CHAPTER 3
CH-46E CREW CHIEF/6172

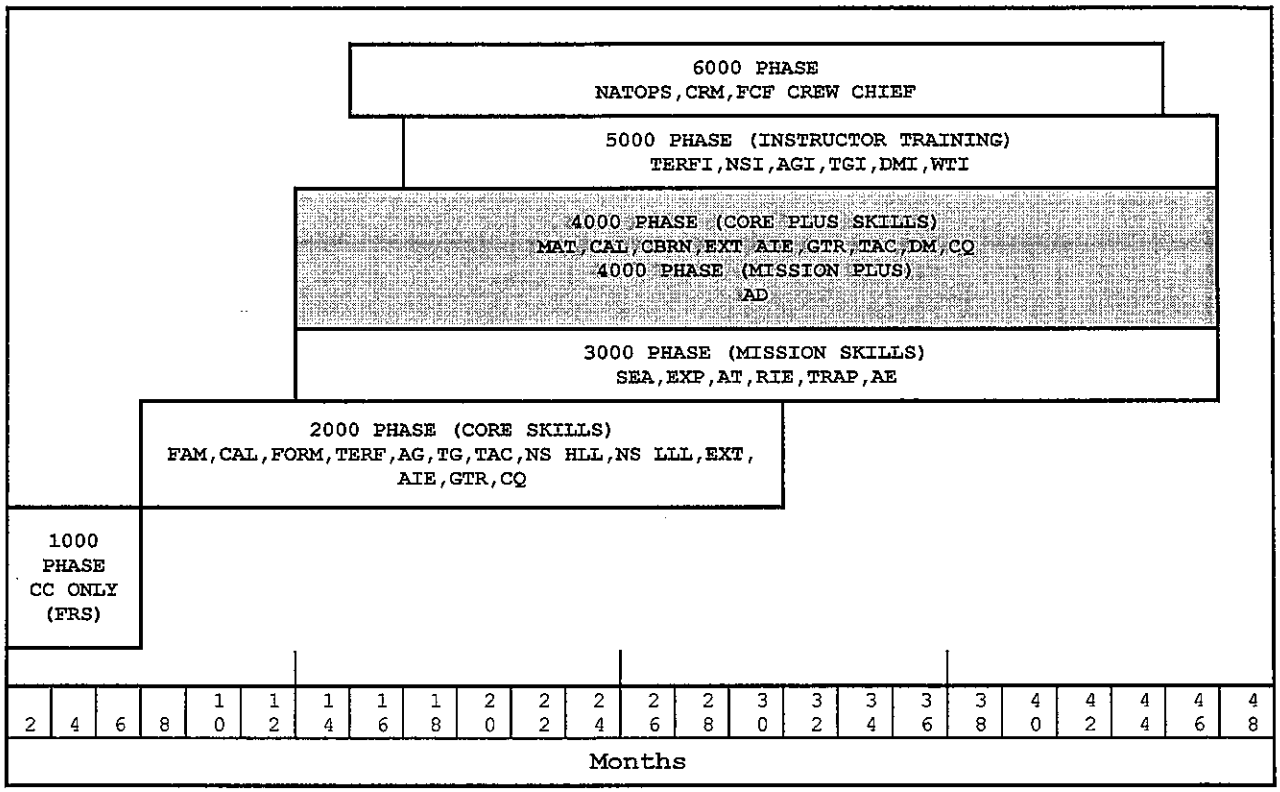
CH-46E AERIAL GUNNER/OBSERVER (AG/O)/6199

CHAPTER 3

CH-46E CREW CHIEF/AERIAL GUNNER/OBSERVER INDIVIDUAL TRAINING AND READINESS REQUIREMENTS

3.0 CH-46E CREW CHIEF/AERIAL GUNNER/OBSERVER INDIVIDUAL TRAINING AND READINESS REQUIREMENTS. This T&R syllabus is based on specific goals and performance standards designed to ensure individual proficiency in Core, Mission, and Core Plus Skills. The goal of this chapter is to develop individual and unit war fighting capabilities.

3.1 CH-46E CREW CHIEF/AERIAL GUNNER/OBSERVER TRAINING PROGRESSION MODEL This model represents the recommended training progression for the average CH-46E crew chief/aerial gunner observer (AG/O) crewmember. Units should use the model as a point of departure to generate individual training plans.



3.2 INDIVIDUAL CORE SKILL PROFICIENCY (CSP) REQUIREMENTS. A CSP crew consists of individuals representing each crew position who have achieved and currently maintain Individual CSP. In order to be considered proficient in a Core Skill, an individual must attain and maintain proficiency in Core Skill events as delineated in the below paragraphs.

3.2.1 Events Required to Attain Individual CSP. To initially attain CSP in a Core Skill, an individual must simultaneously have a proficient status in all 2000 phase T&R events listed for that Core Skill.

INDIVIDUAL CORE SKILL PROFICIENCY (CSP) ATTAIN TABLE CH-46E Crew Chief AG/O												
T&R events required to Attain CSP (2000 Phase)												
FAM	CAL	FORM	TERF	AG	TG	TAC	NS HLL	NS LLL	EXT	AIE	GTR	CQ
S2100 2101R	2201 2202 2203R	2301R	2303 2304 2305R	2401 2402R 2403R S2404 2405 2406R	2410R 2411R	2501 2502R	2601R 2602 2603R 2604 2605 2606R	2651R 2652R 2653 2654R 2655R	2701R 2703R	2705R 2706	2801R	2901R 2902R 2903R 2904R
Gray highlight & an R suffix on the event code = Refresher POI												
An S prefix on the event code = Event conducted in a simulator												

3.2.2 Events Required to Maintain Individual CSP. To maintain CSP in a Core Skill, an individual must maintain proficiency in all 2000 phase T&R events listed for that Core Skill:

NOTE

Maintaining proficiency in these select events will ensure the individual will never go delinquent in that corresponding skill in the Attain table.

INDIVIDUAL CORE SKILL PROFICIENCY (CSP) MAINTAIN TABLE CH-46E Crew Chief AG/O												
T&R events required to Maintain CSP (2000 Phase)												
FAM	CAL	FORM	TERF	AG	TG	TAC	NS HLL	NS LLL	EXT	AIE	GTR	CQ
2101R	2203R	2301R	2305R	2403R 2406R	2411R	2502R	2603R 2606R	2654R 2655R	2703R	2705R	2801R	2904R
Gray highlight & an R suffix on the event code = Refresher POI												
An S prefix on the event code = Event conducted in a simulator												

3.3 INDIVIDUAL MISSION SKILL PROFICIENCY (MSP) REQUIREMENTS. An MSP crew consists of individuals representing each crew position who have achieved and currently maintain Individual MSP. To be considered proficient in a Mission Skill, an individual must attain and maintain proficiency in Mission Skill events as delineated in the below paragraphs.

3.3.1 Events Required to Attain Individual MSP. To initially attain MSP in a Mission Skill, an individual must simultaneously have a proficient status in all 3000 phase T&R events listed for that Mission Skill:

INDIVIDUAL MISSION SKILL PROFICIENCY (MSP) ATTAIN TABLE CH-46E Crew Chief AG/O					
T&R events required to Attain MSP (3000 Phase)					
SEA	EXP	AT	RIE	TRAP	AE
3101R See 3.14.3	3102R See 3.14.3	3103 3104R	3105 3106R	3107R	3108R
Gray highlight & an R suffix on the event code = Refresher POI					
An S prefix on the event code = Event conducted in a simulator					

3.3.2 Events Required to Maintain Individual MSP. To maintain MSP in a Mission Skill, an individual must maintain proficiency in all 3000 phase T&R events listed for that Mission Skill:

NOTE

Maintaining proficiency in these select events will ensure the individual will never go delinquent in that corresponding skill in the Attain table.

INDIVIDUAL MISSION SKILL PROFICIENCY (MSP) MAINTAIN TABLE CH-46E Crew Chief AG/O					
T&R events required to Maintain MSP (3000 Phase)					
SEA	EXP	AT	RIE	TRAP	AE
3101R	3102R	3104R	3106R	3107R	3108R
Gray highlight & an R suffix on the event code = Refresher POI					
An S prefix on the event code = Event conducted in a simulator					

3.4 INDIVIDUAL CORE PLUS SKILL/MISSION PLUS SKILL PROFICIENCY REQUIREMENTS. Proficiency in Core Plus Skills/Mission Plus Skills is not required to obtain unit CSP. Training to Core Plus Skills/Mission Plus Skills is at the discretion of the unit commanding officer. To be considered proficient in a Core Plus Skill/Mission Plus Skill, an individual must attain and maintain proficiency in Core Plus Skill/Mission Plus Skill events as delineated in the below paragraphs.

3.4.1 Events Required to Attain Individual Proficiency in Core Plus Skills and Mission Plus Skills. To initially attain proficiency in a Core Plus Skill/Mission Plus Skill, an individual must simultaneously have a proficient status in all T&R events listed for that Core Plus Skill/Mission Plus Skill:

INDIVIDUAL CORE PLUS SKILL PROFICIENCY (CSP+) ATTAIN TABLE CH-46E Crew Chief AG/O									
T&R events required to Attain CSP+ (4000 Phase)									
CORE PLUS SKILLS									MISSION PLUS
MAT	CAL	CBRN	EXT	GTR	TAC	AIE	DM	CQ	AD
4201R 4203R 4204R	4202R 4209R 4211R	4206 4207R	4301R	4401R	4501 4502R	4701R 4702R 4703R 4704R	4801R 4802R	4901 4902R	4503R
Gray highlight & an R suffix on the event code = Refresher POI									
An S prefix on the event code = Event conducted in a simulator									

3.4.2 Events Required to Maintain Individual Proficiency in Core Plus Skills and Mission Plus Skills. To maintain proficiency in a Core Plus Skill/Mission Plus Skill, an individual must maintain proficiency in all T&R events listed in the table below for that Core Plus Skill/Mission Plus Skill:

INDIVIDUAL CORE PLUS SKILL PROFICIENCY (CSP+) MAINTAIN TABLE CH-46E Crew Chief AG/O									
T&R events required to Maintain CSP+ (4000 Phase)									
CORE PLUS SKILLS									MISSION PLUS
MAT	CAL	CBRN	EXT	GTR	TAC	AIE	DM	CQ	AD
4203R 4204R	4202R	4207R	4301R	4401R	4502R	4701R 4702R 4703R 4704R	4801R 4802R	4902R	4503R
Gray highlight & an R suffix on the event code = Refresher POI									
An S prefix on the event code = Event conducted in a simulator									

3.5 QUALIFICATION AND DESIGNATION REQUIREMENT TABLES. The tables below **delineate T&R events required to be completed to attain proficiency, and** initial qualifications and designations. In addition to event requirements, all required stage lectures, briefs, squadron training, prerequisites, and other criteria shall be completed prior to completing final events. Qualification and designation letters signed by the commanding officer shall be placed in Aircrew Performance Records (APR), NATOPS jackets and annotated in flight log books. Loss of proficiency in all qualification events causes the associated qualification to be lost. Regaining a qualification requires completing all R-coded syllabus events associated with that qualification.

Qualification	Initial Event Qualification Requirements
NATOPS	6001-6003, 6101
CRM	6007, 6103
TERFQ	2303, 2304, 2305R
NSQ HLL	2601R, 2602, 2603R, 2604, 2605, 2606R
NSQ LLL	2651R, 2652R, 2653, 2654R, 2655R
CQ	2901R, 2902R, 2903R, 2904R
DMQ	4801R, 4802R
AGQ	2401, 2402R, 2403R, S2404, 2405, 2406R
TGQ	2410R, 2411R
FCFQ	6137
FRS TERQ	2303
FRS NSQ	2601R
Designation	**Initial Event Designation Requirements**
CC	1902
AGO	2655, 2406, 6001-6003, 6007, 6101, 6103
TERFI	5701-5703
NSI	5901, 5902, 5905-5906
AGI	5401-5404
TGI	5410-5412
DMI	5801, 5802
WTI	
NSFI	5601, 5602
NSSI	5501-5503
ANI	6101
NI	6101

3.6 CH-46E PROGRAMS OF INSTRUCTION (POI) FOR BASIC CREW CHIEF

3.6.1 POI For Basic Crew Chief. Transition and Conversion crew chief will fly the Basic POI.

WEEKS	COURSE/PHASE	ACTIVITY
1-22	Core Skill Introduction	FRS
23-29	Core Skill	Tactical Squadron
30-38	Mission Skill	Tactical Squadron
39-48	Core Plus Skill	Tactical Squadron

3.6.2 POI For Basic Aerial Gunner/Observer. Transition and Conversion Aerial Gunner/Observers will fly the basic POI.

WEEKS	COURSE/PHASE	ACTIVITY
1-16	Core Skill	Tactical Squadron
17-20	Mission Skill	Tactical Squadron
21-24	Core Plus Skill	Tactical Squadron

3.6.3 POI For Refresher Crew Chief

WEEKS	COURSE/PHASE	ACTIVITY
0	Core Skill Introduction	Tactical Squadron
1-10	Core Skill	Tactical Squadron
11-18	Mission Skill	Tactical Squadron
19-26	Core Plus Skill	Tactical Squadron

3.6.4 POI For Refresher Aerial Gunner/Observer

WEEKS	COURSE/PHASE	ACTIVITY
1-13	Core Skill	Tactical Squadron
14-18	Mission Skill	Tactical Squadron
19-22	Core Plus Skill	Tactical Squadron

3.7 ACADEMIC TRAINING

3.7.1 General. The Academic syllabus is designed to ensure CC/AGO are receiving the proper academic training prior to starting a new phase and stage of training. Within each phase of training (1000-6000) there are corresponding stages, each stage has a required academic syllabus that must be completed prior to starting that stage of instruction. The required academic syllabus for each stage of training is further delineated in the beginning paragraphs of each phase.

3.7.2 Purpose. The purpose of adding the academic syllabus is to ensure the required academic courses for each phase/stage of training are completed and logged in M-SHARP for each CC/AGO. A summary of academic classes that is required for all of the phases of training (0000-6000) are listed below with their corresponding T&R code.

T&R CODE	ACADEMIC SYLLABUS FRS ACADEMIC PHASE (0000)
ACAD-0050	(U) FRS WELCOME ABOARD
ACAD-0051	(U) CBT'S (ALL COURSEWARE COMPLETE)
ACAD-0053	(U) NAV CLASS
ACAD-0054	(U) TERF
ACAD-0055	(U) CONFINED AREA LANDING
ACAD-0056	(U) FORMATION FLIGHT
ACAD-0057	(U) EXTERNAL FLIGHT
ACAD-0058	(U) INTERNAL CARGO LOADING/UNLOADING
ACAD-0059	(U) FLIGHT EQUIPMENT
ACAD-0060	(U) NIGHT SYSTEMS CLASS
ACAD-0062	(U) NS LAB
ACAD-6001	(U) NATOPS OPEN BOOK EXAM
ACAD-6002	(U) NATOPS CLOSED BOOK EXAM
ACAD-6007	(U) CREW RESOURCE MANAGEMENT (CRM)

T&R CODE	ACADEMIC SYLLABUS CORE SKILL PHASE (2000)
ACAD-2015	(S) RF SAMS
ACAD-2016	(S) IR SAM THREAT TO ROTARY WING AIRCRAFT
ACAD-2017	(S) AAA THREAT TO ROTARY WING AIRCRAFT
ACAD-2018	(S) ALE 47 AND AAR 47 V2*
ACAD-2019	(S) AN/APR 39 V1*
ACAD-2020	(S) ALQ-157*
ACAD-2021	(U) ROE PLANNING
ACAD-2026	RESERVED FOR FUTURE USE
ACAD-2028	(U) EXECUTION CHECKLIST
ACAD-2050	(U) EA TACTICAL AIRCREW CONSIDERATIONS AND RESPONSIBILITIES
ACAD-2051	(U) EA TERRAIN FLIGHT
ACAD-2052	(U) EA NIGHT VISION TRAINING
ACAD-2053	(U) EA FUNDAMENTALS OF AERIAL GUNNERY*
ACAD-2054	(U) EA XM-218/GAU-16
ACAD-2055	(U) EA LASER AIMING DEVICES*
ACAD-2056	(U) EA LASER BORE SIGHTING
ACAD-2057	(U) EA BASIC PRINCIPLES OF ELECTRONIC WARFARE
ACAD-2058	(S) EA CH-46E AIRCRAFT SURVIVABILITY EQUIPMENT*
ACAD-2059	(U) EA CH-46E GROUND THREAT REACTION*
ACAD-2060	(U) EA ALTERNATE INSERTION AND EXTRACTION (AIE)
ACAD-2061	(U) EA BASIC PRINCIPLES OF ESCORT OPERATIONS
ACAD-2062	(U) EA CH-46E TAIL GUNNERY
ACAD-2063	(U) EA TRAINING THE AERIAL GUNNER

*Denotes annual training requirement.

T&R CODE	ACADEMIC SYLLABUS MISSION SKILL PHASE (3000)
ACAD-3000	(S) TRAP
ACAD-3001	(S) MOUT
ACAD-3002	(U) CASEVAC
ACAD-3003	(S) NEO EXECUTION
ACAD 3006	(S) AIR ASSAULT OPERATIONS

T&R CODE	ACADEMIC SYLLABUS CORE PLUS SKILL PHASE (4000)
ACAD-4003	(U) ROTARY WING OAS
ACAD-4004	(U) FIXED WING OAS
ACAD-4007	(S) ATTACK HELICOPTER THREAT TO RW AIRCRAFT
ACAD-4008	(S) FW THREAT TO RW AIRCRAFT
ACAD-4014	(S) LASER THREAT
ACAD-4050	(U) EA INTRODUCTION TO HELICOPTER DEFENSIVE MEASURES*
ACAD-4051	(U) EA CH-46E DEFENSIVE MEASURES PART II*

*Denotes annual training requirement.

3.8 SYLLABUS NOTES

3.8.1 General. Within this section of the T&R are some of the critical notes, guidelines, definitions and codes that have been consolidated from the T&R Program Manual. This information is critical to understanding this document and the contents within, for further guidance or explanation refer to the T&R Program Manual.

ENVIRONMENTAL CONDITIONS	
CODE	MEANING
D	Shall be flown during hours of daylight: (by exception - there is no use of a symbol)
N	Shall be flown during hours of darkness, may be aided or unaided
N*	Shall be flown during hours of darkness must be flown unaided
(N*)	May be flown during hours of darkness - If flown during hours of darkness must be flown unaided
(N)	May be flown during darkness - If flown during hours of darkness; may be flown aided or unaided
NS	Shall be flown during hours of darkness - Mandatory use of Night Vision Devices
(NS)	May be flown during darkness - If flown during hours of darkness; must be flown with Night Vision Devices
Note - If the event is to be flown in the simulator the Simulator Instructor shall set the desired environmental conditions for the event.	

3.8.1.1 Waived/Deferred events. Commanding officers may waive or defer events per the Aviation T&R Program Manual. If the commanding officer has waived/deferred a syllabus event, the enlisted WTI shall place a waiver/deferral letter in section 3 of the APR.

3.8.1.2 Designation as Aerial Gunner/Observer. After being qualified NSQ LLL, AGQ and completion of NTPS-6101 an AGOUI may be designated an Aerial Gunner/Observer by the commanding officer. A designation letter, signed by the commanding officer is required. The original shall be placed in the AGO's NATOPS jacket, and a copy in his APR with a corresponding logbook entry. A designation code of 6199 should be run on AGOs thru the unit S-1.

3.8.1.3 Aircraft And Simulator Codes. These codes are assigned to delineate whether the event uses a simulator or an airframe. The codes are located in the event header following the POI codes. A= aircraft, S= simulator, A/S= aircraft preferred/simulator optional, S/A= simulator preferred/aircraft optional. Until an aircraft simulator becomes operational, unit commanders may waive appropriate syllabus per paragraph 207 of the Aviation T&R Program Manual.

3.8.2. Evaluation Sorties. These events shall be flown with an experienced crew chief instructor (TERFI, NSI, AGI, TGI, DMI, WTI) designated for the specific flight instruction required.

3.8.2.1 A designated NATOPS Instructor/Assistant NATOPS Instructor shall evaluate NTPS-6101 for both the crew chief and aerial gunner/observer. AGOUI shall fly NTPS-6101 prior to being designated an aerial gunner/observer and after being qualified NSQ LLL and AGQ.

3.8.2.2 A crew chief instructor (TERFI, NSI, AGI, TGI, DMI, WTI) proficient in a given event shall evaluate any initial event required for a Basic, Conversion, Transition, or Refresher crew chief or aerial gunner/observer. A qualified and designated crew chief instructor shall complete an Aviation Training Form (ATF). Pilots will not sign off crew chief ATFs with the exception of initial SFAM-2100 and Mission Skill/Mission Skill plus events. Aerial gunner/observers will not sign off crew chief's in any event.

3.8.2.3 All flights annotated with an E shall be evaluated per T&R Program Manual.

3.8.2.4 The Enlisted Aircrew Training Chief (Squadron WTI) shall ensure all ATFs are entered in section 3 of the APR for all initial/refresher events flown. These ATFs shall remain until a more current ATF replaces it.

3.8.2.5 Refresher aircrews shall have ATFs entered in section 3 of the APR for all flights designated by an R in the flight description. These ATFs will replace ATFs previously entered in section 3.

3.8.2.6 All 2000-6000 level ATFs will be developed and maintained by the Syllabus Sponsor (MAWTS-1 CH-46E division). Updated ATFs will be disseminated in conjunction with publication of Interim Approved T&Rs.

3.8.3. Syllabus Assignment

3.8.3.1 Basic, Conversion and Transition crew chiefs will be assigned to fly the entire syllabus. Refresher crew chiefs will fly those flights designated by an 'R' in the T&R matrix. Basic, Conversion and Transition aerial gunner/observers will fly the same syllabus as the respective crew chief except as noted in the crew requirements for each stage. AGOs training to become Secondary MOS Crew Chiefs shall fly those events designated by an 'O' in the T&R matrix.

3.8.3.2 Refresher Syllabus. Aircrew who have been previously assigned to the Basic POI, but are not proficient shall be assigned to fly the Refresher POI per the Aviation T&R Program Manual. The refresher syllabus is predicated on the experience of the refresher crew chief or aerial gunner/observer. A refresher crew chief or aerial gunner/observer need not fly every event within a stage of training to be re-qualified in that stage. A crew chief or aerial gunner/observer in the refresher syllabus should fly all R coded events. The commanding officer may tailor the refresher syllabus to fit the experience of the refresher crew chief or aerial gunner/observer per the T&R Program Manual. When the R coded events within a stage of training are complete, the crew chief or aerial gunner/observer may be credited with the CSP for the entire stage of training. This assumes that the refresher has previous proficiency in that stage of training. If the refresher crew chief or aerial gunner/observer has no previous proficiency in a stage or particular event, then the refresher shall fly the entire stage or all events not previously flown.

3.8.3.3 Secondary MOS Crew Chief. All efforts shall be made with MMEA-84 to receive assignment of Primary MOS crew chiefs prior to utilizing secondary AMOS program. If inventory shortages cannot be filled through MMEA-84, authorization is granted to individual unit COs to train secondary AMOS 6172 under the following Guidelines:

a. The number of secondary MOS crew chiefs that an individual unit Commander may train is limited to the current staffing formula; 1.6 CC x primary assigned aircraft (PAA) = number of crew chiefs minus primary/additional MOS crew chiefs on hand. For example, if a squadron has 14 primary/additional MOS crew chiefs assigned, and the staffing formula computes to 19 total crew chiefs, unit commanders may only request to train a maximum of 5 secondary AMOS crew chiefs to equal PAA.

b. To ensure standardization of training and aviation adaptability, all requested trainees shall be designated an aerial gunner/observer prior to starting secondary AMOS training.

c. The source population shall be restricted to aviation maintenance MOS of 611x, 615x, and 632x only. All requests shall be submitted via DMS format to CGG TECOM ATB (C4610) for approval prior to trainee starting flight syllabus. MSG shall include:

(1) Organization requesting training of secondary AMOS crew chief.

(2) Name, rank, MOS, and SSN of trainee.

(3) Total number of crew chiefs rated by PAA.

(4) Total number of primary and secondary AMOS crew chiefs assigned to requesting MCC.

(5) Adequate justification for training a secondary AMOS crew chief.

(6) Faxed copy of initial AGO NATOPS evaluation report (OPNAV 3710/7 form).

d. Upon receipt of request, ATB will approve/disapprove request via ASL/ASM and notify requesting command through DMS format. Approved

training will be conducted in strict compliance with this manual and MCO P1200.7, Military Occupational Specialties Manual. Additional requirements are outlined below:

(1) To ensure MOS standardization Core Skill introduction (1000 Level series) codes shall be flown with a current Enlisted Weapons and Tactics Instructor (MOS 6177) or NATOPS Evaluator/Instructor (NI) holding a primary MOS of 6172. Only a currently assigned and designated FRS crew chief instructor (CCI) shall administer the Core Skill introduction evaluation flight (CSIX 1902).

(2) The Total Time to Train (TTT) secondary AMOS crew chiefs shall not exceed six months. The date of initial flight and completion of evaluation flight define the TTT.

(3) Core Skill Basic, Advanced and Plus flights previously flown as an aerial gunner/observer shall not transfer to the training of the secondary AMOS crew chief. All flights shall be flown with CCUI acting in the capacity of a crew chief.

e. Only the FRS COs have the authority to designate the secondary AMOS of 6172. The evaluation flight may be flown at the respective FRS or individual requesting squadron. Requesting commands shall coordinate with FRS for scheduling of the evaluation flight. TAD funding for either the trainee or FRS Crew Chief Instructor (CCI) shall be the responsibility of the requesting squadron.

f. The FRS CCI shall administer the oral and Core Skill Introduction evaluation flight and closed book NATOPS examination. Prior to Core Skill introduction evaluation flight parent commands shall ensure:

(1) Nominees complete squadron approved open book NATOPS examination.

(2) Nominees are designated a plane captain by unit CO.

(3) Prior to designation, nominees shall attend SERE training.

g. Upon completion of Core Skill introduction evaluation flight, copies of all certifications and evaluations shall be submitted to respective FRS COs for secondary AMOS certification/approval. Documents to be submitted are:

(1) Copy of current flight physical.

(2) Copy of physiology/water survival Form 3760/32.

(3) Copy of all crew chief 1000 series ATFs.

(4) Copy of current flight orders.

(5) Copy of section III(c), examination record, OPNAV 3760/32G.

(6) Copy of current plane captain designation.

(7) Copy of initial AGO evaluation form, OPNAV 3710/7.

(8) Original crew chief evaluation form, OPNAV 3710/7.

(9) Copy of SERE completion certificate.

(10) Marines listed as instructor on 1000 Phase ATFs must submit a copy of respective WTI certificate or NATOPS Evaluator/Instructor designation. The primary purpose of this documentation is to assist the model manager in tracking the certification process and identifies positive/negative trends in the training process. Evaluation standards applicable to primary MOS crew chiefs shall be strictly adhered to.

h. The FRS CCI shall forward original OPNAV 3710/7 form to FRS CO for approval. The FRS CO shall sign the NATOPS evaluation and a crew chief designation letter and forward to the originating command for insertion into trainees NATOPS jacket.

i. In order to facilitate management of the MOS end strengths, secondary AMOS crew chiefs desiring a primary 6172 MOS, will forward the appropriate AA form to MMEA-6 requesting a lateral move from a secondary AMOS crew chief to a primary MOS crew chief.

j. On hand primary designated MOS crew chiefs shall have priority for crewmember flight orders IAW MCO 1326.2G.

k. This policy applies to Marines currently in training and is effective immediately. This is not applicable to Marines designated prior to this revision, or Marines currently assigned to the Executive Flight Detachment of HMX-1.

3.8.4 Refly Interval. Paragraph 321 of this publication shows the refly interval for all events.

3.8.5 Crew Resource Management (CRM). CRM shall be briefed for all flights and/or events.

3.8.6 Definitions

3.8.6.1 Demonstrate. The description and performance of a particular procedure by the instructor, observed by the CCUI. The CCUI is responsible for knowledge of the procedures prior to the demonstration.

3.8.6.2 Discuss. An explanation of systems or procedures during the brief, in flight, or post flight.

3.8.6.3 Evaluate. Any flight designed to evaluate aircrew standardization.

3.8.6.4 Introduce. The instructor may demonstrate a procedure to a student, or may coach the CCUI through the procedure without demonstration. The CCUI performs the procedures with coaching as necessary. The CCUI is responsible for knowledge of the procedures.

3.8.6.5 Review. Demonstrated proficiency by the CCUI/AGOUI.

3.9 FRS ACADEMIC PHASE (0000)

3.9.1 Purpose. To ensure Crew Chiefs Under Instruction (CCUIs) assigned to the Fleet Replacement Squadron (FRS) are given the proper academic instruction prior to beginning the Core Skill Introduction Phase.

3.9.2 General. Each CCUI assigned to the FRS shall receive all of the academic classes listed in the matrix below during the various stages within the (1000 level) stage of training. All academic classes ACAD-0050 through ACAD-0063 will be complete prior to conducting the CSIX-1902 flight. The academic classes have corresponding T&R codes associated with them and will be tracked and logged in M-SHARP.

3.9.3 Ground/Academic Training. The following matrix will be used to track academic and administrative training:

T&R CODE	ACADEMIC SYLLABUS
	FRS ACADEMIC PHASE (0000)
ACAD-0050	(U) FRS WELCOME ABOARD
ACAD-0051	(U) CBT'S (ALL COURSEWARE COMPLETE)
ACAD-0053	(U) NAV CLASS
ACAD-0054	(U) TERF
ACAD-0055	(U) CONFINED AREA LANDING
ACAD-0056	(U) FORMATION FLIGHT
ACAD-0057	(U) EXTERNAL FLIGHT
ACAD-0058	(U) INTERNAL CARGO LOADING/UNLOADING
ACAD-0059	(U) FLIGHT EQUIPMENT
ACAD-0060	(U) NIGHT SYSTEMS CLASS
ACAD-0062	(U) NS LAB

3.10 CORE SKILL INTRODUCTION PHASE (1000)

3.10.1 General

3.10.2 The CH-46E Fleet Replacement Squadron (FRS) shall develop the standardization of introductory flight maneuvers, classroom materials and procedures for instructional/student training, maintain the Core Skill Introduction FRS Academics and the Core Skill Introduction Phase syllabus for the CH-46E T&R.

3.10.3 FRS Instructors shall log 2000 level codes as appropriate that are comparable in performance standards of a 1000 level code.

3.10.3 Within the aircrew Core Skill Introduction Phase (1000) there are 9 stages. Those stages are as follows:

STAGE	NAME
1	Familiarization (FAM)
2	Navigation (NAV)
3	Confined Area Landings (CAL)
4	Formation (FORM)
5	External Cargo Operations (EXT)
6	Terrain Flight (TERF)
7	Night Systems (NS)
8	Review (REV)
9	Core Skill Introduction Check (CSIX)

3.11 CORE SKILL INTRODUCTION STAGES (1000)

3.11.1 Familiarization (FAM)

3.11.1.1 Purpose. To develop preliminary skills as a crew chief in the CH-46E and become familiar with flight characteristics, aircraft systems, limitations, and emergency procedures. To develop proficiency in assisting pilots in all aspects of FAM flight, both day and night.

3.11.1.2 General

a. These flights may be flown with any flight of the basic Crew Chief POI.

b. The newly designated crew chief assigned to the FRS may fly a TERF-2301 with a CCI and receive a FRS TERFQ only when determined proficient by the CCI. This qualification will allow the crew chief to fly only with a Pilot Under Instruction (PUI) during a TERF-1701.

c. The newly designated crew chief assigned to the FRS may fly a NS-2601 with a NSFI and receive a FRS NSQ only when determined proficient by the NSFI. This qualification will allow the crew chief to fly only with a PUI during a NS-1801, NS-1802, and NS-1803.

d. On FAM-1109 the CCUI will act as an observer. Subsequent to FAM-1109 the CCUI will act in the capacity of crew chief.

e. The CH-46E FRS shall develop the standardization of introductory flight maneuvers, classroom materials and procedures for instructional/student training and maintain the Core Skill Introduction Phase syllabus for the CH-46E T&R.

3.11.1.3 All initial Night system FAM flights require a NSFI.

3.11.1.4 Crew Requirement. CCI/CCUI, NSFI/CCUI/CCUI.

3.11.1.5 Ground/Academic Training. Prior to FAM-1110, FRS welcome aboard class (ACAD-0050), CBTs (all courseware complete- ACAD-0051), aviation physiology and flight physical, swim qualifications, and applicable ground training must be completed.

FAM-1109 2.0 * ,E 1 CH-46E A D

Goal. Introduce ground and normal flight procedures.

Requirement

Discuss:
- Use of ICS.
- Standard terminology.
- Voice procedures.
- Interaction with pilots.
- Lookout doctrine.
- Estimating distances.
- Emergency procedures.
- Fuel surveillance.
- Crew comfort levels.
- Vertigo.
- Takeoff and landing emergencies.
- CRM.
  - Communication.
  - SA.

Introduce:
- Basic crew duties.
- Daily/turnaround inspections.
- Servicing requirements.
- Startup/shutdown procedures.
- Hotseat procedures.
- Takeoff.
- Operation of communications equipment.
- Inflight lookout.
- Headwork.
- Aft station check procedures.
- Aircraft fueling procedures.
- Crew comfort levels.
- Depth perception.
- Taxiing/directing procedures.
- Back taxi procedures.
- Hot fuel procedures.

Review:
- Limitations.
- SOPs.
- Crew chief duties.
- Startup/shutdown procedures.
- Aircraft security: Ship/shore based procedures.
- Daily/Turnaround inspections.
- Hotseat procedures.

Performance Standards. Exhibit basic understanding of crewchief duties.

FAM-1110 1.5 * E 1 CH-46E A D

Goal. Introduce communications, passenger briefing, normal and emergency procedures.

Requirement

Discuss:
- Standard terminology.
- Interaction with pilots.
- Takeoff and landing emergencies.
- Engine limitations.
- Transmission limitations.
- Inflight fire.
- Smoke elimination.
- CRM.
  - SA.
  - Leadership.
- Ditching procedures.

Introduce:
- Precautionary landings.
- Emergency landings.
- Autorotations.
- Situational Awareness.
- Ground handling procedures.
- Crew chief responsibilities during loading.
- T&R Program Manual.
- Aft station check procedures.

Review:
- ICS usage.
- Taxi procedures.
- AFT station check procedures.
- Hot fuel procedures.

Performance Standards. Demonstrate application of crew chief duties.

Prerequisite. FAM-1109

FAM-1111 2.0 * E 1 CH-46E A D

Goal. Introduce communications, passenger briefing, normal and emergency procedures.

Requirement

Discuss:
- Standard terminology.
- Interaction with pilots.
- Takeoff and landing emergencies.
- Engine limitations.
- Transmission limitations.
- Inflight fire.
- Smoke elimination.
- CRM.
  - SA.
  - Leadership.
- Ditching procedures.

Introduce:
- Precautionary landings.
- Emergency landings.

Autorotations.
SA.
Ground handling procedures.
Crew chief responsibilities during loading.
T&R Program Manual.
Aft station check procedures.
Introduce MCO P3500.14
Introduce MCO P3500.50 chapter 2

Review:
ICS usage.
Taxi procedures.
AFT station check procedures.
Hot fuel procedures.

Performance Standards. Demonstrate application of crew chief duties.

Prerequisite. FAM-1110.

FAM-1116 1.5 * O,E 1 CH-46E A D

Goal. Introduce communications, aircraft procedures, normal and emergency procedures.

Requirement

Discuss:
Standard terminology.
Use of ICS.
Interaction with pilots.
Takeoff and landing emergencies.
Engine limitations.
Transmission limitations.
Inflight fire.
Smoke elimination.
CRM.
Aft station check procedures.
Aircraft fueling procedures.

Introduce:
Daily/Turnaround inspections.
Blade fold/unfold procedures.
APU start-up/shut-down procedures.
Aircraft power checks.

Review:
ICS usage.
Taxi procedures.
AFT station check procedures.
Hot fuel procedures.
Standard terminology.
Emergency procedures.
Basic crew duties.
Aircraft limitations.

Performance Standards. Demonstrate application of crew chief duties.

Prerequisite. FAM-1111.

FAM-1117 1.5 * E 1 CH-46E A N*

Goal. Introduce night operations.

Requirement

Discuss:
- Lighting systems.
- Night operations.
- Estimating distances.
- CRM.
  - Adaptability/flexibility.
  - Decision making.

Introduce:
- Daily at night.
- Turnaround at night.
- Light discipline.
- Aircraft lighting.
- Airfield lighting.
- Night lookout doctrine.

Review:
- Night precautionary Landings.
- Night emergency landings.
- Overview of duties.
- Situational Awareness.
- Night startup/shutdown procedures.
- Limitations.
- Hot seat procedures.

Performance Standards. Demonstrate a basic knowledge of night operations IAW NATOPS.

Prerequisite. FAM-1116.

3.11.2 Navigation (NAV)

3.11.2.1 Purpose. To familiarize the CCUI with navigation responsibilities while navigating primarily using charts and maps.

3.11.2.2 General. At the completion of this stage, the CCUI will be able to demonstrate the ability to assist the pilots in all aspects of navigation.

3.11.2.3 Crew Requirement. CCI/CCUI.

3.11.2.4 Academic Training. FRS Navigation class (ACAD-0053).

NAV-1301 1.5 * O,E 1 CH-46E A D

Goal. Introduce aircrew duties during navigation.

Requirement

Discuss:
- Fuel management checks.
- Crew participation.
- CRM.

Communication.
Decision making.

Introduce:
Use of appropriate maps and checkpoints.
Time distance checks.
Barrier features.
Prominent terrain features.
Additional crew chief responsibilities over unfamiliar terrain.
Navigation procedures.

Review:
Communication.
SA.
Night startup/shutdown.
Aircraft lighting.
Taxiing at night.
Light discipline.
Crew duties.
Night lookout doctrine.

Performance Standards. Demonstrate ability to assist the pilots during navigation.

Prerequisite. FAM-1116, ACAD-0053.

3.11.3 Confined Area Landings (CAL)

3.11.3.1 Purpose. To develop crew chief responsibilities during CALs.

3.11.3.2 General. At the completion of this stage, the CCUI will be able to demonstrate the ability to assist in all aspects of CALs.

3.11.3.3 Crew Requirement. CCI/CCUI.

3.11.3.4 Academic Training. FRS Confined Area Landing class (ACAD-0055).

CAL-1401 1.5 * E 1 CH-46E A D

Goal. Introduce CAL responsibilities.

Requirement

Discuss:
Obstacle clearance.
Standard terminology.
Crew comfort levels.
Clearance in confined areas.
Emergencies during low level operations.
CRM.
Assertiveness.
Leadership.

Introduce:
Aircraft clearance while operating in confined areas.
Terrain suitability.
Main-mount landings.
Slope landings.
Wave off.

Low level operations.
Review:
Crew responsibilities.
Clearance calls.

Performance Standards. Demonstrate the ability to successfully crew the aircraft to the deck for a minimum of 5 landings.

Prerequisite. FAM-1116, ACAD-0055.

External Syllabus Support. Various CAL sites.

CAL-1402 1.5 * O,E 2 CH-46E A D

Goal. Introduce section CAL responsibilities.

Requirement

Discuss:
CRM.
Lookout doctrine.
Obstacle clearance.
Distance estimation.
Wingman position.
Wave off/brownout procedures.

Introduce:
Crew responsibilities during section CAL operations.

Review:
Formation and lookout procedures emphasizing responsibilities during section operations.

Performance Standards. Demonstrate the ability to clear the aircraft for landing into confined areas while recognizing closure rate, drift error and effectively utilizing proper distance estimation and depth perception. Maintaining SA of wingman throughout the evolution.

Prerequisite. CAL-1401, FORM-1501.

External Syllabus Support. Availability of large LZ.

3.11.4 Formation (FORM)

3.11.4.1 Purpose. To familiarize the CCUI with functions and responsibilities during formation flying.

3.11.4.2 General. At the completion of this stage, the CCUI will be able to demonstrate the ability to assist pilots in all aspects of formation flight.

3.11.4.3 Crew Requirement. CCI/CCUI.

3.11.4.4 Academic Training. FRS Formation Flying class (ACAD-0056).

FORM-1501 1.5 * E 2 CH-46E A D

Goal. Introduce formation flight responsibilities.

Requirement

Discuss:
- Lost communications procedures.
- Crew chief responsibilities during inadvertent IMC.
- CRM.
  - Communication.
  - Leadership.

Introduce:
- Lookout procedures for wingman.
- Turn patterns.
- Breakup and rendezvous.

Review:
- Crew responsibilities.
- SA.
- Section takeoffs and landings to an unimproved surface.
- Distance estimation.
- Crew coordination.
- Lookout doctrine.

Performance Standards
Maintain SA of wingman throughout evolution.
Demonstrate proper crew chief duties.
Utilize standard terminology.
Demonstrate proper distance estimation within two feet of actual height.

Prerequisite. FAM- 1116, ACAD-0056.

External Syllabus Support. Availability of large LZ.

3.11.5 External Loads (EXT)

3.11.5.1 Purpose. To develop CCUI skills necessary for external cargo operations.

3.11.5.2 General. At the completion of this stage, the CCUI will be able to demonstrate the ability to assist the pilot during day external operations.

3.11.5.3 Crew Requirement. CCI/CCUI/CCUI.

3.11.5.4 Academic Training. Review of NAVAIR 01-250-HDA-9, External Flight Class (ACAD-0057), Internal Cargo Loading/unloading (ACAD-0058)

EXT-1601 1.5 * O,E 1 CH-46E A D

Goal. Introduce external cargo operations.

Requirement

Discuss:
- Standard terminology.
- Static discharge precautions.
- Lost communications.
- Hand signals.

Emergency procedures.
Emergency release procedures.
Crew duties.
CRM.
Decision making.
Communication.

Introduce:
Communications.
External operations.
Hook and pendant preflight.
Load release procedures.

Review:
Obstacle clearance.
SA.

Performance Standards
Properly configure aircraft.
Successfully complete five pickups and dropoffs.
Demonstrate standard terminology.
Execute proper safety precautions.

Prerequisite. CAL-1401, ACAD-0057, ACAD-0058.

External Syllabus Support. External load, HST.

3.11.6 Terrain Flight (TERF)

3.11.6.1 Purpose. To introduce the CCUI to TERF maneuvers and to emphasize the importance of crew coordination, crew comfort level, and standard terminology.

3.11.6.2 General. At the completion of this stage of flight, the CCUI will be able to demonstrate the ability to assist the pilots during day TERF maneuvers.

3.11.6.3 Crew Requirement. CCI/CCUI/CCUI.

3.11.6.4 Academic Training. FRS TERF class (ACAD-0054).

TERF-1701 1.5 * O,E 1 CH-46E A D

Goal. Introduce TERF maneuvers.

Requirement

Discuss:
Obstacle clearance.
Standard terminology.
Crew comfort levels.
Wave off.
Clearance in confined areas.
Emergencies during low level operations.
CRM.
Assertiveness.
Communication.

Introduce:
Blade walk.

Hover check theory.
TERF maneuvers.
Bunts.
Rolls.
Masking and unmasking.
Spiral approach.
Low level quick stop.
Zoom climb.

Review:
Crew responsibilities.
Clearance calls.

Performance Standards. Demonstrate a basic understanding of TERF maneuvers.

Prerequisite. FAM-1116, ACAD-0054.

External Syllabus Support. Low level TERF area in controlled airspace.

3.11.7 Night Systems (NS), High Light Level (HLL)

3.11.7.1 Purpose. To introduce skill in the use of NS under light levels greater than or equal to .0022 LUX (HLL) as predicted by the computer generated light level calendar.

3.11.7.2 General. All initial and Refresher flights require a Night Systems Instructor (NSI) or a Night Systems Familiarization Instructor (NSFI).

3.11.7.3 Crew Requirement. NSFI/CCUI/CCUI.

3.11.7.4 Academic Training. Night Systems Class (ACAD-0060), Night Systems Lab (ACAD-0062).

NS-1801 1.5 * E 1 CH-46E A NS

Goal. Introduce NS flight.

Requirement

Discuss:
Crew comfort levels.
NS failures.
Depth perception.
Aircraft lighting.
Emergency procedures.
CRM.
Mission analysis.
Assertiveness.

Introduce:
Use of NS during low level operations.
Aircraft configuration.
Taxiing on NS.
Use of NS at an unlit field.
Ground relationships.

Review:
- Communication.
- Lookout doctrine.
- Night startup/shutdown.
- Aircraft lighting.
- Taxiing signals.
- Light discipline.
- Crew duties.
- Vertigo.

Performance Standards. Apply basic NS skills as outlined in the MAWTS-1 NVD manual.

Prerequisite. FAM-1116, ACAD-0060, ACAD-0062.

NS-1802 1.5 * O,E 1 CH-46E A NS

Goal. Introduce flight duties during NS navigation.

Requirement

Discuss:
- Fuel management checks.
- Crew comfort Levels.
- NS failures.
- Emergency procedures.
- CRM.
  - Adaptability/flexibility.
  - Mission analysis.

Introduce:
- Additional crew chief responsibilities over unfamiliar terrain on NS.

Review:
- Use of appropriate maps and checkpoints.
- Time distance checks.
- Barrier features.
- Prominent terrain features.
- Assisting pilots.
- Light discipline.
- Aft station checks.

Performance Standards. Demonstrate ability to assist pilots during NS navigation.

Prerequisite. NAV-1301 and NS-1801.

NS-1803 1.5 * O,E 1 CH-46E A NS

Goal. Introduce NS CALs.

Requirement

Discuss:
- Obstacle clearance.
- Task saturation.
- Crew comfort levels.
- Wave off.

Distance estimation.
Clearance in confined areas.
Emergency procedures.
CRM.
Situational Awareness.
Assertiveness.

Introduce:
LZ lighting.
Aircraft clearance on NS.
LZ suitability.

Review:
Headwork.
Crew responsibilities.
Light discipline.
Clearance calls.
NS failures.
Depth perception.

Performance Standards. Demonstrate the ability to successfully call the aircraft to the deck utilizing NS a minimum of five times using standardized terminology.

Prerequisite. NS-1801 and CAL-1401.

External Syllabus Support. CAL sites suitable for NS use.

3.11.8 Crew Chief Review (REV)

3.11.8.1 Purpose. To review all duties and emergency procedures of a Core Skill Introduction crew chief per this syllabus and NATOPS publications.

3.11.8.2 Crew Requirement. CCI/CCUI.

3.11.8.3 Academic Training. Completion of FRS Academic phase which includes (ACAD-0050 through ACAD-0062).

REV-1901 1.5 * O,E 1 CH-46E A (N)

Goal. Review duties, limitations, responsibilities, taxiing procedures, and emergency procedures.

Requirement

Discuss:
Preparation.
Time management.
Daily/turnaround procedures.
Startup/shutdown.
Taxi procedures.
Back taxi procedures.
Application of CRM.

Introduce:
Total crew chief responsibility for the aircraft.
Plane captain responsibilities.

Review:
- Crew/passenger brief.
- Aircraft configuration.
- Emergency procedures.
- Limitations.
- ICS usage.
- Estimating distances.
- Safety precautions.
- Systems knowledge.
- Crew duties.
- Lookout doctrine.

Performance Standards. Demonstrate proficiency as a crew chief as stated in the NATOPS and OPNAV 3710.7.

Prerequisite. FAM-1117, ACAD-0050 through ACAD-0062.

3.11.9 Core Skill Introduction Check (CSIX)

3.11.9.1 Purpose. The CCUI will demonstrate proficiency in performing duties as a Core Skill Introduction complete CCI per this syllabus, NATOPS and other appropriate publications.

3.11.9.2 General

a. Completion of this stage meets the requirements for designation as a crew chief.

b. The CCI shall be a designated NATOPS Evaluator and CRM Facilitator/Instructor or NI/ANI.

3.11.9.3 Crew Requirements. FRSI/RAC/CC or FRSI/REF/CC.

3.11.9.4 Academic Training

a. Completion of open, closed book and oral exams (NTPS-6001, NTPS-6002 and NTPS-6003), CRM class (CRM-6007) and 12-week evaluations.

b. Completion of plane captain syllabus.

CSIX-1902 1.5 * O,E 1 CH-46E A (NS)

Goal. Evaluate CCUI's systems knowledge of the CH-46E and the capability to perform duties as a Core Skill Introduction complete crew chief.

Requirement

Discuss:
- Preparation.
- Time management.
- Daily/turnaround procedures.
- Taxi procedures.
- Aircraft systems.

Review
- Crew/passenger brief.
- Aircraft configuration.
- Emergency procedures.

Limitations.
ICS usage.
Estimating distances.
Safety precautions.
Systems knowledge.
Crew duties.
Lookout doctrine.

Performance Standards. Demonstrate proficiency as a crew chief as stated in the NATOPS and OPNAV 3710.7.

Prerequisite. NTPS-6001, NTPS-6002, NTPS-6003, CRM-6007 and all prior 1000-phase flights.

3.12 CORE SKILL PHASE (2000)

3.12.1 Purpose. To introduce and develop proficiency in the execution of the Core Skills required as a crew chief/aerial gunner observer within a Marine Medium Helicopter Squadron (HMM). The Core Skill phase represents the basic skill sets required, upon completion of the phase, to eventually conduct the Mission Skills (3000 Phase). In order for a crew chief/aerial gunner observer to conduct those Mission Skills he/she must first be current and proficient in all of the required prerequisite Core Skills within that Marine Corps Task. This phase encompasses a combination of academic, simulator and flight events to train that individual crew chief/aerial gunner observer to the level required to conduct the assigned Mission Skills.

3.12.2 General. Within the Core Skill Phase (2000) there are 13 stages. The following events require a crew chief instructor for any initial/Refresher flights. A crew chief instructor is defined by having one of the following designations: NI/ANI/TERFI/NSI/AGI/TGI/DMI/WTI. These stages are as follows:

STAGE	NAME
1	Familiarization (FAM)
2	Confined Area Landings (CAL)
3	Formation Flight (FORM)
4	Terrain Flight (TERF)
5	Aerial Gunnery (AG)
6	Tail Gunnery (TG)
7	Tactics (TAC)
8	NS High Light Level (HLL)
9	NS Low Light Level (LLL)
10	External Cargo Operations (EXT)
11	Alternate Insertion/Extraction (AIE)
12	Ground Threat Reaction (GTR)
13	Carrier Qualification (CQ)

3.12.3 Minimum Crew Requirement. Crew composition (P=Pilot, CP=Co-Pilot, CC=Crew Chief, AGO=Aerial Gunner/Observer, TG=Tail Gunner) for the Core Skill phase will be delineated within each stage of training.

3.12.4 Ground/Academic Training. Prior to commencement of each stage within the Core Skill phase the required academic syllabus shall be completed in accordance with this manual and the MAWTS-1 CH-46E Course Catalog. The required academic classes will be logged and tracked in M-SHARP.

3.13 CORE SKILL STAGES (2000)

3.13.1 Familiarization (FAM)

3.13.1.1 Purpose. To enhance skills of crew functions and responsibilities during day or night flights.

3.13.1.2 General

a. At the completion of this stage, the CCUI/AGOUI will demonstrate the ability to assist the entire crew during day or night flights.

b. FAM-2101 is the initial FAM flight for the AGOUI.

c. If FAM-2101 is flown on NS the aircrew shall be NSQ for the appropriate light level or be under the supervision of an NSI. Initial events shall be conducted during the day.

3.13.1.3 Minimum Crew Requirement. CC, CC/AGO if flown at night, CCI/CCUI or CCI/AGOUI.

3.13.1.4 Ground/Academic Training. Prior to beginning this stage, the CCUI or AGOUI shall be presented the courses listed in the MAWTS-1 CH-46E course catalog.

3.13.1.5 Prerequisites. The following events/designations are prerequisites prior to the commencement of the (FAM) stage:

EVENT TYPE	T&R CODE /-QUALIFICATION PREREQUISITES
ACADEMIC	ACAD-2050
FLIGHT	CSIX-1902
QUALIFICATION	NONE

SFAM-2100 2.0 B WST D S/A

Goal. To better assist the pilots during aircraft emergency and multi-task situations.

Requirement

Discuss:
- CNCS Operation and programming procedures.
- Pilot EPs.
- Cockpit procedures.
- Aircraft flight characteristics.
- Aircraft system procedures.
- CRM.

Introduce:
- Pilot EPs.
- CNCS operations and procedures.

Hover, forward flight and landing profiles.

Review:
NATOPS limitations.
Crew chief emergency procedures.

Performance Standards. The crew chief shall demonstrate the ability to assist pilots during emergency procedures, CNCS operation, ASE operation and basic air work.

FAM-2101 1.5 180 B,R 1 CH-46E A (N)

Goal. Develop lookout doctrine during FAM flights.

Requirement

Discuss:
Lookout doctrine.
ICS procedures.
CRM.
Crew comfort levels.
Local course rules.
Squadron flight SOPs.
Engine start up/shut down.
Rotor engagement/disengagement.
Plane captain responsibilities.

Introduce:
Assisting the pilot during FAM operations.

Review:
Standard terminology and lookout doctrine.

Performance Standards. Demonstrate the ability to carry out basic responsibilities of a CC/AGO.

Prerequisite. ACAD-2050,SFAM-2100.

External Syllabus Support. Landing areas.

3.13.2 Confined Area Landings (CAL)

3.13.2.1 Purpose. To develop crew coordination during confined area operations.

3.13.2.2 General. At the completion of this stage, the CCUI/AGOUI will be able to demonstrate the ability to assist the pilots in day CALS.

3.13.2.3 Crew Requirement. CC (for CAL 2201), CC/AGO, CCI/CCUI or CCI/AGOUI(for CAL 2202-2203).

3.13.2.4 Ground/Academic Training. Prior to beginning this stage, the CCUI or AGOUI shall be presented the courses listed in the MAWTS-1 CH-46E course catalog.

3.13.2.5 Prerequisites. The following events/designations are prerequisites prior to the commencement of the (CAL) stage:

EVENT TYPE	T&R CODE / QUALIFICATION PREREQUISITES
ACADEMIC	NONE
FLIGHT	FAM-2101
QUALIFICATION	NONE

CAL-2201 1.5 180 B 1 CH-46E A D

Goal. Introduce/review single aircraft CAL operations; develop skills with tactical approaches and departures.

Requirement

Discuss:
- CRM.
- Obstacle clearance.
- Standard terminology.
- Distance estimation.
- Low altitude emergencies.
- Rotor blade clearances (blade walk).
- LZ evaluation.
- Wave off/brownout procedures.

Review:
- Lookout doctrine.
- ICS procedures.
- Aircraft clearance and terrain suitability.
- Distance estimation.

Performance Standards. Demonstrate the ability to clear the aircraft for landing into confined areas while recognizing closure rate, drift error and effectively utilizing proper distance estimation and depth perception

Prerequisite. FAM-2101.

External Syllabus Support. CAL zone.

CAL-2202 1.5 180 B 2 CH-46E A D

Goal. Conduct section CAL operations.

Requirement

Discuss:
- CRM.
- Lookout doctrine.
- Obstacle clearance.
- Distance estimation.
- Wingman position.
- Wave off/brownout procedures.
- Section formation.

Introduce:
- Crew responsibilities during section CAL operations.

Review:
- Lookout doctrine emphasizing responsibilities during section operations.

Performance Standards. Demonstrate the ability to clear the aircraft for landing into confined areas while recognizing closure rate, drift error and effectively utilizing proper distance estimation and depth perception. Maintain SA of wingman throughout the evolution.

Prerequisite. CAL-2201.

External Syllabus Support. CAL zone that supports multiple aircraft.

CAL-2203 1.5 180 B,R 3+ ACFT A D

Goal. Conduct division CAL operations.

Requirement

Discuss:
- CRM.
- Lookout doctrine.
- Obstacle clearance.
- Distance estimation.
- Division formations.
- Wave off/brownout procedures.
- Standard terminology

Introduce:
- Crew responsibilities during division CAL operations.

Review:
- Lookout doctrine emphasizing responsibilities during division operations.

Performance Standards. Demonstrate the ability to clear the aircraft for landing into confined areas while recognizing closure rate, drift error and effectively utilizing proper distance estimation and depth perception. Maintain SA of the division throughout the evolution.

Prerequisite. CAL-2202.

External Syllabus Support. CAL zone that supports multiple aircraft.

3.12.3 Formation Flight (FORM)

3.12.3.1 Purpose. To review formation and introduce tactical formation maneuvering.

3.12.3.2 General. At completion of this stage, the CCUI/AGOUI will demonstrate the ability to assist the pilot during day or night formation flight operations.

3.12.3.3 Crew Requirement. CC/AGO, CCI/CCUI or CCI/AGOUI.

3.12.3.4 Ground/Academic Training. Prior to beginning this stage, the CCUI or AGOUI shall be presented the courses listed in the MAWTS-1 CH-46E course catalog.

3.12.3.5 Prerequisites. The following events/designations are prerequisites prior to the commencement of the (FORM) stage:

EVENT TYPE	T&R CODE / QUALIFICATION PREREQUISITES
ACADEMIC	NONE
FLIGHT	FAM-2101
QUALIFICATION	NONE

FORM-2301 1.5 365 B,R 2 CH-46E A (NS)

Goal. Review formation and introduce tactical formation maneuvering.

Requirement

Discuss:
- CRM.
- Crew comfort levels.
- Lead changes.
- Tactical lead considerations.
- Standard terminology.
- Tactical formation maneuvering.
- Aircraft clearance.
- Appropriate formation maneuvers against an aerial and ground based threat.
- Intra and inter aircraft communications.
- Distance estimation.

Introduce:
- Pinch/dig/resume/cover, break turns, center turns, TAC turns, in-place turns, and cross turns.
- Combat spread and combat cruise formations.

Review:
- Lookout doctrine.
- ICS procedures.

Performance Standards. Demonstrate the ability to perform and understand TAC FORM maneuvering, utilize standard terminology while maintaining a high level of situational awareness and maintain awareness of friendly aircraft while maintaining a proper scan and lookout doctrine.

Prerequisite. FAM-2101.

3.13.4 Terrain Flight (TERF)

3.13.4.1 Purpose. To qualify the CCUI/AGOUI in TERF and TERF navigation and to emphasize the importance of crew coordination, crew comfort level, and standard terminology.

3.13.4.2 General

a. For all CCUI/AGOUI initial and refresher events within the TERF stage (TERF-2303-2305), a TERFI is required.

b. Successful completion of TERF-2305 constitutes TERF qualified. A qualification letter signed by the commanding officer stating

the CCUI/AGOUI is TERFQ is required. The original shall be placed in the CCUI/AGOUI NATOPS jacket, and a copy in the APR with a corresponding logbook entry.

c. T&R Program Manual establishes TERF altitude restrictions and currency requirements.

3.13.4.3 Crew Requirement. CC/AGO, TERFI/CCUI, TERFI/AGOUI.

3.13.4.4 Ground/Academic Training. Prior to beginning this stage, the CCUI or AGOUI shall be presented the courses listed in the MAWTS-1 CH-46E course catalog.

3.13.4.5 Prerequisites. The following events/designations are prerequisites prior to the commencement of the (TERF) stage:

EVENT TYPE	T&R CODE / QUALIFICATION PREREQUISITES
ACADEMIC	ACAD-2051
FLIGHT	FAM-2101, FOR TERF 2305: 2301
QUALIFICATION	NONE

TERF-2303 1.5 180 B 1 CH-46E A D

Goal. Introduce TERF maneuvers and crew responsiblities in the TERF environment.

Requirement

Discuss:
- CRM.
- Crew comfort levels.
- Obstacle clearance.
- Lookout doctrine.
- Emergencies during low level operations.
- TERF maneuvers.

Introduce:
- TERF maneuvers/blade walk procedures.
- TERF flight regimes.

Review:
- TERF maneuvers and aircraft clearance.

Performance Standards. Demonstrate knowledge of TERF maneuvers in tactical situations.

Prerequisite. FAM-2101, ACAD-2051.

External Syllabus Support. TERF area (restricted area preferred).

TERF-2304 1.5 180 B 1 CH-46E A D

Goal. Assist the pilots in navigation of a TERF route in the low level and contour profile.

Requirement

Discuss:
CRM.
Crew comfort level.
Communication.
Map/NAV procedures.
Terrain recognition.
Obstacle clearance.

Introduce:
Assist pilots in navigation, use of checkpoints, barrier features and prominent terrain features.

Review:
Emergency procedures during low level operations, and blade walk procedures.

Performance Standards. Assist pilots in navigation of a minimum of five checkpoints at or below 200' AGL remaining oriented on the route utilizing terrain recognition.

Prerequisite. TERF-2303.

External Syllabus Support. TERF route (restricted area preferred).

TERF-2305 1.5 180 B,R 2 CH-46E A D

Goal. Review TERF/Nav procedures and demonstrate the ability to navigate a TERF route in the contour and low level profiles. This is the TERF evaluation flight.

Requirement

Discuss:
CRM.
Responsibilities during low altitude flight.
Communication.
Navigational assistance.
Lookout doctrine.
Low altitude emergency procedures.
Multi-aircraft operations.
Threat awareness.
Lead changes.
Tactical formation maneuvering.
Crew comfort level.
Map and navigation procedures.

Review:
TERF-2303 and TERF-2304.

Performance Standards. Demonstrate knowledge of terrain flight as it applies to the CH-46E and assist pilots in navigation of a minimum of five checkpoints at or below 200' AGL remaining oriented on the route utilizing terrain recognition.

Prerequisite. CAL 2202, FORM-2301, TERF-2304.

External Syllabus Support. TERF route (restricted area preferred).

3.13.5 Aerial Gunnery (AG)

3.13.5.1 Purpose. To qualify CCUI/AGOUI and develop proficiency with day and NS crew served weapon aerial gunnery procedures.

3.13.5.2 General

a. An AGI is required for all flights during this stage until successful completion of AG-2406.

b. At the completion of this stage, the aircrew will demonstrate knowledge of weapons systems and proficiency during day and NS weapons delivery.

c. Academic training will be conducted by an WTI or AGI.

d. Successful completion of AG-2406 constitutes Aerial Gunnery Qualified (AGQ). A qualification letter signed by the commanding officer stating the CCUI/AGOUI is AGQ is required. The original shall be placed in the CCUI/AGOUI's NATOPS jacket and APR with a corresponding logbook entry.

e. The CCUI or AGOUI must be NSQ for the appropriate light level being flown before flying any NS aerial gunnery flights.

f. LASER aiming devices shall be utilized for AG-2405 and AG-2406.

3.13.5.3 Crew Requirement. CC/AGO, AGI/CCUI or AGI/AGOUI, NSI-AGI/CCUI or NSI-AGI/AGOUI.

3.13.5.4 Ground/Academic Training. Prior to beginning this stage, the CCUI or AGOUI shall be presented the courses and complete the required readings listed in the MAWTS-1 CH-46E Course Catalog.

3.13.5.5 Prerequisites. The following events/designations are prerequisites prior to the commencement of the (AG) stage:

EVENT TYPE	T&R CODE / QUALIFICATION PREREQUISITES
ACADEMIC	ACAD-2021, ACAD-2053, ACAD-2054, ACAD-2055, ACAD-2056, ACAD-2063
FLIGHT	FAM-2101
QUALIFICATION	NONE

AG-2401 1.5 365 B 1+ CH-46E A D

Goal. Introduce the CCUI/AGOUI to day aerial gunnery procedures.

Requirement

Discuss:
CRM.
ICS procedures.

Safety.
Weapons conditions.
Weapons commands.
Weapon malfunctions/emergencies.
Crew served weapons checklist.
Aiming techniques.
Muzzle awareness.
Weapons preparation/nomenclature.
Balistics.

Introduce:
Preparation of weapons and aircraft.
Aerial gunnery employment.
Firing on pre-briefed targets.

Review:
Crew served weapons checklist and the ANTTP series publications.

Performance Standards. Demonstrate the ability to properly employ the XM-218 during day aerial gunnery.

Prerequisite. Completion of Academics; ACAD-2021, ACAD-2053, ACAD-2054, ACAD-2055, ACAD-2056, ACAD-2063, and FAM-2101.

Ordnance. 500 rounds .50 cal.

Range requirements. Appropriate aerial gunnery range equipped with multiple targets ranging from personnel to APC size.

AG-2402 1.5 365 B,R 2 CH-46E A D

Goal. Introduce day multi-aircraft weapons employment considerations.

Requirement

Discuss:
CRM.
ICS procedures.
Safety.
Weapons conditions.
Weapons commands.
Weapon malfunctions/emergencies.
Crew served weapons checklist.
Aiming techniques.
Muzzle awareness.
Weapons preparation/nomenclature.
Formation flight during aerial gunnery.
Balistics.

Introduce:
Multi-aircraft operations.
Sectors of fire.
Firing on pre-briefed targets while aircraft is maneuvering to include running and hover fires utilizing pre-briefed line numbers.

Review:
Preparation of weapons and aircraft.

Aerial gunnery procedures.

Performance Standards. Demonstrate ability to properly employ the XM-218 during day aerial gunnery within a section of aircraft.

Prerequisite. AG-2401.

Ordnance. 500 rounds .50 cal.

Range requirements. Appropriate aerial gunnery range equipped with multiple targets ranging from personnel to APC size.

AG-2403 1.5 365 B,R 1+ CH-46E A D

Goal. Introduce day aerial gunnery against a moving target.

Requirement

Discuss:
- CRM.
- ICS procedures.
- Safety.
- Weapons conditions.
- Weapons commands.
- Weapons malfunctions/emergencies.
- Crew served weapons checklist.
- Aiming techniques.
- Muzzle awareness.
- Weapons preparation/nomenclature.
- Range estimation.
- Lead techniques.

Introduce:
- Preparation of weapons and aircraft.
- Aerial gunnery against a moving target.
- Firing on pre-briefed targets.
- Lead techniques at a moving target.

Review:

- Preparation of weapons and aircraft.
- Aerial gunnery procedures.

Performance Standards. Demonstrate the ability to employ the XM-218 at a moving target.

Prerequisite. AG-2402.

Ordnance. 500 rounds .50 cal.

External Syllabus Support. Appropriate aerial gunnery range

AG-2405 1.5 365 B 1 CH-46E A NS

Goal. Introduce NS aerial gunnery.

Requirement

Discuss:
CRM.
ICS procedures.
Safety.
Weapons conditions.
Weapons commands.
Weapons malfunctions/stoppages/emergencies.
Crew served weapons checklist application.
Muzzle awareness.
Weapons preparation/nomenclature.
Effects while utilizing NVGs.
LASER aiming devices/procedures.

Introduce:
NS weapons employment techniques.
Firing on pre-briefed targets while wearing NVGs.
LASER operations and considerations.

Review:
MAWTS-1 NVD Manual and the ANTTP series publications.

Performance Standards. Demonstrate knowledge of the cycle of operation, nomenclature, employment of the XM-218 .50 cal machine gun. Demonstrate the ability to fire at pre-briefed targets while utilizing NVGs and hit the target.

Prerequisite. AG-2403

Ordnance. 500 rounds .50 cal, LASER aiming device with mount.

Range requirements. Appropriate LASER authorized aerial gunnery range equipped with multiple targets ranging from personnel to APC size.

AG-2406 1.5 365 B,R 2 CH-46E A NS

Goal. Demonstrate proficiency with NS aerial gunnery in a multi-aircraft flight. This is the aerial gunner evaluation/review flight.

Requirement

Evaluate/Review:
ICS procedures.
Safety.
Weapons conditions.
Weapons commands.
Weapons malfunctions/stoppages/emergencies.
Crew served weapons checklist application.
Muzzle awareness.
Weapons preparation/nomenclature.
Effects while utilizing NVGs.
LASER aiming devices/procedures.

Introduce:
Firing on pre-briefed targets while aircraft is maneuvering; e.g. running and hover fires (while wearing NVGs).

Review:
AG-2405.

Performance Standards. Demonstrate knowledge of ballistics, the cycle of operation, nomenclature and employment of the XM-218 .50 cal machine gun. Demonstrate the ability to fire at pre-briefed targets while utilizing NVGs and a LASER aiming device to hit the target.

Prerequisite. AG-2405.

Ordnance. 500 rounds .50 cal, LASER aiming device with mount.

Range requirements. Appropriate LASER authorized aerial gunnery range equipped with multiple targets ranging from personnel to APC size.

3.13.6 Tail Gunnery (TG)

3.13.6.1 Purpose. To conduct tail gunnery training utilizing the M240 7.62mm machine gun.

3.13.6.2 General

a. Successful completion of AG-2411 constitutes Tail Gunnery Qualification (TGQ). A qualification letter signed by the commanding officer stating the CCUI/AGOUI is TGQ is required. The original shall be placed in the CCUI/AGOUI's NATOPS jacket and APR with a corresponding logbook entry.

b. Unqualified individuals (Tail Gunners Under Instruction (TGUIs)) shall be supervised by a TGI.

c. Individuals shall be NSQ for the appropriate light level condition. AGQ is a prerequisite for TG-2410.

d. LASER aiming devices are required for TG-2411.

e. Tail gunnery introductory lectures and initial instructional flights shall be conducted by a TGI.

f. Completion of the entire AG stage cannot be waived or deferred.

3.13.6.3 Crew Requirement. TG-2410 CC/AGO/TG or CC/TGI/TGUI; TG-2411 CC/AGO/TG or CC/AGO/TGI/TGUI.

3.13.6.4 Ground/Academic Training. Utilize the academic courseware as outlined in the MAWTS-1 CH-46E Course Catalog.

3.13.6.5 Prerequisites. The following events/designations are prerequisites prior to the commencement of the (TG) stage:

EVENT TYPE	T&R CODE / QUALIFICATION PREREQUISITES
ACADEMIC	ACAD-2062
FLIGHT	AG-2406
QUALIFICATION	AGQ

TG-2410 1.5 365 B,R 1+CH-46E A D

Goal. Introduce day tail gunnery utilizing the M240 7.62mm machine gun from the ramp to provide rear defensive fires.

Requirement

Discuss:
- CRM.
- ICS procedures.
- Safety.
- Weapons conditions.
- Weapons commands.
- Weapons malfunctions/stoppages/emergencies.
- Crew served weapons checklist application.
- RMWS nomenclature/preparation.
- Muzzle awareness.
- Emergency egress procedures.
- Section tactics.

Introduce:
- Tail gunnery employment techniques.
- Firing on pre-briefed targets.
- Preparation of weapons and aircraft.

Review: ANTTP series publications.

Performance Standards. Demonstrate knowledge of the cycle of operation, nomenclature, employment of the M240 7.62mm machine gun while fired from the ramp. Demonstrate the ability to engage pre-briefed targets in either the Dash one or Dash two position.

Prerequisites. Aerial Gunnery Qualification (AGQ), ACAD-2062.

Ordnance. 1000 rounds 7.62mm.

External Syllabus Support. Authorized aerial gunnery range.

TG-2411 1.5 365 B,R,E 1+CH-46E A NS

Goal. Introduce NS tail gunnery utilizing the M240 7.62mm machine gun with LASER and mount from the ramp to provide rear defensive fires. This is the tail gunnery evaluation flight.

Requirement

Discuss:
- CRM.

ICS procedures.
Safety.
Weapons conditions.
Weapons commands.
Weapons malfunctions/stoppages/emergencies.
Crew served weapons checklist application.
Muzzle awareness.
RMWS preparation/nomenclature.
Emergency egress procedures.
LASER aiming devices/procedures.
NS operations and emergency procedures.
Section tactics.

Introduce:
NS tail gunnery weapons employment techniques.
Firing on pre-briefed targets from the ramp.
LASER aiming device utilized on the M240.
Sectors of fire.
Weapon effects on NVGs.

Review:
TG-2410.

Performance Standards. Demonstrate knowledge of the cycle of operation, nomenclature, employment of the M240 7.62mm machine gun while fired from the ramp. Demonstrate the ability to engage pre-briefed targets while utilizing NVGs and LASER aiming devices in any position within the flight.

Prerequisites. TG-2410, NS-2606~HLL, NS-2655~LLL.

Ordnance. 1000 rounds 7.62mm, LASER aiming device with mount.

External Syllabus Support. LASER authorized aerial gunnery range.

3.13.7 Tactics (TAC) Low and Medium Threat

3.13.7.1 Purpose. To introduce and develop proficiency in the execution of assault support operations in the following mission areas in a low and medium threat environment.

a. Aviation Operations From Expeditionary Sea-Based Sites (MCT 1.3.3.3.1).

b. Aviation Operations From Expeditionary Shore-Based Sites (MCT 1.3.3.3.2).

c. Combat Assault Transport (MCT 1.3.4.1).

d. Rapid Insertion/Extraction (MCT 1.3.4.1.1).

e. Aviation Support of Tactical Recovery of Aircraft and Personnel (TRAP) (MCT 6.2.2.1).

f. Air Evacuation (MCT 6.2.2).

3.13.7.2 General

a. CCUI/AGOUI shall attend the mission brief.

b. Squadron ordnance shall mount XM-218 machine guns and should mount M240 machine guns for all tactical flights. Every attempt should be made to expend the required ordnance, however, this should not restrict the completion of the event.

c. CCUI/AGOUI should be AGQ prior to beginning this stage.

d. CCUI/AGOUI should be NSQ for the light level being flown.

e. If CCUI/AGOUI attains TAC flights prior to being AGQ or NSQ he/she shall fly TAC codes with a WTI until AGQ or NSQ is attained.

f. Aircrews shall discuss CRM as applicable to each event.

g. Enlisted WTIs should be required for initial flights if CCUI/AGOUI is not AGQ he/she shall fly with a AGI. If he/she is not NSQ for NSTAC he/she shall fly with a NSI/AGI.

3.13.7.3 Crew Requirement. CC/AGO, CCI/CCUI, CC/AGO/TG or CCI/AGOUI.

3.13.7.4 Ground/Academic Training. Utilize the academic courseware as outlined in the MAWTS-1 CH-46E Course Catalog.

3.13.7.5 Prerequisites. The following events/designations are prerequisites prior to the commencement of the (TAC) stage:

EVENT TYPE	T&R CODE / QUALIFICATION PREREQUISITES
ACADEMIC	ACAD-2015, ACAD-2016, ACAD-2017, ACAD-2026,ACAD-2028, ACAD-2061
FLIGHT	CAL-2203,GTR-2801
QUALIFICATION	TERFQ

TAC-2501 1.5 180 B 2+ ACFT A D

Goal. Conduct a day assault support operation in a low or medium threat environment.

Requirement

Discuss:
Cabin preparation.
CRM during an assault support mission.
Crew comfort level.
Flight counter-tactics for air and ground threats.
ASE utilization.
Escort considerations.
CBRN considerations.
TERF considerations.
Aerial gunnery procedures.
EMCON procedures
Passenger brief and safety regulations.
Loading/unloading of passengers and/or internal/external cargo.
ICS procedures.

Lookout doctrine.
Penetration checklist.
Rules of engagement.

Introduce:
Multi-plane aerial gunnery in an objective area/LZ.
Aircrew responsibilities during tactical insert/extract of troops and/or cargo.
Tactical formations and approaches.

Review:
A1-H46AE-CLG-000 Cargo Loading Manual. Navigation, timing, formation, defensive weaponry, communication discipline, authentication procedures, escort utilization, and weapons control procedures.

Performance Standards. Demonstrate the ability to perform crew responsibilities in a day low or medium threat environment.

Prerequisite. CAL-2203, TERF qualified, GTR-2801, ACAD-2015, ACAD-2016, ACAD-2017, ACAD-2028, ACAD-2061.

Ordnance. 500 rounds .50 cal, 400 rounds 7.62.

Range requirements. Appropriate aerial gunnery range equipped with multiple scored static/moving targets ranging from personnel to APC size.

External Syllabus Support. Authorized TERF area, CAL site, (live fire range preferred).

TAC-2502 1.5 180 B 2+ ACFT A NS

Goal. Conduct a NS assault support operation in a low or medium threat environment.

Requirement

Discuss:
Cabin preparation.
CRM during an assault support mission.
Crew comfort level.
Flight counter-tactics for air and ground threats.
ASE utilization.
Escort considerations.
CBRN considerations.
TERF considerations.
Aerial gunnery procedures utilizing LASER aiming devices.
EMCON procedures
Passenger brief and safety regulations.
Loading/unloading of passengers and/or internal/external cargo.
ICS procedures.
Lookout doctrine.
Penetration checklist.
Rules of engagement.
NVG operations and emergency procedures.

Introduce:
Aircrew responsibilities during NS tactical insert/extract of troops and/or cargo. Tactical assault support mission at night using NS.
Escort aircraft utilization if available.
Multi-aircraft NS aerial gunnery in an objective area.
Tactical aircraft lighting.

Performance Standards. Demonstrate ability to perform crew responsibilities during NS operations in a low/medium threat environment.

Prerequisite. TAC-2501, 2606~HLL, 2655~LLL
Ordnance. 500 rounds .50 cal, 400 rounds 7.62, LASER with mounts.

Range requirements. Appropriate LASER authorized aerial gunnery range equipped with multiple scored static/moving targets ranging from personnel to APC size.

External Syllabus Support. Authorized TERF area, CAL site (live fire range preferred).

3.13.8 Night Systems (NS), High Light Level (HLL)

3.13.8.1 Purpose. To develop skill in the use of NS under light levels greater than or equal to .0022 LUX (HLL) as predicted by the computer generated light level calendar and to qualify the CCUI/AGOUI in NS HLL operations.

3.13.8.2 General

a. All initial and Refresher flights require a Night Systems Instructor (NSI).

b. Successful completion of NS-2606 constitutes Night Systems Qualified (NSQ HLL). A qualification letter, signed by the commanding officer stating the CCUI/AGOUI is NSQ HLL is required to be qualified to carry troops under HLL conditions. The original shall be placed in the CCUI/AGOUI's NATOPS jacket, and a copy in his APR with a corresponding logbook entry.

3.13.8.3 Crew Requirement. CC/AGO, NSI/CCUI or NSI/AGOUI.

3.13.8.4 Ground/Academic Training. Prior to beginning this stage, the CCUI or AGOUI shall be presented the courses listed in the MAWTS-1 CH-46E course catalog.

3.13.8.5 Prerequisites. The following events/designations are prerequisites prior to the commencement of the (NS HLL) stage:

EVENT TYPE	T&R CODE / QUALIFICATION PREREQUISITES
ACADEMIC	ACAD-2052
FLIGHT	CAL-2201
QUALIFICATION	NONE

NS-2601 1.5 180 B,R 1 CH-46E A NS

Goal. Introduce NS single aircraft CALs in HLL.

Requirement

Discuss:
- CRM.
- Crew comfort levels.
- NVG use and limitations.
- NVG failures.
- Emergencies.
- Inadvertent IMC.
- Aircraft lighting.
- Light discipline
- Use of IR searchlight.
- Depth perception.
- Obstacle clearance.

Introduce:
- CALs at various unlit CAL sites.

Review:
- CAL-2201, ACAD 2052.

Performance Standards. Utilizing NVGs, demonstrate the ability to clear the aircraft for landing into confined areas while recognizing closure rate, drift error and effectively utilizing proper distance estimation and depth perception.

Prerequisite. ACAD 2052,CAL-2201.

External Syllabus Support. Landing zones.

NS-2602 1.5 180 B 2 CH-46E A NS

Goal. Conduct NS formation flight in HLL.

Requirement

Discuss:
- CRM.
- Crew comfort levels.
- Lead changes.
- Aircraft lighting.
- Closure rate.
- Distance estimation.
- NVG procedures and emergencies.
- Relative motion and depth perception problems at night.
- Lookout doctrine.

Introduce:
- NS formation flight.

Review:
- FORM-2301 NS-2601.

Performance Standards. Demonstrate the ability to conduct formation flight while utilizing NVGs.

Prerequisite. FORM-2301 and NS-2601.

NS-2603 1.5 180 B,R 2 CH-46E A NS

Goal. Introduce NS tactical section approaches, landings, and departures to a confined area in HLL.

Requirement

Discuss:
- CRM.
- Crew comfort levels.
- NVG navigation techniques.
- NVG failures.
- Emergencies.
- Inadvertent IMC.
- Aircraft lighting.
- Use of IR searchlight.
- Depth perception.
- Obstacle clearance.

Review:
- Section takeoffs/landings at various unlit CAL sites.

Performance Standards. Utilizing NVGs, demonstrate the ability to clear the aircraft for landing into confined areas while recognizing closure rate, drift error and effectively utilizing proper distance estimation and depth perception. Maintain SA of wingman throughout the evolution.

Prerequisite. CAL-2202 and NS-2602.

External Syllabus Support. Landing zones that accommodate multiple aircraft.

NS-2604 1.5 * B 3+ ACFT A NS

Goal. Conduct NS HLL division formation and CALs.

Requirement

Discuss:
- CRM.
- Crew comfort levels.
- NVG division takeoffs and landings.
- NVG formation techniques.
- Inadvertent IMC.
- Obstacle clearance.
- Lookout doctrine.
- Standard terminology.

Introduce:
- NS division CALs.

Review:
- NS-2603 and TERF-2303.

Performance Standards. Utilizing NVGs, demonstrate the ability to clear the aircraft for landing into confined areas while recognizing closure rate, drift error and effectively utilizing proper distance estimation and depth perception.

Maintain SA of the division throughout the evolution.

Prerequisites. NS-2603, TERFQ, CAL-2203.

External Syllabus Support. Landing zones that accommodates multiple aircraft.

NS-2605 1.5 180 B 1 CH-46E A NS

Goal. Conduct NS HLL TERF navigation.

Requirement

Discuss:
- CRM.
- Crew comfort levels.
- Obstacle clearance.
- Lookout doctrine.
- NS navigation techniques.
- Emergencies during low level operations.

Introduce:
- NS TERF NAV procedures.

Review:
- Map orientation and NS navigation techniques.
- Navigation along a predetermined route of at least 5 checkpoints remaining oriented along the route.

Performance Standards. While using terrain recognition, demonstrate the ability to assist the pilots in navigation to a minimum of 5 checkpoints, remaining oriented on the route while utilizing NVGs.

Prerequisite. TERF qualified and NS-2601.

External Syllabus Support. TERF route (special use airspace preferred).

NS-2606 1.5 180 B,R 2 CH-46E A NS

Goal. Conduct NS HLL TERF formation flight.

Requirement

Discuss:
- Crew comfort levels.
- CRM.
- NS navigation techniques.
- NS formation techniques.
- Emergency procedures during night low level operations.
- NVG failures.
- Inadvertent IMC.
- Lookout doctrine.

Introduce:
- NS TERF navigation.

Review:
- NS formation techniques to include cruise principles, crossovers, breakup and rendezvous and lead changes.

NS navigation techniques.

Performance Standards. Utilizing terrain recognition, demonstrate the ability to assist the pilots in navigation of a minimum of 5 checkpoints at or below 200' AGL remaining oriented on route while utilizing NVGs.

Prerequisite. TERF qualified NS-2602 and 2605.

External Syllabus Support. NS TERF route (restricted area preferred).

3.13.9 Night Systems (NS), Low Light Level (LLL)

3.13.9.1 Purpose. To qualify the CCUI/AGOUI in NS LLL flight operations.

3.13.9.2 General

a. Successful completion of NS-2655 constitutes NSQ LLL. A qualification letter signed by the commanding officer stating the CCUI/AGOUI is NSQ LLL is required to carry troops under any ambient light level condition. The original shall be placed in the CCUI/AGOUI's NATOPS jacket and APR with a corresponding logbook entry. Upon signature of this document, all aircrew currently NSQ LLL may log events 2651-2655 without flying the associated events.

b. All initial/Rrefresher flights require an NSI.

c. Aircrew shall fly all events in light levels less than .0022 lux.

3.13.9.3 Crew Requirement. CC/AGO, NSI/CCUI or NSI/AGOUI.

3.13.9.4 Ground/Academic Training. Prior to beginning this stage, the CCUI or AGOUI shall be presented the courses and complete the required readings listed in the MAWTS-1 CH-46E Course Catalog.

3.13.9.5 Prerequisites. The following events/designations are prerequisites prior to the commencement of the (NS LLL) stage:

EVENT TYPE	T&R CODE / QUALIFICATION PREREQUISITES
ACADEMIC	NONE
FLIGHT	NS-2606
QUALIFICATION	NSQ HLL

NS-2651 1.5 180 B,R 1 CH-46E A NS

Goal. Introduce single aircraft NS LLL CALs.

Requirement

Discuss:
CRM.
Crew comfort levels.
NS failures.
Emergencies.
Inadvertent IMC.
Aircraft lighting.

Distance estimation.
Depth perception.
Effects of LLL environment on NVGs.
Wave off/brownout procedures.

Introduce:
Confined area takeoffs and landings at various unlit CAL sites under LLL conditions.

Review:
NS-2601.

Performance Standards. Demonstrate the ability to clear the aircraft for landing into confined areas while recognizing closure rate, drift error and effectively utilizing proper distance estimation and depth perception.

Prerequisite. NSQ HLL.

External Syllabus Support. CAL site.

NS-2652 1.5 180 B,R 2 CH-46E A NS

Goal. Introduce NS LLL section CALs.

Requirement

Discuss:
CRM.
Crew comfort levels.
NS navigation techniques.
NS failures.
Emergencies.
Inadvertent IMC.
Aircraft lighting.
Depth perception.
Distance estimation.
Wingman position.
Wave off/brownout procedures.

Introduce:
LLL section CALS.

Review:
Section takeoffs and landings at various unlit CAL sites.

Performance Standards. Demonstrate the ability to clear the aircraft for landing into confined areas while recognizing closure rate, drift error and effectively utilizing proper distance estimation and depth perception. Maintain SA of the wingman throughout the evolution.

Prerequisite. NS-2651.

External Syllabus Support. CAL site.

NS-2653 1.5 180 B 1 CH-46E A NS

Goal. Conduct NS LLL TERF navigation.

Requirement

Discuss:
CRM during NS LLL TERF navigation.
Crew comfort level during NS LLL TERF navigation.
NS LLL navigation techniques.
Map preparation/map study.
Lunar illumination/shadow effects on NS LLL navigation.
NS low altitude emergencies.

Introduce:
TERF navigation while using NS in LLL (navigate a route below 200 feet AGL with at least five checkpoints and remain oriented within 500 meters of course line.

Review: TERF-2305, NS-2606.

Performance Standards. Utilizing terrain recognition, demonstrate the ability to assist the pilots in navigation of a minimum of 5 checkpoints at or below 200' AGL remaining oriented on route while utilizing NVGs.

Prerequisite. NS-2652.

External Syllabus Support. Approved TERF route (special use airspace preferred).

NS-2654 1.5 180 B,R 3+ ACFT A NS

Goal. Conduct NS LLL formation and division CALs.

Requirement

Discuss:
CRM during NS LLL formation.
Crew comfort level during NS LLL formation operations.
External aircraft lighting considerations during NS LLL formation operations.

Introduce:
NS LLL formation.
NS LLL division CALs.

Review:
NS-2604.

Performance Standards. Demonstrate the ability to clear the aircraft for landing into confined areas while recognizing closure rate, drift error and effectively utilizing proper distance estimation and depth perception. Maintain SA of the division throughout the evolution.

Prerequisite. NS-2653.

External Syllabus Support. CAL sites.

NS-2655 1.5 180 B,R 2 CH-46E A NS

Goal. Conduct NS LLL TERF formation, navigation and section CALS. This flight is the NS LLL evaluation flight for qualification as LLL NSQ.

Requirement

Discuss:
- CRM.
- Crew comfort levels.
- Obstacle clearance.
- Lookout doctrine.
- NS navigation techniques.
- Emergencies during low level operations.
- Depth perception.
- Distance estimation.
- Wave off/brownout procedures.

Introduce:
- LLL TERF navigation.

Review:
- Map preparation, orientation, and NS navigation techniques.
- Navigation along a predetermined route of at least 5 checkpoints remaining oriented along the route.
- Aircraft operations in a LLL environment.

Performance Standards. Demonstrate the ability to conduct NS section TERF, NAV, CALs and formation flight in a LLL environment.

Prerequisite. NS-2654.

External Syllabus Support. CAL site and approved NS navigation route.

3.13.10 External Cargo Operations (EXT)

3.13.10.1 Purpose. To introduce external cargo operations in confined areas with Helicopter Support Team (HST) close coordination and develop proficiency with day and Night Systems (NS) external cargo operations.

3.13.10.2 General

a. At the completion of this stage, the CCUI/AGOUI will be able to demonstrate the ability to assist the pilot in day and NS external cargo operations from a confined area. CRM shall be discussed as applicable to each event.

b. Aircrew shall be NSQ for the appropriate light level for flights conducted on NVGs.

c. 3rd crewmember does not need to be proficient in externals if crewmembers only responsibility is lookout doctorine.

3.13.10.3 Crew Requirement

a. EXT-2701 requires CC/AGO, CCI/CCUI/AGO, CCI/AGOUI/AGO.

b. EXT-2703 requires CC/AGO, NSI/CCUI/AGO, NSI/AGOUI/AGO.

3.13.10.4 Ground/Academic Training. Prior to beginning this stage, the CCUI or AGOUI shall be presented the courses listed in the MAWTS-1 CH-46E course catalog.

3.13.10.5 Prerequisites. FAM-2101.

EXT-2701 1.5 365 B,R 1 CH-46E A D

Goal. Conduct day external operations to a confined area.

Requirement

Discuss:
- CRM.
- Communication procedures.
- Aircraft emergencies during external operations.
- Load jettison procedures.
- Capabilities and limitations of the hook.
- External cargo hook preparation.
- Standard terminology.
- Lost communication procedures/hand signals.
- Cargo hook and pendant pre-flight IAW A1-H46AE-NFM-900.

Introduce:
- HST procedures.

Performance Standards. Demonstrate the ability to give commands to the pilot at the controls of the aircraft to effect hookup and delivery of the load to within 15 feet of intended point of delivery with minimal difficulty utilizing standard terminology while maintaining obstacle clearance. Successful completion of EXT-2701 requires a minimum of five hookups and drops.

Prerequisite. CAL-2201.

External Syllabus Support. HST, external load, and pickup/drop zone.

EXT-2703 1.5 365 B,R 1 CH-46E A NS

Goal. Introduce and conduct NS External operations.

Requirement

Discuss:
- CRM.
- Crew comfort levels.
- ICS failure/hand and arm signals.
- Low altitude emergencies.
- Cargo release procedures.
- Cargo hook/pendant illumination.
- Depth perception/rate of descent.
- HST procedures.

NVG procedures/emergencies.
Waveoff.

Introduce:
NS external operations.

Review:
Drift corrections, standard terminology, Lookout procedures during takeoffs, precision approaches, and deliveries with external cargo while utilizing NVGs.

Performance Standards. While utilizing NVGs, demonstrate the ability to give commands to the pilot at the controls of the aircraft to effect hookup and delivery of the load to within 15 feet of intended point of delivery with minimal difficulty, utilizing standard terminology, while maintaining obstacle clearance. Successful completion of EXT-2703 requires a minimum of five hookups and drops.

Prerequisite. EXT-2701, NSQ for the appropriate light level.

External Syllabus Support. Single point load (1,000-4,000 pounds preferred) and HST.

3.13.11 Alternate Insertion/Extraction (AIE)

3.13.11.1 Purpose. To develop proficiency in AIE procedures.

3.13.11.2 General

a. Pilot, copilot, crew chief, HRST Master and HRST Safety Observer shall brief together prior to commencing fast rope, and rappelling.

b. The HRST Master is responsible for the safe and proper rigging of the aircraft for conduct of Fast Rope and rappel. The crew chief shall preflight aircraft rigging.

c. ICS cranials/gunner's belts required for HRST Master.

d. Aircrew shall be NSQ for flights conducted on NVGs.

3.13.11.3 Crew Requirement

a. AIE-2705 requires CC/AGO, CC/CCUI/AGO, or CC/AGOUI/AGO.

b. AIE-2706 requires CC/AGO, NSI/CCUI/AGO, or NSI/AGOUI/AGO.

3.13.11.4 Ground/Academic Training. Utilize the academic courseware as outlined in the MAWTS-1 CH-46E Course Catalog.

3.13.11.5 Prerequisites. The following events/designations are prerequisites prior to the commencement of the (AIE) stage:

EVENT TYPE	T&R CODE / QUALIFICATION PREREQUISITES
ACADEMIC	ACAD-2060
FLIGHT	FAM-2101, CAL-2201
QUALIFICATION	NSQ FOR THE APPROPRIATE LIGHT LEVEL

AIE-2705 1.5 365 B,R 1 CH-46E A D

Goal. Conduct day airborne insertion/extraction (fast rope and rappel) procedures.

Requirement

Discuss:
HIGE/HOGE requirements.
CRM (pilots, crew chief, HRST master, and safety observer brief together).
ICS procedures and standard terminology.
ICS failure/hand and arm signals.
Current Force Order/Wing SOP.
Obstacle clearance and waveoff.
Emergency procedures.
Lookout doctrine.
Weapons employment.

Introduce:
Preflight of the fast rope/rappelling equipment and rigging.
Assisting the pilot in maintaining an extended hover.
Troop insertion via fast rope/rappelling.
Hand and arm signals.

Review:
Fast rope and rappel procedures.

Performance Standards. Demonstrate the knowledge and ability to conduct day fast rope/rappelling.

Prerequisite. CAL 2201, EXT-2701.

External Syllabus Support. Applicable AIE support equipment.

AIE-2706 1.5 * B 1 CH-46E A NS

Goal. Introduce NS fast rope and rappel procedures.

Requirement

Discuss:
CRM during NS AIE operations.
NS considerations during AIE operations.
Emergency procedures during NS AIE operations.

Introduce:
NS fast rope and rappel procedures.

Review:
Preflight of associated equipment and rigging.
Skills involved for holding an extended hover.
Troop insertion/extraction techniques.

Performance Standards. Demonstrate knowledge and ability to conduct NS fast rope/rappelling.

Prerequisite. EXT-2703, AIE-2705.

External Syllabus Support. Applicable AIE support equipment.

3.13.12 Ground Threat Reaction (GTR)

3.13.12.1 Purpose. To introduce and develop proficiency in using Aircraft Survivability Equipment (ASE), tactics, and on-board defensive weapon systems to evade ground-to-air threats.

3.13.12.2 General

a. Conduct GTR-2801 against simulated surface to air fires (Smokey SAMS, MADSS, Malina/BARC, hand-held pyrotechnics, etc).

b. Refer to the ANTTP series publications for additional information and the GTR Program Guide for GTR training standards.

c. .50 cal machine guns shall be mounted for all GTR flights. M240 Ramp Mounted Weapon system (RMWS) may be employed in accordance with NATOPS.

d. GTR flights shall be conducted no lower than 50ft.

e. Enlisted Aircrew instructors shall not have lookout duties during initial training events.

f. All initial flights shall be conducted during the daytime and require a GTR-proficient WTI or AGI.

1. CCUI/AGOUI should be AGQ prior to GTR-2801.

2. If a CCUI/AGOUI attains the GTR-2801 prior to being designated AGQ he/she shall fly GTR-2801 with an AGI or WTI until he/she is designated AGQ.

g. When conducted at night, all aircrew shall be NSQ for the appropriate light level.

h. All event participants shall attend the recommended academic training and flight brief. A walkthrough should be conducted.

3.13.12.3 Minimum Crew Requirements. CC/AGO, CC/AGO/TG, WTI or AGI/CCUI/AGO, WTI or AGI/CC/AGOUI.

3.13.12.4 Ground/Academic Training. Utilize the academic courseware as outlined in the MAWTS-1 Course Catalog and Ground Threat reaction (GTR) Program Guide. Additional training should consist of:

a. Current theater specific ROE training from a Staff Judge Advocate.

b. Enemy situation to include threat systems and related tactics.

3.13.12.5 Prerequisites. The following events/designations are prerequisites prior to the commencement of the (GTR) stage:

EVENT TYPE	T&R CODE / QUALIFICATION PREREQUISITES
ACADEMIC	ACAD-2018, ACAD-2019, ACAD-2020, ACAD-2057 ACAD-2058, ACAD-2059
FLIGHT	FORM-2301, AG-2403
QUALIFICATION	TERFQ

GTR-2801 1.5 365 B,R 2 CH-46E A (NS)

Goal. Introduce ground threat reaction in a non-RADAR environment.

Requirement

Discuss:
- CRM/inter-flight coordination.
- Crew comfort level.
- Lookout doctrine.
- Situational awareness.
- Use of ALE-47, APR-39, ALQ-157, and AAR-47 and ASE Go/No-Go procedures.
- Use of terrain masking, maneuver, IR jammers, and flares to defeat threat IR missiles.
- Tactical expendables.
- Various threat signatures with emphasis on threat recognition.
- Tactical employment of .50 cal weapon system/RMWS against ground threats.
- Aerial gunnery, POO, ROE, PID, and engagement criteria.
- Intra aircraft communication.

Introduce:
- GTR against non-radar threat systems emphasizing use of all onboard ASE and defensive weapon systems.
- Threat avoidance maneuvers and tactics to counter threat systems.
- Appropriate evasive maneuvers when engaged by a non-radar ground based threat, to include defensive suppressive fires.

Review:
- AG-2406.

Performance Standards. All aircrew shall demonstrate proper operation of ASE, understanding and interpretation of AAR indications, effective maneuvering in response to threat, and proper ASE employment with regard to the threat.

Prerequisite. FORM-2301, AG-2403, TERFQ, ACAD-2018, ACAD-2019, ACAD-2020, ACAD-2057, ACAD-2058, ACAD-2059.

Ordnance. 120 flares, 400 rnds .50 cal, (RMWS), (500 rnds 7.62mm).

Range Requirements. Live fire range and threat simulation devices (Smokey SAMS, MADSS, Malina/BARC, hand-held

pyrotechnics, etc.) with sufficient range space to employ and maneuver at least a division of aircraft.

3.13.13 Carrier Qualification (CQ)

3.13.13.1 Purpose. To qualify the CCUI/AGOUI in day and NS FCLPs and train/refresh the crewmember in day and NS shipboard landings.

3.13.13.2 General. Refer to LHA/LPH/LHD NATOPS Manuals and NWP-42 for Shipboard Operations.

a. An NSI is required for initial/Refresher NS FCLP flights and NS CQ flights.

b. Night CQ Requirements for initial/Refresher/delinquent:

1. Five day FCLPs.

2. Five NS FCLPs.

3. Five day CQs.

4. Five NS CQs.

c. Aircrew previously night CQ and proficient shall complete the following to maintain proficiency:

1. Two day FCLPs.

2. Two NS FCLPs.

3. Two day CQs.

4. Two NS CQs.

d. CQ-2902 may be flown under any light level condition. CCUI/AGOUI must be NSQ for appropriate light level.

e. Aircrew shall discuss CRM as applicable to each event.

f. CQ-2904 shall be flown under HLL conditions for initial/Refresher qualification. NSI required for initial/refresher NS flights. Currency and re-qualification flights may be flown under any light level condition.

g. CC/AGO is CQ on completion of CQ-2904. A qualification letter signed by the commanding officer stating the CCUI/AGOUI is CQ is required. The original shall be placed in the CCUI/AGOUI's NATOPS jacket and APR with a corresponding logbook entry.

h. CC/AGOs are authorized to carry passengers to and from the ship during daylight hours when proficient in CQ-2903.

i. CC/AGOs are authorized to carry passengers to and from the ship when proficient and current in CQ-2904 and for the appropriate light level.

3.13.13.3 Crew Requirement

a. CQ-2901 requires CC, CCI/CCUI, CCI/AGOUI.

b. CQ-2902 requires either CC/AGO, NSI/CCUI, or NSI/AGOUI.

c. CQ-2903 requires CC, CCI/CCUI, CCI/AGOUI.

d. CQ-2904 requires either CC/AGO, NSI/CCUI, or NSI/AGOUI.

3.13.13.4 Ground/Academic Training. Review appropriate LHA/LPH/LHD NATOPS Manual and NWP-42 for carrier operations.

3.13.13.5 Prerequisites

EVENT TYPE	T&R CODE / QUALIFICATION PREREQUISITES
ACADEMIC	NONE
FLIGHT	CAL-2201
QUALIFICATION	NSQ FOR APPROPRIATE LIGHT LEVEL

CQ-2901 1.5 365 B,R 1 CH-46E A D

Goal. Conduct day FCLPs.

Requirement

Discuss:
- CRM.
- Communications.
- LSE signals.
- Landing direction.
- Water landings.
- Salt encrustation.
- Waveoff.
- Crew comfort levels.
- Lookout doctrine.

Introduce:
- Day FCLP patterns, approaches, landings, and emergency procedures peculiar to shipboard operations and use LSE signals if available.

Review:
- Appropriate LHA/LPH/LHD NATOPS Manual and NWP-42 for carrier operations.

Performance Standards. Demonstrate the ability/knowledge to perform shipboard flight operations to include LSE hand and arm signals.

Prerequisite. CAL-2201.

External Syllabus Support. Approved FCLP pad.

CQ-2902 1.5 365 B,R 1 CH-46E A NS

Goal. Introduce NS FCLP patterns.

Requirement

Discuss:
CRM.
Communications.
LSE signals.
Aircraft lighting.
Wave off.
Crew comfort levels.
Lookout doctrine.
NVG procedures/operations.

Introduce:
NS FCLP patterns, approaches, landings, and emergency procedures peculiar to shipboard operations. Use LSE light signals if available.

Review:
CQ-2901.

Performance Standards. Demonstrate the ability/knowledge to perform NS shipboard flight operations to include LSE hand and arm signals and be able to assist the pilot to land within 3 feet of intended point of landing.

Prerequisite. NSQ for the appropriate light level and CQ-2901.

External Syllabus Support. Approved FCLP pad.

CQ-2903 1.5 365 B,R 1 CH-46E A D

Goal. Conduct day CQ.

Requirement

Discuss:
CRM.
Communications.
LSE signals.
Shipboard procedures.
Wave off.
Crew comfort levels.
Lookout Doctrine.
Emergency procedures during shipboard operations.

Introduce:
Day carrier landing procedures.

Review:
Day FCLP patterns.
Approaches.
Landings.
Emergency procedures specific to shipboard operations.

Performance Standards. Demonstrate the ability/knowledge to perform shipboard flight operations to include LSE hand and arm signals and be able to assist the pilot to land within 3 feet of intended point of landing.

Prerequisite. CQ-2901.

External Syllabus Support. Air capable ship deck.

CQ-2904 1.5 365 B,R 1 CH-46E A NS

Goal. Conduct NS CQ. This is the carrier qualification evaluation flight for qualification as CQ.

Requirement

Discuss:
- CRM.
- Communications.
- LSE signals.
- NS procedures/operations.
- Aircraft lighting.
- Shipboard lighting.
- Wave off.
- Crew comfort levels.
- Lookout doctrine.

Introduce:
- NS carrier landings.

Review:
- NS FCLP patterns, approaches, landings, and emergency procedures specific to shipboard operations.

Performance Standards. Demonstrate the ability/knowledge to perform NS shipboard flight operations to include LSE hand and arm signals and be able to assist the pilot to land within 3 feet of intended point of landing.

Prerequisite. CQ-2902 and CQ-2903.

External Syllabus Support. NS capable ship deck.

3.14 MISSION SKILL PHASE (3000)

3.14.1 Purpose

3.14.1.1 To introduce and develop proficiency in tactical planning, briefing and execution of a Marine Medium Helicopter squadron's assigned Marine Corps Tasks. The Mission Skill phase enables the squadron commander to assess the squadron's ability to perform its assigned missions in preparation for a deployment, during peacetime training, or while executing military operations.

3.14.1.2 Additionally, the Mission Skill phase allows higher headquarters to assist the squadron with obtaining the resources necessary to execute its assigned missions based on readiness and the squadron commander's assessment of his/her squadron's capabilities. This phase encompasses a combination of academic and flight events to assess the squadron's and/or individual CC/AGOs proficiency in Mission Skills.

3.14.1.3 The focus of this phase is on the following mission areas.

a. Aviation Operations From Expeditionary Sea-Based Sites (MCT 1.3.3.3.1).

b. Aviation Operations From Expeditionary Shore-Based Sites (MCT 1.3.3.3.2).

c. Combat Assault Transport (MCT 1.3.4.1).

d. Rapid Insertion/Extraction (MCT 1.3.4.1.1).

e. Aviation Support of Tactical Recovery of Aircraft and Personnel (TRAP) (MCT 6.2.2.1).

f. Air Evacuation (MCT 6.2.2).

3.14.2 General

3.14.2.1 Attainment of proficiency in Aviation Operations From Expeditionary Sea-Based Sites and Expeditionary Shore-Based Sites are not specific flight events.

3.14.2.2 Currency and proficiency in specific Core Skill flight and academic events by individual CC/AGOs over a certain threshold constitutes overall squadron currency and/or proficiency in these two Mission Skills. If the requisite number of squadron CC/AGOs attain and maintain currency/proficiency in the identified academic/flight Core Skill events, then the corresponding Mission Skill code will be manually logged for that individual CC/AGO in M-SHARP. The following table outlines this process.

MISSION SKILL	CORE SKILL CURRENCY/PROFICIENY T&R EVENTS			LOGGED MISSION SKILL CODE
	ACADEMIC EVENTS	FLIGHT EVENTS		
SEA	NONE	FAM-2101, CAL-2203 FORM-2301, TERF-2305 AG-2407, NS-2607 NS-2654, CQ-2904	=	3101
EXP	NONE	FAM-2101, CAL-2203 FORM-2301, TERF-2305 AG-2407, NS-2607 NS-2654	=	3102

3.14.2.3 Currency, proficiency and re-fly intervals for SEA-3101 and EXP-3102 do not exist. However, the proficiency in these Mission Skill events is a function of their associated Core Skill academic/flight events.

3.14.2.4 CCUIs shall be NSQ for the appropriate light level. AGOUIs shall be NSQ (LLL) before beginning the Mission Skill phase.

3.14.2.5 CCUI/AGOUIs shall be AGQ before beginning the Mission Skill phase.

3.14.2.6 Squadron ordnance shall mount .50 cal machine guns and should utilize the RMWS for all Mission Skill flights. Every attempt should be made

to expend ordnance, however this should not restrict the completion of this event.

3.14.2.7 AT-3103 through AE-3108 constitute specific flight events.

3.14.2.8 Aircrew shall discuss CRM as applicable to each event.

3.14.2.9 Each Mission Skill T&R code shall be individually logged for each CC/AGO upon the completion of the respective event (except SEA-3101 and EXP-3102).

3.14.2.10 Mission Skill T&R codes can be combined in the same flight, and may be flown in any order.

3.14.2.11 Initial TAC-2501 can be flown in conjunction with any day Mission Skill event. Initial and/or refresher TAC-2502 can be flown in conjunction with any NS Mission Skill event.

3.14.2.12 Other applicable T&R events can be conducted in conjunction with the performance of a Mission Skill event.

3.14.2.13 A flight leader (section or above) flying within the Mission Skill flight event can complete an initial or refresher CCUI/AGOUI for AT-3103 through AE-3108, regardless of whether or not the CCUI/AGOUI is flying with the flight leader.

3.14.2.14 An ATF is required for all initial or full refresher AT-3103 through AE-3108 Mission Skill flight events.

3.14.2.15 Proficiency in AT-3103 through AE-3108 Mission Skill events should be used as tool by the squadron commanding officer to assess his squadron's readiness to perform a specific Mission Skill. Loss of proficiency in these events does not preclude the squadron commanding officer from allowing his squadron aircrew to perform an assigned mission. Additionally, loss of proficiency in these events does not prevent any CC/AGO from flying on a Mission Skill flight event with another non-proficient CC/AGO.

3.14.3 Minimum Crew Requirement. Crew composition for SEA-3101 and EXP-3102 are in accordance with the specific Core Skill flight events that correspond with each respective Mission Skill. For AT-3103 through AE-3108, the following is the minimum crew: CC/AGO or CC/AGO/TG.

3.14.4 Ground/Academic Training. Prior to commencement of the Mission Skill phase, the commanding officer or his/her designated representative, should conduct a thorough review of the squadron's assigned MCTs, TEEP, and relevant PTP orders.

AT-3103 1.5 365 B 2+ ACFT A D

Goal. Conduct day assault transport mission utilizing a tactical scenario in a low, medium or high threat environment. The complexity and profile of the tactical scenario is at the discretion of the commanding officer. Additionally, the composition of the flight package can be any combination of two additional aircraft (see External Syllabus Support requirements).

Requirement

Discuss:
- Tactical planning, briefing, and execution.
- Use of onboard ASE during the mission.
- CRM during the ingress, objective area, and egress phases of the mission.
- Rules of engagement as they apply to the mission.
- Use of onboard navigation systems.
- External load operation considerations.
- Escort considerations.
- Marine Air Command and Control System.
- Threat planning and considerations.
- Low versus medium altitude tactics.
- Tactical considerations of HIE.
- Objective area mechanics.
- Aerial gunnery and aviation fires.
- Large flight formation considerations.
- Fire support and airspace control measures.
- Contingency planning and execution.
- Execution checklist.
- Rapid response planning process.

Introduce:
- Tactical planning, briefing, execution, and use of precision navigation systems.
- Large flight formation.
- Large flight confined area landings.
- Escort tactics.
- External load operations (if applicable)
- Objective area mechanics.
- Contingencies.
- Command and control.
- Ground/aviation fires integration.

Performance Standards. CCUI/AGOUIs shall assist pilots in remaining oriented within 500 meters, arrive at LZ or coordinated checkpoint within 30 seconds of briefed plan, land at intended point of landing within 50 meters, demonstrate proper employment of ASE, demonstrate proper use of tactical formations, demonstrate situational awareness of other aircraft through all phases of flight, flight leadership control, demonstrate proper understanding of C4I utilization to facilitate execution and information flow, demonstrate appropriate respect for threat from planning through execution, demonstrate understanding of aircraft maneuver with regard to threat response in concert with proper aerial gunnery employment (if applicable), demonstrate proper understanding of escort considerations, demonstrate proper understanding of secure and active communications, demonstrate understanding of FSCM utilization, demonstrate understanding of contingency considerations.

Prerequisites

EVENT TYPE	T&R CODE / QUAL PREREQUISITES
ACADEMIC	ACAD-3001
FLIGHT	CAL-2203, FORM-2301, TAC-2501, GTR-2801
QUALIFICATION	TERFQ, AGQ, TGQ IF UTILIZNG RMWS

Ordnance. 500 rounds .50 cal, 400 rounds 7.62.

Range Requirements. Authorized TERF area, CAL site, (special use airspace with live fire range preferred). Appropriate aerial gunnery range equipped with multiple scored static/moving targets, ranging from personnel to APC size.

External Syllabus Support. (2) RW Escorts or (2) additional Assault Support aircraft. HST (as applicable), operable ASE, cargo hook/pendant (as applicable).

AT-3104 1.5 365 B,R 2+ ACFT A NS

Goal. Conduct night systems assault transport mission utilizing a tactical scenario in a low, medium or high threat environment. The complexity and profile of the tactical scenario is at the discretion of the commanding officer. Additionally, the composition of the flight package can be any combination of two additional aircraft (see External Syllabus Support requirements). AT-3104 may be performed in either HLL or LLL conditions.

Requirement

Discuss:
- Tactical planning, briefing, and execution.
- Use of onboard ASE during the mission.
- CRM during the ingress, objective area, and egress phases of the mission.
- Rules of engagement as they apply to the mission.
- Use of onboard navigation systems.
- External load operation considerations.
- Escort considerations.
- Marine Air Command and Control System.
- Threat planning and considerations.
- Tactical considerations of HIE.
- Objective area mechanics.
- Aerial gunnery and aviation fires.
- Large flight formation considerations.
- Fire support and airspace control measures.
- Contingency planning and execution.
- Execution checklist.
- Rapid response planning process.

Introduce:
- Tactical planning, briefing, execution, and use of precision navigation systems.
- Large flight formation.
- Large flight confined area landings.

Escort tactics.
External load operations (if applicable)
Objective area mechanics.
Contingencies.
Command and control.
Ground/aviation fires integration.

Performance Standards. CCUI/AGOUIs shall assist pilots in remaining oriented within 500 meters, arrive at LZ or coordinated checkpoint within 30 seconds of briefed plan, land at intended point of landing within 50 meters, demonstrate proper employment of ASE, demonstrate proper use of tactical formations, demonstrate situational awareness of other aircraft through all phases of flight, flight leadership control, demonstrate proper understanding of C4I utilization to facilitate execution and information flow, demonstrate appropriate respect for threat from planning through execution, demonstrate understanding of aircraft maneuver with regard to threat response in concert with proper aerial gunnery employment (if applicable), demonstrate proper understanding of escort considerations, demonstrate proper understanding of secure and active communications, demonstrate understanding of FSCM utilization, demonstrate understanding of contingency considerations.

Prerequisites

EVENT TYPE	T&R CODE / QUAL PREREQUISITES
ACADEMIC	ACAD-3001
FLIGHT	TAC-2502, GTR-2801
QUAL	TERFQ, NSQ FOR THE APPROPRIATE LIGHT LEVEL, AGQ, TGQ IF UTILIZING RMWS

Ordnance. 500 rounds .50 cal, 400 rounds 7.62.

Range Requirements. Authorized TERF area, CAL site, (special use airspace with live fire range preferred). Appropriate aerial gunnery range equipped with multiple scored static/moving targets, ranging from personnel to APC size.

External Syllabus Support. (2) RW Escorts or (2) additional Assault Support aircraft. HST (as applicable), operable ASE, cargo hook/pendant (as applicable).

RIE-3105 1.5 365 B 2+ ACFT D

Goal. Conduct a day raid utilizing a tactical scenario in a low, medium or high threat environment. Actual escort aircraft (FW or RW) should be used to the maximum extent possible. However, absence of escort assets should not prevent completion of the flight event. The complexity and profile of the tactical scenario is at the discretion of the commanding officer.

Requirement

Discuss:
- Tactical planning, briefing, and execution.
- Use of onboard ASE during the mission.
- CRM during the ingress, objective area, and egress phases of the mission.
- Rules of engagement as they apply to the mission.
- Use of onboard navigation systems.
- Escort considerations.
- Marine Air Command and Control System.
- Threat planning and considerations.
- Objective area mechanics.
- Aerial gunnery and aviation fires.
- Fire support and airspace control measures.
- Contingency planning and execution.
- Execution checklist.
- Rapid response planning process.

Introduce:
- Tactical planning, briefing, execution, and use of precision navigation systems.
- Escort tactics.
- Objective area mechanics.
- Contingencies.
- Command and control.
- Ground/aviation fires integration.

Performance Standards. CCUI/AGOUIs shall assist the pilots in remaining oriented within 500 meters, arrive at LZ or coordinated checkpoint within 30 seconds of briefed plan, land at intended point of landing within 50 meters, demonstrate proper employment of ASE, demonstrate proper use of tactical formations, demonstrate situational awareness of other aircraft through all phases of flight, flight leadership control, demonstrate proper understanding of C4I utilization to facilitate execution and information flow, demonstrate appropriate respect for threat from planning through execution, demonstrate understanding of aircraft maneuver with regard to threat response in concert with proper aerial gunnery employment (if applicable), demonstrate proper understanding of escort considerations, demonstrate proper understanding of secure and active communications, demonstrate understanding of FSCM utilization, demonstrate understanding of contingency considerations.

Prerequisites

EVENT TYPE	T&R CODE / QUAL PREREQUISITES
ACADEMIC	ACAD-3006
FLIGHT	CAL-2203, FORM-2301, TAC-2502, GTR-2801
QUALIFICATION	TERFQ, AGQ, TGQ IF UTILIZING THE RMWS

Ordnance. 500 rounds .50 cal, 400 rounds 7.62.

Range Requirements. Authorized TERF area, CAL site, (special use airspace with live fire range preferred). Appropriate aerial gunnery range equipped with multiple scored static/moving targets, ranging from personnel to APC size.

External Syllabus Support. Escort aircraft. Ground combat element Marines.

RIE-3106 1.5 365 B,R 2+ ACFT NS

Goal. Conduct a night systems raid utilizing a tactical scenario in a low, medium or high threat environment. Actual escort aircraft (FW or RW) should be used to the maximum extent possible. However, absence of escort assets should not prevent completion of the flight event. RAID-3106 may be flown in either HLL or LLL conditions. The complexity and profile of the tactical scenario is at the discretion of the commanding officer.

Requirement

Discuss:
- Tactical planning, briefing, and execution.
- Use of onboard ASE during the mission.
- CRM during the ingress, objective area, and egress phases of the mission.
- Rules of engagement as they apply to the mission.
- Use of onboard navigation systems.
- Escort considerations.
- Marine Air Command and Control System.
- Threat planning and considerations.
- Objective area mechanics.
- Aerial gunnery and aviation fires.
- Fire support and airspace control measures.
- Contingency planning and execution.
- Execution checklist.
- Rapid response planning process.

Introduce:
- Tactical planning, briefing, execution, and use of precision navigation systems.
- Escort tactics.
- Objective area mechanics.
- Contingencies.
- Command and control.
- Ground/aviation fires integration.

Performance Standards. CCUI/AGOUIs shall assist the pilots in remaining oriented within 500 meters, arrive at LZ or coordinated checkpoint within 30 seconds of briefed plan, land at intended point of landing within 50 meters, demonstrate proper employment of ASE, demonstrate proper use of tactical formations, demonstrate situational awareness of other aircraft through all phases of flight, flight leadership control, demonstrate proper understanding of C4I utilization to facilitate execution and information flow, demonstrate

appropriate respect for threat from planning through execution, demonstrate understanding of aircraft maneuver with regard to threat response in concert with proper aerial gunnery employment (if applicablo), domonstrate proper understanding of escort considerations, demonstrate proper understanding of secure and active communications, demonstrate understanding of FSCM utilization, demonstrate understanding of contingency considerations.

Prerequisites

EVENT TYPE	T&R CODE / QUAL PREREQUISITES
ACADEMIC	ACAD-3006
FLIGHT	CAL-2203, FORM-2301, TAC-2502, HIE-2706, GTR-2801
QUALIFICATION	TERFQ, NSQ FOR THE APPROPRIATE LIGHT LEVEL, AGQ, TGQ IF UTILIZING THE RMWS

Ordnance. 500 rounds .50 cal, 400 rounds 7.62.

Range Requirements. Authorized TERF area, CAL site, (special use airspace with live fire range preferred). Appropriate aerial gunnery range equipped with multiple scored static/moving targets, ranging from personnel to APC size.

External Syllabus Support. Escort aircraft. Ground combat element Marines.

TRAP-3107 1.5 365 B,R 2+ ACFT A (NS)

Goal. Conduct day or night systems air support mission for the tactical recovery of aircraft or personnel utilizing a tactical scenario in a low, medium or high threat environment. The complexity and profile of the tactical scenario is at the discretion of the commanding officer. If TRAP-3106 is performed at night, it can be accomplished in either HLL or LLL conditions.

Requirement

Discuss:

- Tactical planning, briefing, and execution.
- Use of onboard ASE during the mission.
- CRM during the ingress, objective area, and egress phases of the mission.
- Rules of engagement as they apply to the mission.
- Use of onboard navigation systems.
- Personnel recovery and theater TRAP procedures.
- CSAR considerations and SPINS.
- Marine Air Command and Control System.
- Threat planning and considerations.
- Objective area mechanics.
- Fire support and airspace control measures.
- Rescue mission commander responsibilities.
- Rescue vehicle responsibilities.
- Authentication and encryption.

Hoist and rescue operations.
TRAP template.
Airspace coordination considerations.
Execution checklist.
Rapid response planning process.

Introduce:
Tactical planning, briefing, execution, and use of precision navigation systems.
Command and control.
TRAP procedures.
Rescue operations.
Authentication and encryption.
Escort considerations.
Objective area mechanics.

Performance Standards. CCUI/AGOUIs shall assist the pilots in remaining oriented within 500 meters, arrive at LZ or coordinated checkpoint within 30 seconds of briefed plan, land at intended point of landing within 50 meters, demonstrate proper employment of ASE, demonstrate proper use of tactical formations, demonstrate SA of other aircraft through all phases of flight, flight leadership control, demonstrate proper understanding of NS considerations with multiple aircraft aerial gunnery, demonstrate proper understanding of C4I utilization to facilitate execution and information flow, demonstrate appropriate respect for threat from planning through execution, demonstrate understanding of aircraft maneuver with regard to threat response in concert with proper aerial gunnery employment, demonstrate proper understanding of escort considerations, demonstrate proper understanding of secure and active communications, demonstrate understanding of FSCM utilization, demonstrate understanding of contingency operations.

Prerequisites

EVENT TYPE	T&R CODE / QUAL PREREQUISITES
ACADEMIC	ACAD-3000
FLIGHT	CAL-2203,FORM-2301 TAC-2501,TAC-2503(IF FLOWN AT NIGHT) GTR-2801
QUAL	TERFQ, AGQ, NSQ FOR APPROPRIATE LIGHT LEVEL, TGQ IF RMWS IS UTILIZED

Ordnance. Optional.

Range Requirements. Authorized TERF area, CAL site, (special use airspace with live fire range preferred). Appropriate aerial gunnery range equipped with multiple scored static/moving targets, ranging from personnel to APC size.

AE-3108 1.5 365 B,R 2+ ACFT A (NS)

Goal. Conduct day or night systems air evacuation mission utilizing a tactical scenario in a low, medium or high threat environment. The complexity and profile of the tactical scenario is at the discretion of the commanding officer. The intent of this Mission Skill is to assess the squadron's capability to conduct a casualty evacuation or non-combatant evacuation mission. Therefore, the tactical scenario used should account for either or both profiles. If AE-3107 is performed at night, it can be accomplished in either HLL or LLL conditions.

Requirement

Discuss:
- Tactical planning, briefing, and execution.
- Use of onboard ASE during the mission.
- CRM during the ingress, objective area, and egress phases of the mission.
- Rules of engagement as they apply to the mission.
- Collateral damage.
- Permissive, restrictive and non-permissive operating environments.
- F-77 reports.
- Evacuation control center.
- Historical case studies of non-combatant evacuation operations.
- CASEVAC versus MEDEVAC.
- Aircraft configuration considerations for CASEVAC.
- Use of onboard navigation systems.
- Threat planning and considerations.
- Objective area mechanics.
- Fire support and airspace control measures.
- Execution checklist.
- Rapid response planning process.

Introduce:
- Tactical planning, briefing, execution, and use of precision navigation systems.
- Command and control.
- CASEVAC.
- Non-combatant evacuation operations.
- Escort considerations.
- Objective area mechanics.

Performance Standards. CCUI/AGOUIs shall assist pilots in remaining oriented within 500 meters, arrive at LZ or coordinated checkpoint within 30 seconds of briefed plan, land at intended point of landing within 50 meters, demonstrate proper employment of ASE, demonstrate proper use of tactical formations, demonstrate SA of other aircraft through all phases of flight, flight leadership control, demonstrate proper understanding of C4I utilization to facilitate execution and information flow, demonstrate appropriate respect for threat from planning through execution, demonstrate understanding of aircraft maneuver with regard to

threat response in concert with proper aerial gunnery employment, demonstrate proper understanding of escort considerations, demonstrate proper understanding of secure and active communications, demonstrate understanding of FSCM utilization, demonstrate understanding of contingency operations.

Prerequisites

EVENT TYPE	T&R CODE / QUAL PREREQUISITES
ACADEMIC	ACAD-3002, ACAD-3003
FLIGHT	CAL-2203,FORM-2301, TAC-2501, TAC-2502(IF FLOWN AT NIGHT) GTR-2801
QUAL	TERFQ, NSQ FOR THE APPRORIATE LIGHT LEVEL, AGQ, TGQ IF UTILIZING THE RMWS

Ordnance. Optional.

Range Requirements. Authorized TERF area, CAL site, (special use airspace with live fire range preferred). Appropriate aerial gunnery range equipped with multiple scored static/moving targets, ranging from personnel to APC size.

3.15 CORE PLUS SKILL PHASE (4000)

3.15.1 Purpose. To introduce and develop proficiency in the execution of the Core Plus Skills required for advanced, theater specific, mission dependent or environmentally dependent requirements for an HMM. This phase encompasses a combination of academic and flight events to train that individual CCUI/AGOUI to the level required to conduct the assigned flight and/or Mission Skills.

3.15.2 General

3.15.2.1 Squadron commanding officers shall give due consideration to the scheduling of experienced Crew Chief Instructors to instruct Core Plus Skill phase flight events.

3.15.2.2 Within the Core Plus Skill Phase (4000) there are (9) stages. These stages are as follows:

STAGE	NAME
1	Mountainous Area Training (MAT)
2	Confined Area Landings (CAL)
3	Chemical, Biological, Radiological and Nuclear (CBRN)
4	External Cargo Operations (EXT)
5	Ground Threat Reaction (GTR)
6	Tactics (TAC)
7	Alternate Insertion/Extraction (AIE)
8	Defensive Measures (DM)
9	Carrier Qualification (CQ)

3.15.3 Minimum Crew Requirement. Crew composition (P = Pilot, CP = Co-Pilot, CC = Crew Chief, AGO = Aerial Gunner/Observer) for the Core Plus Skill phase will be delineated within each stage of training.

3.15.4 Ground/Academic Training. Prior to commencement of each stage within the Core Plus Skill phase the required academic syllabus shall be completed in accordance with this manual and the MAWTS-1 CH-46E Course Catalog. The required academic classes will be logged and tracked in M-SHARP.

3.16 CORE PLUS SKILL STAGES (4000)

3.16.1 Mountain Area Training (MAT)

3.16.1.1 Purpose. To develop proficiency in mountainous terrain operations.

3.16.1.2 General

a. Conduct training in mountainous terrain that emphasizes the unique challenges in a high altitude environment. This would include weather, wind, altitude, and slope/pinnacle landings.

b. CRM as applicable to MAT operations.

c. All aircrew shall be NSQ for the appropriate light level being flown.

3.16.1.3 Minimum Crew Requirement. CC/AGO, CCI/CCUI/AGO, or CCI/AGOUI/AGO.

3.16.1.4 Ground Training. Refer to appropriate chapters in the NATOPS Manual for discussion of mountain landing zone characteristics. The MAWTS-1 CH-46E Course Catalog contains the required readings and lectures which shall be completed prior to starting the (MAT) stage.

3.16.1.5 Prerequisites

EVENT TYPE	T&R CODE / QUALIFICATION PREREQUISITES
ACADEMIC	NONE
FLIGHT	CAL-2201
QUALIFICATION	NONE

MAT-4201 1.5 365 B,R 1 CH-46E A D

Goal. Conduct day single ship mountainous terrain operations.

Requirement

Discuss:
- CRM.
- Standard terminology.
- Crew comfort levels.
- Landing site evaluation/terrain suitability.
- Effects of high altitude on aircraft performance.
- Emergency procedures.
- Aircraft clearances.
- Main mount/pinnacle landing procedures.

Introduce:
- Effects of wind in mountainous terrain.
- Landing on pinnacles.
- Landing on slopes.
- Landing in valleys and canyons.
- Crosswind, upslope, and down slope landings with respect to aircraft clearance.

Review: CAL-2201.

Performance Standards. Demonstrate ability and knowledge of landing in mountainous terrain.

Prerequisite. CAL-2201.

External Syllabus Support. Operating area that supports MAT.

MAT-4203 1.5 365 B,R 2 CH-46E A D

Goal. Introduce section aircraft day operations in mountainous terrain.

Requirement

Discuss:
- CRM.
- Crew comfort levels.
- Communication/standard terminology.
- Multi-aircraft operations.
- Lookout doctrine.
- Landing site evaluation/terrain suitability.
- Effects of high altitude on aircraft performance.
- Emergency procedures.

Introduce:

Section operations in mountainous terrain.
Section mountainous area landings.

Review: CAL-2202 and MAT-4201.

Performance Standards. Demonstrate the ability to conduct section landings in mountainous terrain.
Prerequisite. CAL-2202 and MAT-4201.

External Syllabus Support. Operating area that supports multiple aircraft MAT.

MAT-4204 1.5 365 B,R 1 CH-46E A NS

Goal. Introduce NS mountainous area operations.

Requirement

Discuss:
CRM.
Crew comfort levels.
Standard terminology.
Landing site evaluation/terrain suitability.
Aircraft emergencies at night.
NVG failures.
NS navigation techniques.

Introduce:
NS mountainous terrain operations.
NS CALs in mountainous areas.

Review: NS-2601.

Performance Standards. Demonstrate ability to conduct NS MAT.

Prerequisites. MAT-4201, NSQ for the appropriate light level.

External Syllabus Support. Operating area that supports MAT.

3.16.2 Confined Area Landings (CAL)

3.16.2.1 Purpose. To develop crew coordination during unaided confined area operations.

3.16.2.2 General. At the completion of this stage, the CCUI/AGOUI will be able to demonstrate the ability to assist the pilots during unaided CALS.

3.16.2.3 Minimum Crew Requirements. CC/AGO, CCI/CCUI or CCI/AGOUI.

3.16.2.4 Prerequisites. The MAWTS-1 CH-46E Course Catalog contains the required readings and classes which shall be completed prior to starting the (CAL) stage.

EVENT TYPE	T&R CODE / DESIGNATION PREREQUISITES
ACADEMIC	NONE
FLIGHT	CAL-2201
QUALIFICATION	NSQ FOR APPRORIATE LIGHT LEVEL

CAL-4202 1.5 365 B,R 1 CH-46E A N*

Goal. Introduce night unaided CALs.

Requirement

Discuss:
- CRM.
- Obstacle clearance.
- Standard terminology.
- Distance estimation.
- Waveoff/brownout procedures.

Introduce:
- Night unaided CALs.
- Closure rate while unaided.
- Unaided distance estimation.

Review:
- Lookout doctrine.
- ICS procedures.
- Aircraft clearance and terrain suitability.
- Night operations.
- Aircraft lighting and light discipline.

Performance Standards. Demonstrate aircrew responsibilities during night unaided CALs.

Prerequisite. CAL-2201.

Range Requirements. Approved CAL site.

AWT-4209 1.5 365 B,R 1 CH-46E A (N)

Goal. Introduce helicopter operations in a cold weather environment.

Requirement

Discuss:
- Cold dry conditions.
- Blowing snow.
- White-out conditions.
- Aircraft cold weather limitations.
- Aircraft anti-ice.
- Icing.
- Aircraft pre-heating considerations.
- Cold temperature engine start and rotor engagement considerations.
- Physiological effects.

Introduce: Snow landing techniques.

Review: NATOPS Chapter 13.

Performance Standards. Demonstrate ability to conduct aircraft operations in a cold weather environment.

Prerequisite. CAL-2201, NSQ for appropriate light level.

External Syllabus Support. Snow on the ground in the landing zone.

DES-4211 1.5 365 B,R 1 CH-46E A (N)

Goal. Introduce helicopter operations in a desert environment.

Requirement

Discuss:
- High density altitude.
- Blowing sand.
- Brown-out conditions.
- Aircraft hot weather performance limitations.
- Desert landing techniques.
- Waveoffs in brown-out conditions.
- Physiological effects.

Introduce: Desert landing techniques.

Review: NATOPS Chapter 13.

Performance Standards. Demonstrate ability to conduct aircraft operations in a desert environment.

Prerequisites. CAL-2201, NSQ for appropriate light level.

External Syllabus Support. Desert environment.

3.16.3 Chemical, Biological, Radiological and Nuclear (CBRN)

3.16.3.1 Purpose. To develop proficiency with the NAVAIR approved CBRN mask protective assembly during normal and tactical flight operations to include flight operations while wearing NVGs.

3.16.3.2 General

a. For the safe execution of initial CBRN flights, 1 pilot and 1 aircrewman shall remain unmasked when conducted in the aircraft. On subsequent flights all aircrew may remain masked. When using the NAVAIR approved CBRN mask during NS training flights, 1 pilot and 1 aircrewman shall remain unmasked due to the restricted field of view when using NVGs with the NAVAIR approved CBRN mask.

b. Initial CBRN-4207 training flight will be flown in HLL conditions. Proficiency flights may be flown in LLL.

c. NSI required for all initial NS instructional flights.

d. Aircrew shall be NSQ for the appropriate light level for proficiency flights.

3.16.3.3 Minimum Crew Requirements. CC/AO, CCI/CCUI or CCI/AGOUI.

3.16.3.4 Ground Training

a. Discuss and review CBRN information contained in NWP 3-22.5-CH-46E.

b. Discuss AR-5 hookup and operating procedures in the aircraft.

c. Egress drills with full CBRN protective equipment simulating both overland and overwater emergencies shall be completed prior to CBRN instructional flights.

3.16.3.5 Prerequisites

EVENT TYPE	T&R CODE / DESIGNATION PREREQUISITES
ACADEMIC	NONE
FLIGHT	CAL-2201
QUALIFICATION	NSQ HLL

CBRN-4206 1.0 365 B,R 1 CH-46E A D

Goal. Conduct day normal flight operations in a simulated CBRN environment.

Requirement

Discuss:
- Aircrew protective ensemble.
- Nuclear effects to aircraft and aircrew.
- Chemical and Biological agents, their effects and aircrew protective measures.
- Decontamination considerations.
- CRM in a CBRN environment to include emergency procedures.
- Operation capabilities and limitations of protective masks.
- Physiological limitations and fatigue factors imposed by CBRN protective equipment.
- Heliborne operations in a CBRN environment.

Demonstrate: Donning, adjustments and doffing of the NAVAIR approved CBRN mask.

Introduce: (with NAVAIR approved CBRN mask donned)
- Ground operations.
- Airfield pattern operations.
- CALs.

Performance Standards. Demonstrate the ability to perform crew responsibilities in a CBRN environment.

Prerequisites. CAL-2201.

External Syllabus Support. An area suitable to conduct CAL operations.

CBRN-4207 1.0 365 B,R 1 CH-46E A NS

Goal. Conduct NS normal flight operations in a simulated CBRN environment.

Requirement

Discuss:
CRM in a CBRN environment to include emergency procedures.
Heliborne operations at night in a CBRN environment.
NVG failures.
Limitations of mask pertaining to flight scan and visual acuity.
Limitations and fatigue factors imposed by CBRN protective equipment.
Proper mask maintenance and factors which render the mask unserviceable.
Limitations of NVGs caused by mask affecting scan and visual acuity.
Limitations and fatigue factors imposed by CBRN protective equipment and NVGs.
Operational capabilities, limitations and compatibility of the NAVAIR approved CBRN mask and NVGs.

Introduce: (with NAVAIR approved CBRN mask and NVGs donned)
Ground operations.
Airfield pattern operations.
CALs.

Demonstrate: Donning, adjustments, and doffing of the NAVAIR approved CBRN mask with NVGs.

Performance Standards. Demonstrate knowledge and ability to perform NS CBRN operations.

Prerequisites. CBRN-4206 and NSQ for appropriate light level.

External Syllabus Support. NS compatible CAL zone.

3.16.4 External Cargo Operations (EXT)

3.16.4.1 Purpose. To conduct TERF external cargo operations.

3.16.4.2 General

a. CRM applicable to external cargo operations.

b. EXT-4301 requires a TERFI for initial/refresher flight.

c. At the completion of this stage the CCUI/AGOUI will be able to conduct TERF external operations.

3.16.4.3 Minimum Crew Requirements. CC/AGO, TERFI/CCUI/AGO or TERFI/AGOUI/AGO.

3.16.4.4 Ground/Academic Training. Utilize academic courseware as outlined in the MAWTS-1 CH-46E Course Catalog which contains the required readings and lectures which shall be completed prior to starting the (EXT) stage.

EXT-4301 1.5 365 B,R 1 CH-46E A D

Goal. Conduct TERF external cargo operations to a confined area. Fire Bucket training may be conducted in conjunction with this flight event.

Requirement

Discuss:
- CRM.
- External cargo hook operations/preparation.
- Communication procedures.
- Cargo jettison procedures.
- Emergencies with external cargo in the TERF environment.
- Waveoff procedures.
- ICS procedures.
- HST requirements.
- Tactical considerations during TERF external operations.
- Load clearance considerations in the TERF environment.

Additional Discuss Items (for Fire Bucket Training):
- Local and Command SOP's for firefighting.
- Weight and power/ambient conditions.
- Fire behavior/geometry/wind effects.
- Reduced visibility conditions and smoky environments.
- Operations in high DA and mountainous regions.
- Incident Command System (as applicable).
- Coordination with external agencies.
- Crew Coordination.
- Fire Bucket system operation and troubleshooting.
- Bucket filling procedures.
- Water drop techniques and procedures.
- High-density traffic areas.
- Emergency procedures for fire bucket and external operations.
- Jettisoning of loaded fire bucket.

Introduce: External load operations to a confined area in a TERF environment. Complete a minimum of 5 hookup/drops.

Additional Introduction Items (for Fire Bucket Training):
- Dipping operations utilizing Fire Bucket system.
- Intra-flight communications (as applicable).
- Precision delivery of water on a target area.
- Complete a minimum of 5 dips/water drops.

Review:
- TERF-2303.
- Cargo Loading Manual, A1-H46AE-CLG-000.

Performance Standards. While in the TERF environment, demonstrate the ability to give commands to the pilot at the controls of the aircraft to effect hookup and delivery the load within 15 feet of intended point of delivery with minimal difficulty utilizing standard terminology while maintaining obstacle clearance. If conducting fire bucket operations, water is dropped within 10 feet of intended point of drop.

Prerequisite. EXT-2701 and TERFQ.

External Syllabus Support. Load (1,000-4,000 pounds preferred), appropriate fire bucket equipment, HST, authorized TERF route.

3.16.5 Ground Threat Reaction (GTR)

3.16.5.1 Purpose. To introduce and develop proficiency in using Aircraft Survivability Equipment (ASE), tactics, and on-board defensive weapon systems to evade ground-to-air threats.

3.16.5.2 General

a. Conduct GTR-4401 against threat emitters (e.g. SA-8, ZSU 23-4, etc.) and use ground based threat simulation.

b. Refer to the ANTTP series publications for ASE operating procedures. Refer to GTR Program Guide for GTR training standards.

c. .50 cal machine guns shall be mounted for all GTR flights. M240 Ramp Mounted Weapon System (RMWS) may be employed in accordance with NATOPS.

d. Minimum altitude for GTR flights is 50 feet.

e. Enlisted Aircrew instructors shall not have lookout duties during initial training events.

f. All initial flights shall be conducted during the daytime and require a GTR-proficient WTI or DMI.

g. All event participants shall attend the recommended academic training and flight brief. A walkthrough shall be conducted.

h. CCUI/AGOUI shall be AGQ to conduct GTR-4401.

3.16.5.3 Minimum Crew Requirements. CC/AGO, DMI or WTI/CCUI/AGO, DMI or WTI/CC/AGOUI.

3.16.5.4 Ground Training. Utilize academic courseware as outline in the MAWTS-1 CH-46E Course Catalog and GTR Program Guide. Additional training should consist of:

a. Current theater specific ROE training from a Staff Judge Advocate.

b. Enemy situation to include threat systems and related tactics.

3.16.5.5 Prerequisites

EVENT TYPE	T&R CODE / DESIGNATION PREREQUISITES
ACADEMIC	ACAD-2057, ACAD-2058, ACAD-2059,ACAD-4014
FLIGHT	FORM-2301, GTR-2801
QUALIFICATION	TERFQ, AGQ, TGQ IF UTILIZING THE RMWS, NSQ FOR THE APPROPRIATE LIGHT LEVEL

GTR-4401 1.5 365 B,R 2 CH-46E A (NS)

Goal. Introduce ground threat reactions in a radar environment.

Requirement

Discuss:
- CRM/inter-flight coordination.
- Crew comfort level.
- Lookout doctrine.
- Situational awareness.
- Use of ALE-47, APR-39, ALQ-157, AAR-47, and ASE Go/No-Go criteria.
- Use of RADAR horizons, RADAR masking, maneuver, and chaff to defeat threat RADAR systems.
- Use of terrain masking, maneuver, and chaff to defeat threat radar missiles.
- Tactical expendables.
- Various threat signatures with emphasis on threat recognition.
- Tactical employment of .50 cal weapon systems/RMWS against ground threats.
- Aerial gunnery, POO, ROE, PID, and engagement criteria.
- Intra/inter aircraft communication.
- Tactical formation maneuvering.

Introduce:
- GTR against RADAR threat systems emphasizing use of all onboard ASE and defensive weapon systems.
- Threat avoidance maneuvers and tactics to counter threat systems.
- Appropriate evasive maneuvers when engaged by a ground based threat in a RADAR environment.

Review: FORM-2301.

Performance Standards. CCUI/AGOUIs shall demonstrate proper operation of ASE, understanding and interpretation of APR indications, ability to break lock when tracked, effective maneuvering in response to threat, and proper ASE employment with regard to threat.

Prerequisite. FORM-2301, GTR-2801, TERF-2305, NSQ for appropriate light level, AGQ.

Ordnance. 120 flares, 2 x .50 cal weapon systems with 500 rnds .50 cal, (RMWS and 400 rnds 7.62 optional).

Range Requirements. EW range with functional EW emitter and threat simulation devices (e.g. SA-8, ZSU 23-4, smoke grenades or pyrotechnics, etc.) with sufficient range space to employ and maneuver at least a division of aircraft.

3.16.6 Tactics (High Threat Environment) (TAC)

3.16.6.1 Purpose. To develop proficiency in tactical execution of assault support operations in the following mission areas in a high threat environment.

a. Aviation Operations From Expeditionary Sea-Based Sites (MCT 1.3.3.3.1).

b. Aviation Operations From Expeditionary Shore-Based Sites (MCT 1.3.3.3.2).

c. Combat Assault Transport (MCT 1.3.4.1).

d. Air Delivery (MCT 4.3.4).

e. Aviation Support of Tactical Recovery of Aircraft and Personnel (TRAP) (MCT 6.2.2.1).

f. Air Evacuation (MCT 6.2.2).

3.16.6.2 General

a. CCUI/AGOUI shall attend the mission brief.

b. Squadron ordnance shall mount .50 caliber machine guns for all tactical flights. Consideration should be given to utilizing the Ramp Mounted Weapon System (RMWS).

c. CCUI/AGOUI shall be AG qualified prior to beginning this stage.

d. CCUI/AGOUI shall be NSQ for the light level being flown.

e. Aircrews shall discuss CRM as applicable to each event.

3.16.6.3 Minimum Crew Requirement

a. TAC-4501. CC/AGO, CC/AGO/TG, CCI/CCUI, CCI/AGOUI.

b. TAC-4502. CC/AGO, CC/AGO/TG, NSI/CCUI, NSI/AGOUI.

3.16.6.4 Ground Training. The MAWTS-1 CH-46E Course Catalog contains the required readings and classes which shall be completed prior to starting the (TAC) stage.

3.16.6.5 Prerequisites

EVENT TYPE	T&R CODE / QUAL PREREQUISITES
ACADEMIC	NONE
FLIGHT	TAC-2501 GTR-4401
QUALIFICATION	TERFQ, AGQ, TGQ IF UTILIZING THE RMWS, NSQ FOR THE APPROPRIATE LIGHT LEVEL

TAC-4501 1.5 365 B 2+ ACFT A D

Goal. Conduct a day assault support mission in a high threat environment; incorporate TERF, AG and GTR concepts and skills.

Requirement

Discuss:
- CRM/crew comfort level.
- ASE operations and secure voice capability.
- CBRN considerations.
- Aerial gunnery procedures.

CCUI/AGOUI will assist in planning and execute an assault support mission from a mission statement in a high threat environment. The CCUI/AGOUI will assist the pliot in flying the mission at TERF altitudes. Use escort aircraft (fixed-wing and/or helicopter) if available. Use aggressor aircraft if available. Incorporate the firing of onboard weapon systems.

Review:
- Secure voice and ASE equipment.
- Navigation, timing, formation, defensive weaponry, communication discipline, authentication procedures, escort utilization, and weapons control procedures.

Review: TAC-2501.

Performance Standards. Demonstrate knowledge and ability to perform crew responsibilities in a high threat environment.

Prerequisites. GTR-4401 and TAC-2501.

Ordnance. 40 chaff and 80 flares, 500 rounds .50 cal and/or 7.62.

Range Requirements. Appropriate aerial gunnery range equipped with multiple scored static/moving targets, ranging from personnel to APC size.

External Syllabus Support. As available: live fire (HE preferred), LASER capable, FW/RW Escort/CAS assets, EW Emitter, FW/RW Adversaries, Smokey SAMs.

TAC-4502 1.5 365 B,R 2+ ACFT A NS

Goal. Conduct an NS assault support mission in a high threat environment.

Discuss:
In addition to the TAC-4501 discussion items, discuss NVG operational considerations.

Execute a NS mission similar to TAC-4501. The mission shall be conducted at TERF altitudes.

Emphasize navigation, timing, formation, communication discipline, authentication procedures, escort utilization, and weapons control procedures.

Introduce:
NS high threat tactics.
Review:
TAC-4501.

Performance Standards. Demonstrate knowledge and ability to perform crew responsibilities during NVG operations in a high threat environment.

Prerequisites. TAC-2502 and TAC-4501, NSQ for appropriate light level.

Ordnance. 40 chaff and 80 flares, 500 rounds .50 cal and/or 7.62 if conducting aerial gunnery.

Range Requirements. Appropriate aerial gunnery range equipped with multiple scored static/moving targets, ranging from personnel to APC size.

External Syllabus Support. As available: live fire (HE preferred), LASER capable, FW/RW Escort/CAS assets, EW Emitter, FW/RW Adversaries and Smokey SAMs.

3.16.7 Alternate Insertion/Extraction Techniques (AIE)

3.16.7.1 Purpose. To conduct and develop proficiency in AIE procedures.

3.16.7.2 General

a. Pilot, copilot, crew chief, aerial gunner/observer, HRST Master, and HRST Safety Observer shall brief together prior to commencing fastrope, rappelling, and SPIE.

b. The Jump Master is responsible for the safe and proper rigging of the aircraft for conduct of Aerial Delivery (paraops and cargo drops). The HRST/Cast Master is responsible for the safe and proper rigging of the aircraft for conduct of AIE operations. CCI shall preflight aircraft rigging.

c. ICS cranials and gunner's belts are required for HRST Master/Cast Master/Jump Master.

d. All initial/refresher events shall be conducted as a day evolution.

e. AIE-4703 hoist operations in training shall not use live personnel. Night over water hoist operation in a SAR capacity are not authorized unless the aircraft is equipped with an operable Doppler system.

f. Aircrew must be NSQ (appropriate light level) for flights conducted on NVGs.

3.16.7.3 External Syllabus Support. HRST/Cast/Jump Master and Safety Observer.

3.16.7.4 Minimum Crew Requirements

a. AIE-4701/4702/4703/4704 (Day). CC/AGO, CCI/CCUI, CCI/AGOUI.

b. AIE-4701/4702/4703/4704 (NS). CC/AGO, CCI/CCUI, CCI/AGOUI.

3.16.7.5 Ground Training

a. Review the ANTTP series publications and applicable Force Orders/SOPs.

b. Review NWP 19-1 series for rescue procedures and MCO 3130 series for Category B SAR Unit procedures.

c. The MAWTS-1 CH-46E Course Catalog contains the required readings and lectures which shall be completed prior to starting the (AIE) stage.

3.16.7.6 Prerequisites

EVENT TYPE	T&R CODE / QUAL PREREQUISITES
ACADEMIC	ACAD-2060
FLIGHT	FAM-2101
QUALIFICATION	NSQ FOR THE APPROPRIATE LIGHT LEVEL

AIE-4701 1.5 365 B,R 1 CH-46E A (NS)

Goal. Introduce SPIE rig operations.

Requirement

Discuss:
- HIGE/HOGE requirements.
- CRM.
- ICS procedures and standard terminology.
- ICS failure/hand and arm signals.
- Current Force Order/Wing SOP.
- Emergency procedures.
- Obstacle clearance/waveoff.
- Lookout doctrine.
- SPIE from water.
- NVG considerations when conducted at night.

Introduce:
- Inspection of SPIE Rig.

Troop insertion/extraction via SPIE Rig.

Performance Standards. Demonstrate ability and knowledge to conduct day SPIE operations.

Prerequisite. EXT-2701, EXT-2703 for events conducted at night, NSQ for appropriate light level.

External Syllabus Support. Applicable HIE support equipment, HRST and Safety Observers.

AIE-4702 1.5 365 B,R 1 CH-46E A (NS)

Goal. Introduce helocast/soft duck procedures.

Requirement

Discuss:
- CRM.
- Crew comfort levels.
- Waterfall effect.
- Salt encrustation.
- Ditching procedures.
- Ditching/water landing.

Introduce:
- Helocasting/soft duck procedures.
- Preflight of aircraft, troops and equipment for helo cast or soft duck.

Performance Standards. Demonstrate ability to conduct helocast/soft duck operations.

Prerequisite. TERFQ, NSQ for the appropriate light level.

External Syllabus Support. Cast Master and Safety Observers.

AIE-4703 1.5 365 B,R 1 CH-46E A (NS)

Goal. Introduce hoist for overland/over water operations. [See 3.16.7 b. (5)above].

Requirement

Discuss:
- CRM.
- Crew comfort levels.
- Waterfall effect.
- Salt encrustation.
- Ditching procedures.
- SAR equipment.
- Emergency procedures.
- Cable entanglements/cable cutter.

Introduce:
- Rescue procedures.
- Internal winch/external hoist rigging.
- Hoist procedures for hatch and hell hole.

Use of rescue strop, jungle penetrator, stokes litter and SAR basket.
Emergency procedures including use of Chicago grip, quick splice, and cable cutters
Hand and arm signals used during SAR operations.

Review:
Overwater emergency procedures.
SAR procedures and facilities.

Performance Standards. Demonstrate knowledge and ability to conduct hoisting operations.

Prerequisite. EXT-2701, EXT-2703 if event conducted at night, NSQ for the appropriate light level.

External Syllabus Support. Operational SAR equipment (as available).

AIE-4704 1.5 365 B,R 1 CH-46E A (NS)

Goal. Introduce day or NS aerial delivery procedures.

Requirement

Discuss:
CRM.
Standard terminology.
Tactical considerations for aerial delivery of troops/cargo.
Proper rigging and preflight of equipment for aerial delivery.
ParaOp procedures.
Sensor drop procedures.
ICS procedures.
Emergency procedures.
Movement within aircraft cabin.

Introduce:
ParaOp or sensor drop operations.

Review:
ParaOp or sensor drop procedures.

Performance Standards. Demonstrate the ability to conduct aerial delivery.

Prerequisites. FAM-2101, NSQ for the appropriate light level.

External Syllabus Support. Certified DZ, Jumpmaster and Safety Observers.

3.16.8 Defensive Measures (DM)

3.16.8.1 Purpose. To develop proficiency in tactics and aerial DM used to counter enemy air-to-air threats.

3.16.8.2 General

a. After successful completion of DM-4801/4802 the CCUI/AGOUI is DM qualified. A qualification letter signed by the commanding officer stating the aircrew is DMQ is required to be placed in the aircrew APR and NATOPS jacket with appropriate logbook entry.

b. Aircrews shall not conduct DM training unless the following requirements are met:

(1) A proficient DMI is present in the aircraft for all initial flights.

(2) The flight lead must be DM qualified and specifically brief all applicable DM training rules per the ANTTP series publications.

(3) The flight lead briefs any aggressor aircrew per T&R Program Manual, and covers training rules prior to each flight.

(4) DMI shall not have lookout responsibility during DM training.

c. For helicopter versus helicopter DM, the aggressor aircraft shall be a non-assault helicopter.

d. XM-218s shall be mounted for all DM flights.

e. RMWS should be utilized for proficiency DM flights.

3.16.8.3 Minimum Crew Requirement. CC/AGO, CC/AGO/TG, DMI/CCUI/AGO, DMI/CC/AGOUI.

3.16.8.4 Ground Training. Utilize academic courseware as outlined in the MAWTS-1 CH-46E Course Catalog prior to beginning the (DM) stage.

3.16.8.5 Prerequisites

EVENT TYPE	T&R CODE / QUAL PREREQUISITES
ACADEMIC	ACAD-2058, ACAD-4007, ACAD-4008, ACAD-4050, ACAD-4051
FLIGHT	SEE QUALIFICATION MATRIX
QUALIFICATION	TERFQ, AGQ, TGQ IF UTILIZING THE RMWS

DM-4801 1.5 365 B,R 2 CH-46E A VS 1 RW AGGRESSOR D

Goal. Introduce DM against a RW aggressor.

Requirement

Discuss:
- CRM/Inter-flight coordination.
- Crew comfort level.
- Lookout doctrine.
- Standard terminology.
- Situational Awareness.
- DM training rules.
- Closure rate, radius of turn, and energy state.
- RW weapons parameters and considerations.
- Use of ALE-47, APR-39, ALQ-157, and AAR-47.

Use of onboard weapon systems.
DM against RW aggressor.
Inter/intra aircraft communication.

Introduce: Helicopter versus helicopter DM with an aggressor helicopter per the CH-46E DM Guide.

Review: Helicopter performance characteristics and NATOPS limitations.

Performance Standards. Aircrew shall meet learning objectives as established by the ANTTP series publications, demonstrate effective maneuvering in response to threat, maintain SA of wingman prior to and through evasive maneuvering, proper ASE employment WRT threat, execute per DM training rules and NATOPS limits, demonstrate effective threat evaluation, appropriate threat response, effective inter and intra aircraft communication, understanding of mutual supportability, recognize closure rate, maintain energy state, utilize proper terminology, utilize effective 360 degree lookout doctrine, demonstrate proper threat calls, proper utilization of onboard defensive systems, understanding of threat weapons capabilities and appropriate flight response.

Ordnance. 40 chaff and 80 flares, 2 x XM-218s shall be mounted, consideration should be given to utilizing the RMWS.

Range Requirements. Training area that supports use of expendables and TERF (if available).

External Syllabus Support. Special use airspace preferred, RW adversary (RW platform capable of fwd firing ordnance).

DM-4802 1.5 365 B,R 2 CH-46E A VS 1 FW AGGRESSOR D

Goal. Introduce DM against a FW aggressor. This is the defensive measures evaluation/review flight for certification as DMQ.

Requirement

Discuss:
CRM/inter flight coordination.
Crew comfort level.
Lookout doctrine.
Standard terminology.
Situational Awareness.
Closure rate, radius of turn, and energy state.
FW weapons parameters and considerations.
Use of ALE-47, APR-39, ALQ-157, AAR-47.
DM training rules.
DM against FW aggressor.
Inter/intra cockpit communication.
Use of onboard weapon systems.

Introduce: Helicopter versus FW DM per the CH-46E Helicopter DM Guide.

Performance Standards. Aircrew shall meet learning objectives as established by the ANTTP series publications, demonstrate effective maneuvering in response to threat, maintain SA of wingman prior to and through evasive maneuvering, proper ASE employment WRT threat, execute per DM training rules and NATOPS limits, demonstrate effective threat evaluation, appropriate threat response, effective inter and intra aircraft communication, understanding of mutual supportability, recognize closure rate, maintain energy state, utilize proper terminology, utilize effective 360 degree lookout doctrine, demonstrate proper threat calls, proper utilization of onboard defensive systems, understanding of threat weapons capabilities and appropriate flight response.

Ordnance. 40 chaff and 80 flares, 2 x XM-218s shall be mounted, consideration should be given to utilizing the RMWS.

Range Requirements. Training area that supports use of expendables and TERF (if available).

External Syllabus Support. Special use airspace preferred, FW adversary.

3.16.9 Carrier Qualification (CQ)

3.16.9.1 Purpose. To introduce/refresh the CC/AGO in unaided shipboard landings.

3.16.9.2 General

a. Refer to LHA/LPH/LHD NATOPS Manuals and NWP-42 for air capable ship operations.

b. CQ Requirements

(1) Requirements for initial/refresher/delinquent night unaided CQ events are:

(a) Five day CQs.

(b) Five night unaided CQs.

(2) CC/AGO CQ-4906 proficient per paragraph 2(a) shall complete the following to maintain proficiency:

(a) Two day CQs.

(b) Two night unaided CQs.

c. CC/AGO are authorized to carry passengers under all conditions when proficient in CQ-2904 and CQ-4902, NSQ for the appropriate light level, and IAW NAVMC 3500.14.

d. CC/AGO shall discuss CRM as applicable to each event.

3.16.9.3 Minimum Crew Requirements. CC/AGO, CCI/CCUI, CCI/AGOUI.

3.16.9.4 Ground Training. The MAWTS-1 CH-46E Course Catalog contains the required readings, chalk talks, and lectures which shall be completed prior to starting the (CQ) stage.

3.16.9.5 Prerequisites. CQ-2901.

a. Review appropriate chapters of NWP-42 and the LPH/LHA/LHD NATOPS Manual.

b. Review Ship's Facilities Resume.

CQ-4901 1.5 365 B,1 CH-46E A N*

Goal. Conduct night unaided FCLPs.

Requirement

Discuss:
- CRM.
- Communications.
- LSE signals.
- NS procedures/operations.
- Aircraft lighting.
- Shipboard lighting.
- Wave off.
- Crew comfort levels.
- Lookout Doctrine.

Introduce:
- Night unaided FCLP patterns, approaches, landings, and emergency procedures peculiar to shipboard operations.

Review: CQ-2901.

Performance Standards. Demonstrate the ability/knowledge to perform unaided shipboard flight operations to include LSE hand and arm signals.

Prerequisite. CQ-2901.

External Syllabus Support. Approved FCLP pad.

CQ-4902 1.5 365 B,R 1 CH-46E A N*

Goal. Conduct night unaided CQ.

Requirement

Discuss:
- CRM during shipboard landings.
- Communications used during shipboard landings.
- LSE signals.
- Water landings/ditching.
- Aircraft lighting used during shipboard landings.
- Rotor engagement/disengagement.
- Launch/Recovery wind envelopes.
- LSE signals.

Introduce:
Unaided CQ operations.

Review:
CQ-2901 and CQ-2903.

Performance Standards. Demonstrate the ability/knowledge to perform unaided shipboard flight operations to include LSE hand and arm signals.

Prerequisite. CQ-2903 and CQ-4901.

External Syllabus Support. CQ capable ship.

3.17 MISSION PLUS SKILL PHASE (4000)

3.17.1 Purpose. To introduce and develop proficiency in tactical planning, briefing and execution of a Marine Medium Helicopter squadron's assigned Marine Corps Tasks that involve Core Plus Skills. The Mission Plus skill phase enables the squadron commander to assess his/her squadron's ability to perform Core Plus missions in preparation for a deployment, during peacetime training, or while executing military operations. The squadron commander's decision to train to Mission Plus Skills is at his discretion and/or based on the guidance from higher headquarters. This phase encompasses a combination of academic and flight events to assess the squadron's and/or individual pilot's proficiency in Mission Plus Skills. The focus of this phase is on the following mission area.

Aerial Delivery (MCT4.3.4).

3.17.2 General

3.17.2.1 CC/AGOs shall discuss CRM as applicable to each event.

3.17.2.2 The Mission Plus Skill AD 4503 shall be individually logged for each CC/AGO upon the completion of the event.

3.17.2.3 Other applicable T&R events can be conducted in conjunction with the performance of a Mission Skill event.

3.17.2.4 A flight leader (section or above) flying within the mission Core Plus Skill flight event can complete an initial or Refresher ATF for AD 4503, regardless of whether or not the CC/AGO is flying with the flight leader.

3.17.2.5 An ATF is required for initial or full Refresher AD 4503 Mission Skill flight events.

3.17.3 Minimum Crew Requirement. CC/AGO, CCI/CCUI, CCI/AGOUI.

3.17.4 Ground/Academic Training. Prior to commencement of the Mission Plus Skill phase, the commanding officer, or his/her designated representative, should conduct a thorough review of the squadron's assigned MCTs, TEEP, and relevant PTP orders.

AD-4503 1.5 365 B,R 2+ ACFT A (NS)

Goal. Conduct day or night systems aerial delivery mission utilizing a tactical scenario in a low, medium or high threat environment. The complexity and profile of the tactical scenario is at the discretion of the commanding officer. If AD-4503 is performed at night, it can be accomplished in either HLL or LLL conditions.

Requirement

Discuss:
- Tactical planning, briefing, and execution.
- Use of onboard ASE during the mission.
- CRM during the ingress, objective area, and egress phases of the mission.
- Rules of engagement as they apply to the mission.
- Use of onboard navigation systems.
- Power required versus power available.
- High altitude operations.
- Marine Air Command and Control System.
- Threat planning and considerations.
- Objective area mechanics.
- Fire support and airspace control measures.
- CRM during aerial deliveries.
- Sensor drop procedures.
- Airspace coordination considerations.
- Execution checklist.
- Rapid response planning process.

Introduce:
- Tactical planning, briefing, execution, and use of precision navigation systems.
- Command and control.
- Aerial delivery in a tactical scenario/profile.
- Objective area mechanics.

Performance Standards. CCUI/AGOUIs shall assist pilots with the aerial delivery profile within 50 feet and 10 kts of briefed altitude and airspeed, utilizing established pattern checkpoints, recognize proper closure to insertion point, remain oriented on insertion point/drop zone, demonstrate proper crew resource management/voice commands, and maintain SA of obstacle clearance.

Prerequisites

EVENT TYPE	T&R CODE / QUAL PREREQUISITES
ACADEMIC	NONE
FLIGHT	TAC-2501,TAC-2502(IF FLOWN AT NIGHT, NS-2606(IF FLOWN IN HLL), NS-2655 (IF FLOWN IN LLL)
QUALIFICATION	NSQ FOR THE APPROPRIATE LIGHT LEVEL

Ordnance. Optional.

Range Requirements. Authorized CAL site or drop zone, as applicable, (special use airspace preferred).

External Syllabus Support. Jump Master.

3.18 INSTRUCTOR TRAINING PHASE (5000)

3.18.1 Crew Chief Instructor Under Training (CCIUT)

3.18.2 Purpose. To standardize procedures for qualifying syllabus instructors within the Marine Enlisted Aircrew Training Department (MEAT).

3.18.3 General

3.18.3.1 The CCIUT must demonstrate proficiency in instructing all evolutions in this stage.

3.18.3.2 CCIUT events 5120 through 5128 shall be complete prior to being designated a Marine Enlisted Aircrew Training Instructor (MEAT Instructor).

3.18.3.3 CCIUT may fly a TERF-5125 and receive an FRS TERFQ. This qualification will allow a CCIUT to receive the CCI designation and can only instruct a CCUI during a TERF-1701.

3.18.3.4 CCIUT may fly a night system NS-5127 and receive a FRS NSQ. This Qualification will allow a CCIUT to receive the CCI designation at the completion of their IUT-5128 and be qualified to train in the Night Systems Familiarization Instructor (NSFI) certification course. The CCI can only instruct a CCUI during a NS-1801, NS-1802, NS-1803.

3.18.3.5 Upon completion of the IUT-5128 and designation by the commanding officer, the MEAT Instructor is capable of instructing all Core Skill Introduction phase events to include TERF and NS events.

3.18.3.6 The CCIUT shall have completed the requirements for designation as Night Systems FAM Instructor (NSFI) and TERFI per the MAWTS-1 CH-46E Course Catalog.

3.18.4 Crew Requirements. CCI/CCIUT.

3.18.5 Ground/Academic Training. CCIUT will complete the MEAT ground training syllabus and the Basic Instructor course prior to flying or teaching any syllabus events.

3.18.6 Prerequisites

EVENT TYPE	T&R CODE / QUAL PREREQUISITES
ACADEMIC	MEAT GROUND TRAINING SYLLABUS (FRS), BASIC INSTRUCTOR COURSE (FRS)
FLIGHT	NONE
QUALIFICATION	TERQ, NSQ

FAM-5120 1.5 * E 1 CH-46E A D

Goal. Demonstrate crew chief responsibilities and instructional techniques during familiarization flight.

Requirement
Demonstrate instructional techniques of crew chief responsibilities during a Familiarization flight.

Discuss:
- CRM.
- Course Rules.

Performance Standards. The CCIUT will conform to instructional techniques set forth by the MEAT for all FAM maneuvers per the FRS Standardization Manual and NATOPS Manual.

Prerequisites. Appropriate FRS lesson.

FAM-5121 1.5 * E 1 CH-46E A N*

Goal. Introduce night operations.

Requirement

Discuss:
- Lighting systems.
- Night operations.
- Estimating distances.
- CRM.
  - Adaptability/flexibility.
  - Decision making.

Introduce:
- Light discipline.
- Aircraft lighting.
- Airfield lighting.
- Night lookout doctrine.

Review:
- Night precautionary Landings.
- Night emergency landings.
- Overview of duties.
- Situational awareness.
- Night startup/shutdown procedures.
- Limitations.
- Hot seat procedures.

Performance Standards. Demonstrate CCI responsibilities and instructional techniques during night unaided operations IAW NATOPS.

Prerequisite. FAM-5120.

NAV-5122 1.5 * E 1 CH-46E (N)

Goal. Demonstrate crew chief responsibilities and Navigational instructional techniques.

Requirement

Discuss:
Navigation and identifying positions using charts and maps.

Review:
CRM.
Lost plane procedures.
Time/distance checks.
Distance information and map legend information.
Techniques of instruction.

Performance Standards. Demonstrate proper CCI techniques and responsibilities for all NAV Procedures per the FRS Standardization Manual and NATOPS Manual.

Prerequisite. Appropriate FRS lesson.

CAL-5123 1.5 * E 1 CH-46E A D

Goal. Demonstrate CCI responsibilities and instructional techniques during confined area landings (CALs).

Requirement

Discuss:
Limitations for slope landings.
Clearance in confined area landings.
Wave off.
CRM.
Situational Awareness.
Assertiveness.
Emergency procedures.

Review:
Standard terminology.
Engine failures in flight.

Performance Standards. Demonstrate proper CCI techniques and responsibilities during confined area landing maneuvers per the FRS Standardization Manual and Natops Manual.

Prerequisite. Appropriate FRS lesson.

FORM-5124 1.5 * E 2 CH-46E A D

Goal. Demonstrate CCI responsibilities and instructional techniques used during formation flight operations.

Requirement

Discuss:

Lookout doctrine.
Section CALs
Formation maneuvers.

Review:
Standard terminology.
CALs.
CRM.
Leadership.
Emergencies Procedures.

Performance Standards. Demonstrate proper CCI techniques and responsibilities used during formation flight operations per the FRS Standardization Manual and NATOPS Manual.

Prerequisite. Appropriate FRS lesson.

TERF-5125 1.5 * E 1 CH-46E A D

Goal. Demonstrate CCI responsibilities and instructional techniques during terrain flight maneuvers(TERF).

Requirement

Discuss:
Obstacle clearance.
Standard terminology.
Crew comfort levels.
Wave off.
Clearance in confined areas.
Emergencies during low level operations.
CRM.
Assertiveness.
Communication.

Introduce:
Blade walk.
TERF maneuvers.
Bunts.
Rolls.
Masking and unmasking.
Spiral approach.
Low level quick stop.
Zoom climb.

Review:
Crew responsibilities.
Clearance calls.

Performance Standards. Demonstrate a basic understanding of TERF maneuvers.

Prerequisite. ACAD-0054.

External Syllabus Support. Low level TERF area in controlled airspace.

EXT-5126 1.5 * E 1 CH-46E A D

Goal. Demonstrate crew chief responsibilities and instructional techniques during external cargo procedures.

Requirement

Discuss:
- Static discharge precautions.
- Lost communications.
- Hand signals.
- Emergency release procedures.
- Inspection of cargo hook and pendant.

Review:
- External operations.
- Cargo hook procedures.
- Techniques of instruction

Performance Standards. CCI will conform to instructional techniques set forth by the FRS for all EXT Procedures per the FRS Standardization Manual and Natops Manual.

Prerequisite. Appropriate FRS lesson.

External Syllabus Support. HST, external load, hook and pendant.

NS-5127 1.5 * E 1 CH-46E A NS

Goal. Demonstrate CCI responsibilities and instructional techniques used during NVG operations.

Requirement

Discuss:
- Crew comfort levels.
- NVG failures.
- Depth perception.
- Aircraft lighting.
- Emergency procedures.
- CRM.
  - Mission analysis.
  - Assertiveness.

Introduce:
- Use of NVGs during low level operations.
- Aircraft configuration.
- Taxiing on NVGs.
- Use of NVGs at an unlit field.

Review:
- Communication.
- Lookout doctrine.
- Night startup/shutdown.
- Aircraft lighting.
- Taxiing signals.
- Light discipline.

Crew duties.
Vertigo.

Performance Standards. Apply basic NS skills as outlined in the MAWTS-1 NVD manual, 9th edition.

Prerequisite. Completion of NITE Lab (ACAD-0062) and FAM-5125.

IUT-5128 1.5 * E 1 CH-46E A (N)

Goal. CCIUT standardization check.

Requirement

Discuss:
CCUI duties/responsibilities.
Standard terminology.
External operations.
CALs.
CRM.
Emergency procedures.
Instructional techniques.

Review:
Applicable 1000 phase codes.

Performance Standards. Demonstrate standard CCI procedures, techniques and responsibilities per the FRS Standardization Manual and NATOPS Manual.

Prerequisite. FAM-5120, FAM-5121, NAV-5122, CAL-5123, FORM-5124, TERF-5125, EXT-5126, NS-5127.

External Syllabus Support. As required.

3.18.7 Advanced Instructor POI

3.18.7.1 There are nine graduate level courses that qualify crew chief instructors for specific portions of the T&R syllabus. These courses are as follows:

a. Weapons and Tactics Instructor (WTI Sec MOS 6177).

b. Terrain Flight Instructor (TERFI).

c. Night Systems FAM Instructor (NSFI).

d. Night Systems Instructor (NSI).

e. Defensive Measures Instructor (DMI).

f. Aerial Gunnery Instructor (AGI).

g. Night Systems SAR Instructor (NSSI).

h. Tail Gunnery Instructor (TGI).

i. Crew Chief Instructor (CCI). . . . . .

3.18.7.2 The above courses and applicable training codes are listed in the current MAWTS-1 CH-46E Course Catalog. There will be no refly factors for these instructor flights. T&R syllabus currency in stages is considered sufficient to maintain currency as an instructor. WTIs are only qualified at the Weapons and Tactics Instructor course conducted at MAWTS-1 during WTI.

3.18.8 Special Training POI. This category is designed for aircrew to develop proficiency in flight procedures and techniques involving special training requirements. Due to the special equipment and logistical support, facilities or supporting units required to conduct special training flights, squadrons may complete these flights as appropriate support becomes available and mission requirements dictate.

3.19 REQUIREMENTS, QUALIFICATIONS, DESIGNATIONS (RQD) PHASE (6000)

3.19.1 Purpose. This phase contains required evaluation and flight leadership events to determine qualification for designation in specific flight skills, systems, knowledge, and flight leadership traits.

3.19.2 General. Squadrons should use this phase of training for check flights and designations. The CCUI/AGOUI will demonstrate sound levels of aircraft/flight leadership and judgment required in a combat environment.

3.19.3 NATOPS POI

3.19.3.1 Purpose. To evaluate the airman in knowledge of aircraft systems, performance limitations, emergency procedures and ground operations, and can be used to determine qualification for NATOPS Instructor designation.

3.19.3.2 General

a. This is an annual flight requirement as listed in OPNAVINST 3710.7 and A1-H46AE-NFM-000 (CH-46E NATOPS Manual).

b. This flight code will be used to assist in the management and tracking of annual NATOPS evaluations.

c. The evaluating crew chief shall be a designated NATOPS Instructor/Assistant NATOPS instructor.

d. NATOPS Evaluees shall complete and have a graded Open Book (NTPS-6001), Closed Book (NTPS-6002) prior to the commencement of the actual NATOPS evaluation event (NTPS-6101).

e. Aircrew shall be NSQ for the appropriate light level for all NS flight.

3.19.3.3 Minimum Crew Requirements. NI or ANI/CC, NI or ANI/AGO.

3.19.3.4 NATOPS Training. All requirements delineated in the matrix below shall be completed/graded prior to the evaluation event.

T&R CODE	EVENT
NTPS-6001	CH-46E OPEN BOOK EXAMINATION
NTPS-6002	CH-46E CLOSED BOOK EXAMINATION
NTPS-6003	CH-46E ORAL EXAMINATION

NTPS-6001 3.0 365 Open Book NATOPS Examination

Goal. The Open Book Examination may be taken from the NATOPS question bank question bank. The purpose of the Open Book examination portion is to evaluate the airman's knowledge of the appropriate publications and the aircraft.

Performance Standards
Achieve a minimum grade of Qualified (minimum score of 3.5/4.0) on the Open Book examination. The maximum time for this examination should not exceed one week.

NTPS-6002 1.0 365 Closed Book NATOPS Examination

Goal. The Closed Book Examination may be taken from the NATOPS question bank. The purpose of the Closed Book examination portion is to evaluate the airman's knowledge concerning normal/emergency procedures and aircraft limitations. Questions designated critical will be so marked.

Performance Standards
Achieve a minimum grade of Qualified (minimum score of 3.3) on the Closed Book examination. An incorrect answer to any question in the critical category will result in a grade of Unqualified being assigned to the examination.

Prerequisite. NTPS-6001

NTPS-6003 2.0 365 Oral NATOPS Examination

Goal. The Oral Examination questions may be taken from the NATOPS manual. The instructor/evaluator may draw upon their experience to propose questions of a direct and positive manner and in no way be opinionated to evaluate the airman's knowledge concerning normal/emergency procedures, aircraft systems, limitations, and performance.

Performance Standards.
Achieve a minimum grade of Qualified on the Oral Examination.

Prerequisite. NTPS-6002

NTPS-6101 1.5 365 R,E 1+ CH-46E/WST A (NS)

Goal. CC/AGO annual NATOPS evaluation.

Requirement. Evaluate proficiency using all aspects of the CH-46E as a weapons system. The proficiency expected by the evaluator in this flight shall be commensurate with the experience of the CC or AGO being evaluated.

Discuss: All emergency procedures and Standardization Manual maneuvers.

Performance Standards. The performance expected by the evaluator in this flight shall be commensurate with the experience of the aircrew under evaluation.

Prerequisite. Qualified CC/AGO. For CC/AGOs, the NTPS-6003 (Oral Exam) shall be conducted in conjunction with the flight evaluation.

3.19.4 CRM Training

3.19.4.1 Purpose. To conduct annual CRM training.

3.19.4.2 General

a. Aircrew shall be NSQ for the appropriate light level for all NS flights.

b. CRM Flight may be flown concurrent with any operational or training flight, including NATOPS NTPS-6101.

c. The CRM Flight Evaluator shall be a designated CRM Instructor or CRM facilitator.

3.19.4.3 Minimum Crew Requirement. CRMI or CRMI/CCI, CRMI or CRMI/AGO.

3.19.4.4 Ground/Academic Training. Annual CRM training as outlined in the CH-46E NATOPS Flight Manual and OPNAVINST 1542.7.

CRM-6103 1.5 365 R,E 1+ CH-46E A (NS)

Goal. Practice/review CRM principles presented in the CH-46E CRM class while executing a simulated mission scenario.

Requirement

Discuss:
- Decision making.
- Assertiveness.
- Mission analysis.
- Communication.
- Leadership.
- Adaptability/flexibility.
- Situational awareness.

Evaluate:
- Decision making.
- Assertiveness.
- Mission analysis.
- Communication.
- Leadership.
- Adaptability/Flexibility.
- Situational Awareness.

Emergencies: Perform as required to evaluate the above skills.

Performance Standards. CC/AGOs shall demonstrate effective use of the CRM 7 critical skills areas.

Prerequisite. Completion of the annual CH-46E CRM ground training, ACAD-0007.
External Syllabus Support. WST/APT.

3.19.5 Functional Check Flight Crew Chief (FCFCC) Syllabus

3.19.5.1 Purpose. To develop proficiency in FCF procedures as well as to obtain the squadron FCF Crew Chief (FCFCC) qualification.

3.19.5.2 General

a. CCUI will demonstrate an understanding of, and proficiency in, the maintenance procedures involved in functional check flights (FCF).

b. CCUI will also demonstrate a detailed knowledge of aircraft systems and administrative maintenance procedures. These constitute the minimum requirements for qualification. Additional training may be required due to multiple aircraft configurations currently utilized. While conducting training flights for the 6137 qualification, the T&R event code 2101 will be utilized on the NAVFLIR. Only after successful completion of the 6137 will the 6137 be logged on the NAVFLIR.

c. The Quality Assurance Officer within each squadron shall manage the FCF syllabus.

d. Successful completion of the FCF-6137 constitutes FCFQ. A qualification letter signed by the commanding officer stating the CC is FCF qualified is required. The original shall be placed in the CC's NATOPS jacket and a copy shall be placed in the APR with a corresponding logbook entry.

3.19.5.3 Crew Requirements. FCFCC/FCFCCUI.

3.19.5.4 Ground/Academic Training. Selected reading material from OPNAVINST 4790, CH-46E NATOPS, SOPs, MIMs, etc. as designated by each squadron commanding officer. FCFCCUI shall complete an open book exam.

FCF-6137 1.0 365 B,R 1 CH-46E A D

Goal. FCF designation.

Requirement. Effectively demonstrate the ability to perform a full card FCF.

Discuss
FCF procedures.
Troubleshooting techniques.
Maintenance Instruction Manuals.
NAVAIR A1-H46E-NFM-700 and -700A FCF checklist (A-card).
SqdnO 4790.

Review. NATOPS Chapter 10, FCF checklist.

Performance Standards
Crew chiefs shall demonstrate the ability to conduct a full card (A-card) FCF correctly and efficiently, and demonstrate the ability to troubleshoot aircraft problems.

Prerequisite. Completion of squadron FCF syllabus.

3.20 AVIATION TRAINING FORMS. Contact the CH-46E shop at MAWTS-1 to receive CH-46E Pilot/Crew Chief/AGO T&R syllabus evaluation forms.

3.21 T&R ATTAIN AND MAINTAIN MATRIX

CH-46E ATTAIN / MAINTAIN CORE, MISSION, & CORE+ SKILLS - CREW CHIEF // AERIAL OBSERVER/GUNNER													
EVENT DESCRIPTION	T&R EVENTS		BASIC POI ATTAIN			REFRESHER POI ATTAIN			MAINTAIN			CHAINING	PREREQUISITES
	EVENT	CODE	STAGE	CODE	RE FLY	STAGE	CODE	RE FLY	STAGE	CODE	RE FLY		
CORE SKILLS - 2000 PHASE													
SFAM/INST	SFAM/ INST	2100	FAM INST	2100	*	FAM INST			FAM INST				2050,1902
FAM	FAM/ INST	2101		2101	180		2101	180		2101	180		2050,2100
CALS	CAL	2201	CAL	2201	180	CAL			CAL			2101	2101
SEC CALS	CAL	2202		2202	180							2101,2201	2201
DIV CALS	CAL	2203		2203	180		2203	180		2203	180	2101,2201,2202	2202
TACFORM	FORM	2301	FORM	2301	365	FORM	2301	365	FORM	2301	365	2101	2101
TERF MAN	TERF	2303	TERF	2303	180	TERF			TERF			2101	2051,2101
TERF	TERF	2304		2304	180							2101,2303	2303
SEC TERF	TERF	2305		2305	180		2305	180		2305	180	2101,2301, 2303,2304	2202,2301, 2304
			AG			AG			AG				
DAY SS AG	AG	2401		2401	365							2101	2101
DAY SEC AG	AG	2402		2402	365		2402	365				2101,2401	2401
DAY MLT AG	AG	2403		2403	365		2403	365		2403	365	2101,2401,2402	2402
SS NS AG	AG	2405		2405	365							2101,2401	2403
SEC NS AG	AG	2406		2406	365		2406	365		2406	365	2101,2401,2402,2405	2405
DAY TG	TG	2410	TG	2410	365	TG	2410	365	TG				AGQ
NS TG	TG	2411		2411	365		2411	365		2411	365	2410	2410,2606~HLL, 2655~LLL
DAY LOW/MED THREAT	TAC	2501	TAC	2501	180	TAC			TAC			2201,2202,2301	TERF Q,2203,2801
NS LOW/MED THREAT	TAC	2502		2502	180		2502	180		2502	180	2201,2202,2301,2601, 2602,2603,2651~LLL, 2652~LLL,2501	2501,2606~HLL, 2655~LLL

CH-46E ATTAIN // MAINTAIN CORE, MISSION, & CORE+ SKILLS - CREW CHIEF /// AERIAL OBSERVER/GUNNER

EVENT DESCRIPTION	T&R EVENTS		BASIC POI ATTAIN			REFRESHER POI ATTAIN			MAINTAIN			CHAINING	PREREQUISITES
	EVENT	CODE	STAGE	CODE	RE FLY	STAGE	CODE	RE FLY	STAGE	CODE	RE FLY		
HLL CALS	NS	2601	NS HLL	2601	180	NS HLL	2601	180	NS HLL			2201	2201,2052
HLL FORM	NS	2602		2602	180							2201	2301,2601
HLL SEC CALS	NS	2603		2603	180		2603	180		2603	180	2201,2202,2301,2601, 2602	2202,2602
HLL DIV CALS/FORM	NS	2604		2604	*							2201,2202,2203, 2601,2602,2603	2203,2603,TERF Q
HLL TERF	NS	2605		2605	180							2303,2304	2601,TERF Q
HLL SEC TERF	NS	2606		2606	180		2606	180		2606	180	2201,2202,2301,2303,230 4,2305,2601, 2602,2603,2605	2602,2605,TERF Q
LLL S SHIP CALS	NS	2651	NS LLL	2651	180	NS LLL	2651		NS LLL			2201,2601	NSQ HLL
LLL SEC CALS	NS	2652		2652	180		2652	180				2201,2202,2601,2602, 2603,2651	2651
LLL TERF / NAV	NS	2653		2653	180		2653	180				2301,2303,2304,2305	2652
LLL DIV CALS	NS	2654		2654	180		2654	180		2654	180	2201,2202,2601,2602, 2603,2604,2651,2652, 2653	2653
LLL TERF/ FORM/CALS	NS	2655		2655	180		2655	180		2655	180	2201,2202,2301,2303,230 4,2305,2601, 2602,2603,2605,2606 2651,2652,2653, 2654	2654
DAY EXT	EXT	2701	EXT	2701	365	EXT	2701	365	EXT			2201	2201
NS EXT	EXT	2703		2703	365		2703	365		2703	365	2201,2601~HLL, 2651~LLL,2701	2701,2606~HLL 2655~LLL
DAY FASTROPE /RAPPEL	AIE	2705	AIE	2705	365	AIE	2705	365	AIE	2705	365	2201,2701	2060,2701
NS FASTROPE / RAPPEL	AIE	2706		2706	*							2201,2601,2651~LLL, 2705	2703,2705
NON-RADAR THREAT REACTION	GTR	2801	GTR	2801	365	GTR	2801	365	GTR	2801	365	2301,2303,2304, 2401,2403	See GTR Stage

CH-46E ATTAIN / MAINTAIN CORE, MISSION, & CORE+ SKILLS - CREW CHIEF /// AERIAL OBSERVER/GUNNER

EVENT DESCRIPTION	T&R EVENTS		BASIC POI ATTAIN			REFRESHER POI ATTAIN			MAINTAIN			CHAINING	PREREQUISITES
	EVENT	CODE	STAGE	CODE	RP FLY	STAGE	CODE	RP FLY	STAGE	CODE	RP FLY		
DAY FCLP	CQ	2901	CQ	2901		CQ	2901		CQ			2201	2201
NS FCLP	CQ	2902		2902	365		2902	365				2901	2901,2606~HLL, 2655~LLL
DAY CQ	CQ	2903		2903	365		2903	365				2201,2901	2901
NS CQ	CQ	2904		2904	365		2904	365		2904	365	2201,2601,2651~LLL, 2901,2902,2903	2902,2903
MISSION SKILLS - 3000 PHASE EVENTS													
SEA	SEA	3101	SEA	3101	*	SEA	3101	*	SEA	3101	*		See Stage Matrix
SHORE	EXP	3102	EXP	3102	*	EXP	3102	*	EXP	3102	*		See Stage Matrix
DAY AT	AT	3103	AT	3103	365	AT			AT				See event
NIGHT AT	AT	3104		3104	365		3104	365		3104	365	3103	See event
DAY RIE	RIE	3105	RIE	3105	365	RIE			RIE				See event
NS RIE	RIE	3106		3106	365		3106	365		3106	365	3105	See event
TRAP	TRAP	3107	TRAP	3107	365	TRAP	3107	365	TRAP	3107	365		See event
AE	AE	3108	AE	3108	365	AE	3108	365	AE	3108	365		See event
CORE PLUS SKILLS - 4000 PHASE EVENTS													
DAY MAT	MAT	4201	MAT	4201	365	MAT	4201	365	MAT			2201	2201
DAY SEC MAT	MAT	4203		4203	365		4203	365		4203	365	2101,2201,2202,4201	2202,4201
NS MAT	MAT	4204		4204	365		4204	365		4204	365	2201,2601~HLL, 2651~LLL,4201	4201,2606~HLL, 2655~LLL
UNAIDED CALS	CALS	4202	CALS	4202	365	CALS	4202	365	CALS	4202	365	2201	2201
COLD WEATHER	AWT	4209		4209	*		4209	*				2201, 2601~HLL,2651~LLL	2201, 2606~HLL,2655~LLL
DESERT ENV	DES	4211		4211	*		4211	*					2201, 2606~HLL,2655~LLL
DAY CBRN	CBRN	4206	CBRN	4206	365	CBRN	4206	365	CBRN			2201	2201
NS CBRN	CBRN	4207		4207	365		4207	365		4207	365	2201,2601~HLL,2651~LLL, 4206	2606~HLL,2655~LL, 4206
TERF EXT	EXT	4301	EXT	4301	365	EXT	4301	365	EXT	4301	365	2101,2201,2303,2304, 2305,2701	2701,TERF Q
GTR (RADAR)	GTR	4401	GTR	4401	365	GTR	4401	365	GTR	4401	365	2101,2301,2303,2304, 2305,2801	2301,2801,TERF Q, AGQ,2606~HLL, 2655~LLL

CH-46E ATTAIN / MAINTAIN CORE, MISSION, & CORE+ SKILLS - CREW CHIEF /// AERIAL OBSERVER/GUNNER													
EVENT DESCRIPTION	T&R EVENTS		BASIC POI ATTAIN			REFRESHER POI ATTAIN			MAINTAIN			CHAINING	PREREQUISITES
	EVENT	CODE	STAGE	CODE	RE FLY	STAGE	CODE	RE FLY	STAGE	CODE	RE FLY		
DAY HIGH THREAT	TAC	4501	TAC	4501	365	TAC			TAC			2201,2202,2301, 2303,2305, 2501	2501,4401
NS HIGH THREAT	TAC	4502		4502	365		4502	365		4502	365	2201,2202,2301,2303, 2305,2601,2602,2603, 2605,2606,2501, 2502,2651~LLL, 2653~LLL,2655~LLL,4501	2502,2606~HLL, 2655~LLL,4501
SPIE	AIE	4701	AIE	4701	365	AIE	4701	365	AIE	4701	365	2201,2701	2701,2606~HLL, 2655~LLL
HELOCAST/ SOFTDUCK	AIE	4702		4702	365		4702	365		4702	365	2101	TERF Q, 2606~HLL, 2655~LLL
HOIST OPS	AIE	4703		4703	365		4703	365		4703	365	2101,2701	2701,2606~HLL, 2655~LLL
DAY OR NS AD	AIE	4704		4704	365		4704	365		4704	365		2606-NS, 2655-LLL,2101
RW DM	DM	4801	DM	4801	365	DM	4801	365	DM	4801	365	2301	TERF Q, AGQ,TGQ as appropriate
FW DM	DM	4802		4802	365		4802	365		4802	365	2301	TERF Q, AGQ,TGQ as appropriate
UNAIDED FCLP	CQ	4901	CQ	4901	365	CQ			CQ				2901
UNAIDED CQ	CQ	4902		4902	365		4902	365		4902	365	2301,4901	2903,4901
MISSION PLUS - 4000 PHASE EVENTS													
AERIAL DELIVERY	AD	4503	AD	4503	365	AD	4503	365	AD	4503	365		2101

3.22 T&R SYLLABUS MATRIX. The below matrix summarizes T&R syllabus event information.

CH-46E CREW CHIEF // AERIAL GUNNER/OBSERVER																	
STAGE	TRNG CODE	DESCRIPTION	POI	E	DEVICE	# OF A/C	CON	TEN+	REFLY	#	ACAD	#	SIM	#	FLT	PREREQUISITE	EVENT CONV
1000 PHASE - CORE SKILL INTRODUCTION																	
CORE SKILL INTRODUCTION ACADEMIC EVENTS (ACAD)																	
ACAD	0050	WELCOME ABOARD	B						*		1.0						0050
ACAD	0051	CBTs	B						*		1.0						0051
ACAD	0053	NAV CLASS	B						*		1.0						0053
ACAD	0054	TERF	B						*		1.0						0054
ACAD	0055	CALSs	B						*		1.0						0055
ACAD	0056	FORMATION	B						*		1.0						0056
ACAD	0057	EXTERNAL	B						*		1.0						0057
ACAD	0058	INTERNAL	B						*		1.0						0058
ACAD	0059	FLIGHT EQUIP	B						*		1.0						0059
ACAD	0060	NS CLASS	B						*		1.0						0060
ACAD	0062	NS LAB	B						*		1.0						0062
TOTAL CORE SKILL INTRODUCTION ACAD										11	11.0	0	0.0	0	0.0		
FAMILIARIZATION STAGE (FAM)																	
FAM	1109	GROUND PROCEDURES	B,	E	A	1	D		*						2.0		1109
FAM	1110	INTRO EMERGENCY PROC	B,	E	A	1	D		*						1.5	1109	1110
FAM	1111	REV EMERGENCY PROC	B,	E	A	1	D		*						2.0	1110	1111
FAM	1116	A/C PROCEDURES	B,O	E	A	1	D		*						1.5	1111	1116
FAM	1117	INTRO NIGHT OPS	B,	E	A	1	N*		*						1.5	1116	1117
TOTAL FAM STAGE										0	0.0	0	0.0	5	8.5		
NAVIGATION STAGE (NAV)																	
NAV	1301	NAV	B,O	E	A	1	D		*						1.5	1116	1301
TOTAL NAV STAGE										0	0.0	0	0.0	1	1.5		
CONFINED AREA LANDINGS STAGE (CAL)																	
CAL	1401	SINGLE A/C CALS	B,	E	A	1	D		*						1.5	1116	1401
CAL	1402	SEC CALS	B,O	E	A	1	D		*						1.5	1401, 1501	1402
TOTAL CAL STAGE										0	0.0	0	0.0	2	3.0		
FORMATION STAGE (FORM)																	
FORM	1501	INTRO FORM	B,	E	A	2	D		*						1.5	1402	1501
TOTAL FORM STAGE										0	0.0	0	0.0	1	1.5		

CH-46E CREW CHIEF // AERIAL GUNNER/OBSERVER																	
STAGE	TRNG CODE	DESCRIPTION	POI	E	DEVICE	# OF A/C	CON	TEN+	REFLY	#	ACAD	#	SIM	#	FLT	PREREQUISITE	EVENT CONV
EXTERNAL STAGE (EXT)																	
EXT	1601	INTRO EXTERNAL OPS	B,O	E	A	1	D		*						1.5	1401	1601
TOTAL EXT STAGE										0	0.0	0	0.0	1	1.5		
TERRAIN FLIGHT STAGE (TERF)																	
TERF	1701	INTRO TERF	B,O	E	A	1	D		*						1.5	1116	1701
TOTAL TERF STAGE										0	0.0	0	0.0	1	1.5		
NIGHT SYSTEMS STAGE (NS)																	
NS	1801	INTRO NS OPS	B,	E	A	1	NS		*						1.5		1801
NS	1802	INTRO NS NAV	B,O	E	A	1	NS		*						1.5	1801,1301	1802
NS	1803	INTRO NS CALS	B,O	E	A	1	NS		*						1.5	1802,1401	1803
TOTAL NS STAGE										0	0.0	0	0.0	3	4.5		
CORE SKILL INTRODUCTION REVIEW STAGE (REV)																	
REV	1901	REV	B,O	E	A	1	(N)		*						1.5	1117	1901
TOTAL REV STAGE										0	0.0	0	0.0	1	1.5		
CORE SKILL INTRODUCTION CHECK RIDE STAGE (CSIX)																	
CSIX	1902	CC CHECKRIDE	B,O	E	A	1	(NS)		*						1.5	1117,1301,1501,1601,1701,1803,1901	1902
TOTALCSIX STAGE										0	0.0	0	0.0	1	1.5		
TOTAL 1000 PHASE - CORE SKILL INTRODUCTION										11	11.0	0	0.0	16	25.0		

CH-46E CREW CHIEF // AERIAL GUNNER/OBSERVER																	
STAGE	TRNG CODE	DESCRIPTION	POI	E	DEVICE	# OF A/C	CON	TEN+	REFLY	#	ACAD	#	SIM	#	FLT	PREREQUISITE	EVENT CONV
2000 PHASE EVENTS CORE SKILLS																	
CORE SKILL ACADEMIC EVENTS (ACAD)																	
ACAD	2015	RF SAMS	B,R		CLSR M				*		1.0						2015
ACAD	2016	IR SAM THREAT	B,R		CLSR M				*		1.0						2016
ACAD	2017	AAA THREAT	B,R		CLSR M				*		1.0						2017
ACAD	2018	ALE-47 / AAR-47	B,R, M		CLSR M				365		1.0						2018
ACAD	2019	AN /APR 39	B,R, M		CLSR M				365		1.0						2019
ACAD	2020	ALQ-157	B,R, M		CLSR M				365		1.0						2020
ACAD	2021	RULES OF ENG	B,R		CLSR M				*		1.0						2021
ACAD	2026	RESERVED FOR FUTURE USE															-
ACAD	2028	EXECUTION CHECKLIST	B,R		CLSR M				*		1.0						2028
ACAD	2050	EA TAC CONSIDERATIONS	B,R		CLSR M				*		1.0						2050
ACAD	2051	EA TERF	B,R		CLSR M				*		1.0						2051
ACAD	2052	EA NVD TRAINING	B,R		CLSR M				*		3.0						2052
ACAD	2053	EA FUNDAMENTALS OF AG	B,R, M		CLSR M				365		1.0						2053
ACAD	2054	EA XM-218 / GAU-16	B,R		CLSR M				*		1.0						2054
ACAD	2055	EA LASER AIMING DEVICES	B,R, M		CLSR M				365		1.0						2055
ACAD	2056	EA LASER BORE SIGHTING	B,R		CLSR M				*		1.0						2056
ACAD	2057	EA BASIC EW	B,R		CLSR M				*		1.0						2059
ACAD	2058	CH-46E ASE	B,R, M		CLSR M				365		1.0						2058
ACAD	2059	EA CH-46E GTR	B,R, M		CLSR M				365		1.0						2057
ACAD	2060	AIE	B,R		CLSR M				*		1.5						2060

CH-46E CREW CHIEF // AERIAL GUNNER/OBSERVER																	
STAGE	TRNG CODE	DESCRIPTION	POI	E	DEVICE	# OF A/C	CON	TEN+	REFLY	#	ACAD	#	SIM	#	FLT	PREREQUISITE	EVENT CONV
ACAD	2061	ESCORT OPS	B,R		CLSRM				*		1.0						2061
ACAD	2062	TG	B,R		CLSRM				*		1.0						2062
ACAD	2063	TRAINING AG	B,R		CLSRM				*		1.0						2063
TOTAL CORE SKILL ACAD										23	25.5	0	0.0	0	0.0		
FAMILIARIZATION AND INSTRUMENT STAGE (FAM/INST)																	
FAM	2100	SFAM/INST	B		S		D		*				2.0			2050,1902	2100
FAM	2101	FAM	B,R,M		A	1	(N)		180						1.5	2050,2100	2101
TOTAL FAM/INST STAGE										0	0.0	1	2.0	1	1.5		
CONFINED AREA LANDINGS STAGE (CAL)																	
CAL	2201	CALS	B		A	1	D		180						1.5	210-	2201
CAL	2202	SEC CALS	B		A	2	D		180						1.5	220-	2202
CAL	2203	DIV CALS	B,R,M		A	3+	D		180						1.5	2202	2203
TOTAL CAL STAGE										0	0.0	0	0.0	3	4.5		
TACTICAL FORMATION STAGE (FORM)																	
FORM	2301	TACFORM	B,R,M		A	2	(NS)		365						1.5	210-	2301
TOTAL FORM STAGE										0	0.0	0	0.0	1	1.5		
TERRAIN FLIGHT STAGE (TERF)																	
TERF	2303	TERF MANEUVERS	B		A	1	D		180						1.5	205-,2101	2303
TERF	2304	TERF	B		A	1	D		180						1.5	2303	2304
TERF	2305	SEC TERF	B,R,M		A	2	D		180						1.5	2202,2301,2304	2305
TOTAL TERF STAGE										0	0.0	0	0.0	3	4.5		
AIR-TO-GROUND STAGE (AG)																	
AG	2401	DAY SS AG	B		A	1+	D		365						1.5	210-	2401
AG	2402	DAY SEC AG	B,R		A	2	D		365						1.5	240-	2402
AG	2403	DAY MT AG	B,R		A	1	D		365						1.5	2402	2403
AG	2405	SS NS AG	B		A	1	NS		365						1.5	2403,	2405
AG	2406	SEC NS AG	B,R,		A	2	NS		365						1.5	2405	2406

CH-46E CREW CHIEF // AERIAL GUNNER/OBSERVER																	
STAGE	TRNG CODE	DESCRIPTION	POI	E	DEVICE	# OF A/C	CON	TEN+	REFLY	#	ACAD	#	SIM	#	FLT	PREREQUISITE	EVENT CONV
			M														
TOTAL AG STAGE										0	0.0	0	0.0	5	7.5		
TAIL GUNNERY STAGE (TG)																	
TG	2410	DAY TG	B,R		A	1+	D		365						1.5	AGQ	2410
TG	2411	NS TG	B,R		A	1+	NS		365						1.5	2410,2606~HLL,,2655~LLL	2411
TOTAL TG STAGE										0	0.0	0	0.0	2	3.0		
TACTICS STAGE (TAC)																	
TAC	2501	DAY LOW/MED THREAT	B		A	2+	D		180						1.5	TERF Q,2203,2801	2501
TAC	2502	NS LOW/MED THREAT	B,R,M		A	2+	NS		180						1.5	2501,2606~HLL,2655~LLL	2502
TOTAL TAC STAGE										0	0.0	0	0.0	2	3.0		
NIGHT SYSTEMS HIGH LIGHT LEVEL STAGE (NS HLL)																	
NS HLL	2601	HLL CALS	B,R		A	1	NS HLL		180						1.5	2201,2052	2601
NS HLL	2602	HLL FORM	B		A	2	NS HLL		180						1.5	2301,2601	2602
NS HLL	2603	HLL SEC CALS	B,R,M		A	2	NS HLL		180						1.5	2202,2602	2603
NS HLL	2604	HLL DIV CALS	B		A	3	NS HLL		*						1.5	2203,2603,TERF Q	2604
NS HLL	2605	HLL TERF	B		A	1	NS HLL		180						1.5	2601,TERF Q	2605
NS HLL	2606	HLL SEC TERF/NAV	B,R,M	E	A	2	NS HLL		180						1.5	2602,2605,TERF Q	2606
TOTAL NS HLL STAGE										0	0.0	0	0.0	6	9.0		
NIGHT SYSTEMS LOW LIGHT LEVEL STAGE (NS LLL)																	
NS LLL	2651	LLL CALS	B,R		A	1	NS LLL		180						1.5	NSQ HLL	2651
NS LLL	2652	LLL SEC CALS	B,R		A	2	NS LLL		180						1.5	2651	2652
NS LLL	2653	LLL TERF / NAV	B		A	1	NS LLL		180						1.5	2652	---
NS LLL	2654	LLL DIV CALS	B,R,M		A	3+	NS LLL		180						1.5	2653	2653
NS LLL	2655	LLL TERF / FORM / CALS	B,R,M	E	A	2	NS LLL		180						1.5	2654	2654

CH-46E CREW CHIEF // AERIAL GUNNER/OBSERVER																	
STAGE	TRNG CODE	DESCRIPTION	POI	E	DEVICE	# OF A/C	CON	TEN+	REFLY	#	ACAD	#	SIM	#	FLT	PREREQUISITE	EVENT CONV
TOTAL NS LLL STAGE										0	0.0	0	0.0	5	7.5		
EXTERNAL STAGE (EXT)																	
EXT	2701	DAY EXTERNALS	B,R		A	1	D		365						1.5	2201	2701
EXT	2703	NS EXTERNALS	B,R, M		A	1	NS		365						1.5	2701, 2606~HLL, 2655~LLL	2703
TOTAL EXT STAGE										0	0.0	0	0.0	2	3.0		
HELICOPTER INSERTION AND EXTRACTION STAGE (AIE)																	
AIE	2705	DAY FASTROPE / RAPPEL	B,R, M		A	1	D		365						1.0	2701,2060	2705
AIE	2706	NS FASTROPE / RAPPEL	B		A	1	NS								1.0	2705,2703	2706
TOTAL AIE STAGE										0	0.0	0	0.0	2	2.0		
GROUND THREAT REACTION STAGE (GTR)																	
GTR	2801	NON-RADAR THREAT	B,R, M		A	1	(NS)		365						1.5	See GTR Stage	2801
TOTAL GTR STAGE										0	0.0	0	0.0	1	1.5		
CARRIER QUALIFICATION STAGE (CQ)																	
CQ	2901	DAY FCLP	B,R		A	1	D		365						1.5	2201	2901
CQ	2902	NS FCLP	B,R		A	1	NS		365						1.5	2901, 2606~HLL, 2655~LLL	2902
CQ	2903	DAY CQ	B,R		A	1	D		365						1.5	2901	2903
CQ	2904	NS CQ	B,R, M		A	1	NS		365						1.5	2902,2903	2904
TOTAL CQ STAGE										0	0.0	0	0.0	4	6.0		
TOTAL 2000 PHASE - CORE SKILLS										23	25.5	1	2.0	35	54.5		
3000 PHASE EVENTS MISSION SKILLS																	
MISSION SKILL ACADEMIC EVENTS (ACAD)																	
ACAD	3000	TRAP	B,R						*		1.0						3000
ACAD	3001	MOUT	B,R						*		1.0						3001
ACAD	3002	CASEVAC	B,R						*		1.0						3002
ACAD	3003	NEO EXECUTION	B,R						*		1.0						3003
ACAD	3006	AIR ASSAULT OPERATIONS	B,R						*		1.0						4017
TOTAL MISSION SKILL ACAD										5	5.0	0	0.	0	0.0		

CH-46E CREW CHIEF // AERIAL GUNNER/OBSERVER																	
STAGE	TRNG CODE	DESCRIPTION	POI	E	DEVICE	# OF A/C	CON	TEN+	REFLY	#	ACAD	#	SIM	#	FLT	PREREQUISITE	EVENT CONV
													0				
SEA-BASED OPERATIONS STAGE (SEA)																	
SEA	3101	SEA-BASED OPS	B,R, M		A	1	(NS)		*						1.5	See Stage Matrix	3101
TOTAL SEA STAGE										0	0.0	0	0.0	1	1.5		
SHORE-BASED OPERATIONS STAGE (EXP)																	
EXP	3102	SHORE-BASED OPS	B,R, M		A	1	(NS)		*						1.5	See Stage Matrix	3102
TOTAL EXP STAGE										0	0.0	0	0.0	1	1.5		
ASSAULT TRANSPORT STAGE (AT)																	
AT	3103	DAY AT	B		A	2+	D		180						1.5	See event	3103
AT	3104	NS AT	B,R, M		A	2+	(NS)		180						1.5	See event	3104
TOTAL AT STAGE										0	0.0	0	0.0	2	3.0		
RAPID INSERTION/EXTRACTION STAGE (RIE)																	
RIE	3105	DAY RIE	B		A	3+	D		365						1.5	See event	4503
RIE	3106	NS RIE	B,R, M		A	3+	(NS)		365						1.5	See event	4504
TOTAL AD STAGE										0	0.0	0	0.0	2	3.0		
TACTICAL RECOVERY OF AIRCRAFT AND PERSONNEL STAGE (TRAP)																	
TRAP	3107	TRAP	B,R, M		A	2+	(NS)		365						1.5	See event	3106
TOTAL TRAP STAGE										0	0.0	0	0.0	1	1.5		
AIR EVACUATION STAGE (AE)																	
AE	3108	CASEVAC	B,R, M		A	2+	(NS)		180						1.5	See event	3107
TOTAL AE STAGE										0	0.0	0	0.0	1	1.5		
TOTAL 3000 PHASE - MISSION SKILLS										4	4.0	0	0.0	8	12.0		

CH-46E CREW CHIEF // AERIAL GUNNER/OBSERVER																	
STAGE	TRNG CODE	DESCRIPTION	POI	E	DEVICE	# OF A/C	CON	TEN+	REFLY	#	ACAD	#	SIM	#	FLT	PREREQUISITE	EVENT CONV
4000 PHASE EVENTS CORE PLUS																	
CORE PLUS ACADEMIC EVENTS (ACAD)																	
ACAD	4003	RW OAS	B, R						*		1.0						4003
ACAD	4004	FW OAS	B, R						*		1.0						4004
ACAD	4007	ATTACK HELO THREAT	B, R						*		1.0						4007
ACAD	4008	FIXED WING THREAT	B, R						*		1.0						4008
ACAD	4014	LASER THREAT	B, R						*		1.0						4014
ACAD	4050	DM PART I	B, R						365		1.0						4050
ACAD	4051	DM PART II	B, R						365		1.0						4051
TOTAL CORE PLUS ACAD										7	7.0	0	0.0	0	0.0		
MOUNTAIN AREA TRAINING STAGE (MAT)																	
MAT	4201	DAY MAT	B, R		A	1	D		365						1.5	2201	4201
MAT	4203	DAY SEC MAT	B, R		A	2	D		365						1.5	2202,4201	4203
MAT	4204	NS MAT	B, R		A	1	NS		365						1.5	4201,2606~HLL,2655~LLL	4204
TOTAL MAT STAGE										0	0.0	0	0.0	3	4.5		
CONFINED AREA LANDINGS STAGE (CAL)																	
CAL	4202	UNAIDED CALS	B, R		A	1	N*		365						1.5	2201	4202
CAL	4209	COLD WEATHER	B, R		A	1	(N)		365						1.5	2201,2606~HLL,2655~LLL	4209
CAL	4211	DESERT	B, R		A	1	(N)		365						1.5	2201,2606~HLL,2655~LLL	4211
TOTAL CAL STAGE										0	0.0	0	0.0	3	4.5		
CHEMICAL, BIOLOGICAL, RADIOLOGICAL, NUCLEAR STAGE (CBRN)																	
CBRN	4206	DAY CBRN	B,		A	1	D		365						1.0	2201	4206
CBRN	4207	NS CBRN	B, R		A	1	NS		365						1.0	4206,2606~HLL,2655~LLL	4207
TOTAL CBRN STAGE										0	0.0	0	0.	2	2.0		

CH-46E CREW CHIEF // AERIAL GUNNER/OBSERVER																	
STAGE	TRNG CODE	DESCRIPTION	POI	E	DEVICE	# OF A/C	CON	TEN+	REFLY	#	ACAD	#	SIM	#	FLT	PREREQUISITE	EVENT CONV
													0				
EXTERNAL STAGE (EXT)																	
EXT	4301	TERF EXT	B, R		A	1	D		365						1.5	2701,TERF Q	4301
TOTAL EXT STAGE										0	0.0	0	0.0	1	1.5		
GROUND THREAT REACTION STAGE (GTR)																	
GTR	4401	GTR RADAR	B, R		A	1	(NS)		365						1.5	2301,2801,TERFQ,,AGQ,2606~HLL,2655~LLL	4401
TOTAL GTR STAGE										0	0.0	0	0.0	1	1.5		
TACTICS STAGE (TAC)																	
TAC	4501	DAY HIGH THREAT	B		A	2+	D		365						1.5	2501,4401	4501
TAC	4502	NS HIGH THREAT	B, R		A	2+	NS		365						1.5	2502,4501,2606~HLL,2655~LLL	4502
TOTAL TAC STAGE										0	0.0	0	0.0	2	3.0		
HELICOPTER INSERTION EXTRACTION STAGE (AIE)																	
AIE	4701	SPIE	B, R		A	1	(NS)		365						1.5	2701,2606~HLL,2655~LLL	4701
AIE	4702	HELOCAST/SOFTDUCK	B, R		A	1	(NS)		365						1.5	TERF Q,2606~HLL,2655~LLL	4702
AIE	4703	HOIST OFS	B, R		A	1	(NS)		365						1.5	2701,2606~HLL,2655~LLL	4703
AIE	4704	DAY/ NS AERIAL DELIVERY	B, R		A	1	(NS)		365						1.5	2101, 2606 NS, 2655~LLL	2707
TOTAL AIE STAGE										0	0.0	0	0.0	4	6.0		
DEFENSIVE MEASURES STAGE (DM)																	
DM	4801	RW DM	B, R		A	2	D		365						1.5	TERF Q,AGQ,TG Q	4801
DM	4802	FW DM	B, R		A	2	D		365						1.5	TERF Q,AG Q,TG Q	4802
TOTAL DM STAGE										0	0.0	0	0.0	2	3.0		
CARRIER QUALIFICATION STAGE (CQ)																	
CQ	4901	UNAIDED FCLP	B		A	1	N*		365						1.5	2901	4901
CQ	4902	UNAIDED CQ	B, R		A	1	N*		365						1.5	2903,4901	4902
TOTAL CQ STAGE										0	0.0	0	0.0	2	3.0		

CH-46E CREW CHIEF // AERIAL GUNNER/OBSERVER																	
STAGE	TRNG CODE	DESCRIPTION	POI	E	DEVICE	# OF A/C	CON	TEN+	REFLY	#	ACAD	#	SIM	#	FLT	PREREQUISITE	EVENT CONV
AIRBORNE RAPID INSERTION/EXTRACTION STAGE (RAID)																	
AD	4503	AERIAL DELIVERY	B, R		A	2	(NS)		365					1	1.5	2101	3105
TOTAL AD STAGE										0	0.0	0	0.0	1	1.5		
TOTAL PHASE - CORE PLUS SKILLS										8	8.0	0	0.0	21	30.5		

CH-46E CREW CHIEF // AERIAL GUNNER/OBSERVER																
STAGE	TRNG CODE	DESCRIPTION	POI	E	DEVICE	# OF A/C	CON	TEN+	REFLY	#	ACAD	#	SIM	#	FLT	PREREQUISITE	EVENT CONV
5000 PHASE EVENTS INSTRUCTOR TRAINING																	
FRS INSTRUCTOR UNDER TRAINING STAGE																	
FRSI	5120	DAY TECHNIQUES		E	A	1	D		*						1.5		5120
FRSI	5121	NIGHT UNAIDED TECH		E	A	1	N*		*						1.5	5120	5121
FRSI	5122	NAV		E	A	1	(N)		*						1.5		5122
FRSI	5123	CAL		E	A	1	D		*						1.5		5123
FRSI	5124	FORM		E	A	2	D		*						1.5		5124
FRSI	5125	TERF		E	A	1	D		*						1.5		5125
FRSI	5126	EXT		E	A	1	D		*						1.5		5126
FRSI	5127	NVG		E	A	1	NS		*						1.5		5127
FRSI	5128	STAN CHECK		E	A	1	(N)		*						3.0	5120,5121,5122,5123,5124, 5125,5126,5127	5128
TOTAL FRS INSTRUCTOR STAGE										0	0.0	0	0.0	9	15.0		
AIR-TO-GROUND INSTRUCTOR STAGE (AGI)																	
AGI	5401	DAY AG IUT		E	A	1	D		*						1.5	SEE MAWTS-1 CC	5401
AGI	5402	NS AG IUT		E	A	1	NS		*						1.5	SEE MAWTS-1 CC	5402
AGI	5403	AGI CERT MLT		E	A	1	(NS)		*						1.5	SEE MAWTS-1 CC	5403
AGI	5404	AGI CERT NS SECTION	R	E	A	2	NS		*						1.5	SEE MAWTS-1 CC	5404
TOTAL AG STAGE										0	0.0	0	0.0	4	6.0		
TAIL GUNNERY INSTRUCTOR STAGE (TGI)																	
TGI	5410	TGI IUT DAY		E	A	1	D		*						1.5	SEE MAWTS-1 CC	5410
TGI	5411	TGI IUT NS		E	A	1	NS		*						1.5	SEE MAWTS-1 CC	5411
TGI	5412	TGI CERT	R	E	A	2	(NS)		*						1.5	SEE MAWTS-1 CC	5412
TOTAL TGI STAGE										0	0.0	0	0.0	3	4.5		
NIGHT SYSTEMS SAR INSTRUCTOR STAGE (NSSI)																	
NSSI	5501	NS SS WORK		E	A	1	NS		*						1.5	SEE MAWTS-1 CC	5501
NSSI	5502	LLL CALS / NAV		E	A	1	NS		*						1.5	SEE MAWTS-1 CC	5502
NSSI	5503	LLL CALS / NAV		E	A	1	NS		*						1.5	SEE MAWTS-1 CC	5503
TOTAL NSSI STAGE										0	0.0	0	0.0	3	4.5		
NIGHT SYSTEMS FAM INSTRUCTOR STAGE (NSFI)																	
NSFI	5601	HLL SS WORK		E	A	1	NS		*						1.5	SEE MAWTS-1 CC	5601
NSFI	5602	HLL CAL / NAV		E	A	2	NS		*						1.5	SEE MAWTS-1 CC	5602
TOTAL NSFI STAGE										0	0.0	0	0.0	2	3.0		

CH-46E CREW CHIEF // AERIAL GUNNER/OBSERVER																	
STAGE	TRNG CODE	DESCRIPTION	POI	E	DEVICE	# OF A/C	CON	TEN+	REFLY	#	ACAD	#	SIM	#	FLT	PREREQUISITE	EVENT CONV
TERRAIN FLIGHT INSTRUCTOR STAGE (TERF I)																	
TERFI	5701	DAY TERF MAN		E	A	1	D		*						1.5	SEE MAWTS-1 CC	5701
TERFI	5702	DAY TERF NAV		E	A	2	D		*						1.5	SEE MAWTS-1 CC	5702
TERFI	5703	TERF I CHECK	R	E	A	2	D		*						1.5	SEE MAWTS-1 CC	5703
TOTAL TERF I STAGE										0	0.0	0	0.0	3	4.5		
DEFENSIVE MEASURES INSTRUCTOR STAGE (DMI)																	
DMI	5801	RW/FW DM INSTR TECH		E	A	2	D		*						1.5	SEE MAWTS-1 CC	5801
DMI	5802	RW/FW DMI CHECK	R	E	A	2	D		*						1.5	SEE MAWTS-1 CC	5802
TOTAL DMI STAGE										0	0.0	0	0.0	2	3.0		
NIGHT SYSTEMS INSTRUCTOR STAGE (NSI)																	
NSI	5901	NS INSTR TECH		E	A	1	NS		*						1.5	SEE MAWTS-1 CC	5901
NSI	5902	NS SEC TERF		E	A	2	NS		*						1.5	SEE MAWTS-1 CC	5904
NSI	5905	LLL NSI CHECK		E	A	1	NS		*						1.5	SEE MAWTS-1 CC	5905
NSI	5906	LLL SEC NSI CHECK	R	E	A	2	NS		*						1.5	SEE MAWTS-1 CC	5906
TOTAL NSI STAGE										0	0.0	0	0.0	4	6.0		

CH-46E CREW CHIEF // AERIAL GUNNER/OBSERVER																	
STAGE	TRNG CODE	DESCRIPTION	POI	E	DEVICE	# OF A/C	CON	TEN+	REFLY	#	ACAD	#	SIM	#	FLT	PREREQUISITE	EVENT CONV
6000 PHASE EVENTS REQUIREMENTS, QUALIFICATIONS, AND DESIGNATIONS (RQD)																	
RQD ACADEMIC EVENTS (ACAD)																	
NTPS	6001	NATOPS OPEN BOOK	B,R	E					365		2.0						6001
NTPS	6002	NATOPS CLOSED BOOK	B,R	E					365		2.0					6001	6002
NTPS	6003	NATOPS ORAL EXAM	B,R	E					365		2.0					6002	6003
CRM	6007	CRM CLASS	B,R	E					365		2.0						6007
TOTAL NATOPS ACAD										4	8.0	0	0.0	0	0.0		
NATOPS AND CRM STAGE																	
NTPS	6101	NATOPS EVAL	B,R	E	A	1	(NS)		365						2.0	6003	6101
CRM	6103	CRM EVAL	B,R	E	A/S	1+	(NS)		365						1.5	6007	6103
TOTAL NATOPS & CRM STAGE										0	0.0	0	0.0	2	3.5		
FUNCTIONAL CHECK FLIGHT STAGE (FCF)																	
FCF	6137	FCF FULL CARD CHECK	B,R	E	A	1	D		365						1.0		6137
TOTAL FCF STAGE										0	0.0	0	0.0	1	1.0		