonmetallic
- 307 CONTAMINATION - Chemical or Biological
- 308 CONTAMINATION - Radiological
- 314 ACCELERATION/DECELERATION IMPROPER
- 320 ENGINE COMPRESSOR STALLS, BUZZ, CHUG, THUMP
- 325 NON-RECOVERABLE IN-FLIGHT SHUTDOWN - Engine
- 326 NO ENGINE OIL PRESSURE INDICATION
- 327 FLUCTUATING ENGINE OIL PRESSURE INDICATION
- 328 LOW ENGINE OIL PRESSURE INDICATION
- 329 HIGH ENGINE OIL PRESSURE INDICATION
- 334 TEMPERATURE INCORRECT
- 381 LEAKING - internal or external
- 383 LOCK-ON MALFUNCTION
- 398 OIL CONSUMPTION EXCESSIVE
- 425 NICKED OR CHIPPED (See note.)
- 429 PEELED OR BLISTERED (See note.)

464 OVERSPEED/RUNAWAY OPERATION
465 UNDERSPEED
503 SUDDEN STOP
520 PITTED
525 PRESSURE/VACUUM/COMPRESSION INCORRECT
537 LOW POWER OR THRUST - mechanical
561 UNABLE TO ADJUST TO LIMITS
585 SHEARED
599 TRAVEL OR EXTENSION INCORRECT
622 WET (See note.)
649 SWEEP MALFUNCTION
652 AUTOMATIC ALIGN TIME EXCESSIVE
653 GROUND SPEED ERROR EXCESSIVE
681 SHUTTER HUNG/NO TRIP
682 NO AZIMUTH OR DRIFT
690 VIBRATION EXCESSIVE
693 AUDIO/VIDEO FAULTY
696 FLUID LOW
780 BENT, BUCKLED, DENTED, COLLAPSED, DISTORTED, OR TWISTED
781 TIRE LEAKAGE EXCESSIVE OR BLOWOUT
782 DEFECTIVE OR DAMAGED TIRE SIDEWALL, TREAD, BEAD, ETC.
823 NO START, STALLED/HUNG START, HOT START, DETONATION, OR HARD/LATE
 AFTERBURNER LIGHT
846 DELAMINATED
900 BURNED OR OVERHEATED (See note.)
916 IMPENDING OR INCIPIENT FAILURE - indicated by oil analysis (JOAP)
922 ENGINE MONITORING SYSTEM INDICATES OVERTEMP LIMIT EXCEEDED
932 DOES NOT ENGAGE, LOCK OR UNLOCK PROPERLY (See note.)
935 SCORED, SCRATCHED, GOUGED, BURRED (See note.)
956 ABNORMAL FUNCTION - of computer mechanical equipment
958 NO OR INCORRECT DISPLAY/SCOPE PRESENTATION
959 FAILS TO TRANSFER TO REDUNDANT EQUIPMENT
989 LOW COOLANT FLOW

NOTE: Use codes W00 through W62 for wiring and wiring components.

Reasons for Failure Group

(This group of codes generally describe underlying defects or basic failure reasons determined during repair of items exhibiting trouble symptoms.)

007	ARCING, ARCED (See note.)
008	NOISY, MICROPHONIC, GASSY, HIGH ANODE CURRENT, LOW GM/EMISSION, OR OPEN FILAMENT/TUBE CIRCUIT
028	CONDUCTANCE INCORRECT
029	CURRENT INCORRECT
064	MODULATION INCORRECT
088	GAIN OR STANDING WAVE RATIO INCORRECT
127	ADJUSTMENT OR ALIGNMENT IMPROPER
128	RIGGING/INDEXING INCORRECT
167	TORQUE INCORRECT
169	VOLTAGE INCORRECT
177	FUEL FLOW INCORRECT
180	CLOGGED, OBSTRUCTED, PLUGGED - use code 306 for contamination
191	ENGINE OIL PRESSURE TRANSMITTER FAILS DUE TO VIBRATION(S)
192	ENGINE OIL PRESSURE TRANSMITTER FAILS DUE TO CONNECTOR, CONNECTOR CORROSION, BENT PINS
193	ENGINE OIL PRESSURE TRANSMITTER FAILS DUE TO OIL CONTAMINATION
194	ENGINE OIL PRESSURE TRANSMITTER FAILS DUE TO HIGH INDICATION
195	ENGINE OIL PRESSURE TRANSMITTER FAILS DUE TO LOW INDICATION
196	ENGINE OIL PRESSURE TRANSMITTER FAILS DUE TO TRANSMITTER SHORT
279	SPRAY PATTERN DEFECTIVE OR FUEL NOZZLE COKED
290	FAILS - diagnostic/automatic tests
292	FAILS - acceptance check
295	FAILS - check/test
350	INSULATION BREAKDOWN
374	INTERNAL FAILURE - use 301 for FOD
410	LACK OF/IMPROPER LUBRICATION
416	OUT OF ROUND
420	SPAR SPLINTERING
447	WRONG LOGIC - program or computer
450	OPEN (See note.)
458	OUT OF BALANCE
481	KEY WAY OR SPLINE DAMAGED/WORN (See note.)
567	RESISTANCE/IMPEDANCE HIGH
568	RESISTANCE/IMPEDANCE LOW
615	SHORTED - including internal (See note.)
651	AIR IN SYSTEM
679	SIGNAL DISTORTION - input/output pulse, data link errors, etc.
695	SYNC ABSENT OR FAULTY
697	MAGNETIC TAPE BROKEN/FAULTY
698	FAULTY - card/micrologic device.
703	PROGRAM FAILURE
710	BEARING FAULTY
720	BRUSH, SLIP RING/COMMUTATOR WORN EXCESSIVELY/FAILURE
766	OUT OF SPECIFICATION/CHANGE OF VALUE
799	NO DEFECT - malfunction could not be duplicated, item checks good
962	POWER OUTPUT DIP/LOW - electronic
969	CANNOT RESONATE - input cavity, magnetron
991	OUT OF FREQUENCY - does not track tuning curve, poor spectrum

NOTE: Use codes W00 through W62 for wiring and wiring components

ORGANIZATION (ORG) CODE STRUCTURING

Purpose

This section describes the general format and structuring of the ORG codes used in the MDS. Detailed listings of assigned codes are available in the NALDA Organization Code Translator (<http://www.navair.navy.mil/logistics/orgtranslator>). Activities requiring information concerning specific codes assigned should contact COMNAVAIRFOR (N422B) via e-mail at cnaf.av3m@navy.mil or their cognizant COMFAIR, wing, group, type command, or equivalent headquarters.

Description

ORG codes are three-character codes that identify the reporting and processing activities associated with maintenance and operational data. The first character of the ORG code is structured to facilitate the grouping and summarization of data by major commands. The second and third characters are assigned to identify specific units within the major command. To maintain the stability of historical data, the following guidelines will be followed in the assignment of codes:

- a. ORG codes will not ordinarily be changed as a result of the internal reorganization or relocation of units within a major command.
- b. ORG codes should not be changed when an activity has a name change.
- c. The use of an ORG code is considered unique to an activity and is not reassigned if that activity is disestablished or permanently reassigned to another major command. An ORG code will be reassigned only when organizations are reestablished or returning to the major command from which previously assigned. Codes are managed within the AIRRS. Organizational relationships to CVW Group/Wing/SSCA are also dynamically maintained within this system, including begin and end dates for these relationships. Ongoing minor changes in organizational relationships as well as entity name changes should be brought to the attention of COMNAVAIRFOR (N422B) via e-mail at cnaf.av3m@navy.mil so that the accuracy of relationships can be maintained expeditiously. Activities with responsibility as aircraft reporting custodians are also assigned a PUC controlled by COMNAVAIRFOR (N422B).

Code Structuring

The first character of an organization code indicates a major command as follows:

- A - Atlantic Fleet Squadrons and Shore Stations
- B - Atlantic Fleet Squadrons with Detachments
- C - Atlantic Fleet Ships
- D - Pacific Fleet Ships
- F - Atlantic Fleet Marine Force Activities
- G - Pacific Fleet Marine Force Activities
- J - Naval Air Maintenance Training Group
- K - Naval Air Reserve Squadrons
- M - Marine Activities Not Assigned to a Fleet Marine Force
- P - Pacific Fleet Squadrons and Shore Stations
- Q - Pacific Fleet Squadrons with Detachments
- R - Naval Air Reserve Training Activities
- S - Marine Air Reserve Training Activities
- T - Naval Air Training Activities
- W - Naval Air Systems Command Activities
- Z - Miscellaneous Activities

Locally Assigned Codes

When it is necessary to identify an activity not listed in the Org Translator, a locally assigned code beginning with O may be used, with the activity identified in the second and third positions of the code, for example, OOA, OTS, and O23. These codes will be used only to identify those activities which are not directly responsible for reporting under the aviation 3M MDS, but which must be identified in the documentation of a reporting activity, for example, in the JCN block of MDR source documents for work performed by an IMA in support of a nonreporting activity. ORG codes beginning in O are not to be used in the action ORG block nor can these codes be used for requisitioning material.

Squadrons with Detachments

Squadrons that normally operate detachments are assigned codes in the B series (Atlantic Fleet) and Q series (Pacific Fleet). A zero in the third position of the code, for example, BEO, will designate the parent activity. Detachments of these squadrons will be assigned permanent organization codes within the structure of the basic code assigned to the parent activity, for example, BE1, BE2. The parent activity will request appropriate code changes, additions, or deletions when (1) forming a detachment that is not listed in the master list, or (2) disestablishing a detachment listed in the master list. Requests can be via naval letter, naval message, or e-mail and shall be addressed to COMNAVAIRFOR SAN DIEGO CA/N422/N422B//PO BOX 357051 ATTN: CODE N422B SAN DIEGO, CA 92135-7051, e-mail cnaf.av3m@navy.mil via cognizant ACC/TYCOM/COMFAIR/Type Wing Commander, info Naval Supply Weapon Systems Support (NAVSUP WSS) and will include the detachment designation, PUC, deployment location, and effective date of the detachment formation/disestablishment with a brief justification/description/reason for change/add/delete.

Request for Addition/Deletion of Codes

SPAWARSSYSCEN Norfolk, VA, under the COMNAVAIRFOR code (N422B), is responsible for the assignment and control of ORG codes. Requests for additions/changes/deletions to the codes listed in the Org Translator should be addressed through the cognizant chain of command.

NOTE: To expedite processing, the use of FAX (DSN 735-1477/COMM 619-545-1477) or e-mail (cnaf.av3m@navy.mil) is encouraged.

- a. Naval letter /naval message or e-mail format:

From: (Requesting Activity)
To: Commander Naval Air Forces (Code N422B)
Via: (Appropriate Wing commander for approval and endorsement)

Subj: AVIATION 3M ORGANIZATION CODE CHANGE REQUEST

1. The following organization code addition/deletion is requested.

ADD or DELETE:
ORG NAME:
UNIT IDENTIFICATION CODE:
PERMANENT UNIT CODE:
CVW/MAG ASSIGNED:

**COMNAVAIRFORINST 4790.2B CH-1
15 Jun 2013**

2. Justification: (This paragraph should contain a justification for the request, any amplifying information considered necessary, and a command point of contact with DSN and commercial phone numbers.)

(Requester's Signature)

Copy to:
COMNAVAIRSYSCOM (AIR-6.8.4)
NATEC (AIR-6.8.5)

b. Mailing address:

COMMANDER, NAVAL AIR FORCES
ATTN: N422B
PO BOX 357051
SAN DIEGO, CA 92135-7051

Upon approval, COMNAVAIRFOR N422B will inform:

COMNAVAIRSYSCOM (AIR-6.8.4)
NATEC (AIR-6.8.5)

SPECIAL INSPECTION WORK UNIT CODES (WUCS)

Seventh Position Matrix

Seventh Position of Interval Grouping WUC, for example, hours, days, cycles:

A	01-20
B	21-30
C	31-40
D	41-50
E	51-60
F	61-90
G	91-100
H	101-140
J	141-185
K	186-230
L	231-300
M	301-400
N	401-500
P	501-600
Q	601-900
R	901-1100
S	1101-1500
T	1501-3700
U	3701-6900
V	6901-8000
W	8001-10000
X	10001-14000
Y	14001-20000
Z	20001-24999

For inspections based on intervals of 25,000 and above, such as rounds of ammunition loaded or fired, divide the interval by 100 and enter the derived character. For example, intervals of 25,000, 50,000, and 125,000 equate to L, N, and S respectively. For inspections based on weeks, convert to number of days and select the proper seventh position based on days, for example, 4 weeks = 28 days = B. Convert all SE periodic maintenance inspection intervals, as called for in applicable MRCs, to the nearest 7 day increment, for example, 1 year = 52 weeks; 1 quarter = 13 weeks; 1 month = 4 weeks; and 1 week = 7 days).

TECHNICAL DIRECTIVE (TD) STATUS CODES

Status Code Explanation

- A - Assisting Work Center
- C - Complied With
- D - Does Not Apply (Note 1)
- P - Previously Complied With
- Q - TD Removal (Note 2)
- W - Work in Progress

NOTES: 1. Use of Status Code D must be verified by a QAR.

2. TD removal will be documented in the same manner as TD incorporation. The only exceptions being the use of TD Status Code Q in block A35 and the (H-Z) record will be blank.

Technical Directive (TD) Codes

Alphabetical List

<u>CODE</u>	<u>TITLE</u>
58	Accessory Bulletin (AYB)
61	Accessory Change (AYC)
99	Age Exploration Bulletin (AEB)
94	Airborne Software Bulletin (ASB)
93	Airborne Software Change (ASC)
76	Airborne Weapon Bulletin (AWB)
75	Airborne Weapon Change (AWC)
67	Aircrew System Bulletin (ACB)
66	Aircrew System Change (ACC)
74	Airframe Bulletin (AFB)
50	Airframe Change (AFC)
57	Aviation Armament Bulletin (AAB)
56	Aviation Armament Change (AAC)
55	Avionics Bulletin (AVB)
54	Avionics Change (AVC)
41	Commodity Software Bulletin (CSB)
40	Commodity Software Change (CSC)
52	Dynamic Component Bulletin (DCB)
51	Dynamic Component Change (DCC)
79	Meteorological Equipment Bulletin (MEB)
73	Meteorological Equipment Change (MEC)
92	Naval Air Maintenance Trainer Bulletin (NTB)
91	Naval Air Maintenance Trainer Change (NTC)
98	Naval Air Maintenance Trainer Support Software Bulletin (TSB)
97	Naval Air Maintenance Trainer Support Software Change (TSC)
69	Photographic Bulletin (PHB)
68	Photographic Change (PHC)
01	Power Plant Bulletin (PPB)
02	Power Plant Change (PPC)
65	Propeller Bulletin (PRB)
64	Propeller Change (PRC)
04	Quick Engine Change Kit Bulletin (QEB)
03	Quick Engine Change Kit Change (QEC)
08	Reusable Container Bulletin (RCB)
07	Reusable Container Change (RCC)
84	Ship Installed and Expeditionary Airfield Launch, Recovery, and Visual Landing Aid Equipment Bulletin (LRB)
83	Ship Installed and Expeditionary Airfield Launch, Recovery, and Visual Landing Aid Equipment Change (LRC)
63	Support Equipment Bulletin (SEB)
62	Support Equipment Change (SEC)
96	Support Software Bulletin (SSB)
95	Support Software Change (SSC)
78	Target Control System Bulletin (TCB)
77	Target Control System Change (TCC)
06	Training Equipment Bulletin (TEB)
05	Training Equipment Change (TEC)

Numerical List

<u>CODE</u>	<u>TITLE</u>
01	Power Plant Bulletin (PPB)
02	Power Plant Change (PPC)
03	Quick Engine Change Kit Change (QEC)
04	Quick Engine Change Kit Bulletin (QEB)
05	Training Equipment Change (TEC)
06	Training Equipment Bulletin (TEB)
07	Reusable Container Change (RCC)
08	Reusable Container Bulletin (RCB)
40	Commodity Software Change (CSC)
41	Commodity Software Bulletin (CSB)
50	Airframe Change (AFC)
51	Dynamic Component Change (DCC)
52	Dynamic Component Bulletin (DCB)
54	Avionics Change (AVC)
55	Avionics Bulletin (AVB)
56	Aviation Armament Change (AAC)
57	Aviation Armament Bulletin (AAB)
58	Accessory Bulletin (AYB)
61	Accessory Change (AYC)
62	Support Equipment Change (SEC)
63	Support Equipment Bulletin (SEB)
64	Propeller Change (PRC)
65	Propeller Bulletin (PRB)
66	Aircrew System Change (ACC)
67	Aircrew System Bulletin (ACB)
68	Photographic Change (PHC)
69	Photographic Bulletin (PHB)
73	Meteorological Equipment Change (MEC)
74	Airframe Bulletin (AFB)
75	Airborne Weapon Change (AWC)
76	Airborne Weapon Bulletin (AWB)
77	Target Control System Change (TCC)
78	Target Control System Bulletin (TCB)
79	Meteorological Equipment Bulletin (MEB)
83	Ship Installed and Expeditionary Airfield Launch, Recovery, and Visual Landing Aid Equipment Change (LRC)
84	Ship Installed and Expeditionary Airfield Launch, Recovery, and Visual Landing Aid Equipment Bulletin (LRB)
91	Naval Air Maintenance Trainer Change (NTC)
92	Naval Air Maintenance Trainer Bulletin (NTB)
93	Airborne Software Change (ASC)
94	Airborne Software Bulletin (ASB)
95	Support Software Change (SSC)
96	Support Software Bulletin (SSB)
97	Naval Air Maintenance Trainer Support Software Change (TSC)
98	Naval Air Maintenance Trainer Support Software Bulletin (TSB)
99	Age Exploration Bulletin (AEB)

TIME/CYCLE PREFIX CODES

The alphabetic codes listed below are to be used to prefix entries in fields E42 through E52 and G38 through G48 of the MAF to denote type of data being reported. Code W may be used only in field E47 and G43; Code X may be used only in fields E52 and G48. All entries in these blocks will be preceded by an alphabetic prefix, and sufficient zeros will be added between the prefix and the first significant numeric character to make a total of five digits. For example, report 27 hours type equipment time as A0027.

A. Type Equipment Time

Used to report the removal and installation of equipment not having hour meters installed, an AESR, MSR, ASR, EHR, or SRC card. This will reflect total time since new, whole hours only, on the end item from which the component was removed. If type equipment time exceeds 9,999 hours, record the last four digits only, for example, 10,231 hours would be recorded as A0231. For equipment without logbooks, where total time is unknown, such as PME, use A0000.

B. Captive Flights

Total number of captive flights on the equipment. (For use with missiles and missile targets only.)

C. Operating Hours or Counts on Components Having MSR, ASR, EHR, or SRC Cards

Use total time since rework or overhaul, if known, whole hours only. If unknown, use time since new. For ASR, EHR, or SRC components or modules using other than hours or counts for time/cycle monitoring system accounting, use appropriate code.

D. Days. Number of days

E. Operating Hours or Counts for Items Having an AESR

For items which have an AESR, for example, engines, propellers, in-flight refueling stores, and for components of these items where Code C does not apply, enter time since rework or overhaul if known, whole hours only, as recorded in the AESR. If unknown, enter time since new. For AESR items using other than hours or counts for time/cycle monitoring system accounting use appropriate code.

F. Flight Hours. Total flight hours

(For use with missile targets only.)

G. Date of Manufacture

Date the item was manufactured, as recorded on the equipment or associated documents. Date to be entered and read as MMY Y, for example, 1104. (For use with survival equipment only.)

H. Date Placed Into Service

Date the equipment was placed into service, as recorded on the equipment or associated documents. Also used to designate the open date or propellant manufacture date for CARTs, CADs, or PADs. Date to be entered and read as MMY Y, for example, 1104. (For use with survival equipment and expeditionary airfield lighting, matting, fresnel lens, visual communication systems, and CARTs, CADs, or PADs.)

K. Arrestments

Number of accumulated aircraft arrestments since new, if available; otherwise, number since overhaul.

(For use with aircraft-installed arresting gear and expeditionary airfield equipment only). In the case of expeditionary airfield equipment, use this code to record number of arrestments on the arrester engine assembly, deck pendant tapes, and tape connector only; use Code M to record hour meter reading on retriever engine.

L. Landings

Enter the current total of landings recorded on the aircraft. If total exceeds 9,999 landings, record only the last four digits, for example, 10,231 landings would be recorded as L0231.

M. Meter Time

Number of accumulated hours on equipment and components as shown on the hour meter. (Enter whole hours only.)

N. Rounds Fired

Enter the total number of rounds fired since overhaul, if available; otherwise, enter the total number of rounds fired since new. Data will be rounded to the nearest hundred for entering on the maintenance document. If the figure exceeds 999,999 drop the left most digit and round off to the nearest hundred. Examples: 46 rounds would be reported as N0000, 68 rounds would be reported as N0001, 638 rounds would be reported as N0006, 2,437 rounds would be reported as N0024, 180,779 rounds would be reported as N1808, 1,000,241 rounds would be reported as N0002.

P. Cycles

Enter the number of cycles since overhaul, if available; otherwise, enter the number of cycles since new, for example, number of bombs dropped from a bomb rack.

S. Starts

Enter actual number of starts on equipment/components as shown on start meter or actual number of starts on equipment/component recorded by other devices.

T. Catapult Shots

Enter the number of actual catapult shots recorded on equipment and components.

U. Months Installed

Number of accumulated months equipment was installed since new (if available); otherwise, months since overhaul.

W. Warranty

This code indicates that the component is under warranty and will be used in fields E47 and G43 only. After the prefix code, enter the length of the warranty period in time/cycles, or the date of warranty expiration. Information about warranty length/expiration date can be found on the data plate affixed to the item, or in its logbook or associated records. If the expiration of the warranty is by date, enter on the MAF the year and month, for example, if warranty expires September 2004, enter W0409.

X. Contract Number

This code indicates the contract number of the component under warranty and will be used in fields E52 and G48 only. After the prefix code, enter the last four characters of the contract number. The contract number can be found on the data plate affixed to the item, or the logbook or associated records, for example, if the contract number is N00019-95-C-0129, enter X0129.

TRANSACTION (TRANS) CODES

The TRANS codes listed below are to be entered in block A32 of the MAF. TRANS codes denote the type of data being reported. Codes 00, 02, and 03 particularly are for reporting custodians.

TRANS CODE	USE
00	Is used to report an inventory gain.
02	Is used to report a change in the material condition reporting status of an equipment, for example, IN/OUT reporting.
03	Is used to report an equipment loss.
11	a. On-Equipment work not involving removal of defective or suspected defective components/items. b. On supporting engine documents not having a removal of a defective or suspected defective component/item when the engine is not specifically identified to a particular aircraft, for example, JRPX. c. This code is also used at the O-level or I-level when closing out a maintenance action. d. On supporting documents where corrosion treatment is performed at the IMA and this treatment is a separate and distinct action apart from the required repair.
12	a. On-Equipment work, including engines, involving nonrepairable components/items documented as failed parts. b. Engine identification documented in the Failed/Required Material blocks (H-Z) and indexed (Use Transaction Code 12).
14	Removal of a nondefective component/item (excluding cannibalization, see Transaction Code 19), from an engine, to be processed at the O-level. (TRANS Code 18 will be used for the removal and replacement of a complete nondefective engine.) In the case of a nonserialized component/item, block E13 of the MAF must be a single zero (0) (see Note).
15	Installation of a nondefective component/item, excluding cannibalization (see TRANS Code 19) on an engine to be processed at an O-level activity. In the case of a nonserialized component/item, block G13 of the MAF must be a single zero (0) (see Note).
16	Removal of a nondefective component/item, excluding engine components/items and a cannibalization (see TRANS Code 18), to be processed at an O-level activity. In the case of a nonserialized component/item, block E13 of the MAF must be a single zero (0) (see Note).
17	Installation of a nondefective component/item (excluding engine components/items and cannibalization). In the case of a nonserialized component/item, block G13 of the MAF must be a single zero (0) (see Note).
18	Used to document the following for components/items at O-level and I-level activities (excluding engine components/items at the O-level): a. Removal and replacement of nondefective components and items to accomplish a cannibalization action (AT Code T). b. Removal and replacement of those consumable components and items subject to a scheduled removal interval or items of supply significance, for example, precious metal content (AT Code R). Document the removal component in blocks E08 through E52. Document the replacement component in blocks G08 through G48. Block 79 (index) will remain blank.

- 19 Used to document the following for engine components and items at the O-level:
a. Removal and replacement of a nondefective component or item to accomplish a cannibalization action (AT Code T).
b. Removal and replacement of those consumable components and items subject to a scheduled removal interval or items of supply significance, for example, precious metal content (AT Code R).
Document the removal component in blocks E08 through E52. Document the replacement component in blocks G08 through G48. The engine from which the component was removed and replaced will be documented in the (H-Z) Failed/Required Material blocks 79, 10, 11, 14, 19, and 41.
- 20 Removal and replacement of nondefective consumable component for cannibalization (NTCSS Optimized OMA activities only).
- 21 Will be used when a repairable component is removed (excluding engines and engine components) for processing at an IMA or D-level maintenance activity. This code is used when only the removal must be documented and a replacement is not required (see Note).
- 23 Removal and replacement of a defective, suspected defective, or scheduled maintenance of a repairable component from an end item (excluding engine components at the O-level). Additionally, this TRANS Code will be used for the removal and replacement of a complete engine assembly for a defect, suspected defect, or scheduled maintenance requirement. The removal component is to be processed at an IMA or D-level maintenance activity. For IMA only - Use this TRANS Code for removal and replacement of engine modules and components when the engine is the end item (see Note).
- 24 Will be used when a repairable engine component is removed for processing at an IMA or D-level activity. This code is used only when the removal must be documented and the replacement is not required (see Note).
- 25 Removal and replacement of a defective or suspected defective repairable component from an engine. The removed component to be processed at an IMA or D-level activity (see Note).
- 30 Is used to document components processed through the IMA for check, test, service, manufacture, and fabrication.
- 31 Work performed on a removed repairable component with no failed parts or awaiting parts documented in the Failed/Required Material blocks. This action is normally performed at the IMA. (See TRANS Code 11 for supporting engine document.)
- 32 Work performed on a removed repairable component with failed parts, awaiting parts, or cannibalization actions documented in the Failed/Required Material blocks. This action is normally performed at the IMA.
- 39 Close out for man-hours or awaiting parts at an IMA.
- 41 a. TD compliance with no part number change or non-serialized components.
b. O-level close out of SCIR impacted TD items (NALCOMIS Legacy).
- 47 Used to document TD compliance on all serialized components, regardless of whether there is a part number change.
- 72 Will be used to report subsystem capability and impact reporting data by the reporting custodian when transient maintenance is performed by other than the reporting custodian.

NOTE: When an engine is a supply asset, not undergoing repair or inspection inducted from an O-level activity TRANS codes 11, 12, 16, 17, 21, and 23 must be used.

TYPE EQUIPMENT CODES (TECS)

Purpose

This section describes the general format and structuring of TECs used in the MDS. Detailed TEC assignments are in the TEC Translator section of the NAVAIR Logistics web site (<http://www.navair.navy.mil/logistics/tectranslator>). Activities requiring specific TEC information should contact the cognizant commander, COMFAIR, Wing, MAG, ACC/TYCOM, or equivalent headquarters.

Description

TECs are four-character codes which identify either the end item or category of equipment on which work is performed. Codes in each specific category are structured in the manner best suited to describe the equipment concerned. To maintain the stability of historical data, a TEC is considered unique to an end item over its life cycle and shall be retired for a designated time period, for reporting purposes. Post-retirement time periods are as follows:

Aircraft and UAS Control Systems - 20 years

All other TECs - 7 years

After these designated time periods have expired the TEC is considered to be deactivated and may be reassigned for a new application.

Assembly Code (Assy CD)

An Assy CD is an alternative means of identifying an end item used exclusively within the OOMA NALCOMIS application when a TEC assignment is not practical. Assy CDs are structured as a four character alpha-numeric code ending in two numeric characters. Each Assy CD will have a direct relationship to a COMNAVAIRSYSCOM approved TEC. In instances where an Assy CD is associated with multiple TECs, the TEC/Assembly Code Manager (COMNAVAIRSYSCOM (AIR-6.8.5)) will determine and assign a primary TEC for data warehousing purposes.

Code Structuring

TECs are structured as follows in each code category.

A Series - Aircraft and UAS Control Systems

Aircraft and UAS Control Systems are identified in this code series by T/M/S or system designation. The general type/model is indicated by a code ending in 9, for example, AMA9 = F/A-18 type/model group. This code may be used when the specific aircraft T/M/S is not known or when work is performed on components applicable to several different series aircraft of the same type/model, such as, work on radio components of F/A-18 aircraft documented as a single action. However, codes ending in 9 should not be used where a more specific code can be applied. An example of code structuring used in this series is as follows:

AMAF - F/A-18C Aircraft
A - Equipment Category (Aircraft)
AM - Aircraft Type/(M-Fighter/Attack)
AMA - Aircraft Type/Model (F/A-18)
AMAF - Aircraft Type/Model/Series (F/A-18C)

Aircraft and UAS Control System Primary Mission Code Assignment

<u>Equipment Type</u>	<u>Primary Mission</u>	<u>Mission Description</u>
A	A	Attack Aircraft
A	B	Bomber Aircraft
A	C	Logistics/Transport Aircraft
A	D	Unmanned Aerial Vehicle Control System
A	E	Special Electronics Aircraft
A	F	Fighter Aircraft
A	G	Unassigned-reserve for future use
A	H	Helicopters
A	J	Unassigned-reserved for future use
A	K	Unassigned-reserved for future use
A	L	Laser Technology Use Aircraft
A	M	Multi-Mission Aircraft
A	N	Unassigned-reserved for future use
A	P	Maritime Patrol Aircraft
A	Q	Unmanned Air Vehicles/Drones
A	R	Reconnaissance Aircraft
A	S	Anti-Submarine Warfare Aircraft
A	T	Trainer Aircraft
A	U	Utility Aircraft
A	V	Unassigned-reserved for future use
A	W	Unassigned-reserved for future use
A	X	Research/Development/Test/Evaluation Aircraft (Note 1)
A	Y	Unassigned-reserved for future use
A	Z	Lighter than Air Vehicle

NOTE: The "AX" designation will be assigned to experimental or RDT&E aircraft or systems and will only be used during the period of time that the equipment is designated with an experimental type designation (X Series). Any equipment assigned this designation will be re-designated with a primary Mission Code when a final model designation is assigned.

B Series - Mission Mounted Equipment

Codes in this series identify external items of mission equipment, such as photo, electronic counter measure, gun pods, and in-flight refueling buddy stores, which are treated as end items when not installed. Codes in this series will be constructed of alpha-numeric characters assigned by the TEC/Assembly Code Manager (COMNAVAIRSYSCOM (AIR-6.8.5)).

BARS - A/A42R-1 Air Refueling Store

In addition to specific equipment assignments, a general T/M/S equipment code will be assigned for each T/M/S or UAS Control System. For Legacy NALCOMIS users, this code may be used when MME peculiar to a platform does not have a specific equipment designation or when a unique TEC has not been assigned. These general equipment codes shall not be used where a more specific code can be applied. Assignment of this TEC series within OOMA NALCOMIS is managed by the TEC/Assembly Code Manager (COMNAVAIRSYSCOM (AIR-6.8.5)). An example of general T/M/S equipment code structuring in this series is as follows:

- BMAF - F/A - 18C Aircraft Mission Mounted Equipment
- B - Equipment Category (mission mounted equipment)
- BM - Aircraft Type/(M-Fighter/Attack)

BMA - Aircraft Type/Model (F/A-18)

BMAF - Aircraft Type/Model/Series (F/A-18C)

C Series - Propeller/Rotor Equipment

Codes in this series identify aircraft propellers and helicopter rotor systems. These codes will be constructed of alpha-numerical characters assigned by the TEC/Assembly Code Manager (COMNAVAIRSYSCOM (AIR-6.8.5)). An example of this code structuring is as follows:

C13K - C - 130 Hamilton Standard Variable Pitch Propeller

C53D - CH 53D Main Rotor Head Assembly

D Series - PME

Codes in this series are assigned only through the second position, to indicate broad subcategories of PME. Codes are assigned to conform as closely as possible to WUC groupings used in NAVAIR 16-1-8 WUC manuals. For Optimized NALCOMIS users, these codes will be constructed of alpha-numerical characters assigned by the TEC/Assembly Code Manager (COMNAVAIRSYSCOM (AIR-6.8.5)). For Legacy NALCOMIS users, the third and fourth position of these codes may be further assigned locally if desired, for example, DBAB, DBAC, and DBBA. In the event this breakdown is desired, its use will be controlled by the local MO and issued/coordinated by QA. Assignment of this TEC series within OOMA NALCOMIS is managed by the TEC/Assembly Code Manager (COMNAVAIRSYSCOM (AIR-6.8.5)). Codes assigned in this series are as follows:

DAAA - Flight Reference Test and Check Equipment. Includes test and check equipment for the following: air data computer, angle of attack, automatic flight control, automatic stabilization, autopilot, compass, heading reference, stall warning, true airspeed computing, and vertical gyro indicating systems. (Includes all PME in the 56 series WUCs.)

DBAA - Communications Test and Check Equipment. Includes test and check equipment for the following: HF, VHF, UHF, and interphone communications systems, emergency radio systems, IFF systems, and communication navigation interrogation integrated systems. (Includes all PME in the 61 series WUCs which do not have a specific TEC assigned.)

DCAA - Navigation Test and Check Equipment. Includes test and check equipment for radio and radar navigation systems. (Includes all PME in the 71 series WUCs which do not have a specific TEC assigned.)

DDAA - Weapon Control Test and Check Equipment. Includes test and check equipment for bombing-navigation and weapon control systems. (Includes all PME in the 74 series WUCs which do not have a specific TEC assigned.)

DEAA - Weapon Delivery Test and Check Equipment. Includes test and check equipment for weapons delivery systems. (Includes all PME in the 75 series WUCs which do not have a specific TEC assigned.)

DFAA - Electronic Countermeasures Test and Check Equipment. Includes test and check equipment for electronic countermeasures systems. (Includes all PME in the 76 series WUCs which do not have a specific TEC assigned.)

DGAA - Semi-Automatic Check-Out Equipment. Includes test and check equipment for electronic semi-automatic check-out equipment. (Includes all PME in the 78 series WUCs which do not have a specific TEC assigned.)

DHAA - General Electronic Test and Check Equipment. Includes sweep, signal, pulse, code, and function generators; range, crystal, compass, and transducer calibrators; frequency meters; vacuum tube voltmeters; oscilloscopes; RF, UHF, and VHF power wattmeters; frequency counters; frequency calibrators; fuel, oxygen, and hydraulic testers; engine instrument and performance testers; electrical equipment module testers; test bench

harnesses, cables, and adapters; and the allied equipment. (Includes all the PME in the 79 series WUCs which do not have a specific TEC assigned.)

DZAA - Other. Includes all PME not assigned a WUC. Requests for assignment of a WUC should be accomplished per NAVAIR 00-25-8.

E Series - Ejection Seat Systems

Codes in this series identify Ejection Seat Systems. These codes will be constructed of alpha-numerical characters assigned by the TEC/Assembly Code Manager (COMNAVAIRSYSCOM (AIR-6.8.5)). An example of this code structuring is as follows:

EJA6 - Mk GRU7/MK GRUE7/ECMO Ejection Seats

EJU5 - SJU-5/A and SJU-6/A Ejection Seats

G Series - Common Support Equipment and Aeronautical Expeditionary Airfield Equipment and Marine Air Traffic Control and Landing Systems (MATCALs)

Equipment in this code series is identified by subcategory, group, and individual T/M/S designation. Equipment subcategory G1 through G5 will be maintained for the MATCALs. The general equipment group is indicated by a code ending in A, for example, GACA = Diesel Engine Driven Electric Generator Units. For Legacy NALCOMIS users, this code may be used when (1) the specific equipment T/M/S designation is not known, (2) when a unique TEC is not assigned to the specific equipment involved, or (3) when work is performed on several different T/M/S equipment in the same general group, documented as a single maintenance action. However, codes ending in A should not be used where a more specific code can be applied. Assignment of this TEC series within OOMA NALCOMIS is managed by the TEC/Assembly Code Manager (COMNAVAIRSYSCOM (AIR-6.8.5)). An example of code structuring in this series is as follows:

GACB - Sun Model NC-10 Diesel-Driven Mobile Electric Power Plant

G - Equipment Category (common support equipment)

GA - Equipment Subcategory (electric generator units)

GAC - Equipment Group (diesel engine driven electric generator units)

GACB - Sun Model NC-10

H Series - Missile and Target PSE

Equipment in this code series is identified by missile or target application, subcategory, and individual equipment type/model. The general equipment subcategory is indicated by a code ending in A, for example, HFDA = AIM-9 Target Test Sets. For NALCOMIS users, this code may be used when (1) the specific equipment T/M/S designation is not known, (2) when a unique TEC is not assigned to the specific equipment involved, or (3) when work is performed on several different T/M/S of equipment in the same general subcategory, documented as a single maintenance action. However, codes ending in A should not be used when a more specific code can be applied. Assignment of this TEC series within OOMA NALCOMIS is managed by the TEC/Assembly Code Manager (COMNAVAIRSYSCOM (AIR-6.8.5)). An example of code structuring in this series is as follows:

HFDC - AIM-9 Target Test Set. MK-401

H - Equipment Category (missile or target)

HF - Missile/Target Application (AIM-9 Target)

HFD - Equipment Subcategory (Test Sets)

HFDC - Equipment Model/Type (MK-401)

J Series - Jet Engines

Jet engines are identified in this code series by model, series, and aircraft application. The general engine model/series group is indicated by a code ending in X, for example, JHPA = J52-P-408B engine, aircraft application not specified. This code may be used when the specific aircraft application is not known (as in the case of J52-P-408B engine being built up for installation on either a EA-6B aircraft or when a code is not assigned to the specific aircraft application involved). Codes ending in X should not be used when a more specific code may be applied. Assignment of this TEC series within OOMA NALCOMIS is managed by the TEC/Assembly Code Manager (COMNAVAIRSYSCOM (AIR-6.8.5)). An example of code structuring in this series is as follows:

JHPA - J52-P-408B engine, used in model EA-6B aircraft
J - Equipment Category (jet engines)
JH - Engine Model (J52)
JHP - Engine Model/Series (J52-P-408B)
JHPA - Aircraft Application (EA-6B aircraft)

K Series - BIS (Board of Inspection and Survey) Aircraft and UAS Control Systems

Aircraft and UAS Control System codes in this series identify BIS aircraft (identified by the letter J prefix in the model designation). The TEC for these aircraft is constructed by using the basic aircraft or UAS System TEC with the letter K substituted for A in the first position. An example of code structuring in this series is as follows:

KMAF - F/A-18C Aircraft
K - Equipment Category (BIS Aircraft)
KM - Aircraft Type/(M-Fighter/Attack)
KMA - Aircraft Type/Model (F/A-18)
KMAF - Aircraft Type/Model/Series (JF/A-18C)

M Series - Missile, Probes, Rockets, AMCM equipment, and Targets

Equipment in this code series is identified by subcategory, design and type number, and series number. The general design and type is indicated by a code ending in 9, for example, MBA9 = ACM-12. For Legacy NALCOMIS users, this code may be used when (1) specific series designation is not known, (2) when a unique TEC is not assigned to the specific equipment involved, or (3) when work is performed on several different series-designated equipment of the same design and type, and documented as a single maintenance action. However, codes ending in 9 should not be used when a more specific code can be applied.

Assignment of this TEC series within OOMA NALCOMIS is managed by the TEC/Assembly Code Manager (COMNAVAIRSYSCOM (AIR-6.8.5)). An example of code structuring in this series is as follows:

MBAG - AGM-12C2 Bullpup Missile
M - Equipment Category (missiles, probes, rockets, targets)
MB - Equipment Subcategory (airlaunched surface attack missiles)
MBA - Design and Type Number (AGM-12)
MBAG - Series Number (AGM-12C2)

N Series - Project Development Aircraft and UAS Control Systems

Aircraft and UAS Control Systems identified in this code series identify project development platforms (those with the letter N prefix in the model designation). The TEC is constructed by using the basic aircraft or UAS Control System TEC, with the letter N substituted for A in the first position. An example of code structuring in this series is as follows:

- NMAF - F/A-18C Aircraft
- N - Equipment Category (project development aircraft)
- NM - Aircraft Type/(M-Fighter/Attack)
- NMA - Aircraft Type/Model (F/A-18)
- NMAF - Aircraft Type/Model/Series (NF/A-18C)

P Series - APU and SEGTE

Engines in this category are identified by model, series and aircraft and equipment application. The general model/series group is indicated by a code ending in X, for example, PAAX = GTC-95-2 Engine Aircraft and Equipment application not specified. For Legacy NALCOMIS users, this code may be used when the specific aircraft or equipment is not known (as in the case of a GTC-95-2 engine being built up for installation on either a P-3C or EP-3E aircraft), or when a code is not assigned to the specific aircraft or equipment application involved. Codes ending in X should not be used on turn-in documentation when a more specific code may be applied. Assignment of this TEC series within OOMA NALCOMIS is managed by the TEC/Assembly Code Manager (COMNAVAIRSYSCOM (AIR-6.8.5)). An example of code structuring is as follows:

- PAAB - GTC-95-2 Engine used on model P-3A Aircraft
- P - Engine Category (APU or SEGTE)
- PA - Engine Model (GTC-95)
- PAA - Engine Model/Series (GTC-95-2)
- PAAB - Engine Application (P-3A)

R Series - Reciprocating Aircraft Engines

Reciprocating engines are identified in this code series by model, series, and aircraft application. The general engine model/series group is indicated by a code ending in X, for example, REDX = R1820-80 engine, aircraft application not specified. For Legacy NALCOMIS users, this code may be used when the specific aircraft application is not known (as in the case of an R1820-80 engine being built up for installation in either an LC-117D or TC-117D aircraft), or when a unique code is not assigned to the specific aircraft application involved. Codes ending in X should not be used when a more specific code can be applied. Assignment of this TEC series within OOMA NALCOMIS is managed by the TEC/Assembly Code Manager (COMNAVAIRSYSCOM (AIR-6.8.5)). An example of code structuring is as follows:

- REDB - R1820-80 Engine, used in model LC-117D aircraft
- R - Equipment Category (reciprocating engines)
- RE - Engine Model (R1820)
- RED - Engine Model/Series (R1820-80)
- REDB - Engine Application (LC-117D aircraft)

S Series - Aircraft PSE and UAS Control Systems PSE

Equipment in this category is identified by aircraft and UAS Control Systems application, subcategory, and individual model and type number. The general equipment application and subcategory is indicated by a code ending in A, for example, SCBA = A-6 aircraft SACE equipment. For Legacy NALCOMIS users this code may be used when the specific equipment type or model designation is not known, or when a unique TEC is not assigned to the specific equipment involved. However, codes ending in A should not be used when a more specific code can be applied. Assignment of this TEC series within OOMA NALCOMIS is managed by the TEC/Assembly Code Manager (COMNAVAIRSYSCOM (AIR-6.8.5)). An example of code structuring is as follows:

SCBH - A-6 Aircraft Computer Test Console, OA-3734/ASM-77
S - Equipment Category (aircraft PSE)
SC - Aircraft Application (A-6)
SCB - Equipment Subcategory (SACE equipment)
SCBH - Equipment Model and Type (OA-3734/ASM-77 computer test console)

T Series - Turboprop and Turbofan Module Engines

Turboprop, turbofan, and module engines are identified in this code series by model, series, and aircraft application. The general engine model/series group/engine module is indicated by a code ending in X, for example, THBX = T56-A-7 engine, aircraft application not specified. For Legacy NALCOMIS users, this code may be used when the specific aircraft application is not known (as in the case of a T56-A-7 engine being built up for installation in either a KC-130F or C-130F aircraft), or when a unique code is not assigned to the specific aircraft application involved. Codes ending in X should not be used when a more specific code can be applied. For modules, the engine application series (fourth position), will be X, for example, F404-GE-400 (fan, HPC, HPT, etc.) module would be TXAX and T56-A-7 (GB, PS, etc.) module would be THBX. Assignment of this TEC series within OOMA NALCOMIS is managed by the TEC/Assembly Code Manager (COMNAVAIRSYSCOM (AIR-6.8.5)). An example of code structuring is as follows:

THBF T56-A-7 Engine, used in model KC-130F Aircraft
T - Equipment Category (turboprop/turbofan engines)
TH - Engine Model (T56)
THB - Engine Model/Series (T56-A-7)
THBF - Engine Application (KC-130F aircraft)

V Series - Trainers and Training Devices

Equipment is identified in this code series by application and equipment model/type number. The general equipment application is identified by a code ending in 9, for example, VAC9 = A-4 aircraft peculiar trainers/training devices. For Legacy NALCOMIS users only, this code may be used when the specific equipment model/type number is not known, or when a unique code is not assigned to the specific equipment involved. However, codes ending in 9 should not be used when a more specific code can be applied. Assignment of this TEC series within OOMA NALCOMIS is managed by the TEC/Assembly Code Manager (COMNAVAIRSYSCOM (AIR-6.8.5)). An example of code structuring is as follows:

VACB - A-4 Aircraft Weapon System Trainer, type 2F62
V - Equipment Category (trainers/training devices)
VA - Broad Application (attack aircraft peculiar)
VAC - Specific Application (A-4 aircraft peculiar)
VACB - Equipment Model/Type (type 2F62 weapon system trainer)

W Series – Expendable Aviation Ordnance

This series will be used to document expendable aviation ordnance. These codes identify various bombs, fuses, and fins for the purpose of CM. An example of the code structuring in this series is as follows:

WFA3 - BDU33
W - Equipment Category (Expendable Aviation Ordnance)
WF - Bomb
WFA - BDU
WFA3- Series 33

X Series - Not a DON/Foreign Aircraft

Aircraft in this series identify non-DON/foreign aircraft. These codes were previously assigned with S as the first character of the TEC by the Naval Safety Center. The S is replaced with X by COMNAVAIRSYSCOM (AIR-6.8.4.3) whose responsibility includes the assignment of all TECs. All X series TECs listed in the Aviation Type Equipment Code List (A7210-01) will be used by personnel/activities involved in the Personnel Exchange Program, or aviators not assigned to a DON activity when submitting Naval Aircraft Flight Records through the Aviation Maintenance and Material Management System. These codes will not be used in the documentation of MAFs.

Y Series - Aeronautical equipment not identified to a specific TEC

Aeronautical equipment TECs in this series are assigned only through the second position, to indicate subcategories of equipment which cannot be identified to a specific TEC. These codes are used to document off-equipment work on material which is generic in nature and does not require a specific TEC assignment. Examples are electronic equipment from supply stock and parachute repacking. The third and fourth positions of these codes may be further assigned for identification purposes, for example, YGA1 or sewing machine. In the event this breakdown is desired for Legacy NALCOMIS users, its use will be controlled by the local MO and issued/coordinated by QA. Assignment of this TEC series within OOMA NALCOMIS is managed by the TEC/Assembly Code Manager (COMNAVAIRSYSCOM (AIR-6.8.5)). Basic codes assigned are as follows:

NOTE: YLAA and YWAA can be used for documentation purposes (MAF) of both on-equipment and off-equipment work.

YAAA - Aircraft Equipment
YBAA - Airborne Aeronautical Equipment. This equipment is used in test bench installations.
YCAA - Avionics and Weapons Equipment
YEAA - Engines
YGAA - Support Equipment
YLAA - Logistics Support Equipment. This equipment is usually designated by Mk and Mod number.
YPAA - Aviator's Personal Equipment
YWAA - Weapons Support Equipment. This equipment is usually designated by Mk and Mod number.
YWAB - Weapons Ordnance Handling Support. Aviation Ordnance breakouts, buildups, restows, and support of daily operational weapons requirements.
YZAA - Other Equipment

Z Series - Nonaeronautical Equipment

The unstructured code ZAAA is assigned for documenting all nonaeronautical work, such as the construction of signs and status boards. The third and fourth positions of this code may be further assigned locally if desired, for example, ZAAB, ZAAC, ZABA, or ZACA. In the event this breakdown is desired, its use will be controlled by the local MO and issued and coordinated by QA. Code ZBAA is assigned for air and surface repairable components which are removed from a ship or surface craft and scheduled for repair at a designated IMA.

Request for Addition or Deletion of Codes

COMNAVAIRSYSCOM (AIR-6.8.5.3) is responsible for the assignment and control of TECs. If requests concern SE or PME, they will be forwarded via NAVAL AIR WARFARE CENTER AIRCRAFT DIVISION (32400b596-1), HWY 547, LAKEHURST NJ 08733-5900, in addition to the normal chain of command. Requests shall be addressed through the cognizant chain of command (COMNAVAIRSYSCOM (AIR-6.8.5.3) cannot assign codes without proper endorsements).

NOTE: To expedite processing, copies of signed, serialized, and dated change request originating letters and endorsements may be transmitted via e-mail (TECMGR@navy.mil) or to COMNAVAIRSYSCOM (AIR-6.8.5.2) (DSN 342-4720 or COMM (301) 342-4720, ATTN: COMNAVAIRSYSCOM TEC Manager).

Naval letter format:

From: (Requesting Activity)
To: Commander, Naval Air Systems Command (AIR-6.8.5.2)
Via: (Appropriate type commander for approval and endorsement)
(Other commands in paragraph 4 (if applicable))

Subj: AVIATION 3M TYPE EQUIPMENT CODE CHANGE REQUEST

1. The following type equipment code addition/deletion is requested. (Provide information as listed in the Aviation Type Equipment Code List (A7210-01))

ADD or DELETE:

AIRCRAFT MODEL DESIGNATION
ENGINE MODEL DESIGNATION
NUMBER OF ENGINES
PART NUMBER
CAGE DESIGNATION
NOMENCLATURE
TYPE, DESIGNATOR, MODEL
WUC
NIIN

2. Justification: (This paragraph should contain a justification for the request, any amplifying information considered necessary, and a command point of contact with DSN and commercial phone numbers.)

(Requester's Signature)

COMNAVAIRSYSCOM's mailing address:

COMMANDER
ATTN: AIR-6.8.5.2 TEC MANAGER
NAVAIRSYSCOMHQ
22477 PEARY ROAD
BLDG 516 RM 100A
PATUXENT RIVER, MD 20670

Upon approval, COMNAVAIRSYSCOM (AIR-6.8.5.2) will inform:

COMNAVAIRFOR (N422C)
NATEC (Code 6.8.5)
NSWC Corona CA (QA41)
NAVMAC (32)
SPAWARSYSCEN NORFOLK DET SAN DIEGO CA (64)

TYPE MAINTENANCE (TM) CODES

The following TM Codes are Prescribed for Use on the MAF:

B. Unscheduled Maintenance

Used for all maintenance actions except the following:

- a. The look phase of any inspection.
- b. The look phase and fix phase of all aircraft inspections, engine inspections, SE PM inspections, and missile equipment rehabilitation inspections.
- c. Calibration of PME.
- d. Transient maintenance.

D. Daily, Turnaround, Special Inspections and Preservation or Depreservation Actions

Used to document special inspections, preservation, depreservation, and for documenting discrepancies discovered during, daily inspections, preoperational inspections, or turnaround inspections. The following examples apply:

- a. With respect to aircraft, this code is used for daily inspections and turnaround inspections, preservation or depreservation actions, airframe special inspections based on calendar days, and combined airframe and engine special inspections based on calendar days.
- b. With respect to SE, this code is used for preservation or depreservation actions, airframe special inspections based on calendar days, and combined airframe and engine special inspections based on calendar days and documenting discrepancies discovered during daily inspections, preoperational inspections, and turnaround inspections.
- c. Equipment with a prescribed standard inspection cycle such as mini-regs, parachutes not covered by MRCs, and survival equipment.

E. Acceptance and Transfer Inspection

Acceptance inspections and transfer inspections on aircraft, SE, and missile targets.

F. Transient Maintenance

Maintenance performed on equipment in a transient status.

G. Phase Inspection

Phased maintenance inspections on aircraft (excluding uninstalled engine inspections), both look phase and fix phase.

J. Major Engine Inspection

This code is used for uninstalled engine inspections for both the look phase and fix phase.

K. Special Engine Inspection

This code is used for all special inspections performed exclusively on engines, installed or uninstalled, for both the look phase and fix phase.

L. Local Manufacture or Fabrication Actions for Nonaeronautical Material

M. Hourly Special Aircraft Inspections

This code is used for airframe and combined airframe and engine hourly interval special inspections for both the look phase and fix phase.

N. Cycle or Event Special Aircraft Inspections

This code is used for airframe and combined airframe and engine special inspections based upon cycles or events, for example, rounds fired, arrested landings, launches. This code is used for both the look phase and fix phase.

P. PM, Postlaunch Rehabilitation Inspections, and Scheduled Calibration

Used to document both look phase and fix phases of the following type of inspections:

- a. PM inspections on SE and expeditionary airfield equipment.
- b. Scheduled calibration of PME.
- c. Postlaunch rehabilitation of recoverable targets following each launch and recovery, and major inspections on targets not normally rehabilitated, including nonrecoverable types.

S. Conditional Inspection.

The look phase and fix phases of conditional inspections on aircraft, engines, SE, and missile targets, and conditional (unscheduled) calibration of PME.

T. Supply Support

All work performed as a result of a MAF work request received from a supply activity.

U. Reclamation and Salvage

All work performed in connection with reclamation and salvage actions.

The following TM Codes are Prescribed for Use by Power Plants Work Centers with Specific Engine Repair Capability

1. First-Degree Repair

First-degree repair is repair which includes compressor rotor replacement or disassembly to a degree that the compressor rotor assembly can be removed.

2. Second-Degree Repair

Second-degree repair by designated IMAs includes the repair or replacement of turbine rotors and combustion sections (including afterburners), and the repair or replacement of reduction gearboxes and torque shafts which are considered repairable within the limits of the approved intermediate maintenance handbooks.

3. Third-Degree Repair

Third-degree repair encompasses the same gas turbine engine repair capability as the second-degree repair except that certain functions which require high maintenance man-hours and are of low incident rate are excluded.

R} TYPE WORK ORDER (WO) CODES

Type WO Listing to Discrepancy

AC	Acceptance/Post-depot Inspection Control	MF	SDLM <u>A}</u> or <u>EPM</u> Fix Phase
AD	Assist Maintenance	ML	SDLM <u>A}</u> or <u>EPM</u> Look Phase
AF	Acceptance/Post-depot Inspection Fix Phase	MX	SDLM <u>A}</u> or <u>EPM</u> Single Work Center
AL	Acceptance/Post-depot Inspection Look Phase	OC	One Time Inspection Control
AT	Technical Directive Assist	OF	One Time Inspection Fix Phase
AX	Acceptance/Post-depot Inspection Single Work Center	OL	One Time Inspection Look
BC	Depreservation Control	OM	Other Type Maintenance
BF	Depreservation Fix Phase	OX	One Time Inspection Single Work Center
BX	Depreservation Single Work Center	PC	Phase Control
CC	Conditional Inspection Control	PF	Phase Fix Phase
CF	Conditional Inspection Fix Phase	PL	Phase Look Phase
CL	Conditional Inspection Look Phase	PX	Phase/PM Inspection Single Work Center
CM	Cannibalization Maintenance	QT	Technical Directive Deconfigure
CP	Corrosion Prevention	RT	Routine Tasks (Legacy only)
CT	Corrosion Treatment	SC	Special Inspection Control
CX	Conditional Inspection Single Work Center	SD	Depreservation Work Center Action
DF	Daily/Turnaround Discrepancy	SF	Special Inspection Fix Phase
DM	Discrepancy Maintenance	SL	Special Inspection Look Phase
ET	Technical Directive (Engine) SCIR	SP	Preservation Work Center Action
FC	Preservation Control	SX	Special Inspection Single Work Center
FF	Preservation Fix Phase	TC	Transfer/Pre-depot Inspection Control
FO	Facilitate Other Maintenance	TD	Technical Directive
FX	Preservation Single Work Center	TF	Transfer/Pre-depot Inspection Fix Phase
HA	Hosting Activity	TL	Transfer/Pre-depot Inspection Look Phase
IA	Intra-Activity Support	TM	Transient Maintenance
IC	IMC/P Control (OOMA only)	TS	Troubleshooting
IF	IMC/P Fix Phase (OOMA only)	TX	Transfer/Pre-depot Inspection Single Work Center
IL	IMC/P Look Phase (OOMA only)	WR	Work Request
MC	SDLM Control <u>A}</u> or <u>EPM</u> Fix Phase		

Discrepancy to Type WO

Acceptance/Post-depot Inspection Control	AC	Phase Control	PC
Acceptance/Post-depot Inspection Fix Phase	AF	Phase Fix Phase	PF
Acceptance/Post-depot Inspection Look Phase	AL	Phase Look Phase	PL
Acceptance/Post-depot Inspection Single Work Center	AX	Phase/PM Inspection Single Work Center	PX
Assist Maintenance	AD	Preservation Control	FC
Cannibalization Maintenance	CM	Preservation Fix Phase	FF
Conditional Inspection Control	CC	Preservation Single Work Center	FX
Conditional Inspection Fix Phase	CF	Preservation Work Center Action	SP
Conditional Inspection Look Phase	CL	Routine Tasks (Legacy Only)	RT
Conditional Inspection Single Work Center	CX	SDLM Control	MC
Corrosion Prevention	CP	SDLM Fix Phase	MF
Corrosion Treatment	CT	SDLM Look Phase	ML
Daily/Turnaround Discrepancy	DF	SDLM Single Work Center	MX
Depreservation Control	BC	Special Inspection Control	SC
Depreservation Fix Phase	BF	Special Inspection Fix Phase	SF
Depreservation Single Work Center	BX	Special Inspection Look Phase	SL
Depreservation Work Center Action	SD	Special Inspection Single Work Center	SX
Discrepancy Maintenance	DM	Technical Directive	TD
Facilitate Other Maintenance	FO	Technical Directive Assist	AT
Hosting Activity	HA	Technical Directive Deconfigure	QT
IMC/P Control (OOMA only)	IC	Technical Directive (Engine) SCIR	ET
IMC/P Fix Phase (OOMA only)	IF	Transfer/Pre-depot Inspection Control	TC
IMC/P Look Phase (OOMA only)	IL	Transfer/Pre-depot Inspection Fix Phase	TF
Intra-Activity Support	IA	Transfer/Pre-depot Inspection Look Phase	TL
One Time Inspection Control	OC	Transfer/Pre-depot Inspection Single Work Center	TX
One Time Inspection Fix Phase	OF	Transient Maintenance	TM
One Time Inspection Look	OL	Troubleshooting	TS
One Time Inspection Single Work Center	OX	Work Request	WR
Other Type Maintenance	OM		

WHEN DISCOVERED (WD) CODES

WD Code Explanation for Aircraft and Engines

A. Before Flight - Abort - Aircrew

This code is used when a need for maintenance is discovered by an aircrew before flight and it is necessary to abort the mission.

B. Before Flight - No Abort - Aircrew

This code is used when a need for maintenance is discovered by an aircrew before flight and it is not necessary to abort the mission.

C. In-Flight - Abort

This code is used when a need for maintenance is discovered in-flight and it becomes necessary to abort the mission.

D. In-Flight No Abort

This code is used when a need for maintenance is discovered in-flight and it is not necessary to abort the mission.

E. After Flight/Between Flight - Aircrew

This code is used when a need for maintenance is discovered after completion of a flight or between two flights, for example, a pilot, after completing a mission notices an access panel missing, or during a passenger stop, a pilot notices a sudden drop in fuel pressure.

F. Pilot/NFO Inspection

This code is used when a need for maintenance is discovered during a pilot/NFO aircraft inspection which is not flight related.

G. Acceptance/Transfer Inspection

This code is used when a need for maintenance is discovered during an acceptance/transfer inspection, regardless of the depth of the inspection.

H. Between Flights - Ground Crew

This code is used when a need for maintenance is discovered between flights by personnel other than the aircrew, for example, a taxi director notices an oil leak from an engine while directing a pilot into the chocks.

J. Daily Inspection

This code is used when a need for maintenance is discovered during a daily inspection which is performed independently of any other inspection. This code does not apply when the daily inspection is combined with a turnaround inspection. (See code K.)

K. Turnaround Inspection

This code is used when a need for maintenance is discovered during a turnaround inspection.

L. Special Inspection, Preservation/Depreservation

This code is used when a need for maintenance is discovered during a special inspection or preservation/depreservation.

M. Major/Phase Inspection

This code is used when a need for maintenance is discovered during a phase inspection for aircraft or during a major inspection for engines. This code will also apply to aircraft for which a single type of inspection is prescribed (as opposed to intermediate/major) and to periodic maintenance inspections on SE.

O. Administrative

This code is used when an administrative action is required, for example, inspection documents, check, test, or service, cannibalization, FOM.

P. Functional Checkflight

This code is used when the need for maintenance is discovered during a flight which was conducted for the purpose of testing for proper functioning of the airframe, power plant, accessories, and other items of equipment. The use of this code is limited to those items in the FCF checklist as requiring test during the flight.

Q. Conditional Inspection

This code is used when a need for maintenance is discovered during an inspection which does not have a prescribed interval and depends upon occurrence of certain circumstances or conditions.

R. QA Inspection

This code is used when a need for maintenance is discovered during any receiving, screening, in-process or final QA inspection (scheduled or unscheduled) conducted by personnel acting in the capacity of QAR, CDQAR, or CDI.

S. Oil Analysis Recommendation

This code is used when a need for maintenance is discovered as a result of a recommendation from the JOAP/NOAP.

U. Modification/SDLM/Overhaul/Airline Maintenance

This code is used when a need for maintenance is discovered during D-level maintenance.

V. Related Maintenance Action

This code is used when a need for maintenance by another work center is discovered during a related maintenance action. (Used by assisting work centers only.)

W. In-Shop Repair/Disassembly for Maintenance

This code is used when a need for maintenance is discovered during in-shop repair/disassembly for maintenance. (Applies to levels 2 and 3 maintenance only.)

X. Test Bench/Engine Test Stand Operation

This code is used when a need for maintenance is discovered on aeronautical components installed in test benches, ready room, and line shacks, or when a need for maintenance is discovered during engine test stand operation.

Y. Upon Receipt or Withdrawal from Supply

This code is used when parts, components, or assemblies are received or withdrawn from supply and found to be discrepant upon installation.

NOTE: The use of when discovered codes is for the most part self-explanatory. In case of doubt, however, use the code which most logically identifies when the need for maintenance was discovered, that is, P would take precedence over C, and K would take precedence over M.

Code Explanation for Support Equipment, Precision Measuring Equipment, and Aeronautical Expeditionary Airfield Equipment

C. Equipment Operation - Caused Equipment Downtime

This code is used when a need for maintenance is discovered during equipment operation and equipment down time results.

D. Equipment Operation - Did Not Cause Equipment Downtime

This code is used when a need for maintenance is discovered during equipment operation and no equipment downtime results.

F. Unscheduled Maintenance/Preservation/Depreservation

This code is used when a need for maintenance is discovered during unscheduled maintenance or preservation/depreservation.

G. Acceptance and Transfer Inspection

This code is used when a need for maintenance is discovered during an acceptance or transfer inspection.

J. Local Inspection/Shift Verification

This code is used when a need for maintenance is discovered during either an inspection required by local command or a verification check on SE between shifts.

M. Scheduled Inspection

This code is used when a need for maintenance is discovered during any scheduled inspection using MRCs.

O. Administrative

This code is used when an administrative action is required, for example, inspection documents, items removed and replaced for check/test/service, cannibalization, or removal and reinstallation to FOM.

P. Operational System Check

This code is used when a need for maintenance is discovered during a systems test conducted to discover defects and maladjustments.

Q. Conditional Inspection/AIMD Calibration

This code is used when a need for maintenance is discovered during an inspection/calibration which does not have a prescribed interval and depends upon occurrence of certain circumstances or conditions.

R. QA Inspection

This code is used when a need for maintenance is discovered during any receiving, screening, in-process or final QA inspection (scheduled or unscheduled) conducted by personnel acting in the capacity of QAR, CDQAR, or CDI.

S. Oil Analysis Recommendation

This code is used when a need for maintenance is discovered as a result of a recommendation from the JOAP/NOAP.

T. Scheduled Calibration at AIMD

This code applies to PME only and is used by the AIMD when a need for maintenance is discovered during scheduled calibration.

U. D-Level Maintenance/Calibration

This code is used when a need for maintenance is discovered during a D-level maintenance or calibration.

V. Related Maintenance Actions

This code is used when a need for maintenance by another work center is discovered during a related maintenance action. (Used by assisting work centers only.)

W. In-Shop Repair/Disassembly for Maintenance

This code is used when a need for maintenance is discovered during in-shop repair/disassembly for maintenance.

Y. Upon Receipt or Withdrawal from Supply

This code is used when parts, components, or assemblies are received or withdrawn from supply and found to be discrepant upon installation.

Code Explanation for Missiles, Missile Targets, Target Engines, and Airborne Mine Countermeasures Equipment

A. Before Flight - Abort - Launch Crew

This code is used when a need for maintenance is discovered by a launch crew before flight which makes it necessary to abort the mission.

B. Before Flight - No Abort - Launch Crew

This code is used when a need for maintenance is discovered by a launch crew before flight and it is not necessary to abort the mission.

C. In-Flight - Abort

This code is used when a need for maintenance is discovered in-flight and it becomes necessary to abort the mission.

D. In-Flight - No Abort

This code is used when a need for maintenance is discovered in-flight and it is not necessary to abort the mission.

G. Acceptance and Transfer Inspection

This code is used when a need for maintenance is discovered during initial buildup and test, acceptance or transfer inspection.

H. Between Flights - Ground Crew

This code is used when a need for maintenance is discovered by ground crew personnel other than the launch crew, for example, a maintenance crew member notices an oil leak from an engine while the target or AMCM sled is in the hangar between operations.

J. Daily Inspection

This code is used when a need for maintenance is discovered during a daily inspection which is performed independently of any other inspection.

K. Prelaunch or Turnaround Inspection

This code is used when a need for maintenance is discovered during a prelaunch or turnaround inspection.

L. Special Inspection, Preservation/Depreservation

This code is used when a need for maintenance is discovered during a special inspection or preservation/depreservation.

M. Post Launch Rehabilitation Inspection

This code is used when a need for maintenance is discovered during rehabilitation inspection of a target, after recovery.

O. Administrative

This code is used when an administrative action is required, for example, inspection documents, check/test/service, cannibalization, FOM.

P. Test and Evaluation Flight or Operational System Check

This code is used for all needs for maintenance discovered during a flight which was conducted for the sole purpose of testing a target, target engine, accessories, or installed equipment; or when an AMCM system test is conducted for the sole purpose of discovering defects and maladjustments.

Q. Conditional Inspection

This code is used when a need for maintenance is discovered during an inspection which does not have a prescribed interval and depends upon the occurrence of certain circumstances or conditions, for example, retest console, combined systems check, hot start, and handling damage.

R. QA Inspection

This code is used when a need for maintenance is discovered during any receiving, screening, in-process or final QA inspection (scheduled or unscheduled) conducted by personnel acting in the capacity of QAR, CDQAR, or CDI.

S. Oil Analysis Recommendation

This code is used when a need for maintenance is discovered as a result of a recommendation from the JOAP/NOAP.

V. Related Maintenance Action

This code is used when a need for maintenance by another work center is discovered during a related maintenance action. (Used by assisting work centers only)

W. In-Shop Repair/Disassembly for Maintenance

This code is used when a need for maintenance is discovered during in-shop repair/disassembly for maintenance.

X. Upon Receipt or Withdrawal from Supply

This code is used when parts, components, or assemblies are received or withdrawn from supply and found to be discrepant upon installation.

WORK CENTER CODES

The following standard work center codes are prescribed for use in the MDS. Work centers may be division, branch, or section level elements of the organization representing functional areas of responsibility to which maintenance personnel are permanently assigned.

Work center codes will be selected from this appendix and assigned locally to the depth necessary to reflect the organizational structure in effect.

Work center codes in this section are structured to correspond with a standard organization. These codes may be changed only with approval of COMNAVAIRFOR (N422). Recommendations for changes will be submitted per Chapter 1.

TABLE OF WORK CENTER CODES

Organizational and Intermediate Level Activities Only

<u>Code</u>	<u>Function</u>
010	Maintenance Officer
01A	Assistant Maintenance Officer
01B	Training/ASM
01C	Manpower
01D	SEAOPDET
01E	AIRSpeed Continuous Process Improvement
011	Maintenance/Material Control Officer
012	General Maintenance Officer Afloat (IM-2)
013	Avionics/Armament Officer Afloat (IM-3)
014	SE Officer Afloat (IM-4)
015	Support Services Officer Afloat(IM-5)/Ashore
020	Maintenance/Production Control
021-023	May be assigned only upon approval of ACC/TYCOM
024	Power Plants Production Control (IMA only)
025	Airframes Production Control (IMA only)
026	Avionics Production Control (IMA only)
027	Armament Production Control (IMA only)
028	Aviation Life Support Systems Production Control (IMA only)
029	Support Equipment Production Control (IMA only)
02M	AMCM Maintenance Control
02N	NALCOMIS MDBA/A, SA/A
030	Maintenance Administration
040	Quality Assurance/Analysis
04A	Technical Library
04B	Ground Safety
04C	Analysis (non-NALCOMIS site)
04D	Quality Management/Verification
050	Material Control
05A	Material Screening (AMSU)
05B	Material Procurement/Accounting
05C	Accountable Material/IMRL Manager
05D	Aviation Tool Issue/Tool Control Center
05H	Hazardous Material Control
05M	AMCM Material Control
05X	MRM Material Control
055	MRM/Surface Support
060	Not assigned
070	Contractor/NAESU/Technical Services Representatives

<u>Code</u>	<u>Function</u>
080	Not assigned
08A	Not assigned
08B	Not assigned
08C	Not assigned
08D	Not assigned
08E	Not assigned
08F	Not assigned
08G	Not assigned
08H	Not assigned
08L	Not assigned
08M	Not assigned
08N	Not assigned

Organizational Level Activities Only (Note 1)

<u>Code</u>	<u>Function</u>
100	Aircraft Division
110	Power Plants Branch
11A	Jet Engine Shop
11B	Reciprocating Engine Shop
11C	Auxiliary Fuel Stores/Tanker Shop
11P	Propeller Shop
118	Not assigned
120	Airframes Branch
12A	Structures Shop
12B	Hydraulic Shop
12C	Corrosion Control Shop
128	Not assigned
130	Aviation Life Support Systems Branch
13A	Aircrew Personal/Protective/Survival Equipment Shop
13B	Egress/Environmental Systems Shop
138	Not assigned
140	Periodic Maintenance Branch
150	Targets Branch
15A	Missile Targets Shop
15B	Miscellaneous Targets Shop
160	AMCM Department
16A	Device Division
16B	AV/WEPS Division
16C	Tactical Support Division (Note 2)
170-180	Not assigned
190	Aviation Training Equipment Division
200	Avionics/Armament Division
210	Electronics Branch
213	Electronic Countermeasures (Marine Corps only)
215	Special Projects
218	Not assigned
220	Electrical/Instrument Branch
228	Not assigned
230	Armament Branch
238	Not assigned
240	Reconnaissance/Photo Branch
24A	Aerial Camera Shop
24B	Sensor Systems Shop
250	ASCAC/TSC Branch (Note 3)
260	RADAR/Fire Control Branch

268	Not assigned
270	Anti-submarine Warfare Branch
280	Integrated Weapons Branch
288	Not assigned
290	Not assigned
300	Line Division
310	Plane Captain Branch
310	Power Line (Marine Corps only)
318	Not assigned
31P	Propeller Repair Shop (Marine Corps only)
320	Troubleshooter Branch
330	Support Equipment Branch
340	Transient Maintenance Branch
350	Flight Crew Branch
360	Configuration Branch
361-390	Not assigned

Intermediate Level Activities Only (Note 4)

<u>Code</u>	<u>Function</u>
400	Power Plants Division
410	Jet Engine Branch
411	Jet Engine Component Repair Shop
412	Auxiliary Power Units/Support Equipment Gas Turbine Engines
413	Afterburner Shop
414	Power Plants Module Repair Shop
415	Power Plants Can-UnCan Shop
41A	J52 Engine Repair Shop
41F	J85 Engine Shop
41H	TF34 Engine Repair Shop
41L	T56 Engine Repair Shop
41M	T58 Engine Repair Shop
41N	T64 Engine Repair Shop
41Q	T400 Engine Repair Shop
41R	T700 Engine Repair Shop
41T	F402 Engine Repair Shop
41U	F404 Engine Repair Shop
41V	F414 Engine Repair Shop
430	Propeller Branch
431	Propeller Component Repair Shop
440	Rotor Dynamics Branch
450	Test Cell for Engine Model #1
451	Test Cell for Engine Model #2
460	Auxiliary Fuel Stores Branch
470	JOAP/NOAP Analysis Lab
480	Power Plants Welding Shop
500	Airframes Division
510	Structures Branch
51A	Structures Shop
51B	Paint Shop
51C	Welding Shop
51D	Machine Shop
51E	Tire/Wheel Shop
51F	Composites Repair Shop
51G	Engraving Shop
520	Hydraulics/Pneumatics Branch
52A	Hydraulics Shop

52B Brake Shop
52C Strut Shop
530 IMA NDI Branch
53A Radiography Shop
53B Electrical/Chemical Shop
540 Electro-Plating/Anodizing Branch (Note 5)
550-590 Not assigned
600 Avionics Division
60A Avionics Corrosion Control Branch
610 Comm/Nav Branch
61A Communication Shop
61B Navigation Shop
61C Mission Computer Shop
61D COMSEC/CRYPTO Repair Shop
620 Electrical/Instrument Branch
62A Electric Shop
62B Instrument Shop
62C Battery Shop, Lead Acid
62D Battery Shop, Nickel Cadmium
62E CSD/Generator Shop
62F Inertial Nav Shop
630 Fire Control RADAR Branch
63A AWG-9 CTS
63B AWG-9 C&D
63C AWG-9 RFTS
63D APG-65 RSTS Related TPS
63E APG-65/73 CASS WRAs and Related TPS
63F AWG-9 CASS WRAs and Related TPS
63G AWG-9 LFTS
63H AWG-9 MTS
640 Radar/ECM Branch
64A Non-Fire Control Radar Shop
64B ECM Shop
64C DECM Shop
64D FLIR/Optical Shop
64E DECM Pod Shop
64F EA6B ALQ-99 Shop
64G ALQ-99 CASS WRAs and Related TPS
64H S-3 CASS WRAs and Related TPS
64I Misc ECM CASS WRAs and Related TPS
64J Misc DECM CASS WRAs and Related TPS
650 Integrated Weapons System Branch
65A RADCOM Station Maintenance
65B Misc Avionics (CASS) WRAs
65C CASS Bench Maintenance and Misc Avionics (CASS) TPS
65D Misc Avionics WRAs (RADCOM) SACE Radar Shop
65E Weapons System Missile Component Shop
65F FTE/DTS (Factory Test Equipment/Digital Test Station) Shop
65G ATS/IATS
65H ATS/IATS Station Maintenance
660 ASW Branch
66A Acoustic Equipment Shop
66B Non-Acoustic Equipment Shop
670 PME Branch/Field Calibration Activity (FCA)
67A PME Receipt and Issue
67B PME Electrical/Electronic Calibration Shop
67C PME Physical/Mechanical Calibration Shop

67D PME TMDE Repair Shop
67E Computer Repair Shop
680 Reconnaissance/FLIR Branch
68A Unassigned for future use
68B TFLIR/ATFLIR Pod Maintenance Shop
68C Unassigned for future use
690 Module/Microminiature Repair Branch
69A HTS Module Test/Trouble Shooting Shop
69B Micro/Miniature Repair Shop
69C Cable/Connector Repair Shop
69D CAT IIID Module Test/Trouble Shooting Shop
69E Module Analysis Shop
69F EMTC Module Test/Trouble Shooting Shop
69G HATS Module Test/Trouble Shooting Shop
69H Point to Point Testing/Circuit Card Test and Repair Systems
700 Armament Division
710 Ordnance Branch
71A Armament Equipment Pool
71B Gun Shop
71C Armament Equipment Repair Shop
71D Racks/Launcher Shop
71E Tow Reel Repair Shop
720 Special Weapons Branch
72A Special Weapons Test/Repair Shop
730 Weapons Department
731 Armament Weapons Support Equipment
732-739 Not assigned
740 Airborne Mine Countermeasures (AMCM) Branch
74A AMCM Sled Shop
74B AMCM Structural Component Repair Shop
74C AMCM Avionic/Electric Component Repair Shop
74D AMCM Hydraulic Component Repair Shop
750-790 Not Assigned
800 Aviation Life Support Systems Division
810 Aviators Safety and Survival Equipment Branch
81A Parachute Shop
81B Aviators Safety Equipment Shop
81C Oxygen Regulator and Equipment Shop
81D Ejection Seat Shop
820 Oxygen/Nitrogen Generating Facility
830-890 Not assigned
900 Support Equipment Division
901 SE Training/License
902 SE IMRL Management
903 SE Material Control
904 SE Rework Facility
90A SE Pool
910 SE Gas Engine Repair Branch
91A SE Gas Turbine Repair Shop
91B Aircraft Handling/Serviceing Equipment Engine Repair Shop
920 SE Structural/Hydraulic Branch
92A SE Structural Repair Shop
92B SE Hydraulic Repair Shop
92C Lox/Oxygen/Nitrogen Serviceing Equipment Repair Shop
92D SE Corrosion Control Branch
930 SE Electrical Repair Branch

940 SE Component Repair Branch
950 SE Periodic Maintenance Branch
960 Installed/Combat Air Start Branch
970 Air Conditioning Repair Branch
980 Flight Deck Troubleshooter Branch
990 Mobile Maintenance Facility Support Branch

Activities with Artisans Assigned Only (Notes 6 and 7)

<u>Code</u>	<u>Function</u>
420	Jet Engine Branch (Artisan)
421	Jet Engine Component Repair Shop (Artisan)
422	APU/SE Gas Turbine Repair Shop (Artisan)
423	Afterburner Repair Shop (Artisan)
424	Power Plants Module Repair Shop (Artisan)
42A	J52 Engine Repair Shop (Artisan)
42H	TF34 Engine Repair Shop (Artisan)
42L	T56 Engine Repair Shop (Artisan)
42M	T58 Engine Repair Shop (Artisan)
42N	T64 Engine Repair Shop (Artisan)
42Q	T400 Engine Repair Shop (Artisan)
42R	T700 Engine Repair Shop (Artisan)
42T	F402 Engine Repair Shop (Artisan)
42U	F404 Engine Repair Shop (Artisan)
42V	F414 Engine Repair Shop (Artisan)
432	Propellers and Propeller Component Repair Shop (Artisan)
452	Test Cell (Artisan)
462	Auxiliary Fuels Stores Branch (Artisan)
51H	Structures Shop (Artisan)
51L	Paint Shop (Artisan)
51M	Welding Shop (Artisan)
51N	Machine Shop (Artisan)
51P	Tire/Wheel Shop (Artisan)
51Q	Composite Repair Shop (Artisan)
51X	Structures Branch (Artisan)
52D	Hydraulic Shop (Artisan)
52E	Brake Shop (Artisan)
52F	Strut Shop (Artisan)
52X	Hydraulic/Pneumatic Branch (Artisan)
531	NDI Branch (Artisan)
53C	Radiography Shop (Artisan)
53D	Electrical/Chemical Shop (Artisan)
54A	Electro-Plating/Anodizing Branch (Artisan)
60B	Avionics Corrosion Control (Artisan)
61F	Communications Shop (Artisan)
61G	Navigation Shop (Artisan)
61L	Mission Computer Shop (Artisan)
61M	COMSEC/Crypto Repair Shop (Artisan)
61X	COMM/NAV Branch (Artisan)
62G	Electric Shop (Artisan)
62H	Instrument Shop (Artisan)
62J	Lead/Acid Battery Shop (Artisan)
62K	Nickel/Cadmium Battery Shop (Artisan)
62L	CSD/Generator Shop (Artisan)
62M	Inertial NAV Shop (Artisan)
62X	Electrical/Instrument Branch (Artisan)
63J	APG-65/73 CASS WRAs and Related TPSs (Artisan)

63X Fire Control Radar Branch (Artisan)
 64K Non Fire Control Radar Shop (Artisan)
 64L ECM Shop (Artisan)
 64M DECM Shop (Artisan)
 64N FLIR/Optical Shop (Artisan)
 64P DECM POD Shop (Artisan)
 64Q EA-6B ALQ-99 Shop (Artisan)
 64R ALQ-99 CASS WRAs and Related TPSs (Artisan)
 64S S-3 CASS WRAs and Related TPSs (Artisan)
 64T Misc ECM CASS WRAs and Related TPSs (Artisan)
 64U DECM CASS WRAs and Related TPSs (Artisan)
 64X Radar/ECM Branch (Artisan)
 65J RADCOM Station Maintenance (Artisan)
 65K Misc Avionics (CASS) WRAs (Artisan)
 65L CASS Bench Maintenance and Misc Avionics (CASS) TPSs (Artisan)
 65N Weapons Systems Missile Components Shop (Artisan)
 65P ATS/IATS (Artisan)
 65Q ATS/IATS Station Maintenance (Artisan)
 65R FTE/DTS/RADCOM Shop (Artisan)
 65X Integrated Weapons System Branch (Artisan)
 66C Acoustic Equipment Shop (Artisan)
 66D Non Acoustic Equipment Shop (Artisan)
 66X ASW Branch (Artisan)
 67F PME Electrical/Electronic Calibration Shop (Artisan)
 67G PME Physical/Mechanical Calibration Shop (Artisan)
 67H PME TAMS Repair Shop (Artisan)
 67J Computer Repair Shop (Artisan)
 67X PME Branch/Field Calibration Activity (Artisan)
 68D FLIR/ATFLIR Shop (Artisan)
 68X Reconnaissance/Photo Branch (Artisan)
 69J HTS Module Test/Trouble Shooting Shop (Artisan)
 69K MICRO/Miniature Repair Shop (Artisan)
 69L Cable/Connector Repair Shop (Artisan)
 69M CAT IIID Module Test/Trouble Shooting Repair Shop (Artisan)
 69N Module Analysis Shop (Artisan)
 69P EMTC Module Test/Trouble Shooting Shop (Artisan)
 69Q Pinpoint/Protrack (Artisan)
 69X Module/Microminiature Repair Shop (Artisan)
 81X ALSS/Ejection Seat Shop (Artisan)

Other

<u>Code</u>	<u>Function</u>
X00	Miscellaneous
X10	Supply (MAG/Navy)
X20	In-Flight Maintenance (Note 8)
X30	Away-from-Home Maintenance (Note 9)
X40	For Optimized NALCOMIS only. Standard Rework Control (level 3) (Note 10)
X41	Standard Rework O-level (level 1) (Note 11)
X42	Standard Rework I-level (level 2)
X43	Assistance Teams - All man-hours expended by special assistance teams, for example, personnel from FRCs, factory personnel (excluding TECH REPS), are documented to this work center. Also, general work center for assistance
X44	In Service Repair (level 3)
X45	Modification (level 3)

NOTE: Work Center Codes X50 through X5T are for contractor use only.

X50 Contractor Support
X55 Paint Shop
X59 Support Equipment Shop
X5A ATE Lab
X5B Battery Locker
X5C Calibration Lab
X5D Parachute Packing
X5E Test Cell Maintenance
X5F Flotation Shop
X5L Prop Shop
X5P Oxygen Shop
X5S Weld Shop
X5T Tire Shop

Temporary (Notes 4 and 12)

<u>Code</u>	<u>Function</u>
1T	Aircraft Division Temporary Work Center Code. Use 1T1 for 1st work center, 1T2 for 2nd etc. (Organizational Maintenance Activities Only)
2T	Avionics/Armament Division Work Center Code. Use 2T1 for 1st work center, 2T2 for 2nd etc. (Organizational Maintenance Activities Only)
3T	Line Division Work Center Code. Use 3T1 for 1st work center, 3T2 for 2nd etc. (Organizational Maintenance Activities Only)
4T	Power Plants Division Work Center Code. Use 4T1 for 1st work center, 4T2 for 2nd etc. (Intermediate Activities and/or Activities with Artisans Assigned Only)
5T	Airframes Division Work Center Code. Use 5T1 for 1st work center, 5T2 for 2nd etc. (Intermediate Activities and/or Activities with Artisans Assigned Only)
6T	Avionics Division Work Center Code. Use 6T1 for 1st work center, 6T2 for 2nd etc. (Intermediate Activities and/or Activities with Artisans Assigned Only)
7T	Armament Division Work Center Code. Use 7T1 for 1st work center, 7T2 for 2nd etc. (Intermediate Activities and/or Activities with Artisans Assigned Only)
8T	Aviation Life Support Systems Division Work Center Code. Use 8T1 for 1st work center, 8T2 for 2nd etc. (Intermediate Activities and/or Activities with Artisans Assigned Only)
9T	Support Equipment Division Work Center Code. Use 9T1 for 1st work center, 9T2 for 2nd etc. (Intermediate Activities and/or Activities with Artisans Assigned Only)

- NOTES:
1. O-level work center codes may be assigned or used by an IMA/FRC if the IMA/FRC is responsible for performing O-level maintenance functions.
 2. This work center to be used for local organization purposes only. No documentation in the aviation 3M Data System.
 3. Work Center 250 will ordinarily be under the administrative control of the local operations department.
 4. I-level work center codes may be assigned or used by an O-level activity, if the O-level is designated as responsible for performing I-level maintenance function.
 5. May be used only when the IMA/FRC has been specifically designated by COMNAVAIRSYSCOM to perform the function (formerly "SX").
 6. (For FRC and MALS only) All work centers that include the terms division and branch, for example, 400, 500, 600, 51X, and 62X, are considered administrative work centers. Administrative functions may be combined at the branch or division level for work centers with minimal manning, however, a more specific work center code shall be used for the documentation of maintenance and production efforts.
 7. Artisan work centers are considered virtual work centers and were designed to capture maintenance and production data only. They are not intended to maintain administrative processes, such as required reading boards, technical publication libraries, or associated collateral duties. The majority of these work centers do not contain enough personnel to maintain those administrative functions. These functions shall be maintained in the corresponding branch or traditional I-level work center.
 8. In-flight maintenance will include all maintenance man-hours expended by aircrew or maintenance personnel while in flight.
 9. Away from home maintenance includes all maintenance man-hours expended on aircraft while aircraft is in a transient status, such as check flights and evacuation flights.
 10. The occurrence of standard rework (on-site) will be documented by Maintenance Control. The control MAF/WO will be issued to X40.
 11. To provide accurate man-hour accounting by rate, corrective maintenance actions shall be documented against the host work center whenever practical, for example, 110 and 120.
 12. When new capabilities are required for repair of items not supported by work centers per this instruction, these codes only are authorized for use. A deviation request shall be submitted describing what the temporary code is being used for after local assignment to facilitate the assignment of a permanent code, update of this instruction, and update to NALCOMIS software.

**ACTION CODES FOR AIRCRAFT INVENTORY READINESS AND REPORTING
SYSTEM (AIRRS)**

CODES FOR USE ON XRAYS WHICH REPORT A CHANGE IN REPORTING CUSTODY

CODES	ACTION	INSTRUCTIONS FOR USE
A	DON Acceptance	Used to report the acceptance of new aircraft into the naval inventory. Acceptance actions are reported only by NASC FS reporting custodians. Use Action Code Y to report reinstatement of previously stricken aircraft, aircraft acquired from other services, or aircraft that have been pre-accepted using Action Code P.
F	(Non-IMC/P aircraft)	Receipt at the end of an OSP. Used only by NASC FS reporting custodians to report: receipt of aircraft for Standard Rework; storage; or retirement at the end of an OSP. When using Action Code F, adjust PED to the month and year of the date of action. Adjust OSM to reflect total operating service months expended in service life as of PED. If preceded by an E action XRAY from an operating unit prior to a decision to change reporting custody, PED and OSM will remain unchanged from those reported on E Action Code XRAY.
G	(Non-IMC/P aircraft only)	Used by reporting custodians of CNAF (LANT/PAC), CNAFR, CNATRA, and NASC to report receipt of an aircraft at Start of Operating which is beginning (not resuming) an operating service period or fixed service period. The use of the G Action Code occurs on receipt of new production aircraft, aircraft returning from standard Rework (SDLM), AGE Exploration, ACI/AWI or receipt of PDM.
R	Receipt for other than action codes F or G.	Used by reporting custodians of all ACCs.
Y	Reinstatement	Used only when reporting the reinstatement of a previously stricken aircraft, addition of a used (not new production) aircraft to the naval inventory, or aircraft that have been pre-accepted using Action Code P.

CODES FOR USE ON XRAYs WHICH DO NOT REPORT A CHANGE IN REPORTING CUSTODY

CODES	ACTION	INSTRUCTIONS FOR USE
E	End of Operating Service Period	End of operating service period. Used by CNAF, CNAFR, CNATRA, and CNASC TE/FS reporting custodians. Reports termination of an operating service period or induction of aircraft into SDLM, Age Exploration, or ACI/AWI. When using Action Code E adjust PED and OSM to the month and year of the date of action.
H	Start of Operating Service Period (non-IMC/P aircraft only)	Used by LANT, PAC, CNAFR, CNATRA, and NASC TE reporting custodians. Reports an aircraft that has completed standard rework and is beginning (not resuming) an operating service period.
L	Change of Location To	Used only for Part II of location change XRAYs.
M	Model Designation Change	Reports change in model designation when an aircraft is converted. Enter the new model designation in item Model Designation data element on the first and subsequent XRAYs reporting the aircraft entering the conversion process. If the model designation change is directed by administrative action (no depot rework involved), retain in the status code previously reported. XRAYs reporting the aircraft entering the conversion process.
P	Pre-Accepted	NAVAIR ACC is the controlling custodian for Pre-accepted aircraft and on certain occasions requires visibility of these aircraft that are required to perform Contractor testing (CT) and Developmental testing (DT) prior to the final DD-250 and Navy acceptance. These aircraft will not be included in the active inventory, but they will be tracked under NAVAIR FS custody command code 72 for automated inventory tracking/visibility. NAVAIR ACC will manage the Pre-accepted aircraft inventory and be the point of entry for all Pre-accepted XRAYs. Only Status Code U70 is allowed. The only authorized Action Codes following Action Code P are Action Codes Y or S.
S	Strike	To be used only when reporting the strike (Status Code 1S0, 2S0, 3S0 or 4S0) of an aircraft. See Chapter 5, Retirement and Strike of Naval Aircraft.
X	Other change	Used by all reporting custodians when no other action code applies.

A. STATUS CODE FOR USE WITH OPERATING AIRCRAFT

ASSIGNED PRIMARY USE

IN OPERATING STATUS

1. Combat	A10
Combat Support	A20
Undergraduate Aircrew Training	A30
2. Reserve Aircrew Training	A40
FRS Aircrew Training	A60
Operational Test and Evaluation	A70
Logistic Support	A80
Advanced Aircrew Training (FITWEPCOL, NSWAC, TPS, Adversary, FTRG)	A90
Developmental Test and Evaluation	AJ0
Test Support Aircraft	AK0
Search and Rescue	AL0
Executive Transport	AM0
Flight Demonstration Squadron	AN0
Strategic Forces (TACAMO)	AS0
Other (Oceanographic/Antarctic Research)	AR0

NOTE: NASC FS reporting custodians will never report aircraft in their reporting custody in status codes A__.

Only A__ status codes are IN-MCRS. All others are OUT-MCRS.

For aircraft in-transit via surface/air oportune lift, use status codes KGK and KLK accordingly. Following XRAY sequence applies:

KGK - Awaiting transport/undamaged/non-flyable, Ninety-six hours prior to scheduled lift, aircraft are permitted to be placed in KGK awaiting transport.

KLK - In transport (air or surface)/undamaged/non-flyable.

KGK - Post transport reassembly, not to exceed 96 hours upon arrival at final destination.

A_0 - Back to operational or appropriate status.

B. STATUS CODES FOR DEPOT LEVEL MAINTENANCE (PIPELINE)

Rework In Process

Enroute to Rework

Awaiting Rework

Process

By Flight/
Airlift

By
Surface

Flyable

Not
Flyable

STANDARD DEPOT LEVEL MAINTENANCE (STANDARD REWORK) NOTE 2

SDLM	F10	FA0	E1_	EA_	D10
SDLM MOD	F20	FB0	E2_	EB_	D20
SDLM/CR DAM	F30	FC0	E3_	EC_	D30
IMC/P	F40	FD0	E4_	ED_	D4_
ACI/AWI	F50	FE0	E5_	EE_	D50

SPECIAL DEPOT LEVEL MAINTENANCE (SPECIAL REWORK)

Conversion	110	IA0	H1_	HA_	G1_
Repair	130	IC0	H3_	HC_	G3_
Modernization/ Modification	140	ID0	H4_	HD_	G4_
ASPA Inspection					G5_
NAVAIR TE Proj					G6_
Install/Removal					G6__

Rework Process Complete in NASC FS
Awaiting Return to
Operating

Enroute to Operating Physical Custody
Unit from Rework

Aircraft RFI:

By Flight/
Airlift By
Surface

Awaiting Movement BY1
Unassigned BY2

C10 CA0

Not RFI: BY3

NOTE: The third position of the status codes D__, E__, G__, or H__ will be reported as:

0 - Aircraft is located at FRC or commercial Rework Activity site for rework.

1 - Aircraft is located at other than FRC or Commercial Rework Activity site for rework to be performed by depot field team or awaiting transit to SDLM after ASPA non-deferral.

C. NEW AIRCRAFT IN PROCESS OF FIRST DELIVERY

(NAVAIR ACC USE ONLY)

Regular Acceptance

Provisional Acceptance

RFI:

Not RFI:

VF0

Awaiting Movement BX0

Not RFI: BA0

D. STATUS CODES FOR USE WITH BAILED, LOANED AND DRONE ACFT

STATUS	CODE
Contractor Held RDTE Custody Test Aircraft	TJ0
Contractor Held RDTE Custody Test Support	TK0
Contractor Held RDTE Custody Contractor Pending	TR0
Contractor Held RDTE Custody Other	TT0
Contractor Held FS Custody Other	TV0
On Loan from Navy FS Custody	U00
Under Lease from the Navy	U10
On Loan to the Navy RDTE Custody Test Aircraft	U60
On Loan to the Navy RDTE Custody Other	U50
Drones (Operating, In Rework or Stored)	Q00

E. STATUS CODE TO BE USED FOR CERTAIN PRE-ACCEPTED AIRCRAFT

(FOR NAVAIR ACC USE ONLY)

STATUS	CODE
Pre-Accepted Aircraft Requiring Accountability	U70

Used to account for certain aircraft involved in combined Contractor and Developmental flight testing prior to final DD-250 and Navy acceptance.

F. RESERVE/RETENTION (AIRCRAFT STORED IN NASC FS CUSTODY ONLY)

<u>Condition of Aircraft</u>	<u>Enroute to Reserve/Retention</u>	<u>In Storage Inactive Reserve Aircraft</u>		<u>Mobilization Reserve</u>
		<u>Flyable</u>	<u>Not Flyable</u>	
<u>Aircraft Service Life Not Complete - Standard Rework not Required</u>				
Undamaged Aircraft	J10	M10	M50	N10
Damaged Aircraft	J10	M20	M60	N20
Reconstitution Reserve		RR0		
Foreign Mil Sales	J11	M12	M51	N11
<u>Standard Rework Required</u>				
Undamaged Aircraft	J10	M30	M70	N30
Damaged Aircraft	J10	M40	M80	N40
Foreign Mil Sales	J11	M31	M71	N31
<u>Service Life Complete</u>				
Navy Use	J20	WA0	WC0	WE0
Foreign Mil Sales	J21	WA1	WC1	WE1

NOTE: With the exception of RR0 status code, all stored aircraft must be placed in NAVAIR FS custody. CNO (N98) authorization is required to place an aircraft in Reconstitution Reserve (RR0) status. RR0 status allows the cognizant ACC to store an aircraft as a reconstitution reserve asset without transferring the aircraft to NAVAIR FS custody. The intent is for short-term storage (1 year or less) when long-term storage is impractical. RR0 is not to be used to mask readiness problems. Aircraft placed in RR0 status shall be in flyable condition. Cannibalization of parts is not authorized while an aircraft is stored in RR0 status. Aircraft placed in dehumidification preservation will be placed in RR0 status.

G. RETIREMENT AND STRIKE

<u>Category</u>	Awaiting Decision to <u>Strike</u>	Awaiting Strike		<u>Stricken</u>
		<u>Not MAP/FMS</u>	<u>For MAP/FMS</u>	
Category 1 Damage	Y00	-	-	1S0
Category 2 Depreciation	PB0	S20	R00	2S0
Category 3 Administrative	PC0	S30	R00	3S0
Category 4 Service Life Complete	PD0	S40	R00	4S0

OPERATIONAL STATUS CATEGORY CODES

(1) Operational Status Category A, Deployed Units. Upon embarkation on a deployment aboard ship or to another station or facility outside CONUS, including Hawaii.

(2) Operational Status Category B, Work Up/Ready Duty/Surge Capable Units. At 90 days prior to embarkation on a deployment either aboard ship or to another station or facility outside CONUS, including Hawaii, or upon attainment of surge capability to include post deployment surge requirements.

(3) Operational Status Category C, Deployable Units. Deployable units on completion of deployment or surge requirements and not yet within 90 days of the next deployment.

(4) Operational Status Category D, Fleet Readiness Squadrons (FRS) only.

(5) Operational Status Category E, Non-deployable units, for example, NASC, CNET, and USMC non-fleet.

NOTE: Reporting custodians anticipating changes of operational status category or fleet assigned code will conduct advance liaison with TYPEWINGS, CVWs, CG MAWs or ACCs (as appropriate) to verify code changes and report submission.

FLEET ASSIGNED CODES

Fleet assigned code changes are reported when reporting custodians are operationally reassigned between fleets. Change of fleet assigned code normally occurs in conjunction with change to unit location or operational status category code, for example, Assignments to Sixth or Seventh Fleet (code 6 or 7) for deployment will not report transits through Second or Third Fleet (codes 2 or 3). Reporting custodians assigned to Second or Third Fleet OPCODE for extended operations or major exercises (greater than 30 days) will report Fleet Assigned Code as appropriate. Reporting custodians of CNAFR will report fleet assigned code changes only on assignment under fleet assigned codes 2, 3, 6 or 7.

Fleet assigned codes fall within the following categories:

(1) Fleet Assigned Code 2. Reporting custodians aboard ship for deployment or major exercises (30 days or greater) under Second Fleet OPCODE. Reporting custodians on deployment or major exercises (30 days or greater) geographically located in the Gulf of Mexico, Caribbean Sea or South Atlantic theaters.

(2) Fleet Assigned Code 3. Reporting custodians aboard ship for deployment or major exercises (greater than 30 days) under Third Fleet OPCON. Reporting custodians on deployment or major exercises (greater than 30 days) geographically located in Eastern or Northern Pacific, including Hawaii.

(3) Fleet Assigned Code 4. Reporting custodians aboard ship for deployment or major exercises (greater than 30 days) under Fourth Fleet OPCON. Geographically located in South America.

(4) Fleet Assigned Code 5. Reporting custodians aboard ship for deployment or major exercises (greater than 30 days) under Fifth Fleet OPCON. Geographically located in the Middle East.

(5) Fleet Assigned Code 6. Reporting custodians aboard ship under Sixth Fleet OPCON. Reporting custodians on extended deployment (greater than 30 days) geographically located in the Mediterranean or North Atlantic theaters, excluding forward-deployed (homeported) units.

(6) Fleet Assigned Code 7. Reporting custodians aboard ship under Seventh Fleet OPCON. Reporting custodians on extended deployment (greater than 30 days) geographically located in the Western Pacific or Indian Ocean theaters, excluding forward-deployed (homeported) units.

(7) Fleet Assigned Code A. Those reporting custodians under CINCLANTFLT OPCON to include units not deployed and forward deployed (homeported) in the Atlantic area. Excludes reporting custodians under fleet assigned codes 2, 3, 4, 5, 6, or 7.

(8) Fleet Assigned Code P. Includes those reporting custodians under CINCPACFLT OPCON to include units not deployed and forward deployed (homeported) in the Pacific area. Excludes reporting custodians under fleet assigned codes 2, 3, 4, 5, 6 or 7.

ACTION CODES FOR USE ON AV-3M TRANSACTION CODES

TRANSACTION CODES

ACTION CODES

00

ACTION CODES G, R

02

ACTION CODES E, H, M, X

03

ACTION CODE S

NOTE 1: ACTION CODES NOT LISTED, DO NOT REQUIRE MAF GENERATED.

NOTE 2: CONVERSION NOT APPLICABLE TO OOMA UNITS.

ACTION CODES FOR USE ON AV-3M INVENTORY CODES

INVENTORY CODES

STATUS CODES

A

ALL A_

1

ALL D_

2

G_ (NOTE 2)

3

G_ (NOTE 2)

4

ALL OTHERS

9

(COMPUTER GENERATED)

NOTE 1: INVENTORY CODES ARE NOT APPLICABLE TO OOMA UNITS

NOTE 2: DEPENDING ON PHYSICAL LOCATION (UNIT SITE OR FRC SITE)

STRIKE/DAMAGE CODE TABLE

CATEGORY (FIRST POSITION)	1 CATEGORY 1 STRIKE DUE DAMAGE	2 CATEGORY 2 STRIKE DUE DEPRECIATION	3 CATEGORY 3 STRIKE FOR ADMIN. REASONS	4 CATEGORY 4 STRIKE DUE COMPLETION OF SERVICE LIFE	5 CATEGORY 5 DAMAGE (A/C REPAIRABLE)
EMPLOYMENT (SECOND POSITION)	<u>FLIGHT:</u> A - UNIT TRAINING J - FERRY K - EXPERIMENT DEVELOPMENT, EVALUATION L - FLIGHT TEST M - UTILITY P - SEARCH AND RESCUE R - TRANSPORT S - ATTACK U - ANTI-AIR WARFARE V - RECONNAISSANCE W - AIR DEFENSE			<u>NOT IN FLIGHT:</u> 1 - PARKED ASHORE 4 - IN TOW OR NON-FLIGHT TAXI 5 - ABOARD SHIP 7 - LOADING OR UNLOADING 8 - UNDERGOING REWORK 9 - IN STORAGE	
CAUSE (THIRD POSITION)	<u>NOT ENEMY ACTION</u> <u>INCIDENT TO FLIGHT:</u> A - AIRCRAFT ACCIDENT OR INCIDENT EXCEPT WHEREVER D,E,F, BELOW ARE APPLICABLE D - GUN, ROCKET, OR MISSILE FIRE FROM DRONE EXPENDITURE (SEE F BELOW) E - MISSING; CAUSE UNKNOWN F - TARGET DRONE EXPENDITURE <u>NOT INCIDENT TO FLIGHT:</u> H - STORM (INCLUDING RESULTANT FIRES, COLLAPSE OR DAMAGE OF FACILITIES, ETC.) I - ACCIDENTAL DAMAGE BY OWN FORCES ORDNANCE (INCLUDING RESULTANT FIRES, ETC.) J - FIRE OR EXPLOSION (OTHER THAN H OR I ABOVE) K - DAMAGE FROM OTHER SURFACE INCIDENT (E.G., TOWING OR NON-FLIGHT TAXI ACCIDENT) L - AIRCRAFT ON LOAN TO NAVY RETURNED O - STANDARD SERVICE LIFE COMPLETE P - EXCESS TO INVENTORY REQUIREMENTS Q - OBSOLETE R - ADMINISTRATIVE ACTION, NOT ELSEWHERE CLASSIFIED			<u>ENEMY ACTION</u> <u>INCIDENT TO FLIGHT:</u> S - ENEMY ORDNANCE V - MISSING; CAUSE UNKNOWN Y - LANDING OR TAKE OFF MISHAP DUE TO ENEMY INFLICTED DAMAGE TO BASE FACILITY Z - SABOTAGE, CAUSING LOSS <u>NOT INCIDENT TO FLIGHT:</u> 1 - ATTACK BY ENEMY AIRCRAFT 2 - ORDNANCE FROM ENEMY SURFACE WEAPONS 5 - SABOTAGE, CAUSING LOSS 6 - SEIZURE OF BASE BY ENEMY 7 - IMMINENT OR PROBABLE CAPTURE BY ENEMY	
DISPOSITION (FOURTH POSITION)	<u>APPLICABLE TO STRICKEN AIRCRAFT</u> 1 - ROUTINE SALVAGE OR SARDIP FOR PARTS AND SCRAP 2 - MISSING, OR COMPLETELY DESTROYED, OR ECONOMICALLY INACCESSIBLE 3 - JETTISONED OR ABANDONED IN OPERATIONAL OR REPAIRABLE CONDITION, AS MILITARILY ADVANTAGEOUS TO DO SO 4 - INTENTIONALLY DESTROYED TO NULLIFY ITS CAPTURE OR INTERNMENT				5 - CANNIBALIZED, WHILE OTHERWISE IN OPERATIONALPAIRABLE CONDITION, AS AN OPERATIONAL RE QUIREMENT TO OBTAIN PARTS FOR OTHER A/C 6 - INTERNED BY FOREIGN POWER 7 - CAPTURED BY ENEMY 8 - TRANSFERRED TO NON-NAVY RECIPIENT 9 - DIVERTED TO GROUND TRAINING OR TECHNICAL USES WITHIN THE NAVY 0 - DISPOSITION INSTRUCTIONS UNKNOWN
	<u>APPLICABLE TO DAMAGED AIRCRAFT</u> A - TO BE RESTORED BY ORGANIZATIONAL MAINTENANCE ACTIVITY B - TO BE RESTORED BY INTERMEDIATE MAINTENANCE ACTIVITY C - TO BE RESTORED BY DEPOT LEVEL MAINTENANCE FACILITY				



UNITED STATES MARINE CORPS
III MARINE EXPEDITIONARY FORCE
UNIT 35601
FPO AP 96382-5601

IN REPLY REFER TO:

5830

SJA

JUN 24 2016

MEMORANDUM

From: Commanding General

To: Investigating Officer

Subj: COMMAND INVESTIGATION INTO THE FACTS AND CIRCUMSTANCES
SURROUNDING THE AVIATION MISHAP INVOLVING TWO CH-53E SUPER
STALLION HELICOPTERS FROM HMH-463 ON 14 JANUARY 2016 OFF THE
NORTHERN COAST OF OAHU

Ref: (a) CG, III MEF ltr 5830/SJA of 27 Jan 16

1. I approved an extension to the submission of the subject investigation until 8 September 2016.

(b)(6) (b) (3) 10 USC § 130b

By direction