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Subj: AVIATION T&R PROGRAM MANUAL

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1. Purpose. To revise training standards and regulations regarding the training of Marine Corps aircrew, Marine Air Command and Control System (MACCS) operators, Airfield Emergency Services and Meteorological and Oceanographic (METOC) personnel per reference (a).

2. Cancellation. NAVMC 3500.14.

3. Information. This revision includes the following changes and upgrades.

a. Incorporation of structural changes to align the Aviation T&R Program with Defense Readiness Reporting System (DRRS) directives.

b. Guidance for community Core Mission Essential Task List (METL) incorporation.

c. Introduction of Mission Skills Concept.

d. Addition of a readiness chapter for use by the commander to measure overall DRRS assessment.

e. Standardized NATOPS/Instrument evaluation policy.

4. Recommendations. Recommended changes to this publication are invited, and may be submitted via the syllabus sponsor (MAWTS-1) and the appropriate chain of command to: Commanding General, Training and Education Command, Aviation Training Branch via e-mail (refer to http://www.tecom.usmc.mil/atb/contacts_.htm) or the Defense Message System using the following plain language address: CG TECOM QUANTICO VA ATB.

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

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6. Certification. Reviewed and approved this date.

M. G. SPIESE
By direction

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CHAPTER 1

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CHAPTER 1

AVIATION TRAINING AND READINESS PROGRAM

100. PURPOSE

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 accomplishing its Core Mission Essential Tasks (METs). The T&R Program is the fundamental tool used by commanders to construct and maintain effective training programs. This Manual provides policy for development and standardization of all USMC Aviation T&R manuals.

2. 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.

3. The Marine Aviation T&R Program develops unit war fighting capabilities by providing commanders with standardized programs of instruction for training aviation units through community T&R syllabi. This T&R Program is based on Unit Training Management (UTM) principles, and performance standards designed to ensure units attain and maintain proficiency in combat skills and combat leadership.

101. MARINE AVIATION T&R PROGRAM

1. General. The Aviation T&R Program implements a comprehensive, capabilities-based training system that provides mission skill proficient crews and combat leaders to MAGTF and combatant commanders.

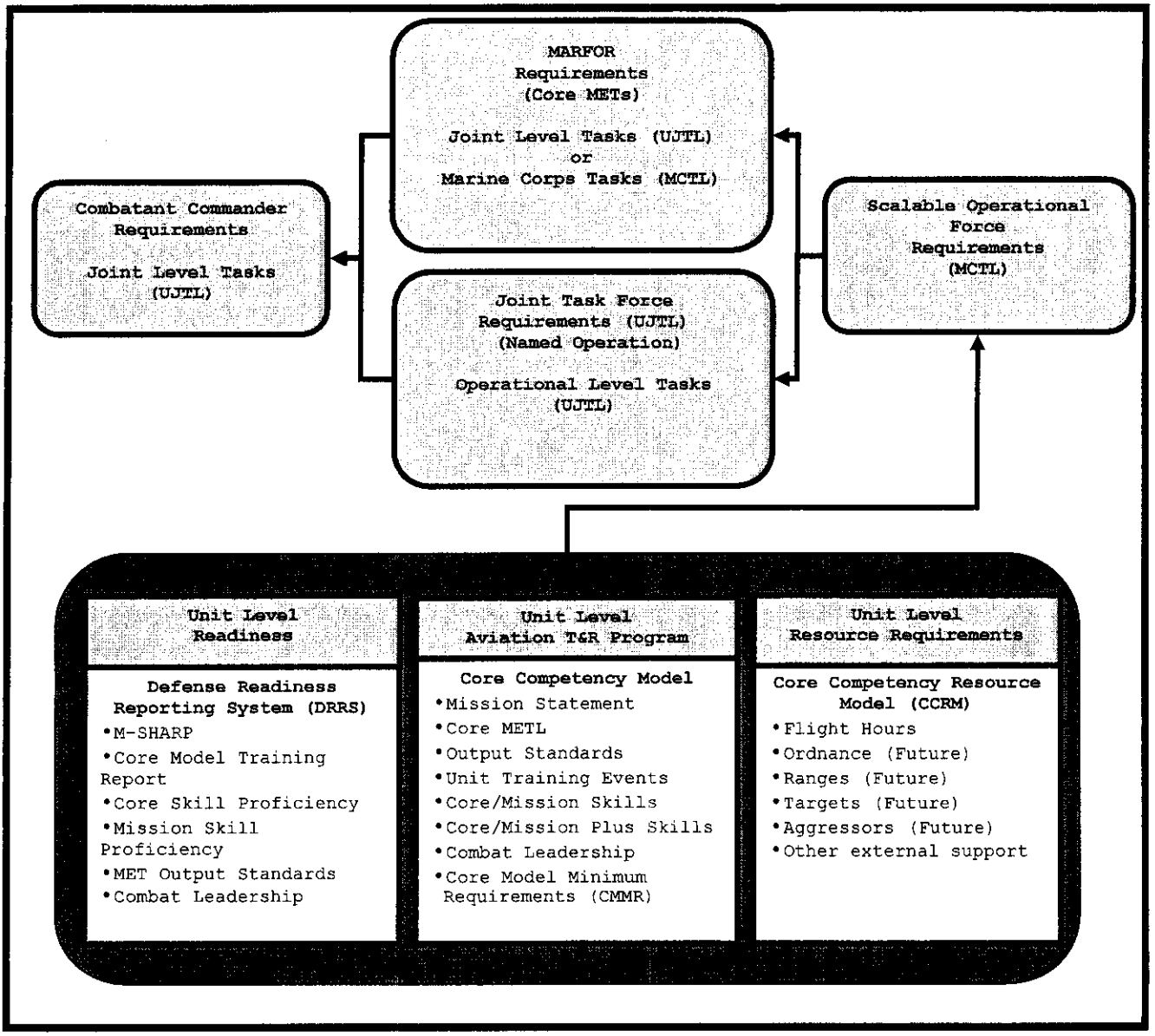

Figure 1-1.--Aviation T&R Program and Unit Readiness.

2. Readiness and Resources

a. 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. 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 (DoD Directive 7730.65). Each MET has one or more associated output standards which are used as reporting criteria in DRRS. These outputs are the key performance measures for readiness reporting.

b. Mission Essential Tasks (METs). A MET refers to a capability for which a unit was organized or designed to perform. Most units have several tasks for which they were organized or designed and for which they train. Aviation communities will report readiness using the METL construct drawing from the Marine Corps tasks

documented in the Marine Corps Task List (MCTL) approved by Marine Corps Combat Development Command-Combat Development and Integration (MCCDC-CDI) (MCO 3500.26A).

c. Marine-Sierra Hotel Aviation Readiness Program (M-SHARP). M-SHARP is the training management software for scheduling and logging T&R events, comparing logged data to community readiness metrics, and formatting readiness data within T&R Program Manual guidance.

d. Core Model Training Report (CMTR). The CMTR, in development for M-SHARP inclusion, captures unit training status with respect to Core Skill and Mission Skill Proficiency and Combat Leadership. M-SHARP calculates unit training readiness to assist the Unit Commanders in their formal assessment of Unit capabilities (Appendix D).

e. Resources. 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 (Flight Hour subset), accredited by the Chief of Naval Operations and the Commandant of the Marine Corps, was primarily developed for HQMC level budgetary support for the Flying Hour Program. 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. Though originally designed to support the Flying Hour Program, it has been expanded and will include the following external resources in the near future: ordnance, indirect fire assets, ranges, targets, aggressor air, external loads, and ground assets (Helicopter Support Teams, convoys, radar support etc.). In time, aviation ground unit resource needs will also be included.

102. T&R PROGRAM ADMINISTRATION

1. The Aviation T&R Program applies to all Marine Aircraft Groups, Marine Air Control Groups, Marine Wing Support Groups, and Marine Corps Air Stations/Facilities. TECOM ATB maintains administrative oversight of T&Rs. A complete list of T&R manuals is available online (Common Access Card [CAC] is required to gain access) at https://www.intranet.tecom.usmc.mil/sites/atb/default.aspx

2. T&R Program Orders/Directives. The T&R Program consists of the following documents:

a. 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. Signature authority is CG MCCDC.

b. 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.

c. NAVMC 3500.XX Series. Community aviation T&R manuals contain individual training syllabi for applicable MOSs within a community. Aviation T&R manuals must comply with NAVMC 3500.14 (this Manual) and may contain policy unique to a community/MOS if consistent with this Manual. These manuals are reviewed and updated on a triennial basis. More frequent reviews may occur at the discretion of the applicable community. Signature authority is CG TECOM.

103. MARINE CORPS AVIATION TRAINING COMMUNITIES

1. Tactical Flight Communities. Subdivided into 3 categories:

Fixed Wing	Aircraft AV-8B F/A-18 KC-130FRT KC-130J EA-6B
Rotary Wing	Aircraft AH-1W UH-1N CH-46 CH-53 (D&E) AH-1Z UH-1Y
Tiltrotor	MV-22

2. Support Aircraft. Those fixed-wing or rotary-wing aircraft acquired and/or retained exclusively for Operational Support Airlift (OSA), as well as any other DoD owned or controlled aircraft used for OSA purposes:

Operational Support	Aircraft C-12 C-9 C-20 UC-35
Adversary Support	F-5E/F/N
Search and Rescue Support	HH-46 HH/UH-1

3. Aviation Ground Communities

a. Aviation Ground communities include:

Command	Agency
Marine Air Control Group (MACG)	
Marine Tactical Air Command Sqdn (MTACS)	Tactical Air Command Center (TACC)
Marine Air Control Sqdn (MACS)	Marine Air Traffic Control (MATC) Tactical Air Operations Center (TAOC)
Marine Air Support Sqdn (MASS)	Direct Air Support Center (DASC)
Low Altitude Air Defense Bn (LAAD)	Low Altitude Air Defense (LAAD)
Marine Unmanned Aerial Vehicle Squadron (VMU)	Unmanned Aerial System (UAS)

Marine Wing Support Group (MWSG) Marine Wing Support Sqdn (MWSS)	Aviation Ground Support Operations Center (AGSOC) Meteorological and Oceanographic (METOC) - personnel also organic to MEF commands. Airfield Emergency Services (AES)
Marine Corps Air Station (MCAS) Air Traffic Control Airfield Services	Air Traffic Control (ATC) Airfield Operations Specialists (AOS) Airfield Emergency Services (AES) Meteorological and Oceanographic (METOC)

b. Additional Aviation Ground Training Guidance

(1) Aviation Ground personnel assigned to a MACG, a MWSG, or a MCAS shall be trained per the Marine Aviation T&R Program and the applicable T&R manual.

(2) Aviation Ground personnel are often assigned Fleet Assistance Program (FAP) or Temporary Additional Duty (TAD) assignments in order to provide additional training opportunities. Gaining commands shall provide training for FAP/TAD Marines within the provisions of the applicable T&R manual when available. For example, an air traffic controller is assigned FAP/TAD to a nearby MCAS for air traffic control duties; the gaining air station shall continue training the FAP/TAD controller per the ATC T&R Manual, and record the Marine's training in M-SHARP.

(3) Aviation Ground personnel assigned to a non-operational unit shall, when possible, continue to train per the provisions of the Marine Aviation T&R Program and the applicable T&R manual.

104. T&R CORE COMPETENCY MODEL

1. The foundation of every T&R program is the CMC-approved core competency model (Core Model) that establishes the basic structure for each community T&R.

2. Core Competent Unit. A Core Competent Unit maintains the defined number of Core Skill and Mission Skill Proficient Crews, and Combat Leaders as identified in the Core Model Minimum Requirements (CMMR) tables and Mission Essential Task Worksheets.

3. Elements of the Core Model include: Unit Mission Statement, Core METL, Core METL Output Standards, Core METL to Core/Mission/Core Plus Skills Matrices, and Core Model Minimum Requirements (CMMR) tables. Together, these elements provide a structure from which to identify and validate training and resource requirements, and a standard for measurement of unit training readiness.

a. Mission Statement. A clear and succinct description of the unit's purpose for existence that contains required capabilities the unit is expected to provide the gaining force commander during combat or contingency operations.

b. Core METL. A standardized list of specified tasks a unit is organized or designed to perform. Selected tasks are drawn from the Marine Corps Task List (MCTL) and are standardized by type unit.

c. 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. For reporting purposes in DRRS, the unit commanding officer must observe the unit attaining the output standard in order to mark the unit as "Yes" in each MET.

d. Core METL to Core/Mission Skills Matrix

(1) Core Skill Introduction/FRS Skills. Fundamental system/equipment operation familiarization, initial crew procedures and initial exposure to Core Skills (1000 phase). At the completion of this phase, individuals are normally assigned to operational units. Note that this phase is not included in the matrix.

(2) Core Skills. Fundamental, environmental, or conditional capabilities required to perform basic functions (2000 phase). These basic functions serve as tactical enablers that allow crews to progress to the more complex Mission Skills. Core Skills are introduced in FRS and entry-level school training and are further refined and expanded at the squadron level.

(3) Mission Skills. Mission Skills enable a unit to execute a specific MET. They are comprised of advanced unique event(s) (3000 phase) that are focused on MET performance and draw upon the knowledge, aeronautical abilities, and situational awareness developed via Core Skill training.

(4) The Core Model requires individual and unit proficiency in both Core Skills and Mission Skills.

(5) METL to Core/Mission Skills Matrix. This matrix depicts the relationship between the unit Core METL and each Core and Mission Skill required to perform the METL. Shading indicates a Core Plus MET and corresponding Mission Skill.

Table 1-1.--Core METL to Core Skills/Mission Skills Matrix (CH-46E Example)

METL	Core Skills							Mission Skills						
	FAM/ INST	CAL	EXT	FORM	TERF	NS HLL	NS LLL	CQ	EAF	AS	AD	TRAP	EVAC	RAID
Conduct Aviation Ops from Expeditionary Sea based Sites	✓	✓	✓	✓		✓	✓	✓						
Conduct Aviation Ops from Expeditionary Shore based Sites	✓	✓		✓		✓	✓		✓					
Conduct Assault Transport	✓	✓	✓	✓	✓	✓	✓			✓				
Conduct Air Delivery	✓	✓	✓	✓		✓	✓				✓			
Conduct Aviation Support of Tactical Recovery of Aircraft and Personnel (TRAP)	✓	✓		✓	✓	✓	✓					✓		
Conduct Air Evacuation	✓	✓		✓	✓	✓	✓						✓	
Conduct Airborne Rapid Insertion/Extraction (RAID)	✓	✓	✓	✓	✓	✓	✓							✓

(6) Core Plus Skills. Core Plus Skills have a low probability of execution or are theater specific (4000 phase) and are not included in the unit readiness evaluation. However, units may elect to train several crews in these Core Plus skill areas to maintain resident expertise

(7) METL to Core Plus/Mission Skills Matrix. This matrix depicts the relationship between the unit METL, Core Plus and Mission Skills required to perform the METL. Shading indicates a Core Plus MET and corresponding Mission Skill. A "✓" indicates a direct or close relationship between the Core or Mission Skill and the MET. Units are required to maintain the CMMR number of CSP and MSP crews for Core and Mission Skills marked with a "✓."

Table 1-2.--Core METL to Core Plus Skills/Mission Skills Matrix (CH-46E Example)

METL	Core Plus Skills										Mission Skills						
Conduct:	SFAM	TAC	CAL	EXT	NBC	DM	MAT	HIE	TG	CQ	CQ	EAF	ASLT	AD	TRAP	EVAC	RAID
Aviation Ops from Exped Sea based Sites	✓										✓						
Aviation Ops from Exped Shore based Sites									✓			✓					
Assault Transport		✓			✓	✓	✓	✓	✓				✓				
Air Delivery														✓			
Aviation Support of Tactical Recovery of Aircraft and Personnel (TRAP)		✓				✓		✓	✓						✓		
Air Evacuation								✓	✓							✓	
Airborne Rapid Insertion/Extraction (RAID)		✓				✓		✓	✓								✓

e. Core Model Minimum Requirements

(1) The Community or Unit CMMR is determined by SMEs at community T&R conferences and consists of the Crew Definition/Core and Mission Skill Proficiency, Crew Definition/Core Plus Skill Proficiency, Combat Leadership, and Instructor Requirements tables.

(2) Core and Mission Skill Crew Definition and Proficiency Requirements. The crew definition delineates crew position and proficiency requirements for each Core and Mission Skill. The numbers associated with each crew position column reflect the number of Core and Mission Skill Proficient individuals required.

Table 1-3.-- Crew Definition/Core and Mission Skill Proficiency (CH-46E example)

CMMR Core and Mission Skills				
CORE SKILLS	SQDN Pilots	SQDN Crew Chiefs	SQDN AG/O	SQDN Crews
FAM/INST	16	8	8	8
CAL	16	8	8	8
EXT	12	6	6	6
FORM	16	8	8	8
TERF	16	8	8	8
NS HLL	16	8	8	8
NS LLL	16	8	8	8
AG	12	6	6	6
GTR	12	6	6	6
MAT	12	6	6	6
HIE	12	6	6	6
TAC	12	6	6	6
CQ	12	6	6	6
MISSION SKILLS	SQDN Pilots	SQDN Crew Chiefs	SQDN AG/O	SQDN Crews
CQ	12	6	6	6
EAF	12	6	6	6
ASLT TRANSPORT	12	6	6	6
AIR DELIVERY	12	6	6	6
TRAP	12	6	6	6
AIR EVAC	12	6	6	6
RAID	12	6	6	6

(3) Core Plus Skill Crew Definition and Proficiency Requirements. The crew definition delineates crew position and proficiency requirements for each Core Plus Skill. The numbers associated with each crew position column reflect the number of Core Plus Skill Proficient individuals required for the unit to achieve Core Plus Skill Proficiency. In the event that a Core Plus Skill becomes a requirement to perform a given mission, the Core Plus Skill will be considered Core and the unit shall train to the CMMR for that Core Plus Skill.

(4) The CMTR will display Core Plus Skill Proficiency.

Table 1-4.--Crew Definition/Core Plus Skill Proficiency (CH-46E example)

CMMR Core Plus Skills				
CORE PLUS SKILLS	SQDN Pilots	SQDN Crew Chiefs	SQDN AG/O	SQDN Crews
SFAM	-	6	-	6
TAC	12	6	6	6
CAL	12	6	6	6
EXT	12	6	6	6
NBC	12	6	6	6
DM	12	6	6	6
MAT	12	6	6	6
HIE	12	6	6	6
TG	-	6	-	6
CQ	12	6	6	6

(5) Combat Leadership Requirements. Each unit must maintain Combat Leaders capable of providing the commander the leadership skills and qualities required to project combat power. 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.

(6) The Combat Leadership metric (CMMR) is applicable to the entire unit T-Level assessment and is not tied specifically to individual METs. Individuals count towards this requirement upon designation in writing by the commanding officer. The table below provides a generic example of combat leadership requirements.

(7) Combat Leadership designations are earned at the unit level in accordance with this Manual and the community specific T&R Manual.

Table 1-5.--Unit Combat Leadership Requirements Example.

CMMR Combat Leadership	
COMBAT DESIGNATION	SQDN Pilots
HAC	12
SEC LDR	6
DIV LDR	4
FLT LDR	2
AMC	2

(8) Instructor Unit Requirements. The Unit CMMR for Instructors is defined in terms of the minimum requirement to replenish the cadre of Core and Mission Skill Proficient crews and Combat Leaders every year. Individuals trained as instructors (5000 level) count towards this requirement upon designation in writing by the commanding officer, as depicted below. Commanding and executive officers do not count in this total.

Table 1-6.--Instructor Unit Requirements Example.

CMMR Instructors	
INSTRUCTOR DESIGNATION	SODN Pilots
NATOPS	1
Asst NATOPS I	4
Instrument	5
TERFI	4
NSI	5
WTI	2
AGI	7
FLSE	2

CHAPTER 2

TRAINING POLICIES

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CHAPTER 2

TRAINING POLICIES

200. TRAINING POLICY

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

2. Policy. Marine Aviation Training is a skill progression based model defined in community T&R manuals based on the following edicts:

a. Train as you fight.

b. Commanders are responsible for training.

c. Use standards based training.

d. Use mission oriented training.

e. Train the unit to fight as part of a MAGTF.

f. Train to sustain proficiency.

g. Train combat flight leaders.

h. Foster development and refinement of aviation skills.

i. Incorporate Operational Risk Management (ORM) in all levels of training to preserve assets.

3. Marine Aviation Training incorporates the following concepts and programs to efficiently prepare a unit to rapidly plan and execute their assigned Mission Essential Tasks to a clearly defined output standard in support of contingency operations.

a. Subject Matter Expert (SME) defined Standards.

b. Unit is responsible for developing their training plan.

c. Command Oversight and Responsibility. Each level of command shall monitor subordinate commands to ensure timely delivery and equitable distribution of training resources and personnel required to ensure the safe execution of training plans within the allotted time to train.

d. Marine Corps Aviation Training System (ATS) Incorporation. ATS serves as a valuable tool for commanders to achieve training standardization and integration. MAW ATS Directors and Marine Aviation Training System Site (MATSS) OICs can provide resources and improve the quality and efficiency of training plan implementation.

e. Instructor Standardization through local and formal courses.

(1) Formal Resident Courses. Unit commanders must attend to the long-term health of their command by ensuring maximum participation in formal resident courses. Commanders shall provide personnel opportunities to attend formal and

operational level courses of instruction as required by this Manual. Attendance at formal aviation courses enhances the warfighting capabilities of the unit.

(2) ACE Battlestaff Training. Respective MAWs shall solicit and coordinate TACC training for the Aviation Battlestaff. Training shall occur on a periodic basis and be conducted in accordance with the TACC T&R which outlines battlestaff skill progression for aviation MOSs. External syllabus support is listed in the TACC T&R with training schedule updates found in the ATB "MACCS, Battlestaff, and UAS Skill Enhancement Training" DMS message posted to the ATB website and MAWTS-1 Course Catalog.

f. Combat Leadership Standardization.

g. Core Skills. Fundamental, environmental, or conditional capabilities required to perform basic functions (normally 1000-2000 phase). These basic functions serve as tactical enablers that allow crews to progress to the more complex Mission Skills. Core Skills are introduced in FRS and entry-level school training and are further refined and expanded at the squadron level.

h. Mission Skills. Mission Skills enable a unit to execute a specific MET. They are comprised of advanced unique event(s) (normally 3000 phase) that are focused on MET performance and draw upon the knowledge, aeronautical abilities, and situational awareness developed via Core Skill training.

4. First Tour Assignment. Naval Aviators (NA), Naval Flight Officers (NFO), and air Crew Chiefs (CC), shall be assigned to an operational squadron for a minimum of 2 years (optimally 3 years) after completing Core Skill Introduction phase training. Commands shall not assign NAs/NFOs/CCs outside the squadron unless such assignment is a T&R syllabus requirement.

5. Transition/Conversion Training. Candidates submit applications for NA/NFO Transition/Conversion training per MCO 1331.2, Transition/Conversion Training for Marine Naval Aviators and Naval Flight Officers. This does not apply to aviation ground communities.

201. EXTERNAL POLICY. Aviation training requirements listed in other applicable publications shall be adhered to, to include:

1. MCBUL 1200 (MOS Manual). Specifies MOS school and training requirements.

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. NATOPS Instrument Flight Manual NAVAIR 00-80T-112 15 Nov 06.

4. 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.

5. DOD Instruction 1300.21 (Code of Conduct Training and Education) and Joint Pub 3-50.3 (Joint Doctrine for Evasion and Recovery). Specifies Survival, Evasion, Resistance, and Escape (SERE) training requirements.

6. OPNAVINST 1542.7 [Crew Resource Management (CRM) Program]. Specifies Crew Resource Management training requirements (applicable to flight units only).

7. 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.

8. Mission Planning Systems. Aviation communities shall ensure standardized, automated mission planning system training is embedded into T&R syllabi. This training should be integrated appropriately into phase and stage training. For additional information regarding mission planning systems, contact:

NAVAIRSYSCOM PMA-281 (Mission Planning Systems USMC Fleet Liaison)
DSN: 757-7974
Commercial: (301)-757-7974

SPAWAR (PFPS/TOPSCENE/JMPS)
DSN: 442-8086
Commercial: 1-800-759-1263
Email: c4ihd@nosc.mil or c4ihd@philly.navy.smil.mil
Website: https://lifeline.spawar.navy.mil

202. UNIT TRAINING

1. Unit Training

a. Unit Training Plans. The Core Model provides a foundation for developing training plans by clearly delineating unit training requirements. 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. Units should use the Core Model Minimum Requirements (CMMR) as a reference point to design, implement and evaluate training plans.

b. Core Model Minimum Requirement (CMMR). Commanders shall conduct operational training according to the applicable community T&R manual. Units shall train to achieve CMMR. If a unit falls short of CMMR, squadron/battalion commanders must refocus unit training or request assistance from higher headquarters to allocate assets required to achieve CMMR within the time constraints established in the TEEP. Units shall track unit CMMR via the CMTR and M-SHARP logged data.

c. Instructor CMMR Deviations. Units shall train to achieve T&R required qualifications and designations that support core competency requirements. Unit instructor designations shall be balanced with mission requirements and time to train. Tactical flying squadrons shall strictly control the number of instructors (WTI, ACTI, LATI, TERFI, NSI, etc.) produced per the applicable CMMR. Time constraints dictated by the TEEP and scheduled arrival of replacement personnel may necessitate an increased number of instructors above CMMR to boost production capacity within the squadron. Tactical flight squadron commanding officers shall obtain written approval from the MAG commanding officer to train additional instructors in excess of the requirements listed in the respective T&R manuals. Squadron CO/XO instructor designations do not count toward unit instructor requirements.

d. Carrier Qualification. When required to operate from aviation decks, units shall maintain both day and night shipboard qualification. When aviation decks are not available, these units shall maintain ship skills by staying current with Field Carrier Landing Practice (FCLP) in accordance with their respective T&R syllabus. Personnel should consult the NWPs, LHA/LHD, CV, LSO, individual aircraft NATOPS manuals, and current NAVAIR instructions to ensure appropriate training of personnel for shipboard operations.

e. Fixed Wing Expeditionary Airfield (EAF)/Forward Site Training and Qualification. Fixed wing tactical squadrons shall qualify on an available EAF/forward site, or on a runway configured for EAF/forward site operations when required. Each aircraft wing and fixed wing tactical group shall assign a Landing Signal Officer (LSO)/Landing Site Supervisor (LSS) to monitor the EAF/forward site training and qualification program. KC-130 operations do not require an LSO/LSS. The LSO will maintain data on available EAFs/forward sites and air stations where EAF/forward site operations are available. EAF/forward site training shall incorporate expeditionary air traffic control capabilities of the MATC Detachment or MATC Mobile Team (MMT) participation whenever feasible.

f. LSO Qualification. Commanding officers shall designate field-qualified LSOs per the LSO NATOPS and assign them at the squadron and group level to control FCLP periods. If possible, the LSO shall be field EAF-qualified. A VSTOL LSS should serve as a supervisor for VSTOL operations from all forward sites. LSOs/LSSs shall brief all aircrew on current launch and recovery publications prior to EAF/forward site training. Aircrews shall be FCLP/forward site qualified prior to EAF/forward site operations and day EAF/forward site qualified prior to night qualification. During EAF/forward site qualification, all pattern work will be flown under VMC.

g. Missile/PGM Training. Commanders shall ensure those aircrews participating in live fire exercises (T&R event) have demonstrated proficiency in their weapons system. Commanders shall assign a qualified and experienced officer to control all missile firing exercises.

h. Tactical Aircrew/C2 Integration Training. Aviation Command and Control often requires external syllabus support for both aircrew skill progression and maintaining MACCS proficiency. Tactical aircrew and MACCS personnel shall actively collaborate to create training opportunities. In addition to the command/information exchanges with air traffic control agencies necessary for safe and coordinated launch and recovery, aircrew shall coordinate with Marine Air Command and Control (C2) agencies (or their joint counterparts). Exercising C2 functions and information exchanges are necessary for airspace battle management training and increase application of air power efficiency within the ACE. Coordinated events maximize the training leveraged from each occurrence for both the aircrew and aviation ground communities.

i. MACCS Integrated System Training (MISTEX). The MISTEX is necessary to exercise communications and data links between MACCS agencies, optimize crew coordination, and refresh key personnel, to include Wing battlestaff, on critical information flow requirements. The purpose of a MISTEX is to integrate all MACCS command and control agencies (TACC, DASC, TAOC, ATC, UAS, LAAD) in a live or simulated scenario to sustain MACCS performance currency and demonstrate proficiency in MACCS employment. All elements of the MACCS shall maintain the capability to effectively function as part of an integrated airspace command and control system. The MISTEX may be used to evaluate MACCS mission skills, deployment readiness, or wing capability of Air Tasking Order (ATO) cycle execution by the wing commander. A MISTEX should incorporate a Multi-TADL Network (MTN) and digital backbone to provide the wing commander a Common Operational Picture (COP),

conduct ATO planning and execution using doctrinal C2 data systems such as TBMCS, C2PC, JDOCS, and AFATDS.

j. Surface-to-Air Missile Training. Stinger gunners assigned to an active battalion in the operating forces should fire a minimum of one surface-to-air missile during a three-year period. Commanders shall ensure those members participating in live missile firing exercises have completed appropriate T&R prerequisites as outlined in the applicable syllabus. Commanders shall assign a qualified range safety officer to control all missile-firing exercises. All missile firings should be conducted under conditions which closely simulate actual conditions expected to be encountered in the tactical environment (within applicable safety and range constraints), and include the participation of other elements of the MACCS whenever possible.

k. Air Control. MACG shall develop and provide annual courses of instruction to aircrew covering the mission, capabilities, limitations, and functions of each of the MACCS elements. Instruction should incorporate principles and guidelines associated with employment of the MACCS, and the specific procedures associated with control of aircraft and missiles. Air Control training for aircrews shall emphasize the interaction between Marine air command and control systems and aviation platforms performing specific missions, to include the interrelationships between specific core competencies of applicable T/M/S and associated command and control procedures, systems and functions. Briefs shall be provided to flying squadrons prior to deployment to assist in building rapport between MACCS agencies and flight crews.

2. Emergency Procedures. All aircrew and LAAD gunners shall complete a monthly review of emergency procedures. Simulators should be used. If the community lacks a simulator or one is not available, the command shall substitute appropriate examinations or drills for the emergency procedures review.

3. Flight Leadership Program. The goal of the flight leadership program is to provide the structure and requirements necessary for standardized training, development, and designation of flight leaders. This policy provides Squadron, MAG, and Wing Commanders the tools necessary to manage a standardized flight leadership program. The foundational elements of this policy include standardization of flight leadership POIs, evaluation procedures, and oversight measures.

4. Functional Check Pilot Qualifications. Aviation communities shall implement standardized Functional Check Pilot (FCP) syllabi in individual T&R manuals for all flying units. 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 COMNAVAIRFORINST 4790 aviation maintenance manual. At a minimum, the FCP certification event shall be evaluated. FCP qualification requires successful completion of a community standardized syllabus and a qualification letter from the CO.

5. Unit Readiness Reporting

a. Commanding officers report the status of readiness and training per the current edition of the Marine Corps Readiness Reporting Order and applicable SORTS Advisories (Marine Corps SORTS Manual, MCO P3000.13D) and the Interim Defense

Readiness Reporting System guidance. Chapter 7 provides specific guidance on SORTS and DRRS assessments.

b. Core Model Training Report (CMTR). The CMTR (Appendix D) will display unit readiness in terms of CSP, MSP, and Combat Leadership. The CMTR, under development for aircrew, captures Aviation T&R Program readiness guidance in a manner that clearly delineates the link between METs and the T&R Program.

c. Core Model Minimum Requirement and Readiness

(1) Aviation Flying Units: The CMMR for CSP and MSP reflects the number of CSP/MSP crews required by each unit to perform to its MET Output Standard given 90% or better crew manning.

(2) Aviation Ground Units: The CMMR for CSP and MSP reflects the number of CSP and MSP crews required by each unit to perform to its MET Output Standard given 100% or better crew manning as defined in specific Aviation Ground T&Rs.

(3) The CMTR will tally the number of individuals who are CSP and MSP in each Core and Mission Skill. Individuals are "counted" because they have first attained and then maintained core/mission skill proficiency. Commanders shall consider the CMTR assessment when considering their overall unit readiness.

d. Adjusted Core Model Minimum Requirement (ACMMR) and Readiness

(1) Flying Units Only: The T&R CMMR is based upon an aircrew manning level of 90-100%. However, when unit aircrew manning is below 90% total crews, an adjustment is made to the CSP, MSP and Combat Leadership CMMR in order to provide unit commanders with a method to calculate a T-level value that reflects how well the unit is training the crews it possesses. The ACMMR calculation should be considered a tool for the Operations Officer. The ACCMR provides a metric to estimate where a unit ought to be given the number of crews it possesses. The value of ACMMR is subject to many factors such as when individuals arrive at the unit.

(2) The ACMMR shall not be used as the basis for the commander's DRRS or SORTS assessment. (See appendix D for calculation method)

e. Unit Manpower Shortage Report. Commanders who do not have unit aircrew manning levels at or above 90% within 180 days of a TEEPed overseas deployment shall report this shortage via Naval Message Traffic to DC AVN (format appendix G). DC AVN shall utilize these Reports to assist the unit with expediting the delivery of manpower and maintaining a historical database that links squadron level time to train with mishap reduction.

203. INDIVIDUAL TRAINING

1. Individual Training Philosophy. Individual training and the mastery of Core Skills and Mission Skills (2000-3000 phase events) serve as the building blocks for unit combat readiness. Training programs are based upon increasingly challenging events, with the requirement for periodic revalidation of CSP and MSP.

2. Program of Instruction (POI) Assignment. All individuals undergoing training are assigned to a POI. A POI is a group of events or "subset" within a syllabus that an individual is required to execute. POIs include; Basic, Transition, Series Conversion, and Refresher. POI assignment for personnel selected for Transition,

Series Conversion, and Refresher training shall be delineated in community T&R manuals.

NOTE

For the purpose of this publication, the term 'MOS' will be used to include skill designators and crew positions.

a. Basic POI

(1) Initial accession personnel shall be assigned to the Basic POI of the applicable T&R syllabus.

(2) Model Conversion personnel (personnel converting from one model aircraft/system to another within the specific aircraft/unit type e.g., CH-46 to CH-53 or EA-6 to FA-18), shall be assigned to the Basic POI of the applicable T&R syllabus.

(3) Conversion training for NFOs is defined as syllabus instruction designed to convert an NFO's primary MOS from one aircraft to another, regardless of type. NFOs undergoing conversion training shall be assigned to the Basic POI.

b. Transition POI. Personnel changing aircraft or weapon systems shall be assigned to either the Basic or Transition POI. Marine Corps aircraft types include the following: Fixed Wing jet, VSTOL jet, Rotary Wing, Fixed Wing Transport, and Tiltrotor. MACCS units with different weapons systems include: TACC, TAOC, DASC, LAAD, UAS and MATC.

c. Series Conversion POI. Personnel converting from a particular series of aircraft or weapons system to a new series that has significantly different aircraft or weapons systems characteristics shall be assigned to either the Basic or Series Conversion POI. Series Conversion aircraft include KC-130FRT/KC-130J, CH-53D/CH-53E, UH-1N/UH-1Y, AH-1W/AH-1Z, and CH-46/HH-46D/HH-46E.

d. Refresher POI

(1) In the case of aircrew, they will be assigned to the Refresher POI per Chapter 4 figure 4-2. In the case of Aviation Ground personnel, they will be assigned to the Refresher POI when returning to their MOS on subsequent tours.

(2) Personnel who have demonstrated CSP or MSP in the Basic, Transition, or Series Conversion POI are reassigned to the Refresher POI for that Core or Mission Skill. See Para 204 for Proficiency Requirements.

(3) FRS Refresher Training. 1000 phase FRS Refresher training is prescribed for pilots and NFOs who have not flown the model aircraft within specified time intervals. Upon completion of Core Skill Introduction Refresher Training, pilots and NFOs shall be assigned to the Refresher POI conducted at the tactical squadron. Pilots and NFOs shall complete Core Skill Introduction Refresher Training per paragraph 405.

204. TRAINING PROFICIENCY - CORE SKILL PROFICIENCY (CSP) AND MISSION SKILL PROFICIENCY (MSP)

1. Attain Proficiency. Individuals Attain CSP and MSP by completing those events listed in the Attain Tables in their community T&R. Attainment of CSP and MSP is by individual Core or Mission Skill.

a. Basic POI. Proficiency is attained in a Core Skill or Mission Skill by executing all events listed in the Attain Table for each Core Skill or Mission Skill.

b. Transition POI. Proficiency is attained in a Core or Mission Skill by executing all T-coded events in the Attain Table for each Core or Mission Skill.

(1) Transition POI Updating. When all T-coded events in a Core Skill or Mission Skill are completed, all remaining events in that Core or Mission Skill are updated.

(2) All remaining events are updated regardless of their proficiency status (Proficient, NBA, Incomplete, and Delinquent chained events are all updated).

c. Series Conversion POI. Proficiency is attained in a Core or Mission Skill by executing all SC-coded coded events in the Attain Table.

(1) Series Conversion POI Updating. When all SC-coded events in a Core or Mission Skill are completed, all remaining events in that Core or Mission Skill are updated.

(2) All remaining events are updated regardless of their proficiency status (Proficient, NBA, Incomplete, and Delinquent chained events are all updated.

d. Refresher POI. Proficiency is attained in a Core or Mission skill by executing all R-coded events in the Attain Table.

(1) Individuals assigned to the Refresher POI are required to complete Basic POI events that have never been completed.

(2) NBA and Incomplete events are not updated and must be completed.

(3) Core and Mission Skill Updating

(a) Core Skill Updating. Once an individual has attained CSP in a specific Core Skill(s) in the initially assigned POI (Basic, Transition or Series Conversion), the individual is transferred to the Refresher POI in that Core Skill. He will then Maintain CSP **utilizing the Refresher POI updating rules for that Core Skill.** Individuals can be attaining CSP in the initially assigned POI while maintaining proficiency in other Core Skills in the Refresher POI.

(b) Mission Skill Updating. Once an individual has attained MSP in a specific Mission Skill in the initially assigned POI (Basic, Transition or Series Conversion), the individual is transferred to the Refresher POI in that Mission Skill. He will then Maintain MSP **utilizing the Refresher POI updating rules for that Mission Skill.** Individuals can be attaining MSP in the initially assigned POI while maintaining proficiency in other Mission Skills in the Refresher POI.

2. Maintaining Proficiency. Individuals Maintain CSP and MSP by executing the R-Coded events in the Maintain Table.

3. Regaining Proficiency

a. Individual. If an individual has previously completed an event, but has a delinquent proficiency status for that event, the individual is required to complete the event with another crewmember/flight lead proficient in that event.

See chapter 3 and community T&Rs for specific requirements in Low Level Flight, Night Systems, and Air Combat Maneuvering.

b. 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.

205. TRAINING PREREQUISITES

1. Event Prerequisite. Requirement that must be successfully completed prior to commencing another training evolution. Community T&Rs may provide exceptions to this policy. Prerequisites may be an event, stage, phase, Core Skill, Mission Skill, class/lecture, qualification, or designation.

2. The requirement to complete a prerequisite should not be confused with the training requirement to maintain proficiency in an event.

3. For example, NS-2000 has a refly interval of 180 days and is the prerequisite for NS-2001. Completing NS-2000 meets the prerequisite requirement to perform NS-2001, regardless of the proficiency status of NS-2000. Therefore, a delinquent proficiency status for NS-2000 meets the prerequisite requirement (previously completed NS-2000) for NS-2001. However, the training requirement still exists for NS-2000 to be updated per paragraph 204.3.

206. EVENT REQUIREMENTS

1. Event Sequencing. Personnel should be scheduled to complete T&R events of a Core or Mission Skill in sequential order.

2. Event Completion

a. Event completion is defined as successful demonstration or evaluation of the performance standard.

b. When supervising the execution of an event, unit instructors/leaders shall ensure the individual demonstrates proficiency per the event performance standard prior to logging the event.

c. Evaluating proficiency normally entails objective and subjective assessments. When an individual fails to accomplish the requirements of an event per the performance standard, the event shall not be logged and the proficiency status for that event remains unchanged.

d. When an event is completed per the performance standard, the event shall be logged in M-SHARP by entering the appropriate T&R code. When entered into M-SHARP, the event proficiency date is automatically updated to reflect the event completion date.

e. Multiple Event Logging. There may be opportunities for crewmembers to accomplish the requirements of more than one event during a scheduled training evolution. Units are encouraged to take advantage of complex training opportunities that allow multiple event completion. Under all circumstances, post-event logging (single or multiple) is allowable if the requirements for each event are accomplished per the performance standard.

3. Event Proficiency. Individuals must demonstrate proficiency in the performance standard of specific events. Event proficiency refers to how recently an individual has demonstrated proficiency in an event in relation to the event's refly factor. Proficiency dates for each event code shall be maintained for crewmembers. Event proficiency is calculated and tracked using M-SHARP.

a. Refly Factor. Refly factor establishes the maximum time between syllabus events. Specified T&R events have a refly interval, measured in number of days/months, that indicates the period within which the event must be reflown or updated. Events that have no refly interval have a one time training requirement and are noted by an asterisk (*) in the refly column of the syllabus matrix.

b. Event Proficiency Status. Proficiency is a measure of achievement of a specific skill. Refly factors establish the maximum time between demonstration of those skills. The proficiency status for a given individual and T&R event is either *Proficient*, *Delinquent*, *Never Been Attempted (NBA)*, or *Incomplete*. Note that event proficiency status applies to both an individual and an event within the applicable MOS T&R syllabus.

(1) *Proficient* Status - An individual successfully performed or updated an event within the refly interval (e.g. successfully completed and logged event into M-SHARP). For example, the refly for event EXT-2210 is 365 days and a pilot successfully performed EXT-2210 60 days ago. The pilot has a *proficient* status for EXT-221 and the pilot's proficiency status for that event will remain *proficient* for the next 305 days.

(2) *Delinquent* Status - An individual previously completed the event but has exceeded the refly interval for that event without executing/updating it. If an individual exceeds the refly factor for a particular event, the individual loses "credit" for that particular event. To continue with the example above, if the pilot does not perform EXT-2210 (event is not updated) in the next 365 days, the pilot's proficiency status for EXT-2210 will become delinquent.

(3) *Never Been Attempted (NBA)* Status - indicates an individual has never attempted to complete the event.

(4) *Incomplete* Status - An individual was scheduled and attempted to complete the event but did not complete all event requirements. The proficiency date for an Incomplete event is not updated.

(5) An individual's proficiency date for an event is the most recent date that event was completed/updated. Proficiency dates apply to each crewmember in a unit and are listed for each T&R event in the applicable MOS T&R syllabus. Proficiency status changes from day to day; therefore, measurement of proficiency status must be accomplished for a specific date, or "reference date" (usually "today"). For example, a proficient status indicates that the number of days/months between the proficiency date and the reference date is equal to or less than the refly interval. When scheduling, the reference date used to produce proficiency status should be the date of the schedule, usually "tomorrow" or "Monday."

c. Event Proficiency Updating. Event proficiency dates shall be updated when an event is: (1) Re-demonstrated proficiently; (2) Updated via chaining; (3) Updated via POI updating, (4) Waived, or (5) Deferred. Event proficiency updating applies to 2000+ phase events.

(1) Re-demonstrating proficiency in the event is defined as the successful execution of the performance standard for that event.

(2) Chaining. When a T&R event is logged, the proficiency dates of other T&R events (lower in number) may be updated. The logged T&R event is called the "chaining code", and the updated events are called the "chained codes." Chained codes are not always updated when a chaining code is logged. Specific rules may determine when codes are updated via conditional chaining (see Chapter 6). The chaining column in the T&R syllabus matrix delineates which events may be updated, but only those events that are proficient are updated via chaining. Delinquent, NBA, or Incomplete events shall not be updated in chaining. Chaining rules always apply regardless of the POI. Mission Skill events may chain events in one or more Core Skills. The final determination on what events will be chained is made by SMEs at community T&R conferences.

207. SYLLABUS TRAINING EXCEPTIONS. Waiving or deferring syllabus events or prerequisites shall only be authorized by unit commanding officers. NATOPS and OPNAV requirements shall not be waived or deferred unless authorized by the respective publication. Core Skill Introduction (1000 phase) training event deferrals/waivers are contained in paragraph 400.5.

1. T&R Event Waivers

a. T&R Events may be waived for individuals undergoing the following training:

(1) Transition

(2) Series Conversion

(3) Refresher POI

(4) For commanding officers who desire to waive multiple events per paragraph 207.1a above, the following guidance applies:

(a) Individuals should complete all R-coded events for the given syllabus.

(b) Individuals shall complete the culminating R-coded event for the given syllabus.

(c) If no culminating R-coded event exists, then individuals shall complete the evaluation events (E-coded) for the given Stage, Core Skill, Mission Skill, Qualification, Combat Leadership or Instructor Designation as applicable.

(d) Specific T&Rs and the MAWTS-1 Course Catalog have additional information.

b. T&R Event waivers shall not be granted for:

(1) Any Basic POI event.

(2) Any Flight Leadership Standardization event, prerequisite, or standard.

(3) All events in a Stage.

(4) All events in a Core Skill.

(5) All events in a Mission Skill.

(6) All events in a Qualification Syllabus.

(7) All events in a Combat Leadership Syllabus.

(8) All events in an Instructor Designation Syllabus.

c. Waived Prerequisites. Commanding officers may waive prerequisites that do not contradict the parameters listed above when the prerequisite waiver does not pose an unacceptable safety risk.

2. Deferred Events. Events may only be deferred when the lack of logistical support or training assets prevents timely event completion.

a. For example, events may be deferred when a simulator/training device is not available, is non-mission capable, or it lacks the capability listed in the event description. Commanders may conduct deferred simulator/simulated events in an aircraft/live.

b. Logging of Waived or Deferred Events

(1) The individual's proficiency date for that event shall be manually updated in M-SHARP.

(2) The individual remains proficient throughout the respective event refly interval.

(3) The refly date of the waived/deferred event may be updated through chaining.

(4) The individual's proficiency date for that event shall be manually updated in the Individual Performance Record (IPR).

208. DEVIATIONS FROM T&R MANUAL PROGRAM

1. CG TECOM ATB is the approval authority for deviations from Aviation T&R policy delineated in this Manual and individual aviation T&R manuals. Requests for T&R policy deviation shall be requested via message to CG TECOM ATB, via the operational chain of command with info notification to the syllabus sponsor.

2. Example. A change to the 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 at the time 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 that community's T&R manual is updated.

3. Contingency/Combat Operations. During contingency/combat operations, MAGTF or wing commanders may deviate from Aviation T&R training policies at their discretion.

209. T&R EVENT EVALUATION. Standardized evaluation procedures provide commanders with an effective management tool to improve training and monitor personnel progress.

1. Event Evaluation Forms. Communities shall develop evaluation forms for all events contained in their T&R syllabus. These evaluation forms shall be placed in T&R manuals as an appendix or shall be maintained by the syllabus sponsor. If maintained by the syllabus sponsor, the forms shall be kept electronically and shall be made available to the Marine Corps Total Force. Evaluation forms shall be

used for each phase of training by instructors and evaluators to measure the accomplishment of training goals.

2. Events shall be documented 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 as follows:

(1) All individuals assigned or re-assigned to a POI undergoing Core Skill Introduction, Core Skill Basic, Mission Skill, Core/Mission Plus phases (1000-4000 series event codes). This shall include all crewmembers initially assigned to the Basic POI or re-assigned to the Refresher, Modified Refresher, Safe-for-Solo, Transition, and Series Conversion POIs.

(2) All individuals undergoing Instructor Training (5000 series event codes). This includes all work-up and evaluation events contained within the T&R, MAWTS-1 Course Catalog, or as required by other governing directives.

(3) All individuals undergoing designation training to include work-up and evaluation events for Combat Leadership designations.

b. E-Coded Events. An E-coded event in the T&R Matrix is required to be evaluated and documented each time the event is executed. Normally, there is no requirement to document satisfactory performance during subsequent event completions if the event is not E-coded. However, more frequent documentation may be mandated at the discretion of a specific community. For example, this could include execution of Combat Leadership requirements at specific intervals or the employment of selected ordnance and unique occurrences as determined by the syllabus sponsor. Therefore, events that require subsequent or periodic evaluation shall be E-coded. For example, F/A-18 SMEs may determine that an ordnance event with a refly factor of 180 days must be documented with an evaluation form. In this instance, the event would be designated as an E-coded event in the syllabus matrix.

c. All events where performance was evaluated as "unsatisfactory."

3. Completed event evaluation forms shall be maintained in Individual Performance Records (IPR).

4. Integrated Aviation Training Form (IATF). TECOM ATB in concert with MAWTS-1 shall provide oversight for the development and incorporation of IATFs. They are designed to provide standardized feedback to the individual being trained and to the training system. IATFs will assist in the quality management of trainee and instructor performance and standardization. The data captured will also be used to maintain concurrency between aircraft and systems, their training simulation, and the curriculum.

5. Evaluation documentation for NATOPS and Instrument check events are governed by the OPNAV 3710 series.

210. SIMULATOR POLICY

1. The implementation of ATS and the Tactical Environment Network (TEN) provides an opportunity for communities to incorporate networked (linking multiple training devices and/or Input/Output stations together) and Scenario Based Training (SBT)

into T&R syllabi. Networked training requirements shall be included in Marine Aviation T&R manuals.

2. Simulators provide the capability to develop and hone critical skills required for professional development and to practice high risk immediate action emergency procedures. The development of simulator training requirements and events for each T&R syllabus will help maintain valuable combat resources while reducing training costs.

3. Accurate aerodynamic models and enhanced visual cuing are required to provide legitimate simulation.

4. To the maximum extent possible, annual instrument and NATOPS evaluations shall be completed in the simulator under the supervision of an appropriately designated evaluator.

5. Each tactical flight and MACCS community shall develop a simulator-specific Mission Essential Subsystem Matrix (MESM).

a. General. Events designated by an "S" in the event header shall be flown/conducted in a training device equipped to meet the objectives listed in the event description; each event requires specific simulator capabilities. For each individual event, a simulator is categorized as Full Mission Capable (FMC), Partial Mission Capable (PMC), or Non-Mission Capable (NMC) based on the status of mission essential simulator subsystems. The following definitions apply:

(1) FMC. All simulator subsystems required to meet the training objectives for the event to be flown/conducted are installed and operating properly.

(2) PMC. A simulator subsystem or capability considered highly desirable, but not essential, to meet the training objectives is not installed or is not operating properly. While the event can still be completed, the quality of training is degraded.

(3) NMC. The device lacks the capability to complete the event due to a critical subsystem or capability being inoperative or not installed. A simulator will be considered NMC if its configuration is greater than 3 months out of date as compared with the current aircraft/system configuration.

b. Simulator Mission Essential Subsystems Matrix (MESM). Completion of an event in a PMC simulator shall be noted on the ATF with a description of the impact to training. Commanding officers of squadrons scheduling the simulator shall be notified of all scheduled events in NMC simulators. Each MATSS OIC should notify DC/Aviation APW-71/APC [Info appropriate MCI/MARCORBASE, CG TECOM ATB and PMA-205(MCATSF)] by DMS message (via the MAW ATS Director and applicable chain of command) when NMC simulators due to aircraft configuration changes occur for greater than six months or when in the local MAG commanding officer's judgment the NMC rate has had an adverse effect on the local squadron's ability to train.

c. Simulator MESM Application. A MESM illustrates how the absence of a particular simulator subsystem or capability affects simulator MC status (see paragraph 603.16 for additional MESM information). All simulator events will be completed in a FMC or PMC simulator as determined by the MESM. Completion of an event in a PMC simulator shall be noted on the ATF with a description of the impact to training. Under no circumstances will an event be completed in a device determined to be NMC for that event without the approval of the commanding officer.

d. Motion. Motion systems may significantly enhance training. Allocation of full motion simulators shall favor the Core Skill Introduction phase due to the fundamental nature of this training.

e. Tactical Environment. Events designated as "S-TEN" require an approved tactical environment simulation capable of introducing both semi-autonomous threats and moving models controllable from the tactical operator station.

f. Networked Simulation. Events designated as "S-TEN+" require an approved tactical environment 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.

g. Database Selection. Virtual training areas should be selected based on their ability to best meet the training objectives for the event.

h. Briefing. Simulator event briefs shall be identical, both procedurally and in content, to aircraft/system event briefs. The length of the brief should be based upon the mission to be flown/conducted and content to be covered, and should not be forced to fit into the standard simulator briefing period.

i. Scheduling. The time between a simulator event and the corresponding aircraft/system event should be minimized to the maximum extent possible. If the simulator is not available, simulator periods may be conducted using aircraft or operational systems.

211. ACADEMIC/GROUND TRAINING

1. Each unit shall conduct specific training that complements the respective training syllabus. Personnel shall complete supplemental courses of instruction prior to event training as outlined in community T&Rs.

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

3. Academic training shall be used to support individual and unit training requirements. Courses shall be provided in:

a. Technical Subjects. Includes, but is not limited to, aircraft/weapon systems, maintenance systems, ordnance, and organic unit equipment operation and maintenance.

b. Tactical Subjects. Includes, but is not limited to, policies, tactical and doctrinal manuals, ANTTPs, NWPs, Chemical, Biological, Radiological and Nuclear (CBRN) defense, ordnance delivery/effectiveness, weapons platform/effectiveness, mission planning and briefing.

c. Instrument Flight, Federal Aviation Regulations and Navigation. This includes special equipment, computers, FLIP publications, OPNAV instructions, DR navigation, map reading, published local course rules and Instrument Ground School.

212. CORE SKILL PROFICIENCY (CSP) MANAGEMENT

1. Management of individual CSP serves as the foundation for developing the critical skills necessary for Mission Skill Proficiency (MSP) in DRRS.

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. To achieve Individual CSP in a Core Skill, an individual must simultaneously have a 'proficient' status in all of the events listed in the CSP Attain Table for that Core Skill. After attaining Individual CSP, an individual must maintain a 'proficient' status in all events in the CSP Maintain table for that Core Skill.

4. After achieving CSP in a given Core Skill, that individual loses CSP when any of the Maintain CSP table events becomes delinquent for the given Core Skill. To regain CSP the individual must re-complete delinquent events. If an individual goes delinquent in all CSP events in a Core Skill, the individual regains CSP by re-completing all R-Coded events within that Core Skill.

a. Individual CSP Example - Confined Area Landings (CAL). A pilot is either 'CAL CSP' or 'not CAL CSP' per the below:

Individual CSP Attain Table	
Pilot	*CAL*
T&R event requirements to attain CSP	*S2300* *2301* *2302R*
R = Refresher POI event *S = Event conducted in simulator*	

b. Attaining Individual CSP in CAL: In order for an individual to be counted as CAL CSP, the individual must simultaneously have a 'proficient' status in all of the CAL events listed in the CSP Attain Table (S2300, 2301, 2302R). Normally this equates to the day the individual completes the last event in the Core Skill event sequence (2302); however, there may be occasions where an individual has successfully completed all events in the CSP Attain Table but the individual has gone delinquent in lower level events. In such cases, the individual must re-complete delinquent events in order to simultaneously have a 'proficient' status in all of the CAL events listed in the CSP Attain Table (This example demonstrates the updating process for the Basic POI). For Transition or Series Conversion, see the POI-Updating section in paragraph 204.

c. Maintaining Individual CSP in CAL: When an individual has attained individual CSP in CAL, 'CAL CSP', the individual is required to maintain a 'proficient' status in all CAL Core Skill events in the CSP Maintain Table (2302R) in order to count towards unit CMMR.

Individual CSP Maintain Table	
Pilot	*CAL*
T&R event requirements to maintain CSP	*2302R*
R = Refresher POI event *S = Event conducted in simulator*	

d. Tracking Individual CSP in CAL: Provided the individual maintains a 'proficient' status in all of the CAL events listed in the CSP Maintain Table, the individual counts towards Unit CAL CSP requirements (the individual is 'CAL CSP'). If the individual goes delinquent in any of the CAL Core Skill events in the CSP

Maintain Table (2302), the individual will not count towards Unit CAL CSP requirements (the individual is 'not CAL CSP') until the delinquent CAL event(s) listed in the CSP Maintain Table are updated.

(Aircraft T/M/S or System) CMMR (Unit CSP Requirements)				
Core Skill	*PILOTS*	*CREW CHIEFS*	*AERIAL OBSERVER /GUNNER*	*CREWS*
CAL	*24*	*12*	*12*	*12*

e. Regaining Individual CSP in CAL: A pilot returns from a FAC tour. The individual is assigned to the Refresher POI. The individual has previously completed all 2000-3000 phase CAL events in his last squadron tour; however, those events have a delinquent proficiency status (individual is 'not CAL CSP'). The individual is required to complete the R-coded 2000-3000 stage CAL events (2302) in order to regain CAL proficiency. The day the individual simultaneously achieves a 'proficient' status in all of the CAL R-coded events listed in the CSP Attain Table, the individual is 'CAL CSP.' Maintaining Individual CAL CSP remains the same as the above Basic POI example.

213. MISSION SKILL PROFICIENCY (MSP) MANAGEMENT

1. Management of MSP (or MET worksheet training standards) and Combat Leadership are the key components critical to reporting unit readiness.

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 Unit MSP requirements for that Mission Skill (MET).

3. To achieve Individual MSP in a Mission Skill, an individual must simultaneously have a 'proficient' status in all of the events listed in the MSP Attain Table for that Mission Skill. After attaining Individual MSP, an individual must maintain a 'proficient' status in all events in the MSP Maintain table for that Mission Skill.

4. After achieving MSP in a given Mission Skill, that individual loses MSP when any of the Maintain MSP table events becomes delinquent for the given Mission Skill. To regain MSP the individual must re-complete delinquent events. If an individual goes delinquent in all MSP events in a Mission Skill, the individual regains MSP by re-completing all R-Coded events within that Mission Skill.

a. Individual MSP Example - Tactical Recovery of Aircraft and Personnel (TRAP). A pilot is either 'TRAP MSP' or 'not TRAP MSP' per the below:

Individual MSP Attain Table	
Pilot	*TRAP*
T&R event requirements to attain CSP	*S3400* *3401R* *3402* *3403R*
R = Refresher POI event *S = Event conducted in simulator*	

b. Attaining Individual MSP in TRAP: For an individual to be counted as TRAP MSP, the individual must simultaneously have a 'proficient' status in all of the TRAP events listed in the MSP Attain Table (S3400, 3401R, 3402, and 3403R). Normally this equates to the day the individual completes the last event in the

Mission Skill event sequence (3403R); however, there may be occasions where an individual has successfully completed all events in the MSP Attain Table but the individual has gone delinquent in lower level events. In such cases the individual must re-complete delinquent events in order to simultaneously have a 'proficient' status in all of the TRAP events listed in the MSP Attain Table. (This example demonstrates the updating process for the Basic POI. For Transition or Series Conversion, see the POI-Updating section in paragraph 204.

c. Maintaining Individual MSP in TRAP: When an individual has attained individual MSP in TRAP, 'TRAP MSP', the individual is required to maintain a 'proficient' status in all TRAP Mission Skill events in the MSP Maintain Table (3401 and 3403) in order to count towards unit CMMR.

Individual MSP Maintain Table	
Pilot	*TRAP*
T&R event requirements to maintain CSP	*3401R* *3403R*
R = Refresher POI event *S = Event conducted in simulator*	

d. Tracking Individual MSP in TRAP: Provided the individual maintains a 'proficient' status in all of the TRAP events listed in the MSP Maintain Table, the individual counts towards Unit TRAP MSP requirements (the individual is 'TRAP MSP'). If the individual goes delinquent in any of the TRAP MSP skill events in the MSP Maintain Table (3401R, 3402R), the individual will not count towards Unit TRAP MSP requirements (the individual is 'not TRAP MSP') until the delinquent TRAP event(s) listed in the MSP Maintain Table are updated.

(Aircraft T/M/S or System) CMMR (Unit MSP Requirements)				
Mission Skill	*PILOTS*	*CREW CHIEFS*	*AERIAL OBSERVER /GUNNER*	*CREWS*
TRAP	*6*	*6*	*6*	*6*

e. Regaining Individual MSP in TRAP: A pilot returns from a FAC tour. The individual is assigned to the Refresher POI. The individual has previously completed all 3000 phase TRAP events in his last squadron tour; however, those events have a delinquent proficiency status (individual is 'not TRAP MSP'). The individual is required to complete the R-coded 3000 stage TRAP events (3401R, 3403R) in order to regain TRAP proficiency. The day the individual simultaneously achieves a 'proficient' status in all of the TRAP R-coded events listed in the MSP Attain Table, the individual is 'TRAP MSP.' Maintaining Individual TRAP MSP remains the same as the above Basic POI example.

214. CERTIFICATION, QUALIFICATION, AND DESIGNATION EXECUTION

1. 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 lead to a qualification and does not expire, specifics shall be noted in community T&Rs.

2. Qualifications. 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. Proficiency status of these qualification events are used to determine qualification status; an individual qualification status may be either "Qualified" or "Not Qualified."

a. 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 refly factor for individual events. Loss of proficiency (delinquent refly factor) for all associated qualification events (events with measurable refly factor; '*' refly factor events excluded) constitutes loss of that qualification.

b. Re-qualification. Re-qualification requires demonstration of proficiency in a specific skill. To regain a lost qualification, the individual must re-complete all R-coded qualification events. Upon completion, the qualification status automatically reverts back to "Qualified." Qualifications regained in this manner require no additional documentation.

3. Designations. Designations are assigned to individuals based on leadership ability. Other publications may be referenced to delineate additional designation training criteria. When all designation training requirements are completed, the individual may be granted the respective designation by the commanding officer.

a. Loss of a Designation. Designations are command specific and remain in effect until removed for cause or the individual is transferred to another command.

b. Re-designation. Community T&Rs may stipulate re-designation criteria; if criteria are not delineated, re-designation is at the commanding officer's discretion.

c. Instructor Designations

(1) Instructor designations are assigned to personnel based on their ability to conduct academic ground and/or airborne instruction of a Core Skill or training requirement. 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 the instructor requirements listed in the MAWTS-1 Course Catalog, NATOPS, and other applicable directives.

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

4. Documentation. All individual certifications, qualifications and designations shall be documented in IPRs.

a. Commanders shall issue certification, qualification or designation letters when individuals have completed the respective training requirements.

b. Only after the commanding officer has signed the respective letter and a copy is included in Section 3 of the IPR per paragraph 219, will the individual be considered certified, qualified, or designated, as applicable.

c. Training officers should utilize training progression models as a baseline for scheduling individual certification, qualification and designation training.

215. FLIGHT LEADERSHIP

1. Flight Leadership Program Execution

a. 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.

b. Each Wing will be assigned as Model Manager for specific T/M/S aircraft as depicted below.

Model Manager	CH-46	V-22	AH-1 UH-1	CH-53D	CH-53E	F/A-18	AV-8B	EA-6B	KC-130F/R/T KC-130J
1st MAW				X					X
2d MAW		X			X			X	
3d MAW	X		X			X	X		

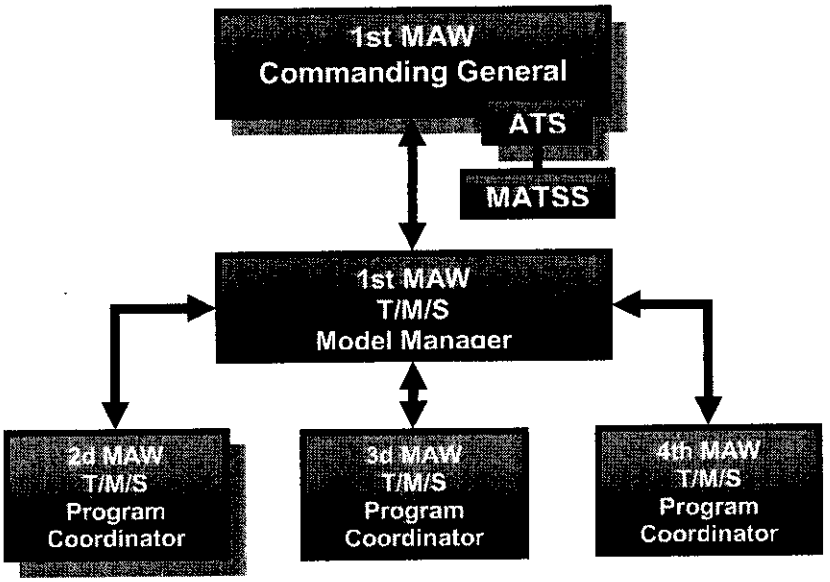
c. Wing Commanding Generals will designate a Flight Leadership Standardization Evaluator (FLSE) as a program coordinator for each T/M/S within the Wing.

d. 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. Local Marine Aviation Training System Sites (MATSS) will utilize available infrastructure and inherent processes to 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 the ATS concept matures and robust MATSS infrastructure and staffing resources become available, Model Manager responsibilities for each T/M/S will be transferred to the appropriate MATSS site. This transfer will only be undertaken after the site achieves Full Operational Capability (FOC) as defined in NAVMC 3710.6.

(3) MARFOR CGs, Deputy Commandant for Aviation (APP and APW), and CG TECOM (ATB and MAWTS-1) shall support the Wing Commanding Generals in implementing the flight leadership program. A diagram depicting an example of flight leadership implementation and support structure is detailed below.



e. 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.

f. 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.

g. 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. MAWTS-1 will coordinate with FLSE Model Managers to ensure standardization.

(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 Evaluation POI

(a) Flight communities are required to implement a FLSE POI. Prospective FLSEs shall complete the respective community FLSE POI delineated in the community T&R as a prerequisite to FLSE designation.

(b) FLSE POIs shall be delineated in the 5000 phase of each respective T/M/S community T&R Manual.

(c) Community T&R Manuals shall delineate the requirements and standards for conduct of annual FLSE standardization training.

2. Flight Leadership POIs

a. Flight communities shall implement standardized flight leadership POIs per paragraph 603.10.i 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.

b. Flight Leadership POIs shall be delineated in the 6000 phase of each respective T/M/S community T&R Manual.

c. Aviators shall log the respective flight leadership proficiency tracking code when they lead a flight.

d. Communities with approved multi-simulator tactical environment networked virtual training systems shall maximize the use of these simulators for conducting FLSE training and flight leadership T&R events.

e. Flight Leadership standards for POI development are contained in Appendix H.

3. Flight Leadership Evaluations

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.

b. Fixed Wing Evaluation Requirements. Individuals evaluating a prospective flight lead during flight leadership POI events shall be of the same crew position and community for the prospective flight lead with the exception of Mission Commander evaluations which may by conducted by a pilot or a NFO of the same community. The following designations are required in order to evaluate prospective FW flight leads (unless otherwise stated in the community POI):

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

c. Rotary Wing and Tiltrotor Flight Leadership Evaluation Requirements. The following designations are required in order to evaluate prospective flight leads (unless otherwise stated in the community POI):

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

d. 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 MAG/MAGTF Commander approval.

4. Re-Designation

a. Flight Leadership Re-Designation. Flight leadership re-designation criteria for aircrew that do not require Core Skill Introduction Refresher training is at the discretion of the commanding officer. For aircrew that require Core Skill Introduction Refresher Training per paragraph 405, the minimum re-designation requirement for flight leader positions is successful completion of the R-coded flight leader POI events.

b. Flight Leadership Standardization Evaluator Re-Designation. FLSE re-designation criteria for aircrew that do not require Core Skill Introduction Refresher training is at the discretion of the MAG CO. For aircrew that require Core Skill Introduction Refresher Training per paragraph 405, the minimum re-designation requirement for FLSE positions is successful completion of the associated T&R FLSE POI.

5. Grandfather Clause. Flight leaders who have been designated prior to 31 Dec 07 may retain flight leadership designations at the discretion of the squadron commanding officer. These flight leaders are required to complete all standardized academic requirements (if not previously completed) associated with the respective flight leadership POI.

216. NATOPS PROGRAM

1. The purpose of the NATOPS Program (OPNAVINST 3710.7 Series) is to increase combat readiness, improve flight safety, and standardize the conduct of evaluations. This program ensures enterprise-wide standardization for Marine Aviation.

2. NATOPS Program Oversight. Specific guidance is delineated in OPNAV 3710.7 and this manual for Marine Aviation. Oversight is provided by the Wing Commanding Generals in concurrence with the Commanders of Marine Forces (COMMARFORS).

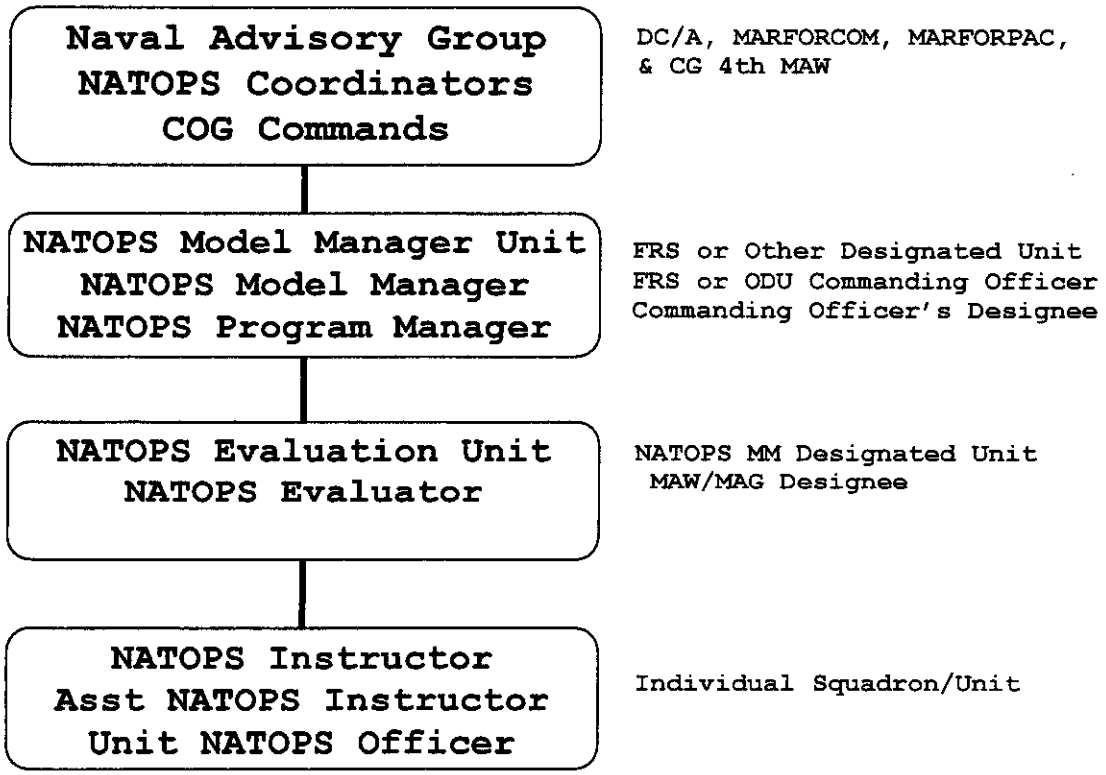
3. Duties and Responsibilities. The duties of the Naval Advisory Group (NAG), Cognizant (COG) Command, NATOPS Coordinator (NC) , NATOPS Model Manager, NATOPS Program Manager, NATOPS Evaluation Unit, NATOPS Evaluator, NATOPS Instructor, Assistant NATOPS Instructor and Unit NATOPS Officer are clearly defined within OPNAVINST 3710.7 Series and other USMC directives, instructions, and orders.

4. Implementation and Support

a. Each Wing Aviation Training System (ATS) will support the MAW CG in implementing the NATOPS and Instrument programs. Local Marine Aviation Training System Sites (MATSS) will utilize available infrastructure and inherent processes to support improvements in the quality of NATOPS and Instrument training, standardization, and the facilitation of evaluations.

b. As ATS matures and MATSS infrastructure becomes available, NATOPS Model Managers should utilize these resources to assist in facilitating the accomplishment of their duties and responsibilities.

c. DC AVN (APP, APW, APC, and ASM), CG MARFORCOM, CG MARFORPAC, and CG TECOM (ATB) shall support MAW CGs in implementing standardized NATOPS and Instrument programs. A diagram depicting an example of NATOPS implementation and support structure is detailed below.



5. NATOPS Evaluation. All NATOPS evaluations shall be conducted IAW OPNAVINST 3710.7 Series, NATOPS flight manuals, and other applicable directives, instructions and orders.

a. NATOPS. NATOPS evaluations measure an individual's procedural understanding, airmanship, systems knowledge, situational awareness, and judgment. These evaluations reflect the degree of compliance and health of the NATOPS program

within a unit. The following define the events which comprise the NATOPS evaluation.

(1) Academic Evaluation Events

(a) Monthly Emergency Procedures Examination (30-day interval).

(b) Monthly Emergency Procedures Simulator/Cockpit-Cabin Drill (90-day interval).

(2) Dynamic Evaluation Events

(a) Annual NATOPS Open Book Examination (365-day interval).

(b) Annual NATOPS Closed Book Examination (365-day interval).

(c) Annual NATOPS Oral Examination (365-day interval).

(d) Annual NATOPS Evaluation Event (365-day interval).

NOTE

At the discretion of the squadron or unit commanding officer, a failure of an academic/dynamic evaluation event may ground/restrict the evaluee from flying/flight operations until a grade of "Qualified" is achieved on all evaluation events.

b. Failures. The intent is to shift the fleet from a "Zero Defect" mentality of no failures, to a stringent objective appraisal of aeronautical capabilities, knowledge, skills and temperament.

(1) Evaluees who receive a grade of Unqualified on their initial annual ground or flight evaluation shall be allowed 30-days to complete the reevaluation with no administrative action required.

(2) The evaluee shall be provided a reasonable opportunity to correct deficiencies prior to reevaluation. At the discretion of the unit commanding officer, the reevaluation event need only consist of those areas/subareas in which the grade of unqualified was assigned.

(3) Disposition of the Evaluee who fails the reevaluation shall be in accordance with applicable directives, instructions and orders (NATOPS and the ACTS Manual).

c. NATOPS Evaluation Time Limitations

Event	Time Limit
Open Book NATOPS Examination	60-Days from receipt of examination
Closed Book NATOPS Examination	60-Minutes from receipt of examination
Oral NATOPS Examination	Not to Exceed 3 Hours
NATOPS Evaluation Event (Simulator/Aircraft)	Not to exceed 3 Hours

(1) 60-Day Limit

(a) Individuals have a maximum of 60-days to complete the NATOPS evaluation process, which commences upon receipt of the open Book examination.

(b) Aircrew who exceed the 60-day window must retake the Open Book examination to reset the clock.

(2) Failures

(a) Failure of any portion of the NATOPS evaluation shall initiate the 30-day reevaluation period.

(b) The initial 60 day clock still remains in effect.

d. Tactical Units. All tactical units shall utilize the Model Manager developed products in the execution of the NATOPS program.

e. OSA Units. All OSA units shall utilize the Model Manager developed/approved products and their respective T&R POI in the execution of the NATOPS program.

f. Commanding Officers. The responsibility for an effective NATOPS program in a squadron/detachment/unit rests with the commanding officer. NATOPS manuals and NATOPS flight manuals are effective tools to achieve standardization and training goals. Leadership is the key element in the enforcement of those standards.

g. NATOPS Tracking/MSHARP Integration. NATOPS tracking and MSHARP integration are necessary to ensure accountability and compliance.

6. NATOPS Standardization Board. (Minimum membership requirements):

a. Executive officer.

b. Director of Safety and Standardization (DSS).

c. Operations Officer.

d. Aviation Safety Officer (ASO).

e. NATOPS Instructor/Officer.

f. NATOPS EAC Instructor/SNCO (For review of Enlisted Aircrew (EAC).

7. F/A-18 (EA-6B & AV8B) Annual Out Of Control Flight (OOCF) Simulator Syllabus. All F/A-18, EA-6B and AV-8B aircrew shall conduct annual OOCF simulator syllabus utilizing the MAG standard OOCF profile.

8. NATOPS Standardization. To ensure NATOPS Program standardization the NATOPS Model Managers shall have the following additional duties:

a. Maintain a master library of appropriate NATOPS publications; be thoroughly knowledgeable of their contents, and other associated instructions. This library may be maintained in a digital format by downloading applicable NATOPS publications and changes from the Naval Air Technical Data and Engineering Service Command (NATEC) official web site https://airworthiness.navair.navy.mil.

b. Write comprehensive NATOPS examinations both open and closed book from the maintained question data bank, to be administered on a scheduled and unscheduled basis.

c. Prepare and maintain comprehensive NATOPS oral examination, to evaluate the airman's knowledge of aircraft systems, performance limitations, emergency procedures, Operational Risk Management (ORM), Crew Resource Management (CRM), and flight/ground operations and knowledge.

d. When compliance with any prescribed NATOPS procedure is found to be impractical or it is desired that a new procedure be initiated, act as the focal point for the T/M/S community to ensure a request for waiver is provided per OPNAVINST 3710.7 Series.

e. Develop a comprehensive NATOPS Evaluation Aviation Training Form (ATF) for monthly emergency procedures simulator/cockpit-cabin drill, and for the evaluation flight/event. An example format is included in Appendix F.

f. Ensure that all flight personnel complete a monthly emergency procedures written examination and a monthly emergency procedures simulator review. If a simulator/training device is not available, a comprehensive cockpit/cabin drill shall be substituted. The results of the monthly emergency procedures examination and monthly emergency simulator review (cockpit/cabin drill) will be annotated on the appropriate ATF and will be maintained in the individual's Aircrew Performance Record (APR). The APR shall be purged upon completion of the annual NATOPS event. At the discretion of the squadron and/or unit commanding officer, dependent upon combat operations/deployed operational tempo, these requirements may be waived. This is not to be construed as an opportunity to execute a blanket waiver for the entire deployment. The intent is to provide the commanding officer a tool in which to waive this requirement during those segments of the deployment until such time as assets and mission requirements permit.

g. Takeoff, landing, and emergency procedures are considered the minimum areas which NATOPS Model Managers are directed to consider NATOPS evaluation critical areas and sub areas, if not already identified in their respective platform NATOPS manuals.

h. NATOPS Model Managers shall collaborate with their respective community representatives to define:

(1) Applicable metrics and standards for all flight maneuvers.

(2) Momentary deviation limits from standard operating procedures (provided such deviations do not jeopardize flight safety).

(3) Metrics for momentary deviations time limits.

(a) Detection by the evaluee.

(b) Corrective action by the evaluee.

NOTE

Ensure that all deviations and corrective actions do not jeopardize flight safety.

i. USMC simulators/training devices are upgraded to provide the fidelity and capability to execute efficient and effective NATOPS evaluations, during this

transition it is incumbent upon the NATOPS Model Manager to determine if the simulator/training devices adequately satisfy the minimum requirements to execute NATOPS evaluations. NATOPS evaluation events in Model Manager designated simulators/training devices should be utilized to the maximum extent possible. Simulator/training devices facilitate the objective scrutiny of Crew resource Management (CRM), Emergency Procedures, basic and emergency flight operations, procedural and systems knowledge while providing the playback/recording capability to enhance the debrief.

217. NATOPS INSTRUMENT PROGRAM

1. NATOPS Instrument Training/Evaluations. All NATOPS instrument flight/event training shall be conducted IAW OPNAVINST 3710.7 Series, NAVAIR 00-80T-112, Federal Aviation Regulations/Airman's Information Manual (FAR/AIM), and other applicable directives, instructions and orders. The following criteria define the events which comprise the NATOPS instrument evaluation.

a. Academic Evaluation Events. Annual NATOPS Instrument Open Book Examination (365-day interval).

b. Dynamic Evaluation Events

(1) Annual NATOPS Instrument Oral Examination (365-day interval).

(2) Annual NATOPS Instrument Ground School (365-day interval).

(3) Annual NATOPS Evaluation Event (365-day interval).

NOTE

At the discretion of the squadron or unit commanding officer, a failure of an academic/dynamic evaluation event may restrict the evaluee from flying/flight operations until a grade of "Qualified" is achieved on all evaluation events.

2. NATOPS instrument evaluations assist commanding officers in maintaining a high level of all-weather flying proficiency within their unit. NATOPS instrument evaluations are intended to evaluate the pilot's knowledge and application of procedures and techniques during flight operations in instrument weather conditions (NAVAIR 00-80T-112).

a. All areas on the instrument flight evaluation are critical.

b. Since all areas of the instrument flight evaluation are critical, the reevaluation event must be completed in its entirety.

c. Evaluees who receive a grade of "Unqualified" on their initial annual ground or flight evaluation shall be allowed 30 days in which to complete the reevaluation with no administrative action required.

d. Individual is provided a reasonable opportunity to correct such deficiencies.

e. Disposition of the Evaluee who fails the reevaluation shall be in accordance with applicable directives, instructions and orders (NATOPS and the ACTS Manual).

3. Failures. The intent is to shift the fleet from a "Zero Defect" mentality of no failures, to a stringent objective appraisal of aeronautical capabilities, knowledge, skills and temperament.

4. Fleet Units. All fleet units shall utilize the approved IGS Model Manager and platform Model Manager developed products in the execution of the NATOPS Instrument program.

5. OSA Units. All OSA units shall utilize the Model Manager developed/approved products and their respective T&R POI in the execution of the NATOPS instrument program.

6. NATOPS Instrument Tracking/MSHARP Integration. NATOPS Instrument tracking and MSHARP integration is necessary to ensure accountability and compliance.

7. Instrument Flight Board. Each squadron or unit shall establish an instrument flight board composed of designated military aviators, NFOs, and designated civilian instrument instructors as applicable. It shall be the function of those boards to conduct instrument evaluations of Naval Aviators/NFOs and civilian instrument evaluators, in accordance with the provisions of this Manual. It is desired, when possible, that members of instrument flight boards hold a special instrument rating.

8. NATOPS Instrument Standardization. To ensure NATOPS Instrument Program standardization, NATOPS Model Managers shall have the following additional duties:

a. Maintain a master library of appropriate NATOPS instrument publications; be thoroughly knowledgeable of their contents, and other associated instructions. This library may be maintained in a digital format by downloading applicable NATOPS instrument publications and changes from the Naval Air Technical Data and Engineering Service Command (NATEC) official web site https://airworthiness.navair.navy.mil.

b. Liaison with the Instrument Ground School (IGS) Coordinator at MATSS New River for utilization of the IGS Model Manager (CNATRA) approved academic courses of instruction to include open book and/or closed book examinations.

c. Develop a comprehensive NATOPS Instrument Aviation Training Form (ATF) for the evaluation flight/event. A template of the desired format is included in this Manual to assist in development efforts.

d. NATOPS Model Managers shall, in conjunction with their respective community representatives, develop NATOPS Instrument Performance Standards to include:

(1) Applicable metrics and standards for all flight maneuvers.

(2) Momentary deviation limits from standard operating procedures (provided such deviations do not jeopardize flight safety).

(3) Defined metrics for the time limits for the momentary deviations.

(a) Detection by the evaluee.

(b) Corrective action by the evaluee.

e. Simulators. USMC simulators/training devices are upgraded to provide the fidelity and capability to execute efficient and effective NATOPS Instrument

evaluations, during this transition it is incumbent upon the NATOPS Model Manager to determine if the simulator/training devices adequately satisfy the minimum requirements to execute NATOPS instrument evaluations. NATOPS instrument evaluation events in Model Manager designated simulators/training devices should be utilized to the maximum extent possible. Simulator/training devices facilitate the objective scrutiny of Crew resource Management (CRM), Emergency Procedures, basic and emergency flight operations, instrument flight procedures, procedural and systems knowledge while providing the playback/recording capability to enhance the debrief.

218. TRAINING AND PERFORMANCE RECORDS MANAGEMENT

1. Individual Performance Records (IPR). Units shall maintain IPRs for all assigned individuals undergoing aviation T&R syllabi training.

2. Flight units shall utilize Aircrew Performance Record (APR) folders. MACCS units shall utilize MACCS Performance Record (MPR) folders. METOC/AES/AOS should use MPR folders, but may use similar four-part folders.

a. IPRs shall be audited and updated when:

(1) An individual initially reports to a unit.

(2) Annually within 30 days of birthday.

(3) Upon change in status (i.e., flying: DIFOP, DIFDEN).

b. IPRs shall consist of a four-part folder with the following sections as outlined below:

(1) Section One-Administrative Information. This section shall contain:

(a) Privacy Act statement.

(b) Record of audit.

(c) Undergraduate Aviation Training information.

(d) Aviation related civilian education/training.

(e) Additional administrative information as appropriate.

(2) Section Two-Core Skill Introduction Training. For Marine Corps formal schools or joint training units, commanders shall ensure the IPR contains complete section 2 information prior to transferring the individual. When Core Skill Introduction events are not completed at a Marine Corps training unit, the receiving unit shall reconcile all those events with the applicable T&R syllabus. CG TECOM ATB directs commanding officers of the respective MATSG/Training Command's Marine Detachments to ensure the senior Marine instructor within the joint training unit completes the syllabus reconciliation form prior to transfer of the individual. This section shall contain:

(a) Core Skill Introduction Syllabus Evaluation Forms - shall be retained for 2 years.

(b) Summary Grade Sheet - after 2 years, the Core Skill Introduction syllabus evaluation forms shall be purged and a summary grade sheet shall replace the syllabus evaluation forms. This Form shall contain a summary of the individual's event grades for the Core Skill Introduction syllabus and a record of

any deferred events with comments on noted strengths and weaknesses observed during the Core Skill Introduction training. The summary grade sheet shall be retained on a permanent basis.

(3) Section Three-Squadron Training. This section shall contain:

(a) Syllabus Evaluation Forms. All syllabus training conducted at the operational squadron shall be evaluated using these forms and must be retained until all training for that core or mission skill has been completed. Syllabus evaluation forms used to evaluate "E" coded events shall be retained on a permanent basis to note performance trends.

(b) Aircrew Ground School Training. All required aviation academic/ground training completed and formal aviation academic/ground training courses completed shall be documented in this section.

(c) M-SHARP Transfer Data Summary. When detaching from a unit, a current hardcopy report for individual event proficiency status, Core Skill proficiency status, and Mission Skill proficiency status information shall be included in this section.

(d) Aircraft Weapons Qualifications.

(e) Licenses, certificates, etc.

(4) Section Four-Individual Training Requirements. This section shall contain:

(a) All command qualification and designation letters should be maintained in this section.

(b) This optional section may be used to retain any additional non-T&R pertinent training records such as PFT, NBC, individual weapons qualification, and shipboard fire fighting.

c. When individuals transfer, the transferring unit shall accomplish the following:

(1) Screen all IPR sections for content and accuracy.

(2) Ensure the T&R syllabus evaluation forms are maintained in Section 3 of the IPR.

(3) Section 3 of the IPR shall include a current hardcopy report for individual event proficiency status, Core Skill proficiency status, and mission skill proficiency status information.

(4) The commanding officer (or authorized agent) shall sign the audit page certifying that the IPR is complete and accurate.

3. NVG Flight Time. Aircrew shall record NVG flight information via M-SHARP. Operations personnel shall log pilot NVG time in the "special crew" time column of the Aviator Log Book. NVG time logged in the "special crew" time column shall be separated as total NVG time and NVG LLL time. For example, if a flight consisted of 3.0 total NVG hours and 1.5 hours of that time was LLL, the entry would be "3.0/1.5." NFO NVG time shall be similarly recorded in the First Pilot time column. Helicopter CC and Aerial Observer NVG time shall be logged in the Instrument time column using the "ACT" column for total NVG time and the "SIM" column for NVG LLL time. NVG total flight time shall be carried over each fiscal year, as is total pilot time.

4. Aviation Automated Training Management Systems. The use of automated training management systems enhances the accuracy of training management information, improving the efficiency and effectiveness of training and operational risk management activities.

a. Authorization. The Marine Sierra-Hotel Aviation Readiness Program (M-SHARP) is the authorized aviation training management system to be used to track all training governed by aviation T&R manuals. Applicable units defined in 4.b are required to meet the M-SHARP training requirements in paragraph 4.c and subsequently use M-SHARP per the guidelines in paragraph 4.d. Units are required to maintain aircrew logbooks per appropriate guidelines.

b. Applicability. M-SHARP shall be used to track all aviation-related training governed by T&R manuals for the following units: all fixed-wing, rotary-wing, and tilt-rotor flying squadrons and detachments (except VMAQ and VMFA); all MACG and MWSG squadrons and detachments; all air station H&HS units, VMR units for operational support aircraft; all headquarters units (wing, MAG, MACG, and MCI); and MAWTS-1. HMX-1 and other units not listed above may use M-SHARP as desired.

c. Training. M-SHARP training is offered regularly by M-SHARP field representatives. Applicable units are required to maintain a minimum of one operations representative (officer or enlisted) that has successfully completed the M-SHARP Administrators Course.

d. Use. Units shall maintain the integrity of their M-SHARP data for budgeting and accounting purposes. NALCOMIS and other systems in the Naval Aviation Enterprise require accurate flight records. Flying units identified in paragraph 218.4.b are required to capture flight data via M-SHARP and transfer NAVFLIR data to NALCOMIS via the M-SHARP NALCOMIS interface. Unit M-SHARP status and the accuracy of its data will be tracked using the 5 color-coded progression levels established by MCO 3125.1B Marine Corps Flying Hour Program, pertinent excerpts are listed below.

(1) Level 1/Green. Unit is maintaining the requirements for Level 2/Blue and the commanding officer has assessed their unit's M-SHARP database accuracy as sufficient for automated reporting to higher headquarters. Commanding officers shall communicate their Level 1 assessment to TECOM ATB via M-SHARP support representatives. Units are required to maintain their M-SHARP program at Level 1/Green.

(2) Level 2/Blue. Unit is maintaining the requirements for Level 3/Yellow, has completed personnel data baselining, is logging all flights and T&R-related training in M-SHARP, is using the M-SHARP/NALCOMIS interface to electronically transfer all flight records to NALCOMIS (for units that use legacy or optimized OMA NALCOMIS), and is publishing all schedules using M-SHARP (except in cases where schedules are deemed classified) but the commanding officer has not assessed the unit's M-SHARP database accuracy as sufficient for automated reporting to higher headquarters.

(3) Level 3/Yellow. Unit has met the minimum training requirements per paragraph 4.c. Units are expected to advance to level 1/Green within three months of receiving training where tech support is available.

(4) Level 4/Red. Unit has not met or maintained the minimum training requirements per paragraph 4.c. Note that it is possible for a unit to regress from Level 1/Green to Level 4/Red due to turnover of operations personnel. This reflects the strong correlation (verified by more than a decade of supporting data

drawn from both the SARA and M-SHARP programs) between adequately-trained personnel and the trustworthiness of a unit's training management system over time.

(5) Level 5/Gray. Unit is not required to use M-SHARP. Level 5/Gray is for some Aviation Ground Training (AGT) and other units that have not yet received M-SHARP or have received a waiver for M-SHARP usage. Waivers may be requested by message to TECOM ATB via the respective MAW. Units that deployed without M-SHARP are automatically granted a waiver for M-SHARP usage until 60 days after returning from deployment.

e. Deployments. M-SHARP can be used in environments lacking internet connectivity by installing a deployable version on a single laptop, shore-based LAN server, or shipboard server.

(1) Pre-deployment. Administrative rights to NMCI computers must be granted before M-SHARP can be loaded on an NMCI computer. Prior to deployment, units must submit deployment information to NMCI with the computers they intend to deploy. NMCI will then grant administrative privileges to the deploying unit for their computers. Once administrative privileges have been granted, M-SHARP can be installed locally from CD-ROM along with the unit's data downloaded from the master M-SHARP server.

(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. 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.

(3) Classified Data. Local policies may dictate a higher classification level for some aspects of training data normally unclassified and managed by M-SHARP on the NIPRNET, particularly during contingency operations. In such cases, M-SHARP usage must be modified accordingly. For example, if flight schedules are considered classified but completed flight operations (i.e. logged flight data/NAVFLIRS) remain unclassified, units are advised to produce the flight schedule using another system (e.g. Microsoft Word) on a classified computer but still use M-SHARP on an unclassified system to log flights, access reports, produce SPIN files, etc. Although M-SHARP is approved for installation on classified systems, there are currently no procedures for declassifying M-SHARP data. Therefore, all M-SHARP data residing on classified systems cannot be synchronized with the master M-SHARP database with SPIN files during or after deployment. Any unit that maintains their M-SHARP data on a classified system during deployment will lose that data and have to complete a full rebaseline of their entire database upon return from deployment.

(4) Post-deployment. Any remaining unsynchronized data from the deployment will be submitted via SPIN file. NMCI computers must be returned to their original state prior to reconnecting to the NMCI network. M-SHARP must be uninstalled.

f. Best practices. The following procedures are recommended to minimize the level of effort required to maintain an accurate and effective training management system.

(1) Training/Technical Support. Units that fully utilize on-site technical support to troubleshoot problems, answer questions and conduct refresher training, generally experience a significantly more effective system.

(2) Reports Usage. When M-SHARP-produced reports are used as the authoritative source of training information (as opposed to reports generated from data Excel, Access, or other systems), discrepancies are corrected promptly and data accuracy remains high.

(3) Use by non-Operations personnel. M-SHARP offers several security roles that allow various departments to maintain data directly without having to rely upon Operations. Utilizing M-SHARP as a central repository for squadron data permits personnel and asset de-confliction. For example, in flying squadrons all aircrew should enter flights (NAVFLIRs) in M-SHARP, the safety department should maintain qualifications and designations in M-SHARP, the senior watch officer should maintain all monthly duties in M-SHARP, and the squadron flight surgeon and corpsmen should maintain med up/down status in M-SHARP.

(4) Regular Audits. Training jackets, log books, and other tracking systems, such as NALCOMIS, contain information that also resides in M-SHARP. Conducting a regular audit of this information will ensure data accuracy is maintained over time. For flying squadrons, it is recommended that maintenance admin representatives conduct a daily or weekly audit of flight hour totals and operations representatives conduct a monthly audit of aircrew logbooks using M-SHARP's logbook report.

5. Points of Contact

TECOM:

Web Page: https://www.intranet.tecom.usmc.mil/sites/atb/default.aspx

Phone:	Comm	DSN
Aviation Standards Section Head	703-784-4053	278-4053
Aviation Standards Analyst (T&R Admin)	703-784-0067	278-0067
Aviation Ground Training Section Head	703-432-0704	378-0704
MACCS Electronics Maintenance Standards Officer	703-784-4326	278-4326
Airfield Service Standards Analyst	703-784-6926	278-6926
METOC Standards Analyst	703-784-4054	278-4054

M-SHARP:

Web Page: http://msharpsupport.com (contains names, phone numbers, and email addresses of all M-SHARP field representatives at each major air station.)
Email: m-sharpsupport@innovasi.com

CHAPTER 3

AVIATION TRAINING RULES OF CONDUCT (ROC)

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CHAPTER 3

AVIATION TRAINING RULES OF CONDUCT (ROC)

300. GENERAL AVIATION ROC

1. General

a. 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 (DEFTAC).

(b) RW Defensive Measures (DM) and Defensive Air Combat Maneuvering (DACM).

(c) Tiltrotor Defensive Combat Maneuvers (DCM).

(4) Forward Air Control (Airborne) [FAC(A)].

b. 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.

c. Safety. Commanders shall conduct training in accordance with the guidelines of this chapter and OPNAVINST 3710.7.

2. 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. CH-53 Passenger Restrictions. When CH-53D/E aircraft are used to transport passengers, the maximum allowable load is 24. Authority to deviate from this 24-passenger restriction for operational necessity is vested in the MAGTF commander.

301. ROC FOR LOW ALTITUDE FLIGHT

1. General

a. Purpose. To standardize ROC for low altitude flight programs.

b. 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.

c. Safety. The low altitude regime places high demands on aircrew skill and judgment requiring stringent ROC to ensure safe event completion.

(1) Squadron commanders shall ensure that aircrew conducting LAT/TERF training are qualified.

(2) Unscheduled LAT/TERF is strictly prohibited.

d. 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 courseline 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 courseline for the entire route. ESA shall be briefed for all LAT training.

e. Weather Minimums. Low altitude weather minimums are as follows:

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

f. Low Altitude Flight Qualification, Proficiency, and Currency

(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 and Chapter 6 of this Manual. Non-qualified aircrew require supervision of a FW LAT/Tiltrotor LAT/TERF instructor.

(2) Low Altitude Proficiency

(a) 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).

(b) 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 204.

(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.

g. 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.

h. 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 and current prior to commencing night low altitude training.

i. 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.

(5) Waiver authority for any of the above restrictions is vested in the MEF CG.

302. 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. KC-130 LAT Exclusions. Aerial delivery and Assault Landing Zone operations, from the IP to the DZ/ALZ, conducted by KC-130 aircraft are excluded from the FW LAT definition. IP to DZ/ALZ constitutes the terminal environment; minimum altitudes listed in the KC-130 ANTTP apply.

4. 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.

5. FW Initial Qualification. A LATI is required in the aircraft/flight.

6. FW NS LAT. See paragraph 310.

303. 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:

1. Single Aircraft and Section. CL but no lower than 300 feet AGL.

2. Division/Strike Formation. CL but no lower than 500 feet AGL.

3. 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.

CL, BUT NO LOWER THAN:

LAT EVENT	1-30 DAYS CURRENCY INTERVAL	OVER 30 DAYS CURRENCY INTERVAL
Single or Section	300′ AGL	500′ AGL
Division	500′ AGL	500′ AGL
Aerial Refueling	500′ AGL	1,500′ AGL

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 ATB). Requested training events, altitudes and applicable time periods for the waiver should be identified.

5. **When authorized by HQMC, the following FW LAT minimum altitude restrictions based on currency interval apply:**

a. Single Aircraft

(1) CL but no lower than 200 feet AGL.

(2) 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.

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

b. Section

(1) CL but no lower than 200 feet AGL.

(2) MAC not authorized.

c. Division/Strike Formation

(1) CL but no lower than 500 feet AGL.

(2) MAC not authorized.

WHEN AUTHORIZED BY HQMC: CL, BUT NO LOWER THAN:

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
Aerial Refueling	500' AGL	500' AGL	1,500' AGL

304. RW TERF

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.

a. 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).

b. 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.

c. 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.

2. Aircrew Requirements. To ensure full lookout coverage capability in helicopters possessing a cabin section (CH-46, CH-53, UH-1N), 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. TERF Currency and Minimum Altitudes

a. Minimum TERF altitude for CH-46/53 is 50 feet AGL.

b. Minimum TERF altitude for AH/UH-1 is 10 feet AGL.

c. The following minimum altitude and airspeed restrictions based on currency apply:

COMFORT LEVEL, BUT NO LOWER THAN:

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.f requirements are met.)

d. Refer to Para 301.1.f.3 for low altitude flight currency involving two or more aircrew.

e. After 30 days, CH-46/53 pilots shall regain currency by performing low level flight prior to conducting contour flight.

f. After 30 days, AH/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.

305. TILTROTOR LAT

1. 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 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.

a. 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).

b. 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.

2. 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:

LAT Currency and Minimum* Altitudes (AGL) CL, But No Lower Than:				
Flight Mode	0-30 Days		31+ Days	
	Day/ HLL	LLL	Day/ HLL	LLL
APLN	200′	500′*	500′	500′
CONV	50′	100′	200′	200′

306. 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.

4. Illumination. The approved method for deriving illumination requirements for night operations is the Solar/Lunar Almanac Program (SLAP). This program does 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:

a. High Light Level (HLL): Illumination .0022 LUX or above.

b. Low Light Level (LLL): Illumination below .0022 LUX.

5. 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.

6. Night Systems (NS) Qualifications and Currency

a. 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 Instructors (NSSI), or Night Systems Familiarization Instructor (NSFI).

b. Night Currency. No pilot shall sign for an aircraft for a night flight without having flown that model aircraft within the previous 15 days.

* 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.

307. FW NIGHT EXTERNAL LIGHTING RULES

1. FW Night External Lighting. Aircraft external lighting shall comply with existing FAA rules except as modified in FAA Exemption No. 8028. Aircraft incandescent external lighting shall be at the highest intensity consistent with NVG compatibility unless the FAA grants specific FAA waivers to solely use IR external lighting.

2. Single aircraft operations. Navigation lights on and anti-collision lights on.

3. Multi-aircraft operations

a. Flights of up to four aircraft shall use lighting compatible with NVD operations. The last aircraft in the flight shall fly with navigation lights on, formation lights as desired, and anti-collision lights on. Anti-collision light shall be incandescent when outside of restricted airspace.

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

4. Within approved special use airspace or military training routes, the aircrew may secure the anti-collision lights if they pose a hazard.

5. The FAA regulation to see and avoid shall take priority over NVG tactics training.

308. RW AND TILTROTOR EXTERNAL LIGHTING RULES. Aircraft external lighting shall comply with existing FAA rules except as modified in FAA Exemption No. 8028. The airspace covered by the exemption is defined as that airspace within reasonable proximity to Marine Corps Air Stations and other such civilian and military air facilities at which NVD operations are normally conducted and are also pursuant to paragraphs 3-7 of the original FAA Exemption No. 5978A and shall include the following:

1. Single aircraft operations

a. Navigation/position lights on and at the highest intensity consistent with NVD compatibility and anti-collision lights on.

b. When conducting ground hover or during terminal level of landing at designated training areas, anti-collision lights and/or navigation/position lights may be turned off if they interfere with safe flight operations.

c. When operating in Class D airspace, controller permission is required prior to securing lights during hover or terminal phase of landing.

2. Multi-aircraft operations

a. Outside Restricted Areas. Flights of up to four aircraft are permitted and shall have:

(1) Navigation/position lights on the highest intensity compatible with NVD operations and ambient conditions for lead through the dash three aircraft.

(2) 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 will be visible to non-participating 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 lights as described above.

b. Outside Restricted Areas but in airspace covered by the FAA Exemption. Flights of up to four aircraft are permitted and shall have:

(1) Navigation/position and anti-collision lights may be secured for lead through the dash three aircraft.

(2) All functional, visible formation and blade tip lighting on and at the highest intensity compatible with NVD operations for all aircraft in the flight.

(3) 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-participating aircraft.

(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 lights as described above.

(5) All aircrew shall be familiar with the requirements of FAA exemption 8028, available for download at https://www.intranet.tecom.usmc.mil/sites/atb/TR%20Program%20Information/FAA%20Exemption%20Valid%20to%2030%20Apr%2009.pdf.

c. Within Restricted Areas. When operating in restricted areas with NVDs, flights shall operate as follows:

(1) Lead to but not including the last aircraft may have navigation/position and anti-collision lights secured.

(2) All functional, formation and blade tip lighting on and at the highest intensity compatible with NVD operations for all aircraft in the flight.

(3) The last aircraft in each flight shall have anti-collision lights on and navigation/position lights on and at the highest intensity compatible with NVD operations.

(4) 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.

(5) These requirements should not prevent securing of external lights due to adverse lighting effects on NVDs during LAT, TERF, landing, or hovering flight.

(6) When NVD-only operations are conducted in restricted airspace (no unaided participating aircraft) IR anti-collision lights may replace visible anti-collision lights at the discretion of the aircraft commander/flight leader. This only applies when the flight lead/aircraft commander is assured that the flight has exclusive use of the airspace.

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

3. FAA regulations to see and avoid shall take priority over NVD tactical training. Modification, taping or "cat-eyeing" of external lighting is not authorized.

309. RW NIGHT OPERATIONS

1. Night Training Policies

a. 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.

b. 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.

c. 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 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.

d. 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 305 of this Order.

e. 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 (Core Plus). 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. 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. NVG Equipment Requirements

a. Aircrew shall conduct NVG operations only in NVG compatible aircraft. Squadrons shall not procure or manufacture NVG light kits.

b. Aircrew members shall possess an operational standard issue flashlight with an NVG compatible lens on every NVG flight.

c. Aircraft shall have an operational spotlight on all NVG sorties. The IR spotlight is not a substitute for ambient illumination.

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

a. For night operations, only the CBR/AR-5 eye/respiratory protective system is authorized for in-flight use.

b. Initial NBC training syllabi shall be complete per T&R T/M/S syllabi.

c. 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.

5. NVG Training Without Troops. NVD training/operations are subject to the following restrictions:

a. HLL Conditions. Minimum aircrew shall include NSQ HLL pilot, co-pilot, crew chief and aerial observer.

b. LLL Conditions. Minimum aircrew shall include NSQ LLL pilot, co-pilot, crew chief and aerial observer.

c. All aircrew shall be NSQ HLL per appropriate T&R syllabus prior to commencing LLL syllabus training.

6. NVG Training With Troops

a. Flights with embarked troops in HLL conditions are subject to the following criteria:

(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.

b. NVG operations with embarked troops in the LLL range are subject to the following criteria:

(1) Minimum aircrew as defined in paragraph 308.6.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.

7. NVG Carrier Qualification (NVGCQ)

a. NVGCQ 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.

b. 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.

c. The Pilot Under Instruction (PUI) and/or Crew Chief/AGO under instruction shall be NSQ HLL.

d. Initial NVGCQs shall be flown with a NSI.

e. Unaided night CQs will be chained to aided CQs.

310. FW NIGHT OPERATIONS

1. FW NS LAT Training

a. 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, NVG compatible cockpit lighting, Heads Up Display (HUD), inertial navigation systems, moving map, radar altimeter, and anti-collision lights.

b. FW NS LAT altitude restrictions, currency and proficiency requirements are the same as day LAT restrictions and requirements.

c. FW NS LAT operations shall only be conducted during HLL conditions.

d. 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 during NSQ Low training (see Appendix C for NSQ HI/Low definitions).

2. Non-LAT FW NS Training

a. FW night flights are limited to 1,000 feet AGL minimum when operating without NVGs.

b. NAs/NFOs who are not NSQ/NSQ HI require an NSI in the flight. For EA-6 aircraft, NS qualification requirements apply to front seat aircrew.

c. 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.

d. KC-130 altitude restrictions above apply except for aerial delivery and ALZ missions from IP inbound. IP to DZ/ALZ constitutes the terminal environment; minimum altitudes listed in the KC-130 ANTTP apply.

3. During unaided flights, NSQ aircrew not at the controls may wear and temporarily utilize helmet mounted NVGs to enhance situational awareness, terrain avoidance and safety. NVG use by authorized aircrew shall be noted on the flight schedule. Aircrew not at the controls may use NVDs in the handheld mode to enhance situational awareness. Squadrons shall not procure or manufacture NVG light kits.

4. 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.

5. 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.

311. TILTROTOR NIGHT OPERATIONS

1. Night Training Policies

a. 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.

b. 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.

c. 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.

2. Night Currency and Proficiency

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

b. 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. 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.

4. NVD Training With Troops

a. Flights with embarked troops in HLL are subject to the following criteria:

(1) Minimum crew IAW the applicable MV-22 syllabus.

(2) 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.

(3) Crew chiefs and aerial gunners/observers shall be NSQ HLL.

b. NVD operations with embarked troops in LLL conditions are subject to the following criteria:

(1) Minimum crew IAW the applicable MV-22 syllabus.

(2) 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.

(3) Crew chiefs and aerial gunners/observers shall be NSQ LLL.

5. NVD Carrier Qualification (NVDCQ)

a. NVDCQ shall be delineated in respective T/M/S syllabi. Initial Night Systems Carrier Qualification training shall be accomplished under High Light Level conditions.

b. 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.

c. The PUI shall be NSQ HLL.

d. Initial NVDCQ shall be flown with a NSI.

e. Unaided night CQs will be chained to aided CQs.

312. ROC FOR ACM, DEFTAC, DM, DACM, and DCM

1. General

a. Purpose. To standardize ROC for aircraft conducting ACM/DEFTAC/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.

b. Scope. ACM/DEFTAC/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/DEFTAC/DM/DACM/DCM.

c. Safety. Squadrons conducting ACM/DEFTAC/DM/DACM/DCM will operate within the guidelines of this chapter, OPNAVINST 3710.7, and applicable MAWTS-1 publications. Squadrons should conduct FW ACM/DEFTAC training under radar control when available. Commanders shall ensure aircrew conducting ACM/DEFTAC/DM/DACT/DCM training are properly qualified and appropriate flight leadership is represented within the flight. Unscheduled ACM/DEFTAC/DM/DACM/DCM is strictly prohibited.

d. ACM/DEFTAC/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 ACTI/DM/DEFTAC/RWDACM/DCM instructor.

e. ACM/DEFTAC/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/DEFTAC/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/DEFTAC/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/DEFTAC/DM/DACM/DCM aircrew should use instrumented air combat ranges such as the Navy/Marine Tactical Aircrew Combat Training System (TACTS) or the Air Force Air Combat Maneuvering Instrumentation (ACMI) as much as possible.

(5) ACM/DEFTAC/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.

2. FW Air Combat Maneuvering. Aircrew participating in ACM/DEFTAC will conform to the following flight guidelines:

a. FW v FW

(1) When all crewmembers of a flight are ACM/DEFTAC qualified, the flight does not require an Air Combat Tactics Instructor (ACTI), a Defensive Tactics Instructor (DEFTACI), or an Adversary Tactics Instructor (ATI).

(2) A non-ACM qualified NA may participate in ACM/DEFTAC training provided his flight leader is an ACTI/DEFTACI. In the case of 1 V 1 dissimilar ACM, the adversary must be an ACTI/ATI (USMC) or designated ACM instructor.

(3) A non-ACM/DEFTAC qualified NA/NFO of a crew concept aircraft may participate in ACM/DEFTAC training, provided at least one other aircrew in the same aircraft is designated an ACTI/DEFTACI.

(4) In the case of 1 V 1 dissimilar DEFTAC training with a non-qualified NA and/or NFO, the adversary pilot must be an ACTI/ATI or ACM Flight Lead/Section Lead.

b. FW v RW or Tiltrotor. 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.

c. Per OPNAVINST 3710.7, the following maneuvers are not considered ACM training:

(1) Snapshot drills (Gun Weave, Weapons Weave).

(2) Tail Chase (Heat to Guns drills).

(3) Forward Quarter Missile Defenses terminated at the merge.

(4) Air Intercepts performed per applicable portions of the T&R Manual.

(5) Aerobatic maneuvers per NATOPS manuals on scheduled training flights approved by competent authority.

3. DM and DACM. 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.

a. 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.

b. 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.

c. 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.

d. DM and DACM shall be conducted in day VMC in accordance with OPNAV 3710.7.

e. 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.

f. 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.

g. 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.