From: Commandant of the Marine Corps  
To:  Distribution List  
Subj:  CH-53K TRAINING AND READINESS MANUAL  
Ref:   (a) NAVMC 3500.14E  
Encl:  (1) CH-53K T&R Manual  

1. **Purpose.** Per the reference, the CH-53K Training and Readiness (T&R) Manual contained in enclosure (1) establishes training standards, regulations, and policies regarding the training of CH-53K aircrews.

2. **Scope**
   
a. This Manual represents the collaborative efforts of subject matter experts from Deputy Commandant for Aviation; Marine Aviation Weapons Tactics Squadron One; Marine Operational Test and Evaluation Squadron One; Naval Air Systems Command; the Total Force; and Training and Education Command, Policy and Standards Division, Aviation Standards Branch.

   b. This first-ever T&R manual for CH-53K aircrews provides training progression as follows:

      (1) Chapter one outlines unit T&R requirements.

      (2) Chapter two, pilot, includes 1000 through 6000 phases of training (core introduction, core, mission, core plus, mission plus, instructor, and designations).

      (3) Chapter three, crew chief, and Chapter four, aerial gunner/observer, mirrors the construct of Chapter two.

3. **Information.** Commanding General (CG), Training and Education Command (TECOM) will update this T&R manual as necessary to provide current and relevant training standards to commanders. All questions pertaining to this manual should be directed to: CG, TECOM, Policy and Standards Division (PSD), 1019 Elliot Road, Quantico, Virginia 22134.

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.
4. Command. This Manual is applicable to the Marine Corps Total Force.

5. Certification. Reviewed and approved this date.

[Signature]
LEWIS A. CRAPAROTTA
Commanding General
Training and Education Command
By direction

DISTRIBUTION: PCN 10031985000
CHAPTER 1
CH-53K TRAINING AND READINESS UNIT REQUIREMENT

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CHAPTER 1

CH-53K TRAINING AND READINESS UNIT REQUIREMENTS

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

1.1  MISSION

1.1.1  Tactical and Reserve Squadron. Support the MAGTF Commander by providing assault support transport of heavy equipment, combat troops, and supplies, day or night under all weather conditions during expeditionary, joint, or combined operations.

1.1.2  FLEET REPLACEMENT SQUADRON. Conduct Core Introduction assault support heavy lift helicopter aircrew training in the CH-53K aircraft and provide technical training for aviation maintenance personnel.

1.2  TABLE OF ORGANIZATION (T/O). Refer to Table of Organization managed by Total Force Structure, MCCDC, for current authorized organizational structure and personnel strength for CH-53K squadrons. As of this publication date, an HMH/Fleet Replacement squadron is authorized.

1.2.1  Tactical Squadron

<table>
<thead>
<tr>
<th>HMH CH-53K</th>
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<tbody>
<tr>
<td>Unit</td>
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<td>Aircraft</td>
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<tr>
<td>Pilots</td>
<td>38</td>
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<tr>
<td>Crew Chiefs</td>
<td>26</td>
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<td>AO/AG**</td>
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1.2.2  Fleet Replacement Squadron

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<td>Instructor Pilots</td>
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<td>21</td>
<td>24</td>
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</tbody>
</table>

*Aerial Observer / Aerial Gunner

1.2.3  HMH Tactical and Reserve Squadron Critical MOS*s

| CH-53K TACTICAL AND RESERVE SQUADRON CRITICAL MOSs |
|---|---|
| MOS Description | PRIMARY MOS | Billet and/or MOS Description | SECONDARY MOS |
| Pilot | Maintenance Control (Safe-for-flight) | 6012 |
| Crew Chief | Collateral Duty Inspector (CDI) | 6016 |
| Aircraft Maintenance Chief | 6019 | Collateral Duty QAR (CDQAR) | 6017 |
| Avionics Tech | Quality Assurance Representative (QAR) | 6018 |
| Airframe Mechanic | WTI Pilot | 7577 |
| Ordnance Technician | 6531 | WTI Crew Chief | 6177 |
| Helicopter Mechanic | Night Systems Instructor | 7547 |
| | Night Systems Crew Chief | 6171 |

*Critical MOS - Those specialties that directly affect the unit’s ability to undertake its mission. Definition per MCO 3000.13.

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

<table>
<thead>
<tr>
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<th>DESCRIPTION</th>
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<tr>
<td>MCT 1.3.4.1</td>
<td>CAT</td>
<td>Conduct Combat Assault Transport</td>
</tr>
<tr>
<td>MCT 4.3.4.1</td>
<td>AD</td>
<td>Conduct Heavy Rotary Wing Air Delivery</td>
</tr>
<tr>
<td>MCT 6.2.1.1</td>
<td>TRAP</td>
<td>Conduct Aviation Support of Tactical Recovery of Aircraft and Personnel</td>
</tr>
<tr>
<td>MCT 6.2.2</td>
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<td>Conduct Air Evacuation</td>
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CORE PLUS

<table>
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<td>Conduct Airborne Rapid Insertion/Extraction</td>
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<td>MCT 1.3.4.2.1</td>
<td>ADGR</td>
<td>Provide Aviation-Delivered Ground Refueling</td>
</tr>
<tr>
<td>MCT 1.3.3.3.1</td>
<td>SEA</td>
<td>Conduct Aviation Operations From Expeditionary Sea-Based Sites</td>
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1.4 MISSION ESSENTIAL TASK (MET) TO SIX FUNCTIONS OF MARINE AVIATION

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<td>MCT 4.3.4.1</td>
<td>AD</td>
<td>X</td>
</tr>
<tr>
<td>MCT 6.2.1.1</td>
<td>TRAP</td>
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CORE PLUS

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<th>SKILL ABBREVIATION</th>
<th>SIX FUNCTIONS OF MARINE AVIATION</th>
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<td>OAS</td>
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<td>MCT 1.3.4.1.1</td>
<td>RIE</td>
<td>X</td>
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<tr>
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<td>ADGR</td>
<td>X</td>
</tr>
<tr>
<td>MCT 1.3.3.3.1</td>
<td>SEA</td>
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</tbody>
</table>
1.5  **MET TO CORE/MISSION/CORE PLUS SKILL MATRIX.** Depicts the relationship between a MET and each Core/Mission/Core Plus/Mission Plus skill associated with the MET for readiness reporting and resource allocation purposes. There shall be a one-to-one relationship between the MET and a corresponding Mission Skill. Shading indicates Core Plus.

<table>
<thead>
<tr>
<th>METS</th>
<th>CORE SKILLS 2000 Phase</th>
<th>MISSION SKILLS 3000 PHASE</th>
<th>CORE PLUS 4000 PHASE</th>
<th>CORE PLUS SKILLS</th>
<th>MISSION PLUS SKILLS</th>
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<td>X</td>
<td>X</td>
<td>X</td>
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<td>X X X X X X X</td>
<td>X X X X X X X</td>
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<td>X</td>
</tr>
<tr>
<td>TRAP</td>
<td>X X X X X X X</td>
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<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>AE</td>
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<td>X</td>
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<tr>
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<td>SEA</td>
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1.6  **MISSION ESSENTIAL TASK (MET) OUTPUT STANDARDS.** The following MET output standards are the required level of performance a HMH squadron must be capable of sustaining during contingency/combat operations by MET to be considered MET-ready. Output standards will be demonstrated through the incorporation of unit training events. A core capable HMH squadron is able to sustain the number of sorties listed below on a daily basis during contingency/combat operations. The sortie rates are based on 1.5 hour average sortie duration. It assumes >70% Mission Capable (MC) with the associated aircraft survivability equipment, mission systems and mission sets required to conduct the MET and >90% T/O aircrew on hand. If unit MC aircraft is <70% or T/O aircrew <90%, core capability will be degraded by a like percentage.

<table>
<thead>
<tr>
<th>MET</th>
<th>SKILL</th>
<th>MAXIMUM SORTIES PER MET</th>
<th>MAXIMUM DAILY SORTIES</th>
</tr>
</thead>
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<tr>
<td></td>
<td></td>
<td>NUMBER OF AIRCRAFT</td>
<td>NUMBER OF AIRCRAFT</td>
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<tr>
<td>MCT 4.3.4.1</td>
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<td>16</td>
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<td>MCT 6.2.1.1</td>
<td>TRAP</td>
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<td>16</td>
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<td>16</td>
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<table>
<thead>
<tr>
<th>MET</th>
<th>SKILL</th>
<th>MAXIMUM SORTIES PER MET</th>
<th>MAXIMUM DAILY SORTIES</th>
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<td></td>
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<td>NUMBER OF AIRCRAFT</td>
<td>NUMBER OF AIRCRAFT</td>
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<td>MCT 1.3.4.1</td>
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<td>16</td>
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<td>MCT 1.3.4.2.1</td>
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<tr>
<td>MCT 1.3.3.3.1</td>
<td>SEA</td>
<td>21</td>
<td>16</td>
</tr>
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</table>

*A 16/12/8/4 plane Mission Capable HMH Squadron / Squadron (-) / Reserve Squadron / Detachment is able to execute 21/16/12/5 total overall sorties on a daily (24 hour period) basis during contingency/combat operations.*
1.7 **CORE MODEL MINIMUM REQUIREMENTS (CMMR) / ADVANCED AND BASELINE TRAINING STANDARDS FOR READINESS REPORTING (DRRS-MC).** The paragraphs and tables below delineate the minimum crew certifications, qualifications, designations, and/or skill training for the Advanced and Baseline Training Standards.

1.7.1 **CMMR / Advanced Training Standard:** The minimum crew qualifications, designations, and/or training required to execute the MET output standards of paragraph 1.6. Units can be expected to perform a critical role in a mission or OPLAN and normally requires external MAGTF support.

1.7.2 **Baseline Training Standard:** The level of readiness expected from a unit sustained through CORE training at home station. Normally equates to approximately 70% of CMMR.

1.7.3 In the matrix below the first number in the “Crews Trained” columns reflect the CMMR or Advanced Training Standard, the numbers in parentheses indicate the Baseline Training Standard.

Normal crew composition is a Pilot, Co-Pilot, Crew Chief, and Aerial Observer/Gunner.

Note: Combat Leadership is depicted as only one value (CMMR).

<table>
<thead>
<tr>
<th>MET SKILL</th>
<th>CREW POSITION</th>
<th>FORMED CREWS REQUIRED PER MET (CREW CMMR)</th>
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<td>Squadron 16 A/C</td>
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<tr>
<td>MCT 1.3.4.1</td>
<td>CAT MSP, HAC</td>
<td>NSQ(L), MSP*</td>
</tr>
<tr>
<td>MCT 4.3.4.1</td>
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<td>NSQ(L), MSP*</td>
</tr>
<tr>
<td>MCT 6.2.1.1</td>
<td>TRAP MSP, HAC</td>
<td>NSQ(L), MSP*</td>
</tr>
<tr>
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<td>NSQ(L), MSP*</td>
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<thead>
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<th>MET SKILL</th>
<th>CREW POSITION</th>
<th>FORMED CREWS REQUIRED PER MET (CREW CMMR)</th>
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<tr>
<td>MISSION COMMANDER</td>
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</table>
1.8 **CORE MODEL TRAINING STANDARD (CMTS).** The CMTS is the optimum training standard reflecting the number of aircrews trained to CSP/MSP and Core Plus Proficiency, per crew position to execute each stage of flight as detailed below. The CMTS Matrix depicts the training goal and optimum depth of training desired for each squadron as they develop their squadron training plan. It is not utilized for readiness reporting (DRRS-MC) purposes. At a minimum, the CMTS shall enable a squadron to form Core Model Minimum Requirement (CMMR) crews for Mission Skills (and Mission Plus Skills when required).

<table>
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<tr>
<th>Mission Phase (3000 Phase)</th>
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<th>CREW CHIEF</th>
<th>AERIAL OBSERVER / GUNNER</th>
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<td>12</td>
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</tr>
<tr>
<td>SEA</td>
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<td>12</td>
<td>11</td>
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Note: For Core Plus Mission and Skills, the first number (in blue font and highlighted in gray) represents the number of individuals the squadron is expected to train at all times in order to retain a cadre of capability within the squadron. The second number represents the number of MET capable individuals the squadron should train if that MET becomes an Assigned/Directed Mission Set. For Core Plus Skills the commanding officer determines the number of aircrew to train. The CMTS is based upon the community’s collective recommendation.
1.9 INSTRUCTOR DESIGNATIONS (5000 Phase).

1.9.1 Tactical and Reserve Squadron

### HMH CH-53K

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Note 1 - FLSEs are Designated by the Group CO

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Note 2 - AO/AG designated as AGIs and TGIs may be used to fulfill this requirement

1.9.2 Fleet Replacement Squadron

### FLEET REPLACEMENT SQUADRON

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Note 1 - FLSEs are Designated by the Group CO

Note 2 - NSIs may be used to fulfill NSFI requirement

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<th>CREW CHIEFS AND/OR AERIAL GUNNER/AERIAL OBSERVER</th>
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<tbody>
<tr>
<td>AGI</td>
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Note 3 - AO/AG designated as AGIs and TGIs may be used to fulfill this requirement
1.10 REQUIREMENTS, CERTIFICATIONS, QUALIFICATIONS, AND DESIGNATIONS (RCQD)

1.10.1 Tactical and Reserve Squadron

<table>
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<th>PILOTS</th>
<th>HMH CH-53K REQUIREMENTS, CERTIFICATIONS, QUALIFICATIONS, AND DESIGNATIONS (RCQD)</th>
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1.10.2 Fleet Replacement Squadron

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<th>PILOTS</th>
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APPENDIX A
HMH (CH-53K) MET WORKSHEET

CORE
MCT 1.3.4.1  Conduct Combat Assault Transport
MCT 4.3.4.1  Conduct Heavy Rotary Wing Air Delivery
MCT 6.2.1.1  Conduct Aviation Support of Tactical Recovery of Aircraft and Personnel (TRAP)
MCT 6.2.2  Conduct Air Evacuation

CORE Plus
MCT 1.3.4.1.1  Conduct Airborne Rapid Insertion/Extraction
MCT 1.3.4.2.1  Provide Aviation-Delivered Ground Refueling
MCT 1.3.3.3.1  Conduct Aviation Operations from Expeditionary Sea-Based Sites
MCT 1.3.4.1 Conduct Combat Assault Transport

Conditions:

C 1.3.2.1 Light
Light available to illuminate objects from natural or manmade sources. Descriptors: Bright (sunny day); Day (overcast day); low (dusk, dawn, moonlit, streetlight lit); Negligible (overcast night)

C 1.3.2.3 Aviation Meteorological Conditions
Current weather/flight conditions affecting flight rules next 24 hours. Descriptors: VMC (Conditions that permit flight using external cues and a distinguishable horizon.)

C 1.1.1.2 Terrain Elevation
Height of immediate terrain in reference to sea level. Descriptors: Very high (> 10,000 ft); High (6,000 to 10,000 ft); Moderately high (3,000 to 6,000 ft); Moderately low (1,000 to 3,000 ft); Low (500 to 1,000 ft); Very low (< 500 ft).

C 2.7.2 Air Superiority
The extent to which operations in the air, over sea and/or, over land can be conducted with acceptable losses due to hostile air forces and air defense systems action. Descriptors: Full (Air Supremacy); General; Local.

Standards:

[Squadron (16 A/C)/Temp Sqdn (12 A/C)/Reserve Sqdn (8A/C)/Det (4 A/C)]

Personnel:
- 11/9/6/4 aircrews formed
- DRRS-MC personnel-level of 2 or better: ≥ 80% personnel strength and ≥ 75% critical MOS fill IAW MCO 3000.13

Equipment:
- 70% Mission Capable aircraft with the associated aircraft survivability equipment, mission systems and mission sets required to conduct the MET. (11/8/5/2 CH-53K aircraft)
- Operational support equipment fully supports MCT

Advanced Training Standard (CMMR):
- 11/9/6/3 Crews NS LLL Core Skill Proficient
- 11/9/6/3 Crews GTR Core Skill Proficient
- 11/9/6/3 Crews Aerial Gunnery Core Skill Proficient

Advanced Capability:
- Perform the baseline requirements while executing an air assault using 5 or more assault support aircraft with integrate fires, escorts, and troops with squadron level planning in a medium threat environment within the last 12 months (or since reset from last deployment)

Baseline Training Standard (70% of CMMR):
- 7/6/4/2 Crews NS LLL Core Skill Proficient
- 7/6/4/2 Crews GTR Core Skill Proficient
- 7/6/4/2 Crews Aerial Gunnery Core Skill Proficient

Baseline Capability:
- Capable of supporting air assault in low threat environment.
- Capable of supporting long range raid in low threat environment.
- Conducted an air assault with integrated fires, escort, and troops, with squadron level planning in a low threat environment within the last 12 months (or since reset from last deployment)

Output Standards:
- 21/16/12/5 Sorties daily sustained during contingency/combat operations
MCT 4.3.41 Conduct Heavy Rotary Wing Air Delivery (AD)

Conditions:

C 1.3.2.1 Light
Light available to illuminate objects from natural or manmade sources. Descriptors: Bright (sunny day); Day (overcast day); low (dusk, dawn, moonlit, streetlight lit); Negligible (overcast night)

C 1.3.2.3 Aviation Meteorological Conditions
Current weather/flight conditions affecting flight rules next 24 hours. Descriptors: VMC (Conditions that permit flight using external cues and a distinguishable horizon.)

C 1.1.1.2 Terrain Elevation
Height of immediate terrain in reference to sea level. Descriptors: Very high (> 10,000 ft); High (6,000 to 10,000 ft); Moderately high (3,000 to 6,000 ft); Moderately low (1,000 to 3,000 ft); Low (500 to 1,000 ft); Very low (< 500 ft).

C 2.7.2 Air Superiority
The extent to which operations in the air, over sea and/or, over land can be conducted with acceptable losses due to hostile air forces and air defense systems action. Descriptors: Full (Air Supremacy); General; Local.

Standards:
[Squadron (16 A/C)/Temp Sqdn (12 A/C)/Reserve Sqdn (8A/C)/Det (4 A/C)]:

Personnel:
- 11/9/6/4 aircrews formed
- DRRS-MC personnel-level of 2 or better: ≥ 80% personnel strength and ≥ 75% critical MOS fill IAW MCO 3000.13

Equipment:
- 70% Mission Capable aircraft with the associated aircraft survivability equipment, mission systems and mission sets required to conduct the MET. (11/8/5/2 CH-53K aircraft)
- Operational support equipment fully supports MCT

Advanced Training Standard (CMMR):
- 11/9/6/3 Crews NS LLL Core Skill Proficient
- 11/9/6/3 Crews GTR Core Skill Proficient
- 11/9/6/3 Crews Aerial Gunnery Core Skill Proficient
- 11/9/6/3 Crews External Core Skill Proficient

Advanced Capability:
- Conduct the baseline requirement executing internal or external in-flight transportation of heavy equipment and supplies to remote areas or expeditionary sites with integrated fires, escorts, and troops with squadron level planning in a medium threat environment within the last 12 months (or since reset from last deployment).

Baseline Training Standard (70% of CMMR):
- 7/6/4/2 Crews NS LLL Core Skill Proficient
- 7/6/4/2 Crews GTR Core Skill Proficient
- 7/6/4/2 Crews Aerial Gunnery Core Skill Proficient
- 7/6/4/2 Crews External Core Skill Proficient

Baseline Capability:
- Capable of providing aviation support for foreign humanitarian assistance.
- Capable of moving personnel, supplies, and equipment to landing zones in a permissive environment.
- Conducted internal or external in-flight transportation of heavy equipment and supplies to austere landing zones with integrated fires, escorts, and troops with squadron level planning in a low threat environment within the last 12 months (or since reset from last deployment).

Output Standards:
- 21/16/12/5 Sorties daily sustained during contingency/combat operations
MCT 6.2.1.1 Conduct Aviation Support of Tactical Recovery of Aircraft and Personnel (TRAP)

Conditions:

C 1.3.2.1 Light
Light available to illuminate objects from natural or manmade sources. Descriptors: Bright (sunny day); Day (overcast day); low (dusk, dawn, moonlit, streetlight lit); Negligible (overcast night)

C 1.3.2.3 Aviation Meteorological Conditions
Current weather/flight conditions affecting flight rules next 24 hours. Descriptors: VMC (Conditions that permit flight using external cues and a distinguishable horizon.)

C 1.1.1.2 Terrain Elevation
Height of immediate terrain in reference to sea level. Descriptors: Very high (> 10,000 ft); High (6,000 to 10,000 ft); Moderately high (3,000 to 6,000 ft); Moderately low (1,000 to 3,000 ft); Low (500 to 1,000 ft); Very low (< 500 ft).

C 2.7.2 Air Superiority
The extent to which operations in the air, over sea and/or, over land can be conducted with acceptable losses due to hostile air forces and air defense systems action. Descriptors: Full (Air Supremacy); General; Local.

Standards:
[Squadron (16 A/C)/Temp Sqdn (12 A/C)/Reserve Sqdn (8A/C)/Det (4 A/C)]:

Personnel:
- 11/9/6/4 aircrews formed
- DRRS-MC personnel-level of 2 or better: ≥ 80% personnel strength and ≥ 75% critical MOS fill IAW MCO 3000.13

Equipment:
- 70% Mission Capable aircraft with the associated aircraft survivability equipment, mission systems and mission sets required to conduct the MET. (11/8/5/2 CH-53K aircraft)
- Operational support equipment fully supports MCT

Advanced Training Standards (CMMR):
- 7/6/4/2 Crews NS LLL Core Skill Proficient
- 7/6/4/2 Crews GTR Core Skill Proficient
- 7/6/4/2 Crews Aerial Gunnery Core Skill Proficient
- 7/6/4/2 Crews External Core Skill Proficient
- 7/6/4/2 Crews HAAR Core Skill Proficient

Advanced Capability:
- Conduct the baseline requirement executing a TRAP exercise or operation with integrated fires, escorts, and troops with squadron level planning in a medium threat environment within the last 12 months (or since reset from last deployment).

Baseline Training Standards (70% CMMR):
- 4/4/2/1 Crews NS LLL Core Skill Proficient
- 4/4/2/1 Crews GTR Core Skill Proficient
- 4/4/2/1 Crews Aerial Gunnery Core Skill Proficient
- 4/4/2/1 Crews External Core Skill Proficient
- 4/4/2/1 Crews HAAR Core Skill Proficient

Baseline Capability:
- Capable of supporting continuous alert operations with a section.
- Capable of sustaining 8 daily sorties.
- Capable of supporting TRAP operations in a low threat environment.
- Conducted a TRAP exercise or operation with integrated fires, escorts, and troops with squadron level planning in a low threat environment within the last 12 months (or since reset from last deployment).

Output Standards:
- 21/16/12/5 Sorties daily sustained during contingency/combat operations
MCT 6.2.2  Conduct Air Evacuation

Conditions:

C 1.3.2.1 Light
Light available to illuminate objects from natural or manmade sources. Descriptors: Bright (sunny day); Day (overcast day); low (dusk, dawn, moonlit, streetlight lit); Negligible (overcast night)

C.1.3.2.3 Aviation Meteorological Conditions
Current weather/flight conditions affecting flight rules next 24 hours. Descriptors: VMC (Conditions that permit flight using external cues and a distinguishable horizon.)

C 1.1.1.2 Terrain Elevation
Height of immediate terrain in reference to sea level. Descriptors: Very high (> 10,000 ft); High (6,000 to 10,000 ft); Moderately high (3,000 to 6,000 ft); Moderately low (1,000 to 3,000 ft); Low (500 to 1,000 ft); Very low (< 500 ft).

C 2.7.2 Air Superiority
The extent to which operations in the air, over sea and/or, over land can be conducted with acceptable losses due to hostile air forces and air defense systems action. Descriptors: Full (Air Supremacy); General; Local.

Standards:
{Squadron (16 A/C)/Temp Sqdn (12 A/C)/Reserve Sqdn (8A/C)/Det (4 A/C)}:
Personnel:
- 11/9/6/4 aircrews formed
- DRRS-MC personnel-level of 2 or better: ≥ 80% personnel strength and ≥ 75% critical MOS IAW MCO 3000.13

Equipment:
- 70% Mission Capable aircraft with the associated aircraft survivability equipment, mission systems and mission sets required to conduct the MET. (11/8/5/2 CH-53K aircraft)
- Operational support equipment fully supports MCT

Advanced Training Standard (CMMR):
- 11/9/6/3 Crews NS LLL Core Skill Proficient
- 11/9/6/3 Crews GTR Core Skill Proficient
- 11/9/6/3 Crews Aerial Gunnery Core Skill Proficient

Advanced Capability:
- Conduct the baseline requirement executing air evacuation exercise or operation with integrated fires, escorts, and troops with squadron level planning in a medium threat environment within the last 12 months (or since reset from last deployment).

Baseline Training Standard (70% of CMMR):
- 7/6/4/2 Crews NS LLL Core Skill Proficient
- 7/6/4/2 Crews GTR Core Skill Proficient
- 7/6/4/2 Crews Aerial Gunnery Core Skill Proficient

Baseline Capability:
- Capable of supporting AE operations in low threat environments.
- Capable of supporting Noncombatant Evacuation Operations.
- Capable of conducting Casualty Evacuation.
- Capable of supporting continuous alert operations.
- Conducted air evacuation operations with integrated fires, escorts, and troops with squadron level planning in a low threat environment within the last 12 months (or since reset from last deployment).

Output Standards:
- 21/16/12/5 Sorties daily sustained during contingency/combat operations
Core Plus

MCT 1.3.3.1  Conduct Aviation Operations From Expeditionary Sea-Based Sites

Conditions:

C 1.3.2.1 Light

Light available to illuminate objects from natural or manmade sources. Descriptors:  Bright (sunny day); Day (overcast day); low (dusk, dawn, moonlit, streetlight lit); Negligible (overcast night)

C 1.3.1.3.1 Air Temperature

Atmospheric temperature at ground level (degrees Fahrenheit). Descriptors:  Hot (> 85 F); Temperate (40 to 85 F); Cold (10 to 39 F); Very cold (< 10 F).

C 2.1.4.5 Intratheater Distance

Mileage between two locations (e.g., airfield to the FEBA). Descriptors:  Very short (< 10 NM); Short (10 to 50 NM); Moderate (50 to 150 NM); Long (150 to 500 NM); Very long (> 500 NM).

Standards:

[Squadron (16 A/C)/Temp Sqdn (12 A/C)/Reserve Sqdn (8A/C)/Det (4 A/C)]:

Personnel:

- 11/9/6/4 aircrews formed
- DRRS-MC personnel-level of 2 or better: ≥ 80% personnel strength and ≥ 75% critical MOS IAW MCO 3000.13

Equipment:

- 70% Mission Capable aircraft with the associated aircraft survivability equipment, mission systems and mission sets required to conduct the MET. (11/8/5/2 CH-53K aircraft)
- Operational support equipment fully supports MCT

Advanced Training Standards (CMMR):

- 6/5/3/2 Crews NS LLL Core Skill Proficient
- 6/5/3/2 Crews GTR Core Skill Proficient
- 6/5/3/2 Crews Aerial Gunnery Core Skill Proficient
- 6/5/3/2 Crews Day and Night Systems Carrier Qualified

Advanced Capability:

- Demonstrate the ability to conduct expeditionary sea-based site operations into an objective area with integrated fires, escorts, and troops with squadron level planning in a medium threat environment within the last 12 months (or since reset from last deployment).

Baseline Training Standard (70% of CMMR):

- 4/3/2/1 Crews NS LLL Core Skill Proficient
- 4/3/2/1 Crews GTR Core Skill Proficient
- 4/3/2/1 Crews Aerial Gunnery Core Skill Proficient
- 4/3/2/1 Crews Day and Night Systems Carrier Qualified

Baseline Capability:

- Demonstrate the ability to conduct expeditionary sea-based site operations into an objective area with integrated fires, escorts, and troops with squadron level planning in a low threat environment within the last 12 months (or since reset from last deployment).

Output Standards:

- 21/16/12/5 Sorties daily sustained during contingency/combat operations
MCT 1.3.4.1.1 Conduct Airborne Rapid Insertion/Extraction

**Conditions:**

**C 1.3.2.1 Light**
Light available to illuminate objects from natural or manmade sources. Descriptors: Bright (sunny day); Day (overcast day); low (dusk, dawn, moonlit, streetlight lit); Negligible (overcast night)

**C.1.3.2.3 Aviation Meteorological Conditions**
Current weather/flight conditions affecting flight rules next 24 hours. Descriptors: VMC (Conditions that permit flight using external cues and a distinguishable horizon.)

**C 1.1.1.2 Terrain Elevation**
Height of immediate terrain in reference to sea level. Descriptors: Very high (> 10,000 ft); High (6,000 to 10,000 ft); Moderately high (3,000 to 6,000 ft); Moderately low (1,000 to 3,000 ft); Low (500 to 1,000 ft); Very low (< 500 ft).

**C 2.7.2 Air Superiority**
The extent to which operations in the air, over sea and/or, over land can be conducted with acceptable losses due to hostile air forces and air defense systems action. Descriptors: Full (Air Supremacy); General; Local.

**Standards:**

[Squadron (16 A/C)/Temp Sqdn (12 A/C)/Reserve Sqdn (8A/C)/Det (4 A/C)]:

**Personnel:**
- 11/9/6/4 aircrews formed
- DRRS-MC personnel-level of 2 or better: ≥ 80% personnel strength and ≥ 75% critical MOS fill IAW MCO 3000.13

**Equipment:**
- 70% Mission Capable aircraft with the associated aircraft survivability equipment, mission systems and mission sets required to conduct the MET. (11/8/5/2 CH-53K aircraft)
- Operational support equipment fully supports MCT

**Advanced Training Standard (CMMR):**
- 6/5/3/2 Crews NS LLL Core Skill Proficient
- 6/5/3/2 Crews GTR Core Skill Proficient
- 6/5/3/2 Crews Aerial Gunnery Core Skill Proficient
- 6/5/3/2 Crews HIE Core Plus Skill Proficient

**Advanced Capability:**
- Demonstrate the ability to conduct tactical airborne rapid insertion/extraction operations with integrated fires, escorts, and troops with squadron level planning in a medium threat environment within the last 12 months (or since reset from last deployment).

**Baseline Training Standard (70% of CMMR):**
- 4/3/2/1 Crews NS LLL Core Skill Proficient
- 4/3/2/1 Crews GTR Core Skill Proficient
- 4/3/2/1 Crews Aerial Gunnery Core Skill Proficient
- 4/3/2/1 Crews HIE Core Plus Skill Proficient

**Baseline Capability:**
- Capable of conducting a rapid insertion/extraction using fast rope, rappelling, paraops, helocast, or special insertion and extraction techniques.
- Demonstrate the ability to conduct tactical airborne rapid insertion/extraction operations with integrated fires, escorts, and troops with squadron level planning in a low threat environment within the last 12 months (or since reset from last deployment).

**Output Standards:**
- 21/16/12/5 Sorties daily sustained during contingency/combat operations
MCT 1.3.4.2.1 Provide Aviation-Delivered Ground Refueling

Conditions:

C 1.3.2.1 Light
Light available to illuminate objects from natural or manmade sources. Descriptors: Bright (sunny day); Day (overcast day); low (dusk, dawn, moonlit, streetlight lit); Negligible (overcast night)

C 2.7.2 Air Superiority
The extent to which operations in the air, over sea and/or, over land can be conducted with acceptable losses due to hostile air forces and air defense systems action. Descriptors: Full (Air Supremacy); General; Local.

Standards:
[Squadron (16 A/C)/Temp Sqdn (12 A/C)/Reserve Sqdn (8A/C)/Det (4 A/C)]:

Personnel:
- 11/9/6/4 aircrews formed
- DRRS-MC personnel-level of 2 or better: ≥ 80% personnel strength and ≥ 75% critical MOS fill IAW MCO 3000.13

Equipment:
- 70% Mission Capable aircraft with the associated aircraft survivability equipment, mission systems and mission sets required to conduct the MET. (11/8/5/2 CH-53K aircraft)
- Operational support equipment fully supports MCT

Advanced Training Standard (CMMR):
- 6/5/3/2 Crews NS LLL Core Skill Proficient
- 6/5/3/2 Crews GTR Core Skill Proficient
- 6/5/3/2 Crews Aerial Gunnery Core Skill Proficient

Advanced Capability:
- Demonstrate the ability to provide aviation-delivered ground refueling to combat aircraft or tactical vehicles in an austere environment with integrated fires, escorts, and troops with squadron level planning in a medium threat environment within the last 12 months (or since reset from last deployment).

Baseline Training Standard (70% of CMMR):
- 4/3/2/1 Crews NS LLL Core Skill Proficient
- 4/3/2/1 Crews GTR Core Skill Proficient
- 4/3/2/1 Crews Aerial Gunnery Core Skill Proficient

Baseline Capability:
- Capable of providing aviation-delivered ground refueling utilizing tactical bulk fuel dispensing system.
- Capable of establishing forward-arming and refueling (FARP) sites in a permissive environment.
- Capable of resupplying FARP sites and forward-operating bases.
- Demonstrate the ability to provide aviation-delivered ground refueling to combat aircraft or tactical vehicles in austere environments with integrated fires, escorts, and troops with squadron level planning in a low threat environment within the last 12 months (or since reset from last deployment).

Output Standards:
- Provide (4/2/2/2) refueling point capable of transferring 45gp
# APPENDIX B – REFERENCE SOURCES

## ABBREVIATIONS

### CH-53K

#### STAGE/SKILL ABBREVIATIONS

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<tr>
<th>ABBREVIATION</th>
<th>DESCRIPTION</th>
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<tr>
<td>FAM</td>
<td>Familiarization / Instrument</td>
</tr>
<tr>
<td>INT</td>
<td>Internal Loading</td>
</tr>
<tr>
<td>FORM</td>
<td>Formation</td>
</tr>
<tr>
<td>CAL</td>
<td>Confined Area Landing</td>
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<tr>
<td>TERF</td>
<td>Terrain Flight</td>
</tr>
<tr>
<td>EXT</td>
<td>External Operations</td>
</tr>
<tr>
<td>HAAR</td>
<td>Aerial Refueling</td>
</tr>
<tr>
<td>FCLP</td>
<td>Field Carrier Landing Practice</td>
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<td>AG</td>
<td>Aerial Gunnery</td>
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<td>GTR</td>
<td>Ground Threat Reaction</td>
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<td>TAC</td>
<td>Tactics</td>
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<td>NS HLL</td>
<td>Night Systems High Light Level</td>
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<tr>
<td>NS LLL</td>
<td>Night Systems Low Light Level</td>
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### MISSION SKILLS (3000 Phase)

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<td>AT</td>
<td>Assault Transport</td>
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<td>AD(E)</td>
<td>External Aerial Delivery</td>
</tr>
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<td>TRAP</td>
<td>Tactical Recovery of Aircraft and Personnel</td>
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<tr>
<td>AE</td>
<td>Air Evacuation</td>
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### CORE PLUS SKILLS (4000 Phase)

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<th>DESCRIPTION</th>
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<td>Helicopter Insertion Extraction</td>
</tr>
<tr>
<td>EXT</td>
<td>Terrain Flight External</td>
</tr>
<tr>
<td>GTR</td>
<td>Ground Threat Reaction</td>
</tr>
<tr>
<td>DM</td>
<td>Defensive Measures</td>
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<tr>
<td>BI</td>
<td>Provide Aviation Delivered Battlefield Illumination</td>
</tr>
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<td>FCLP</td>
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<td>Moving Target Gunnery</td>
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<td>TG</td>
<td>Tail Gunnery</td>
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<td>Unaided Carrier Qualification</td>
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<td>Tactics</td>
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### MISSION PLUS SKILLS (4000 Phase)

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<th>ABBREVIATION</th>
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<tr>
<td>ADGR</td>
<td>Aviation-Delivered Ground Refueling</td>
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<tr>
<td>SEA</td>
<td>Expeditionary Operations Sea Based</td>
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TRAINING RESOURCE REQUIREMENTS

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

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

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

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

5. TERF Stage
   a. Special use airspace/training area capable of supporting CH-53 low level and contour flight operations below 200ft both day and night.
   b. Airspace shall include TERF routes with a minimum of 50nm and 6 checkpoints.
   c. TERF area shall have confined area and/or mountain area landing zones capable of supporting CH-53 division landings and external operations.

6. EXT Stage
   a. Special use airspace/training area capable of supporting CH-53 external, low level and contour flight operations below 200ft both day and night. Airspace should include TERF routes with a minimum of 50nm and 6 checkpoints to the maximum extent possible.
   b. TERF area shall have confined area and/or mountain area landing zones capable of supporting CH-53 division landings and external operations.
   c. 8 external loads, 4 SP, 4 DP. Loads should vary in size from 2,000lbs to 36,000lbs.
   d. HST to support external operations for a minimum 8 hours per week.

7. GTR Stage
   a. Special use EW range/airspace/training area capable of supporting CH-53 low level and contour flight operations below 200ft both day and night.
   b. Airspace shall include TERF routes with a minimum of 50nm and 6 checkpoints. TERF area shall have confined area and/or mountain area landing zones capable of supporting CH-53 division landings and external operations. Flare and chaff capable range available both day and night.
   c. Ground based non radar threat simulator (smokey sams, AAR-47 simulator, pyrotechnics) available 4 times per month for a minimum of 12 hours total.
   d. Radar emitter with threat systems to include electromagnetic and ground based threat simulation. Emitter should be search, acquisition, and track capable. Emitter should be able to provide radar resolution cell feedback to aircrew.
8. **HAAR Stage**
   a. KC-130 support for a minimum 4 hours a week.
   b. Special use airspace capable of conducting HAAR.

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

10. **TAC/MISSION Stage**
    a. Special use airspace/training area capable of supporting CH-53 low level and contour flight operations below 200ft both day and night. Airspace shall include TERF routes with a minimum of 50nm and 6 checkpoints.
    b. TERF area shall have confined area and/or mountain area landing zones capable of supporting CH-53 division landings and external operations.
    c. Expendable capable range.
    d. Ground based non radar threat simulator (smokey sams, AAR-47 simulator, pyrotechnics) available a minimum of 4 times per month. Aerial gunnery laser safe range with SDZ approved for .50 CAL for day and night shooting. Targets should range in size from personnel targets to APC size targets.
    e. KC-130 support for a minimum of 8 hours a week. f. Special use airspace capable of conducting HAAR.

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

12. **HI&E Stage**. Supporting units available to conduct para ops, helocast, fast rope, rappelling, and SPIE.

13. **DM Stage**
    a. Special use airspace/training area capable of supporting CH-53 Low level and contour flight operations below 200ft.
    b. Expendable capable range.
    c. Tactical fixed wing aircraft adversary available a minimum of 6 times per year for a minimum of 12 hours.
    d. Tactical utility or attack helicopter adversary available a minimum of 6 times per year for a minimum of 12 hours.
### HMH CH-53K Squadron 16 Aircraft

**MISSION ESSENTIAL TASK (MET)** | MISSION SKILL | DESCRIPTION | DAILY OUTPUT STANDARD (SORTIES) | ADVANCED TRAINING STANDARD | BASELINE TRAINING STANDARD (MIN. COMB) | PILOT | COPILOT | CC | AO | AIRCRAFT MAINTENANCE | COLLECTIVE MAX. DAILY SORTIE OUTPUT | T/O PILOTS | T/O CC | T/O AO/G | STAFFING GOAL (PILOTS) | CREWS FORMED | HAC | SECTION LEADER | STAFFING (PILOTS) | AIR MISSION COMMANDER | CO RE PLUS
MCT 1.3.4.1 | CAT | Conduct Combat Assault Transport | 21 | 11 | 7 | HAC,MSP | NSQ(LLL),MSP* | MSP | NSQ(LLL),MSP* | 16 | 70% | 11 |
MCT 4.3.4 | AD | Conduct Air Delivery | 21 | 11 | 7 | HAC,MSP | NSQ(LLL),MSP* | MSP | NSQ(LLL),MSP* | 16 | 70% | 11 |
MCT 6.2.1.1 | TRAP | Conduct Aviation Support of Tactical Recovery of Aircraft | 21 | 7 | 4 | HAC,MSP | NSQ(LLL),MSP* | MSP | NSQ(LLL),MSP* | 16 | 70% | 11 |
MCT 6.2.2 | AE | Conduct Air Evacuation | 21 | 11 | 7 | HAC,MSP | NSQ(LLL),MSP* | MSP | NSQ(LLL),MSP* | 16 | 70% | 11 |
MCT 1.3.4.1.1 | RIE | Conduct Airborne Rapid Insertion/Extraction | 21 | 6 | 4 | HAC,MSP | NSQ(LLL),MSP* | MSP | NSQ(LLL),MSP* | 16 | 70% | 11 |
MCT 1.3.4.2.1 | ADGR | Provide Aviation-Delivered Ground Refueling | 4 | 6 | 4 | HAC,MSP | NSQ(LLL),MSP* | MSP | NSQ(LLL),MSP* | 16 | 70% | 11 |
MCT 1.3.3.3.1 | SEA | Conduct Aviation Operations From Expeditionary Sea-Based Sites | 21 | 6 | 4 | HAC,MSP | NSQ(LLL),MSP* | MSP | NSQ(LLL),MSP* | 16 | 70% | 11 |

**CREWS TRAINED**

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<th>PARA 1.7</th>
<th>PARA 1.2</th>
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<th>PARA 1.2</th>
<th>MET Worksheet</th>
<th>PARA 1.7</th>
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**PARA 1.3**

**PARA 1.6**

**PARA 1.7**

**PARA 1.2**

**MET Worksheet**

**PARA 1.6**

**PARA 1.2**

**MET Worksheet**

**PARA 1.7**

C-1
### HMH CH-53K Squadron (-) 12 Aircraft

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<td>MSP</td>
<td>NSQ(LL), MSP*</td>
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<td>MCT 4.3.4</td>
<td>AD</td>
<td>Conduct Air Delivery</td>
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<td>HAC, MSP</td>
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<td>MSP</td>
<td>NSQ(LL), MSP*</td>
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<td>TRAP</td>
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<td>PAA 12 70% 8</td>
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**CORE PLUS**

| MCT 1.3.4.1.1 | RIE | Conduct Airborne Rapid Insertion/Extraction | 16 5 3 | HAC, MSP | NSQ(LL), MSP* | MSP | NSQ(LL), MSP* | PAA 12 70% 8 |
| MCT 1.3.4.2.1 | ADGR | Provide Aviation-Delivered Ground Refueling | 2 5 3 | HAC, MSP | NSQ(LL), MSP* | MSP | NSQ(LL), MSP* | PAA 12 70% 8 |
| MCT 1.3.3.3.1 | SEA | Conduct Aviation Operations From Expeditionary Sea-Based Sites | 16 5 3 | HAC, MSP | NSQ(LL), MSP* | MSP | NSQ(LL), MSP* | PAA 12 70% 8 |

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**CREWS TRAINED**

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**META Worksheet**

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<th>PARA 1.7</th>
</tr>
</thead>
</table>

**C-2**
### HMH CH-53K Reserve Squadron 8 Aircraft

| MCT 1.3.4.1 | CAT | Conduct Combat Assault Transport | 12 6 4 | HAC,MSP NSQLLL,MSP* MSP NSQLLL,MSP* | PILOT COPilot CC AO | 8 70% 5 | PAA MC # MC COLLECTIVE OUTPUT PILOT CCP TO OC TO AG GROUP FORMED CREWS FORMED HAC SECTION LEADER DIVISION LEADER PILOT COMMANDER |
|-------------|-----|----------------------------------|--------|----------------------------------------|---------------------|--------|--------------------------|------------------|---------------------|--------------------------|------------------|---------------------|
| MCT 4.3.4   | AD  | Conduct Air Delivery             | 12 6 4 | HAC,MSP NSQLLL,MSP* MSP NSQLLL,MSP* | PILOT COPilot CC AO | 8 70% 5 | PAA MC # MC COLLECTIVE OUTPUT PILOT CCP TO OC TO AG GROUP FORMED CREWS FORMED HAC SECTION LEADER DIVISION LEADER PILOT COMMANDER |
| MCT 6.2.1.1 | TRAP| Conduct Aviation Support of Tactical Recovery of Aircraft | 12 4 2 | HAC,MSP NSQLLL,MSP* MSP NSQLLL,MSP* | PILOT COPilot CC AO | 8 70% 5 | PAA MC # MC COLLECTIVE OUTPUT PILOT CCP TO OC TO AG GROUP FORMED CREWS FORMED HAC SECTION LEADER DIVISION LEADER PILOT COMMANDER |
| MCT 6.2.2   | AE  | Conduct Air Evacuation           | 12 6 4 | HAC,MSP NSQLLL,MSP* MSP NSQLLL,MSP* | PILOT COPilot CC AO | 8 70% 5 | PAA MC # MC COLLECTIVE OUTPUT PILOT CCP TO OC TO AG GROUP FORMED CREWS FORMED HAC SECTION LEADER DIVISION LEADER PILOT COMMANDER |

| MCT 1.3.4.1.1 | RIE | Conduct Airborne Rapid Insertion/Extraction | 12 3 2 | HAC,MSP NSQLLL,MSP* MSP NSQLLL,MSP* | PILOT COPilot CC AO | 8 70% 5 | PAA MC # MC COLLECTIVE OUTPUT PILOT CCP TO OC TO AG GROUP FORMED CREWS FORMED HAC SECTION LEADER DIVISION LEADER PILOT COMMANDER |
| MCT 1.3.4.2.1 | ADGR| Provide Aviation-Delivered Ground Refueling | 2 3 2 | HAC,MSP NSQLLL,MSP* MSP NSQLLL,MSP* | PILOT COPilot CC AO | 8 70% 5 | PAA MC # MC COLLECTIVE OUTPUT PILOT CCP TO OC TO AG GROUP FORMED CREWS FORMED HAC SECTION LEADER DIVISION LEADER PILOT COMMANDER |
| MCT 1.3.3.3.1 | SEA | Conduct Aviation Operations From Expeditionary Sea-Based Sites | 12 3 2 | HAC,MSP NSQLLL,MSP* MSP NSQLLL,MSP* | PILOT COPilot CC AO | 8 70% 5 | PAA MC # MC COLLECTIVE OUTPUT PILOT CCP TO OC TO AG GROUP FORMED CREWS FORMED HAC SECTION LEADER DIVISION LEADER PILOT COMMANDER |

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C-3
## HMH CH-53K Detachment 4 Aircraft

### Mission Essential Task (MET)  
**Mission Skill**

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### Core Plus

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### Worksheet

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- PARA 1.7
CH-53K PILOT (MOS 7511)

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CHAPTER 2
CH-53K PILOT 7511

2.0 INDIVIDUAL TRAINING AND READINESS REQUIREMENTS. This T&R Syllabus is based on specific goals and performance standards designed to ensure individual proficiency in Core and Mission Skills. The goal of this chapter is to develop individual and unit war fighting capabilities.

2.1 TRAINING PROGRESSION MODEL. This model represents the recommended training progression for the average 7511 crewmember. Units should use the model as a point of departure to generate individual training plans.

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<td>3000 PHASE (MISSION SKILLS)</td>
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<tr>
<td>CAT,AD,TRAP,AE</td>
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<tr>
<td>2000 PHASE (CORE SKILLS)</td>
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<tr>
<td>FAM,FORM,CAL,TERF,EXT,</td>
</tr>
<tr>
<td>GTR,HAAR,AG,</td>
</tr>
<tr>
<td>TAC,NS HLL,NS LLL</td>
</tr>
<tr>
<td>1000 PHASE (CORE INTRODUCTION)</td>
</tr>
</tbody>
</table>

*Maximum time to train in each phase is based on monthly minimum flight hour requirements as delineated in the Aviation Program Manual.

2.2 PROGRAMS OF INSTRUCTION (POI)

2.2.1 Basic (B). Basic, Transition, Conversion Model and Series Conversion pilots shall be assigned to the Basic POI. The squadron training officer shall ensure all Electronic Aircrew Training Forms (EATFs) completed in MSHARP and are annotated on the Pilot APR Tracking Matrix in section 3 of the Aircrew Performance Record (APR) for all initial or refresher events. These ATFs will replace ATFs previously entered in section 3.

<table>
<thead>
<tr>
<th>CH-53K PILOT Basic POI (Average Time-to-Train)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WEEKS</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>24</td>
</tr>
<tr>
<td>40</td>
</tr>
<tr>
<td>5</td>
</tr>
</tbody>
</table>

2.2.2 Series Conversion (S). CH-53K Series Conversion pilots will fly those 1000-6000 level flights designated by a S in the event description. When the S coded events within a stage of training are complete, the pilot may be credited with the entire stage of training. If the series conversion pilot has no previous proficiency in a stage or particular event (i.e. event Never Been Attempted (NBA)), then the series conversion shall fly the entire stage or all events not previously attempted. Upon completion of the HAC syllabus, series conversions may be re-designated to their highest previous flight leadership designation at the discretion of the Squadron Commanding Officer.
2.2.3 Conversion (C). Conversion pilots shall complete at a minimum all flight events designated by an S in the event description as well as all applicable academic events. The Squadron Commanding Officer may add additional training to fit the experience of the conversion pilot as necessary. If the conversion pilot has no similar previous proficiency in a stage or particular event (i.e. a UH-1 Pilot conducting HAAR or externals), then the conversion pilot should fly the entire stage or all events not previously attempted. Upon completion of the HAC syllabus, conversion pilots may be re-designated to their highest previous flight leadership designation at the discretion of the Squadron Commanding Officer.

2.2.4 Refresher (R). CH-53K pilots requiring FRS Refresher Training IAW NAVMC 3500.14, Aviation T&R Program Manual shall fly the appropriate 1000 level R coded events per this manual at the FRS.

| CH-53K PILOT Refresher POI (Average Time-to-Train) |
|-----------------|------------------|
| WEEKS | COURSE | PERFORMING ACTIVITY |
| 6 | CH-53K Core Introduction | USMC CH-53K FRS |
| 10 | Core Training | Tactical Squadron |
| 5 | Mission Training | Tactical Squadron |

2.2.5 Squadron Refresher Syllabus (2000-8000). Current pilots who have previously attained the 7566 MOS conducting a Series Conversion who have not exceeded 485 days since their last CH-53 flight will conduct the Series Conversion at their Tactical Squadron. The Squadron Refresher Syllabus is predicated on the experience of the refresher pilot. A pilot in the squadron refresher syllabus should fly all R coded events. The Squadron Commanding Officer may tailor the squadron refresher syllabus to fit the experience of the refresher pilot per the squadron standardization board recommendations and NAVMC 3500.14, Aviation T&R Program Manual. When the R coded events within a stage of training are complete, the pilot may be credited with the entire stage of training. This assumes the Refresher pilot has previous proficiency in a stage of training. If the Refresher pilot has no previous proficiency in a stage or particular event (i.e. event Never Been Attempted (NBA)), then the Refresher shall fly the entire stage or all events not previously attempted.

2.2.6 Modified Refresher (MR). CH-53K pilots requiring FRS Refresher Training IAW NAVMC 3500.14, Aviation T&R Program Manual shall fly the appropriate 1000 level MR coded events per this manual at the FRS.

| CH-53K PILOT Modified Refresher POI (Average Time-to-Train) |
|-----------------|------------------|
| WEEKS | COURSE | PERFORMING ACTIVITY |
| 4 | CH-53K Core Introduction | USMC CH-53K FRS |

2.3 PROFICIENCY & CURRENCY

2.3.1 Event Proficiency. Event proficiency is defined as successful completion of the performance standard as defined by this manual. Event performance standards may not be waived or modified. Event completion is predicated upon demonstrated proficiency. Once completed, it is logged in M-SHARP by entering the appropriate event code. M-SHARP automatically updates the event proficiency date to reflect the completion date.

NS Proficiency: Aircrew who are still NS qualified but lose proficiency in any other NS event may regain proficiency by flying with another pilot that is NS qualified and proficient in that NS flight event.

Regain Proficiency: Individuals regain event proficiency by successfully demonstrating the event’s performance standards. A proficient aircrew person must be in the flight for combat leadership events and must be within the aircraft for non-combat leadership events.

The crew position of the proficient individual is up to the discretion of the CO in accordance with risk management.

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

Maintaining Skill Proficiency. Once attained, skill proficiency is maintained by executing those events which have a Proficiency Period (Maintain events). Proficiency periods establish the maximum time between event demonstration. Should proficiency be lost in any maintain event, for a specific skill, that skill proficiency is temporarily lost. Skill proficiency can be re-attained by again demonstrating proficiency in the event(s) that are not proficient.

Loss of Individual Skill Proficiency. Should an individual lose proficiency in all maintain events in a skill, the individual will be assigned to the Refresher POI for the skill. To regain skill proficiency, the individual must demonstrate proficiency in all R-coded events for the skill.
Loss of Unit Skill Proficiency. If an entire unit loses proficiency in an event, unit instructors shall regain proficiency by completing the event with an instructor from a like unit. If not feasible, the instructor shall regain proficiency by completing the event with another instructor. For flying communities, if a unit has only one instructor and cannot complete the event with an instructor from another unit, the instructor shall regain proficiency with another aircraft commander or as designated by the CO.

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

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

2.4 REQUIREMENTS, CERTIFICATIONS, QUALIFICATIONS, AND DESIGNATION (RCQD) TABLES

The table below delineates T&R Events required to be proficient or waived to attain Requirements, Certifications, Qualifications, and Designations. In addition to event requirements, all stage lectures, briefs, squadron training, prerequisites and other criteria shall be completed prior to completing final events. Qualification and designation letters signed by the Commanding Officer shall be placed in Aircrew Performance Records (APR) and NATOPS jackets. Loss of proficiency in any qualification event causes the associated qualification to be lost. Regaining a qualification requires completing delinquent R-coded events associated with that qualification. Waiving of all Required Events leading to a Requirement, Certification, Qualification, or Designation, is not allowed.

| CH-53K PILOT REQUIREMENTS, CERTIFICATIONS, QUALIFICATIONS, AND DESIGNATIONS (RCQD) |
|-----------------------------------|----------------------------------|------------------|
| INDIVIDUAL CH-53K PILOT QUALIFICATION REQUIREMENTS |

<table>
<thead>
<tr>
<th>Qualification</th>
<th>Event Requirements</th>
</tr>
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<tbody>
<tr>
<td>NATOPS</td>
<td>6000,6001,6002,6003,6100,6101 and IAW CNAF 3710.7.</td>
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<td>Instrument</td>
<td>6005,6006,6102 and IAW CNAF 3710.7.</td>
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<tr>
<td>NSQ HLL</td>
<td>2190-2198,52105,2120R,2220,2221R,2320,2321R,2920R</td>
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<tr>
<td>NSQ-LLL</td>
<td>NSQ HLL,2199,52106,2230,2231R,2330,2331R,2930R</td>
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<td>DM</td>
<td>4580-4584,4510R,4511R</td>
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<tr>
<td>UNAIDED CQ</td>
<td>4742R</td>
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<tr>
<td>CQ</td>
<td>4781,4711R,4742R</td>
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| INDIVIDUAL CH-53K PILOT QUALIFICATION REQUIREMENTS |

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<th>Designation</th>
<th>Event Requirements</th>
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<td>HAC</td>
<td>Core Phase and Mission Phase complete,S5100,S5101,5110,6120,6121,6122R</td>
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<tr>
<td>SEC LDR</td>
<td>6200,6201,6202,6203R,6661,6662,6663,6664</td>
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<tr>
<td>DIV LDR</td>
<td>6300,6301,6302R,8688</td>
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<td>FLT LDR</td>
<td>6400,8685,8686,8687</td>
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<tr>
<td>AIR MSN CDR</td>
<td>6500,6580</td>
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<tr>
<td>FLSE</td>
<td>Per MAWTS-1 WTI Course Catalog</td>
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<td>TERFI</td>
<td>5200,5201,5202; Per MAWTS-1 WTI Course Catalog</td>
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<td>ARJ</td>
<td>5300,5301; Per MAWTS-1 WTI Course Catalog</td>
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<td>5700,5701,5702; Per MAWTS-1 WTI Course Catalog</td>
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<td>5800,5801,5802,5803,5804,5805; Per MAWTS-1 WTI Course Catalog</td>
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<td>5600,5601,5602,5603; Per MAWTS-1 WTI Course Catalog</td>
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<td>Per MAWTS-1 WTI Course Catalog</td>
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<tr>
<td>CRM2</td>
<td>See CNAFINST 1542.7 Series</td>
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<tr>
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<td>5500,5502,5503,5504,5505,5506</td>
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<td>CSIII</td>
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<tr>
<td>NE</td>
<td>Designated by Model Manager CO</td>
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<tr>
<td>NI</td>
<td>6100 Evaluated by Model Manager, Designated by Squadron CO</td>
</tr>
<tr>
<td>ANI</td>
<td>6100 given by a Squadron NATOPS Instructor</td>
</tr>
</tbody>
</table>
2.5 SYLLABUS NOTES

2.5.1 Academic Training

General. The Academic syllabus is designed to ensure pilots receive the proper academic training prior to starting a new phase and stage of training. Within each phase of training (1000-8000) there are corresponding stages, each stage has an academic syllabus. The required academic syllabus for each stage of training is further delineated in the beginning paragraphs of each phase. Each phase and stage contain specific academic requirements which must be completed either prior to phase and/or stage initiation or prior to phase and/or stage completion. Academic/ground training events can either be accomplished by an individual utilizing self-paced courseware or presented by a qualified instructor. The PUI and PTO shall ensure that the appropriate academic/ground training event is manually updated in MSHARP and logged in the APR.

Requirements. The purpose of the academic syllabus is to ensure that required academic courses for each phase/stage of training are completed and logged in MSHARP for each Crew Member. A summary of academic classes that is required for all of the phases of training (0000-8000) are listed below with their corresponding T&R code. Where indicated, standardized academic training materials exist and may be obtained from the sponsoring activity.

The academic/ground training shall be complete IAW the phase and/or stage requirements and prerequisites. Upon completion, the PUI shall report to the appropriate Operations Department (S-3) representative (typically the PTO) or designated representative(s), who will then manually update the training code in MSHARP and log the academic/ground training event in the appropriate section APR, using the format listed in enclosure (1) of this document.

Annual academic/ground training events shall be updated in MSHARP each time they are completed IAW the refly interval.

Additionally, academic/ground training classes not listed as requirements in the T&R should be logged in the appropriate section of the APR using enclosure (1).

Upon signature of this manual, the squadron operations department will manually update and baseline all academic requirements, in both MSHARP and APR(s) for all phases and stages that aircrew have previously completed, at the discretion of the Squadron Commanding Officer.

<table>
<thead>
<tr>
<th>T&amp;R CODE</th>
<th>Academic Syllabus</th>
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<tbody>
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<td>CBT-0001</td>
<td>INTRO TO THE CH-53K</td>
</tr>
<tr>
<td>CBT-0002</td>
<td>POWER PLANTS</td>
</tr>
<tr>
<td>CBT-0003</td>
<td>ROTOR SYSTEM</td>
</tr>
<tr>
<td>CBT-0004</td>
<td>TRANSMISSION SYSTEM</td>
</tr>
<tr>
<td>CBT-0005</td>
<td>FUEL SYSTEM</td>
</tr>
<tr>
<td>CBT-0006</td>
<td>SECONDARY POWER SYSTEM</td>
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<tr>
<td>CBT-0007</td>
<td>ELECTRICAL SYSTEM</td>
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<tr>
<td>CBT-0008</td>
<td>LIGHTING SYSTEMS</td>
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<tr>
<td>CBT-0009</td>
<td>HYDRAULIC POWER SYSTEM</td>
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<tr>
<td>CBT-0010</td>
<td>FLIGHT CONTROL SYSTEM</td>
</tr>
<tr>
<td>CBT-0011</td>
<td>LANDING GEAR SYSTEM</td>
</tr>
<tr>
<td>CBT-0012</td>
<td>BLADE / PYLON FOLD SYSTEM</td>
</tr>
<tr>
<td>CBT-0013</td>
<td>AVIONICS MANAGEMENT SYSTEM</td>
</tr>
<tr>
<td>CBT-0014</td>
<td>NAVIGATION SYSTEM</td>
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<td>CBT-0015</td>
<td>INTEGRATED VEHICLE HEALTH MANAGEMENT SYSTEM</td>
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<tr>
<td>CBT-0016</td>
<td>WARNINGS, CAUTIONS, AND ADVISORIES</td>
</tr>
<tr>
<td>CBT-0017</td>
<td>AIRCRAFT FURNISHINGS AND MISSION SYSTEMS</td>
</tr>
<tr>
<td>CBT-0018</td>
<td>COMMUNICATION SYSTEM</td>
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<tr>
<td>CBT-0019</td>
<td>FIRE PROTECTION AND EMERGENCY SYSTEMS</td>
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<tr>
<td>CBT-0020</td>
<td>AIRCRAFT SURVIVABILITY EQUIPMENT (ASE)</td>
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<tr>
<td>CBT-0021</td>
<td>AIRCRAFT PREFLIGHT INSPECTION</td>
</tr>
<tr>
<td>CBT-0022</td>
<td>WEIGHT AND POWER</td>
</tr>
<tr>
<td>CBT-0023</td>
<td>AIRCRAFT STARTUP AND SHUTDOWN CHECKLIST</td>
</tr>
<tr>
<td>CBT-0024</td>
<td>INTRODUCTION TO FAMILIARIZATION FLIGHT STAGE / LOCAL COURSE RULES</td>
</tr>
<tr>
<td>CBT-0025</td>
<td>INTRODUCTION TO FORMATION FLIGHT STAGE</td>
</tr>
<tr>
<td>CBT-0026</td>
<td>INTRODUCTION TO THE CONFINED AREA LANDING STAGE</td>
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<tr>
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<td>CORE SKILL PHASE (2000-2999)</td>
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<tr>
<td>ACAD-2180</td>
<td>(U) CH-53K GPS TACTICAL ROUTE PLANNING(*)</td>
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<tr>
<td>ACAD-2181</td>
<td>(U) CH-53K MULTIFUNCTION DISPLAY (MFCD)(*)</td>
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<tr>
<td>ACAD-2182</td>
<td>(U) CH-53K ARC-210 HAYE/QUICK/SINGARS(*)</td>
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<tr>
<td>ACAD-2183</td>
<td>(U) CH-53K JMPS CARGO PLANNING TOOL/INTERNAL CARGO(*)</td>
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<tr>
<td>ACAD-2184</td>
<td>(U) CH-53K FLIR(*)</td>
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<td>ACAD-2185</td>
<td>(U) AN/AVS-7 CH-53 ANVIS HUD(*)</td>
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<tr>
<td>ACAD-2280</td>
<td>(U) DESERT AREA OPERATIONS(*)</td>
</tr>
<tr>
<td>ACAD-2281</td>
<td>(U) MOUNTAIN OPERATIONS(*)</td>
</tr>
<tr>
<td>ACAD-2282</td>
<td>(U) TECHNIQUES IN A REDUCED VISIBILITY LANDING(*)</td>
</tr>
<tr>
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<td>TERF STAGE</td>
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</tbody>
</table>

**CBT-0027**  | INTRODUCTION TO THE EXTERNAL CARGO OPERATIONS STAGE |
**CBT-0028**  | INTRODUCTION TO THE TERRAIN FLIGHT STAGE |
**ACAD-0100** | GROUND SCHOOL INTRO IN-BRIEF |
**ACAD-0101** | INTRODUCTION TO THE CH-53K |
**ACAD-0102** | POWER PLANTS |
**ACAD-0103** | ROTOR SYSTEMS |
**ACAD-0104** | TRANSMISSION SYSTEM |
**ACAD-0105** | FUEL SYSTEM |
**ACAD-0106** | SECONDARY POWER SYSTEM |
**ACAD-0107** | ELECTRICAL SYSTEMS |
**ACAD-0108** | LIGHTING SYSTEMS |
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**ACAD-0110** | FLIGHT CONTROL SYSTEM |
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**ACAD-0112** | BLADE / PYLON FOLD SYSTEM |
**ACAD-0113** | AVIONICS MANAGEMENT SYSTEM |
**ACAD-0114** | NAVIGATION SYSTEM |
**ACAD-0115** | INTEGRATED VEHICLE HEALTH MANAGEMENT SYSTEM |
**ACAD-0116** | WARNINGS, CAUTIONS, AND ADVISORIES |
**ACAD-0117** | AIRCRAFT FURNISHINGS AND MISSION SYSTEMS |
**ACAD-0118** | COMMUNICATION SYSTEM |
**ACAD-0119** | FIRE PROTECTION AND EMERGENCY SYSTEMS |
**ACAD-0120** | AIRCRAFT SURVIVABILITY EQUIPMENT (ASE) |
**ACAD-0122** | WEIGHT AND POWER |
**ACAD-0123** | AIRCRAFT STARTUP AND SHUTDOWN CHECKLIST |
**ACAD-0124** | INTRODUCTION TO FAMILIARIZATION FLIGHT STAGE /LOCAL COURSE RULES EXAM |
**ACAD-0130** | INTRODUCTION TO JMPS |
**ACAD-0131** | JMPS UPC VFR ROUTE PLANNING |
**ACAD-0132** | JMPS UPC CARGO PLANNING |
**ACAD-0133** | JMPS UPC ADDITIONAL PLANNING |
**ACAD-0134** | JMPS UPC IFR/RNAV ROUTE PLANNING |
**LAB-1001**  | AIRCRAFT SYSTEMS I |
**LAB-1002**  | AIRCRAFT SYSTEMS II |
**LAB-1003**  | AIRCRAFT SYSTEMS III |
**LAB-1004**  | AIRCRAFT SYSTEMS IV |
**LAB-1013**  | AVIONICS MANAGEMENT SYSTEMS |
**LAB-1014**  | NAVIGATION SYSTEM |
**LAB-1017**  | AIRCRAFT FURNISHINGS AND MISSION SYSTEMS |
**LAB-1018**  | COMMUNICATION SYSTEM |
**LAB-1021**  | REVIEW PREFLIGHT INSPECTION 1 |
**LAB-1030**  | INTRODUCTION TO JMPS |
**LAB-1031**  | JMPS UPC VFR ROUTE PLANNING |
**LAB-1032**  | JMPS UPC CARGO PLANNING |
**LAB-1033**  | JMPS UPC ADDITIONAL PLANNING |
**LAB-1034**  | JMPS UPC IFR/RNAV ROUTE PLANNING |
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<tr>
<td>ACAD-2380</td>
<td>(U) ASD TERRAIN FLIGHT (TERF)</td>
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<tr>
<td>ACAD-2480</td>
<td>(S) HEAVY LIFT OPERATIONS(*)</td>
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<td>ACAD-2481</td>
<td>(U) ASSAULT SUPPORT TO ARTILLERY</td>
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<td><strong>EXT STAGE</strong></td>
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<td>(S) CH-53K APR-39(*)</td>
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<td>(S) ALE-47 (*)</td>
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<td>(S) CH-53 MISSILE WARNING SYSTEM(*)</td>
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<td>(S) IR SAM THREAT TO ASSAULT SUPPORT(*)</td>
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<td>ACAD-2585</td>
<td>(S) ADA THREAT TO ASSAULT SUPPORT(*)</td>
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<td>ACAD-2586</td>
<td>(S) RF SAM(*)</td>
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<td>(S) RADAR PRINCIPLES</td>
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<td>(U) CH-53 DM/GTR I (GTR)</td>
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<td>ACAD-2589</td>
<td>(S) SURFACE THREAT TO THE MAGTF</td>
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<td><strong>GTR STAGE</strong></td>
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| ACAD-2580 | (S) HEAVY LIFT OPERATIONS(*)
| ACAD-2581 | (S) ALE-47 (*)
| ACAD-2582 | (S) CH-53K DIRCM(*)
| ACAD-2583 | (S) CH-53 MISSILE WARNING SYSTEM(*)
| ACAD-2584 | (S) IR SAM THREAT TO ASSAULT SUPPORT(*)
| ACAD-2585 | (S) ADA THREAT TO ASSAULT SUPPORT(*)
| ACAD-2586 | (S) RF SAM(*)
| ACAD-2587 | (S) RADAR PRINCIPLES
| ACAD-2588 | (U) CH-53 DM/GTR I (GTR)
| ACAD-2589 | (S) SURFACE THREAT TO THE MAGTF
| **HAAR STAGE** |
| ACAD-2680 | (U) HAAR(*)
| **AG STAGE** |
| ACAD-2880 | (U) WEAPONS EMPLOYMENT TECHNIQUES(*)
| **TAC STAGE** |
| ACAD-2980 | (U) OBJECTIVE AREA PLANNING(*)
| ACAD-2981 | (S) ROE
| ACAD-2982 | (U) EXECUTION CHECKLIST
| ACAD-2983 | (U) PROBLEM FRAMING
| ACAD-2984 | (S) ASSAULT SUPPORT ESCORT TACTICS
| **HLL STAGE** |
| ACAD-2190 | (U) ASSAULT AN/ANVIS-9 COMPONENTS AND PREFLIGHT PROCEDURES
| ACAD-2191 | (U) NVG SYSTEMS AND IMAGE CHARACTERISTICS
| ACAD-2192 | (U) THE NIGHT OPERATIONAL ENVIRONMENT
| ACAD-2193 | (U) NVG MISPERCEPTIONS AND ILLUSIONS
| ACAD-2194 | (U) NVID ROUTE PLANNING CONSIDERATIONS
| ACAD-2195 | (U) NIGHT OPERATIONS AND PLANNING AIDS
| ACAD-2196 | (U) HUMAN FACTORS
| ACAD-2197 | (U) CIRCADIAN RHYTHM AND FATIGUE
| ACAD-2198 | (U) INTRO TO NVG TACTICAL EMPLOYMENT
| **LLL STAGE** |
| ACAD-2199 | (U) BATTLEFIELD ILLUMINATION AND ITG PLANNING CONSIDERATIONS

* Denotes annual academic training requirements.

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<td>ACAD-3081</td>
<td>(S) CONTESTED EMS OPERATIONS AND MITIGATION</td>
</tr>
<tr>
<td>ACAD-3082</td>
<td>(U) NEO EXECUTION</td>
</tr>
<tr>
<td>ACAD-3083</td>
<td>(U) ACE INTELLIGENCE PREPARATION OF THE BATTLE SPACE</td>
</tr>
<tr>
<td><strong>TRAP STAGE</strong></td>
<td></td>
</tr>
<tr>
<td>ACAD-3084</td>
<td>(S) PERSONNEL RECOVERY</td>
</tr>
<tr>
<td>ACAD-3085</td>
<td>(S) TRAP TTPS</td>
</tr>
<tr>
<td>ACAD-3086</td>
<td>(U) CASEVAC</td>
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* Denotes annual academic training requirements.

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<thead>
<tr>
<th>T&amp;R Code</th>
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<tr>
<td>ACAD-4180</td>
<td>(U) HIE</td>
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<td>ACAD-4480</td>
<td>(U) INDEPENDENT HOOK</td>
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**DM STAGE**
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<tr>
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<td>ACAD-4581</td>
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<td>ACAD-4582</td>
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<td>ACAD-4991</td>
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<td>(U) MAGTF TARGETING AND FIRE SUPPORT PLANNING</td>
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<td>ACAD-4993</td>
<td>(U) JCAS</td>
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<td>ACAD-6012</td>
<td>(U) FUNCTIONAL CHECK FLIGHT READINGS</td>
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<td>ACAD-6013</td>
<td>(U) FCP SEMINAR</td>
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<td>ACPM-8201</td>
<td>(U) MACCS AGENCIES, FUNCTIONS, AND CONTROL OF AIRCRAFT AND MISSILES</td>
</tr>
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<td>ACPM-8202</td>
<td>(U) TACTICAL AIR COMMAND CENTER (TACC)</td>
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<tr>
<td>ACPM-8203</td>
<td>(U) DIRECT AIR SUPPORT CENTER (DASC)</td>
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<td>ACPM-8204</td>
<td>(U) TACTICAL AIR OPERATIONS CENTER (TAOC)</td>
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<td>ACPM-8205</td>
<td>(U) MARINE AIR TRAFFIC CONTROL (MATIC)</td>
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<td>ACPM-8206</td>
<td>(U) LOW ALTITUDE AIR DEFENSE (LAAD)</td>
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<td>ACPM-8208</td>
<td>(U) MARINE WING COMMUNICATION SQUADRON (MWCS)</td>
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<td>(U) AVAITION OPERATIONS</td>
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<td>ACPM-8222</td>
<td>(U) CONTROL OF AIRCRAFT AND MISSILES</td>
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<td>ACPM-8223</td>
<td>(U) OFFENSIVE AIR SUPPORT (OAS)</td>
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<tr>
<td>ACPM-8224</td>
<td>(U) ASSAULT SUPPORT</td>
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<td>ACPM-8225</td>
<td>(U) AIR RECONNAISSANCE</td>
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<td>ACPM-8226</td>
<td>(U) ELECTRONIC WARFARE</td>
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<tr>
<td>ACPM-8227</td>
<td>(U) ANTI AIR WARFARE</td>
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<td>ACPM-8228</td>
<td>(U) AVIATION GROUND SUPPORT (AGS)</td>
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<tr>
<td>ACPM-8341</td>
<td>(U) SURFACE TO AIR MISSILES (SAM) THREAT</td>
</tr>
<tr>
<td>ACPM-8342</td>
<td>(U) FIXED WING THREAT</td>
</tr>
<tr>
<td>ACPM-8343</td>
<td>(U) ROTARY WING THREAT</td>
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<tr>
<td>ACPM-8361</td>
<td>(U) GROUND COMBAT OPERATIONS</td>
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<tr>
<td>ACPM-8362</td>
<td>(U) FIRE SUPPORT COORDINATION IN THE GCE</td>
</tr>
<tr>
<td>ACPM-8363</td>
<td>(U) MAGTF COMMAND AND CONTROL</td>
</tr>
<tr>
<td>ACPM-8364</td>
<td>(U) MAGTF COMMUNICATIONS</td>
</tr>
<tr>
<td>ACPM-8365</td>
<td>(U) PHASING CONTROL ASHORE</td>
</tr>
<tr>
<td>ACPM-8366</td>
<td>(U) INFORMATION MANAGEMENT</td>
</tr>
<tr>
<td>ACPM-8367</td>
<td>(U) UNMANNED AIRCRAFT SYSTEMS (UAS) SUPPORT TO THE MAGTF</td>
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### SECTION LEAD SYLLABUS

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>ACPM-8661</td>
<td>(U) COMMANT &amp; CONTROL OF JOINT AIR OPERATIONS</td>
</tr>
<tr>
<td>ACPM-8662</td>
<td>(U) THEATER AIR GROUND SYSTEMS (TAGS)</td>
</tr>
<tr>
<td>ACPM-8663</td>
<td>(U) JOINT FIRE SUPPORT</td>
</tr>
<tr>
<td>ACPM-8664</td>
<td>(U) CLOSE AIR SUPPORT (CAS)</td>
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### DIVISION LEAD SYLLABUS

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>ACPM-8688</td>
<td>(U) COUNTERING AIR AND MISSILE THREATS</td>
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### FLIGHT LEAD SYLLABUS

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<th>Code</th>
<th>Description</th>
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<tr>
<td>ACPM-8685</td>
<td>(U) JOINT TARGETING</td>
</tr>
<tr>
<td>ACPM-8686</td>
<td>(U) NORTH ATLANTIC TREATY ORGANIZATION (NATO)</td>
</tr>
<tr>
<td>ACPM-8687</td>
<td>(U) JOINT AIRSPACE CONTROL</td>
</tr>
</tbody>
</table>

* Denotes annual academic training requirements.

#### 2.5.2 Event Requirements

**General.** The MAWTS-1 Course Catalog contains a summary matrix of all Ground, Academic, Simulator, and Flight requirements for each stage of the T&R. This matrix shall be placed in the Aircrew Performance Record (APR) of all aircrew to thoroughly track training progression. As each training event is completed, the PTO will input the date of completion.

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

All flights shall terminate with a comprehensive debrief with emphasis on aircrew performance utilizing all evaluation techniques available (e.g. video, participating aircrews, external support personnel).

An EATF is required for any initial event completed by a Basic/Transition or Refresher pilot, or as recommended by the squadron Standardization Board. If the commanding officer has waived/deferred a syllabus sortie, the squadron training officer shall place a waiver/deferral letter in section 3 of the APR. All pilots will have an APR. The squadron training officer shall ensure each EATF is accounted for on the summary matrix in section 3 of the APR.

When operational commanders assign HMH squadrons to prolonged commitments where specific T&R training is not available (e.g., MEU deployments, sustained combat deployments), it is expected that degradation in some mission areas will occur. Commanding officers are authorized to defer training in specific missions that are not relevant to their current deployment situation. Once the squadron or detachment has returned from the deployment, every effort should be made to achieve the deferred training for the affected pilots.

Compliance with the written flight description is mandatory for syllabus event completion. In the absence of a flight simulator, completion of a syllabus event is not required to complete that stage. Completion of those events should be accomplished as soon as practical upon simulator availability. Should the command desire, in the absence of a flight simulator, simulator events can be flown in the aircraft for T&R credit. For events requiring more than one CH-53K, a CH-53E may be used to fulfill the multiple aircraft requirement.

Training should be accomplished by flying events within a stage in sequence and stages in sequence when practical. As an example, prerequisites allow a PUI to fly events in other stages while waiting for the next HLL or LLL period.

Specific rules of conduct requirements for individual type missions (NVG training, CQs, DM, etc.) can be found in chapter 3 of the Aviation T&R Program Manual.
2.5.3  **Event Header**

**Sortie Duration.** Times indicated for each event are recommendations. When scheduling sorties, training officers are allowed to schedule additional training codes based on anticipated mission sets if the performance standards are met for the sortie, and sufficient time is available during the flight to accomplish those sorties (e.g. 3 hour flight scheduled to conduct two sorties with flight time requirement of 1.5 hours each). If multiple syllabus events are to be accomplished during a single flight evolution, appropriate planning, briefing, and debriefing time shall be allotted to ensure that requisite training objectives can be met.

**Refly Factor.** Refly (proficiency interval) factors reflect the maximum time between syllabus events. Refly factors are delineated in days. If not applicable, an asterisk (*) will be used to indicate the event has no refly interval – it is a one-time training requirement (unless R-coded).

**Programs of Instruction.** Delineates event requirements for specific syllabi.

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

<table>
<thead>
<tr>
<th>Code</th>
<th>Description (Environmental Condition)</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>Shall be conducted during day.</td>
</tr>
<tr>
<td>N</td>
<td>Shall be conducted at night, aided or unaided.</td>
</tr>
<tr>
<td>(N)</td>
<td>May be conducted day or night. If at night, aided or unaided.</td>
</tr>
<tr>
<td>NS</td>
<td>Shall be conducted at night aided under High Light Level or Low Light Level.</td>
</tr>
<tr>
<td>HLL</td>
<td>Shall be conducted at night aided under High Light Level conditions.</td>
</tr>
<tr>
<td>LLL</td>
<td>Shall be conducted at night aided under Low Light Level conditions.</td>
</tr>
<tr>
<td>(NS)</td>
<td>May be conducted day or night. If at night, shall be aided under High Light Level or Low Light Level.</td>
</tr>
<tr>
<td>(HLL)</td>
<td>May be conducted day or night. If at night, shall be aided and under High Light Level conditions.</td>
</tr>
<tr>
<td>(LLL)</td>
<td>May be conducted day or night. If at night, shall be aided and under Low Light Level conditions.</td>
</tr>
<tr>
<td>N*</td>
<td>Shall be conducted at night unaided.</td>
</tr>
<tr>
<td>(N*)</td>
<td>May be conducted day or night. If at night, shall be unaided.</td>
</tr>
<tr>
<td>D/NS</td>
<td>Shall be conducted only in the simulator during day and night aided.</td>
</tr>
</tbody>
</table>

2.5.5  **Device Codes.** Refer to the following table for device codes:

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Device</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Event performed in aircraft</td>
</tr>
<tr>
<td>S</td>
<td>Event performed in simulator or a simulated practical application</td>
</tr>
<tr>
<td>G</td>
<td>Event performed on the ground in a classroom, lab, TACC or other C3 node.</td>
</tr>
<tr>
<td>GE</td>
<td>Non-Flight event requiring evaluation</td>
</tr>
<tr>
<td>A/S</td>
<td>Event performed in aircraft preferred/simulator acceptable</td>
</tr>
<tr>
<td>S/A</td>
<td>Event performed in simulator preferred/aircraft acceptable</td>
</tr>
<tr>
<td>TEN</td>
<td>Tactical Environment Network</td>
</tr>
<tr>
<td>TEN+</td>
<td>Tactical Environment Network and at least one networked, man-in-the-loop simulator</td>
</tr>
</tbody>
</table>

Tactical Environment Network (TEN) simulator requirements are identified for each simulator event. TEN has been used to identify that the simulator must have the ability to link to the network. TEN+ has been used to identify that at least one networked, man-in-the-loop simulator is required for that event. Linked simulator events require an approved Tactical Environment Network simulation and at least one additional, networked, man-in-the-loop simulator to meet the training objectives. A moving model controlled from the operator station does not satisfy the man-in-the-loop requirement.
2.5.6 Event Terms

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

2.5.7 Performance Standards. Performance standards are listed for each T&R event description. These are training standards for individual aircrew performance and shall be utilized by the evaluator as a guideline to determine the satisfactory completion of each event. If the aircrew did not successfully attain the performance standards, the training code shall not be logged as a completed flight.

2.5.8 Grading Standards

Complete. The PUI has demonstrated sufficient grasp of the concepts and skills to proceed to the next training evolution or be designated appropriately.

Incomplete. Describes a training event that is not declared "Complete" due to circumstances beyond the control of the aircrew. Examples may include, but are not limited to: WX, time constraints, aircraft or simulator maintenance, external support inadequate. 'Incomplete' shall not be used to obscure reporting of a substandard performance.

Requires Additional Training (RAT). A RAT is used when the PUI has not yet demonstrated sufficient grasp of the required skills and concepts to progress in the syllabus. A RAT is not derogatory in nature. Instructor remediation recommendations should specifically identify the deficient area(s) for addressing shortcomings in terms of reading assignments, courseware, additional flight, simulator, or other appropriate training. The instructor assigning a RAT synopsis is responsible for ensuring the recommendation has been endorsed by Squadron leadership and adhered to by the student unless a higher authority intervenes with additional guidance. A RAT shall not be used for E coded events.

Unsatisfactory. Identifies a condition where the PUI has proven unable to meet performance standards due to a lack of preparation, lack of effort, consistent inability to demonstrate improvement or resistance to instruction. Significant safety of flight incidents that are of a direct result of the pilot under training actions should be considered unsatisfactory. The instructor assigning this event synopsis is responsible for ensuring recommendations for remediation, if applicable, are proposed through the DSS & Operations Department.

Prerequisites. Events (academic or flight/simulator) that must be completed prior to the initiation of the event.

Ordnance/Range/Target/External Syllabus Support. Items required to successfully complete the required training.

Crew Requirements. The crew requirements listed at the end of each event are requirements for initial stage training flights. For operational flights the minimum crew requirements are defined by CNAFINST, NATOPS, and NAVMC 3500.14. When not clearly defined by higher directives, the squadron commanding officer, DSS, or local SOPs may dictate the minimum crew requirements.

2.6 CORE INTRODUCTION PHASE

Purpose. To introduce the basic flight skills required in the CH-53K.

General

Academic/Ground Training. The following Core Skill Introduction academic/ground training shall be complete IAW the POI requirements and prerequisites. Upon completion, the PUI shall report to the Student Control Officer or designated representative(s), who will then manually update the training code in MSHARP and log the academic/ground training event in section 2, FRS Aircrew Evaluation Forms of the APR, using the format listed in Enclosure 1 of this document.

Ground school is composed of ACAD, CBT, and LAB events. Basic, Transition, and Conversion students shall complete system CBT-0001 through CBT-0028, ACAD-0100 through ACAD-0131, and LAB-1001 through
LAB-1032 during Systems Ground School. Refresher and Modified Refresher students shall complete CBT-0001 through CBT-0028 before their first simulator event.

The CH-53K Model Manager has the responsibility to define the required content, conduct reviews, forward required changes and approve the content for his/her Ground School events, as applicable.

The CH-53K Model Manager has waiver authority over any event within Ground School for the respective syllabus.

Stages. The following stages are included in the Core Skill Introduction phase.

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<td>FAMILIARIZATION (FAM)</td>
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<tr>
<td>NIGHT FAMILIARIZATION (NFAM)</td>
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<tr>
<td>INSTRUMENT (INST)</td>
<td>2.7.4</td>
<td>2-35</td>
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<td>NAVIGATION (NAV)</td>
<td>2.7.5</td>
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<td>FORMATION (FORM)</td>
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<td>2.7.8</td>
<td>2-47</td>
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<td>2.7.10</td>
<td>2-51</td>
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<td>2-51</td>
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</table>

2.7  CORE INTRODUCTION STAGES

2.7.1  Academics (ACAD)

**CBT-0001** 1.0  * B,R,MR,S,CIUT  G  CLSRM (ICW)

**Introduction to the CH-53K**

Goal. The PUI has a basic understanding of the CH-53K historical data, publications, and general information about the interior and exterior of the aircraft.

Requirement. Complete all required CH-53K introductory modules.

**CBT-0002** 2.0  * B,R,MR,S,CIUT  G  CLSRM (ICW)

**Power Plants**

Goal. The PUI has a basic understanding of the CH-53K T-408 engine and all associated sub-systems.

Requirement. Complete all required engine modules.

Prerequisite. CBT-0001

**CBT-0003** 1.0  * B,R,MR,S,CIUT  G  CLSRM (ICW)

**Rotor System**

Goal. The PUI has a basic understanding of the CH-53K rotor system.

Requirement. Complete all required rotor system modules.

Prerequisite. CBT-0001

**CBT-0004** 1.5  * B,R,MR,S,CIUT  G  CLSRM (ICW)

**Transmission System**

Goal. The PUI has basic understanding of the CH-53K transmission system.

Requirement. Complete all required transmission system modules.

Prerequisite. CBT-0001
Fuel System

Goal. The PUI has a basic understanding of the CH-53K fuel system.

Requirement. Complete all required fuel system modules.

Prerequisite. CBT-0001

Secondary Power System

Goal. The PUI has a basic understanding of the CH-53K Secondary Power System.

Requirement. Complete all required secondary power system modules.

Prerequisite. CBT-0001

Electrical System

Goal. The PUI has a basic understanding of the CH-53K electrical system.

Requirement. Complete all required electrical system modules.

Prerequisite. CBT-0001

Lighting System

Goal. The PUI has a basic understanding of the lighting systems of the CH-53K.

Requirement. Complete all required lighting systems modules.

Prerequisite. CBT-0001

Hydraulic Power System

Goal. The PUI has a basic understanding of the CH-53K hydraulic power system.

Requirement. Complete all required hydraulic power system modules.

Prerequisite. CBT-0001

Flight Control System (FCS)

Goal. The PUI has a basic understanding of the CH-53K flight control system.

Requirement. Complete all required flight control system modules.

Prerequisite. CBT-0001

Landing Gear System

Goal. The PUI has a basic understanding of the CH-53K landing gear system.

Requirement. Complete all required landing gear system modules.

Prerequisite. CBT-0001

Blade/Pylon Fold System

Goal. The PUI has a basic understanding of the CH-53K blade/pylon fold system.
Requirement. Complete all required blade/ pylon fold system modules.

Prerequisite. CBT-0001

**CBT-0013** 1.5  B,R,MR,S,CIUT  G  CLSRM (ICW)

**Avionics Management Systems**

**Goal.** The PUI has a basic understanding of the CH-53K avionics management system.

**Requirement.** Complete all required avionics management systems modules.

Prerequisite. CBT-0001

**CBT-0014** 2.0  B,R,MR,S,CIUT  G  CLSRM (ICW)

**Navigation System**

**Goal.** The PUI has a basic understanding of the CH-53K navigation system.

**Requirement.** Complete all required navigation system modules.

Prerequisite. CBT-0001

**CBT-0015** 1.0  B,R,MR,S,CIUT  G  CLSRM (ICW)

**Integrated Vehicle Health Management System**

**Goal.** The PUI has a basic understanding of the CH-53K integrated vehicle health management system.

**Requirement.** Complete all required integrated vehicle management system modules.

Prerequisite. CBT-0001

**CBT-0016** 0.5  B,R,MR,S,CIUT  G  CLSRM (ICW)

**Warnings, Cautions, and Advisories**

**Goal.** The PUI has a basic understanding of the CH-53K warning, caution, and advisory indications and their meanings.

**Requirement.** Complete all required warnings, cautions, and advisories modules.

Prerequisite. CBT-0001

**CBT-0017** 1.0  B,R,MR,S,CIUT  G  CLSRM (ICW)

**Aircraft Furnishings and Mission Systems**

**Goal.** The PUI has a basic understanding of various CH-53K aircraft furnishings and mission systems.

**Requirement.** Complete all required aircraft furnishings and mission systems modules to include the Cargo Handling System.

Prerequisite. CBT-0001

**CBT-0018** 1.0  B,R,MR,S,CIUT  G  CLSRM (ICW)

**Communication System**

**Goal.** The PUI has a basic understanding of the CH-53K communication system.

**Requirement.** Complete all required communications system modules.

Prerequisite. CBT-0001

**CBT-0019** 1.0  B,R,MR,S,CIUT  G  CLSRM (ICW)

**Fire Protection and Emergency Systems**

**Goal.** The PUI has completed the modules with a basic understanding of the various CH-53K emergency systems/subsystems.
Requirement. Complete all required emergency systems/subsystems modules.

Prerequisite. CBT-0001

CBT-0020 1.0 * B,R,M,R,S,CIUT G CLSRM (ICW) Aircraft Survivability Equipment (ASE)

Goal. The PUI has a basic understanding of CH-53K aircraft survivability equipment (ASE).

Requirement. Complete all required aircraft survivability equipment modules.

Prerequisite. CBT-0001

CBT-0021 1.0 * B,R,M,R,S,CIUT G CLSRM (ICW) Aircraft Preflight Inspection

Goal. The PUI has a basic understanding of the CH-53K aircraft preflight inspection requirements.

Requirement. Complete all required aircraft preflight modules.

Prerequisite. CBT-0001

CBT-0022 0.5 * B,R,M,R,S,CIUT G CLSRM (ICW) Weight and Power

Goal. The PUI has a basic understanding of the CH-53K pre-flight and in-zone weight and power procedures.

Requirement. Complete all required weight and power modules.

Prerequisite. CBT-0001

CBT-0023 1.0 * B,R,M,R,S,CIUT G CLSRM (ICW) Aircraft Startup and Shutdown Checklists

Goal. The PUI has a basic understanding of the CH-53K aircraft startup and shutdown procedures.

Requirement. Complete all required aircraft startup and shutdown modules.

Prerequisite. CBT-0001

CBT-0024 0.5 * B,R,M,R,S,CIUT G CLSRM (ICW) Introduction to Familiarization Flight Stage and Local Course Rules

Goal. The PUI has a basic understanding of the CH-53K Familiarization Flight Stage and Local Course Rules.

Requirement. Complete all required familiarization stage and local course rules modules.

Prerequisite. CBT-0001

CBT-0025 0.5 * B,R,M,R,S,CIUT G CLSRM (ICW) Introduction to Formation Flight Stage

Goal. The PUI has completed the modules with a basic understanding of formation flight.

Requirement. Complete all FORM stage training modules.

Performance Standard. Per CH-53K NATOPS and Maneuver Description Guide

Prerequisite. CBT-0023

CBT-0026 0.5 * B,R,M,R,S,CIUT G CLSRM (ICW) Introduction to the Confined Area Landing (CAL) Stage

Goal. The PUI has completed the modules with a basic understanding of Confined Area Landings (CAL).

Requirement. Complete all CAL stage training modules.
Prerequisite: CBT-0023

CBT-0027  0.5 * B,R,MR,S,CIUT  G  CLSRM (ICW)
Introduction to the External Cargo Operations (Single/Dual Point) Stage

Goal. The PUI has completed the modules with a basic understanding of single- and two-point external cargo operations.

Requirement. Complete all External cargo operations training modules.

Prerequisite. CBT-0023

CBT-0028  0.5 * B,R,MR,S,CIUT  G  CLSRM (ICW)
Introduction to the Terrain Flight Stage

Goal. The PUI has completed the modules with a basic understanding of terrain flight.

Requirement. Complete all terrain flight stage training modules.

Prerequisite. CBT-0023

ACAD-0100  0.5 * B,R,MR,S,CIUT  G  CLSRM (ICW/EML)
Ground School Intro In-Brief

Goal. The PUI understands the expectations during Ground School and has the requisite knowledge of the course and where all the necessary references can be accessed to complete the Core Skill Introduction Phase.

Requirement.

Discuss

- Overall Course Design for Ground School
- The Core Skill Introduction Phase
- Welcome Aboard Package
- Class Schedule
- Systems reference material
- List, locate, and access to all appropriate references that will be required through the Core Skill Introduction Phase
- Expectations of PUI during Ground School to include work schedule, CBT preparation, and event prerequisites
- Squadron and MATSS processes, particularly scheduling

Demonstrate

- Computer based training access
- Basic operation of CBTs

Prerequisite. CBT-0001

ACAD-0101  1.0 * B,R,MR,S,CIUT  G  CLSRM (ICW)
Introduction to the CH-53K

Goal. The PUI has a basic understanding of the CH-53K historical data, publications, and general information about the interior and exterior of the aircraft.

Requirement. Complete all required CH-53K general aircraft information modules.

Prerequisite. CBT-0001

ACAD-0102  2.0 * B,R,MR,S,CIUT  G  CLSRM (ICW)
Power Plant

Goal. The PUI has a basic understanding of the CH-53K T-408 engine and all associated sub-systems.

Requirement. Complete all required engine modules.

Prerequisite. CBT-0002
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<tr>
<th>Course Code</th>
<th>Units</th>
<th>Type</th>
<th>Goal</th>
<th>Requirement</th>
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<td>ACAD-0103</td>
<td>1.5</td>
<td>B,R,M,R,S,CIUT, G</td>
<td>Rotor System</td>
<td>The PUI has a basic understanding of the CH-53K rotor system.</td>
<td>Complete all required rotor system modules.</td>
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<td>ACAD-0104</td>
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<td>B,R,M,R,S,CIUT, G</td>
<td>Transmission System</td>
<td>The PUI has basic understanding of the CH-53K transmission system.</td>
<td>Complete all required transmission system modules.</td>
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<td>ACAD-0105</td>
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<td>B,R,M,R,S,CIUT, G</td>
<td>Fuel System</td>
<td>The PUI has a basic understanding of the CH-53K fuel system.</td>
<td>Complete all required fuel system modules.</td>
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<tr>
<td>ACAD-0106</td>
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<td>B,R,M,R,S,CIUT, G</td>
<td>Secondary Power System</td>
<td>The PUI has a basic understanding of the CH-53K Secondary Power System.</td>
<td>Complete all required secondary power system modules.</td>
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<tr>
<td>ACAD-0107</td>
<td>1.0</td>
<td>B,R,M,R,S,CIUT, G</td>
<td>Electrical System</td>
<td>The PUI has a basic understanding of the CH-53K electrical system.</td>
<td>Complete all required electrical system modules.</td>
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<td>ACAD-0108</td>
<td>0.5</td>
<td>B,R,M,R,S,CIUT, G</td>
<td>Lighting Systems</td>
<td>The PUI has a basic understanding of the lighting systems of the CH-53K.</td>
<td>Complete all required lighting systems modules.</td>
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<td>ACAD-0109</td>
<td>1.5</td>
<td>B,R,M,R,S,CIUT, G</td>
<td>Hydraulic Power System</td>
<td>The PUI has a basic understanding of the CH-53K hydraulic power system.</td>
<td>Complete all required hydraulic power system modules.</td>
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<tr>
<td>ACAD-0110</td>
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<td>B,R,M,R,S,CIUT, G</td>
<td>Flight Control System (FCS)</td>
<td>The PUI has a basic understanding of the CH-53K flight control system.</td>
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Requirement. Complete all required flight control system modules.

Prerequisite. CBT-0010

**ACAD-0111 0.5 * B,R,MR,S,CIUT G CLSRM (ICW)**

**Landing Gear System**

Goal. The PUI has a basic understanding of the CH-53K landing gear system.

Requirement. Complete all required landing gear system modules.

Prerequisite. CBT-0011

**ACAD-0112 0.5 * B,R,MR,S,CIUT G CLSRM (ICW)**

**Blade/Pylon Fold System**

Goal. The PUI has a basic understanding of the CH-53K blade/pylon fold system.

Requirement. Complete all required blade/pylon fold system modules.

Prerequisite. CBT-0012

**ACAD-0113 1.0 * B,R,MR,S,CIUT G CLSRM (ICW)**

**Avionics Management System**

Goal. The PUI has a basic understanding of the CH-53K avionics management system.

Requirement. Complete all required avionics management system modules.

Prerequisite. CBT-0013

**ACAD-0114 2.0 * B,R,MR,S,CIUT G CLSRM (ICW)**

**Navigation System**

Goal. The PUI has a basic understanding of the CH-53K navigation system.

Requirement. Complete all required navigation system modules.

Prerequisite. CBT-0014

**ACAD-0115 1.0 * B,R,MR,S,CIUT G CLSRM (ICW)**

**Integrated Vehicle Health Management System**

Goal. The PUI has a basic understanding of the CH-53K integrated vehicle health management system.

Requirement. Complete all required integrated vehicle management system modules.

Prerequisite. CBT-0015

**ACAD-0116 0.5 * B,R,MR,S,CIUT G CLSRM (ICW)**

**Warnings, Cautions, and Advisories**

Goal. The PUI has a basic understanding of the CH-53K warning, caution, and advisory indications and their meanings.

Requirement. Complete all required warnings, cautions, and advisories modules.

Prerequisite. CBT-0016

**ACAD-0117 1.5 * B,R,MR,S,CIUT G CLSRM (ICW)**

**Aircraft Furnishings and Mission Systems**

Goal. The PUI has a basic understanding of various CH-53K aircraft furnishings and mission systems.

Requirement. Complete all required aircraft furnishings and mission systems modules.

Prerequisite. CBT-0017
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ACAD-0118 1.0 * B,R,MR,S,CIUT G CLSRM (ICW)
Communication System

Goal. The PUI has a basic understanding of the CH-53K communication system.

Requirement. Complete all required communication system modules.

Prerequisite. CBT-0018

ACAD-0119 0.5 * B,R,MR,S,CIUT G CLSRM (ICW)
Fire Protection and Emergency Systems

Goal. The PUI has completed the modules with a basic understanding of the various CH-53K emergency systems/subsystems.

Requirement. Complete all required emergency systems/subsystems modules.

Prerequisite. CBT-0019

ACAD-0120 1.0 * B,R,MR,S,CIUT G CLSRM (ICW)
Aircraft Survivability Equipment (ASE)

Goal. The PUI has a basic understanding of CH-53K aircraft survivability equipment (ASE).

Requirement. Complete all required aircraft survivability equipment modules.

Prerequisite. CBT-0020

ACAD-0122 1.0 * B,R,MR,S,CIUT G CLSRM (ICW)
Weight and Power

Goal. The PUI has a basic understanding of the CH-53K pre-flight and in-zone weight and power procedures.

Requirement. Complete all required weight and power modules.

Prerequisite. CBT-0022

ACAD-0123 2.0 * B,R,MR,S,CIUT G CLSRM (ICW)
Aircraft Startup and Shutdown Checklists

Goal. The PUI has a basic understanding of the CH-53K aircraft startup and shutdown procedures.

Requirement. Complete all required aircraft startup and shutdown modules.

Prerequisite. CBT-0023

ACAD-0124 2.0 * B,R,MR,S,CIUT G CLSRM (ICW/EML)
Introduction to Flight Stage and Local Course Rules

Goal. The PUI has completed the modules with a basic understanding of the CH-53K Flight Stages and Complete Local Course Rules Exam.

Requirement. Complete all FAM stage training modules and the local course rules exam.

Prerequisite. CBT-0024, CBT-0025, CBT-0026, CBT-0027, CBT-0028

ACAD-0130 4.0 * B,R,MR,S,CIUT G CLSRM (ICW/EML)
Introduction to Joint Mission Planning System (JMPS)

Goal. The PUI has completed the modules with a basic understanding of the Joint Mission Planning System and its integration with the CH-53K Flight Management System.

Requirement
Discuss
Route Editor
Drawing Editor

2-20
Threat Editor
Imagery Data Manager
Map Data Manager
WEZOT
Tactical Graphics Editor
Intervisibility Tool
SUMO Tool
TaskView ATO and ACO Viewer
Data Administration
Framework Preferences
Vehicle Preferences
Kneeboard Cards
System Help

Prerequisite. ACAD-0124

**ACAD-0131 3.0 * B,R,MR,S,CIUT G CLSRM (ICW/EML)**

**JMPS VFR Route Planning**

**Goal.** The PUI has completed the module with an advanced understanding of the Joint Mission Planning System UPC as it related to VFR Route Planning.

**Requirement**

**Discuss**

Importing Supplemental Data
Importing Route Planning Data
Local Points and 53K User ACPs
Aircraft Configuration
Create a CH-53K Route
Use CH-53K Point Commands
Create Patterns

Prerequisite. ACAD-0130

**ACAD-0132 3.0 * B,R,MR,S,CIUT G CLSRM (ICW/EML)**

**JMPS UPC Cargo Planning**

**Goal.** The PUI has completed the module with an advanced understanding of the Joint Mission Planning System UPC as it relates to Cargo Planning.

**Requirement**

**Discuss**

Aircraft Configuration
Weight Editors
Passenger Loading
Internal Cargo Loading
External Cargo Loading
Patient Loading
Center of Gravity Calculations
Cargo Plan Validation
Fuel Planning
Weight and Power

Prerequisite. ACAD-0131

**ACAD-0133 3.0 * B,R,MR,S,CIUT G CLSRM (ICW/EML)**

**JMPS UPC Additional Planning**

**Goal.** The PUI has completed the module with an advanced understanding of the Joint Mission Planning System UPC as it relates to communications and map/mission management.
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Requirement
Discuss
Creating and Editing VHF/UHF Presets
Creating and Editing ARC-210 Scan Lists
Annotating the Map
Selecting Map Data
Writing Map Data to Card
Selecting Mission Data
Validating Mission Data
Writing Mission Data
Printing CH-53K Kneeboard Cards
Printing Weight and Power (Form F) Data

Prerequisite: ACAD-0132

ACAD-0134 3.0 * B,R,MR,S,CIUT G CLSRM (ICW/EML)

JMPS UPC IFR/RNAV Route Planning

Goal. The PUI has completed the module with an advanced understanding of the Joint Mission Planning System UPC as it relates to IFR/RNAV route planning.

Requirement
Discuss
Area Navigation
Planning Departures
Planning Fix Points
Planning Approaches
Validating with the RNAV CC
Validating Mission Data
Writing Mission Data
Printing Flight Plan Data

Prerequisite: ACAD-0130

LAB-1001 1.0 * B,R,MR,S,CIUT S LAB (TD)

Aircraft Systems I

Goal. The PUI has a basic understanding of the CH-53K powerplants, rotors, transmission, fuel, and secondary power systems.

Requirement. Complete required Aircraft Systems I practical application lab.

Prerequisite: ACAD-0102, ACAD-0103, ACAD-0104, ACAD-0105, ACAD-0106

LAB-1002 1.0 * B,R,MR,S,CIUT S LAB (TD)

Aircraft Systems II

Goal. The PUI has a basic understanding of the CH-53K electrical, lighting, and IVHMS systems.

Requirement. Complete required Aircraft Systems II practical application lab.

Prerequisite: ACAD-0107, ACAD-0108, ACAD-115

LAB-1003 1.0 * B,R,MR,S,CIUT S LAB (TD)

Aircraft Systems III

Goal. The PUI has a basic understanding of the CH-53K hydraulic and flight control systems.

Requirement. Complete required Aircraft Systems III practical application lab.

Prerequisite: ACAD-0109, ACAD-0110

LAB-1004 1.0 * B,R,MR,S,CIUT S LAB (TD)
**Aircraft Systems IV**

**Goal.** The PUI has a basic understanding of the CH-53K landing gear and blade/ pylons fold systems and the aircraft startup and shutdown checklists.

**Requirement.** Complete required Aircraft Systems IV practical application lab.

**Prerequisite.** ACAD-0111, ACAD-0112, ACAD-0123

**LAB-1013** 2.0   *   B,R,MR,S,CIUT   S   LAB (TD)

**Avionics Management System**

**Goal.** The PUI has a basic understanding of the CH-53K avionics management system.

**Requirement.** Complete required avionics management system practical application lab.

**Prerequisite.** ACAD-0113

**LAB-1014** 2.0   *   B,R,MR,S,CIUT   S   LAB (TD)

**Navigation System**

**Goal.** The PUI has a basic understanding of the CH-53K navigation system.

**Requirement.** Complete required navigation system practical application lab.

**Prerequisite.** ACAD-0114

**LAB-1017** 2.0   *   B,R,MR,S,CIUT   G   LAB (TD)

**Aircraft Furnishings and Mission Systems**

**Goal.** The PUI has a basic understanding of various CH-53K aircraft furnishings and mission systems.

**Requirement.** Complete required aircraft furnishings and mission systems lab on aircraft or suitable trainer.

**Prerequisite.** ACAD-0117

**LAB-1018** 1.5   *   B,R,MR,S,CIUT   S   LAB (TD)

**Communication System**

**Goal.** The PUI has a basic understanding of the CH-53K navigation system.

**Requirement.** Complete required navigation system practical application lab.

**Prerequisite.** ACAD-0118

**LAB-1021** 5.0   *   B,R,MR,S,CIUT   G   1   CH-53K

**Review Preflight Inspection I**

**Goal.** Practice preflight inspection procedures.

**Requirement**

**Instructor**

NI/ANI Designated Crew Chief (Crew Chief Instructor preferred)

**Discuss**

Screening aircraft discrepancies
Familiarity with CH-53K Mission Essential Subsystem Matrix (MESM)
Identifying recently completed maintenance actions
Component identification/nomenclature
Aircraft systems functionality

**Practice**

Exterior Inspection
Interior Inspection
Post Exterior Inspection

**Performance Standards.** Per CH-53K NATOPS and Maneuver Description Guide.
Prerequisites. CBT-0021

External Syllabus Support. Static CH-53K

**LAB-1022** **5.0** * B,R,MR,CIUT G 1 CH-53K

**Review Preflight Inspection II**

Goal. Practice preflight inspection procedures.

**Requirement**

- Instructor
  - Instructor Pilot
- Practice
  - Weight & Power review
  - Performance Chart review
  - Screening aircraft discrepancies
  - Familiarity with CH-53K Mission Essential Subsystem Matrix (MESM)
  - Identifying recently completed maintenance actions
  - Component identification/nomenclature
  - Aircraft systems functionality
  - Exterior Inspection
  - Interior Inspection
  - Post Exterior Inspection

**Performance Standards.** Per CH-53K NATOPS and Maneuver Description Guide.

Prerequisites. **LAB-1021**

External Syllabus Support. Static CH-53K

**LAB-1030** **4.0** * B,R,MR,S,CIUT G LAB (TD)

**Introduction to Joint Mission Planning System (JMPS)**

Goal. The PUI has completed the modules with an advanced understanding of JMPS and its practical application with the CH-53K Flight Management System.

**Requirement**

- Practice. Using instructor provided scenarios, perform all tasks from academic class

Prerequisites. **ACAD-0130**

**LAB-1031** **2.0** * B,R,MR,S,CIUT G LAB (TD)

**JMPS UPC VFR Route Planning**

Goal. The PUI has completed the modules with an advanced understanding of JMPS and its practical application with the CH-53K Flight Management System.

**Requirement**

- Practice. Using instructor provided scenarios, perform all tasks from academic class

Prerequisites. **LAB-1030**

**LAB-1032** **2.0** * B,R,MR,S,CIUT G LAB (TD)

**JMPS UPC Cargo Planning**

Goal. The PUI has completed the modules with an advanced understanding of JMPS and its practical application with the CH-53K Flight Management System.

**Requirement**

- Practice. Using instructor provided scenarios, perform all tasks from academic class

Prerequisites. **LAB-1031**
Goal. The PUI has completed the modules with an advanced understanding of JMPS and its practical application with the CH-53K Flight Management System.

Requirement
Practice. Using instructor provided scenarios, perform all tasks from academic class

Prerequisites. LAB-1032

Goal. The PUI has completed the modules with an advanced understanding of JMPS and its practical application with the CH-53K Flight Management System.

Requirement
Practice. Using instructor provided scenarios, perform all tasks from academic class

Prerequisites. LAB-1030

2.7.2 Familiarization (FAM) (1100)

Purpose. To develop preliminary flight skills in the CH-53K and become familiar with aircraft characteristics, limitations, and emergency procedures; to develop proficiency in all maneuvers contained in the familiarization stage, and to develop proficiency to conduct safe operations during the day.

General. Discuss and become thoroughly familiar with all aspects of CRM applicable to familiarization stage maneuvers as described in the appropriate CH-53K NATOPS Flight Manual(s) and Maneuver Description Guide(s). All events should fly appropriate maneuvers in all flight modes.

FRSI required for FAM-1109-1118. NSFI/NSI required for SFAM-1200 and FAM-1201/1202. CSII authorized for all R and S events.


Ground Training. Pilots shall complete CBT-0024 (B only) and ACAD-0124.

**Introduction to Cockpit Procedures**

Goal. Introduce normal cockpit procedures, start procedures, and shutdown procedures.

Requirement
Introduce

- Pre-start checklist
- Post APU start checklist
- MFD(s) set up and management
- PFD set up and scan
- Operation of the ICS and radios
- Blade/pylon fold checklist
- Cargo ramp and door procedures
- Startup checklists
- Fuel management / Pressure refueling procedures
- Probe extension test
- Taxi checklist
- Monitoring of instruments
- Shutdown checklist

Performance Standards. Per CH-53K NATOPS and Maneuver Description Guide
Prerequisites. LAB-1001, LAB-1002, LAB-1003, LAB-1004, LAB-1013, LAB-1018, ACAD-0123

External Syllabus Support. FTD

Introduction to Ground Emergencies

Goal. Introduce emergency ground procedures. Review startup/shutdown procedures.

Requirement

Introduce
- Abnormal Shutdown (No GOP, No APU)
- Emergency Shutdown
- APU Fire
- APU Malfunctions
- Engine Compartment Fire on the Ground
- Engine Starter Fail
- Hot Start

Practice
- Start/shutdown procedures
- Taxi checklist
- MFD Management
- Operation of the ICS and radios
- Fuel management

Performance Standards. Per CH-53K NATOPS

Introduction to Basic Airwork and Flight Control Modes

Goal. Introduce normal ground and flight procedures. Review start/shutdown procedures.

Requirement

Introduce
- Ground taxi
- On deck control moding (GND, IGM)
- Low Speed control moding (Command, Hold, Beep)
- Vertical takeoff
- Hover/lowspeed work (PFCS, AFCS, PHLD/PHO)
- Height Hold modes
- Vertical landing
- Transition to forward flight
- High Speed control moding (Command, Hold, Beep)
- Forward flight work (PFCS, AFCS)
- High angle of bank maneuvering
- Cueing (tactile, aural, visual)
- eTAWS warnings
- Pre-landing checklist

Practice
- Start/shutdown procedures
- Taxi checklist
- MFD Management
- Operation of the ICS and radios
- Fuel management
Performance Standards. Per CH-53K NATOPS and Maneuver Description Guide

Prerequisites. SFAM-1101

External Syllabus Support. FTD

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<th>D</th>
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</table>

**Introduction to Pattern Work and Normal Landing Procedures**

Goal. Introduce normal patterns and landing procedures (PFCS, AFCS, PHLD/PHO).

Requirement

- Introduce
  - Departures and approaches (PFCS, AFCS)
  - Depart mode
  - Decel-to Hover
  - No hover takeoffs and landings
  - Running takeoffs and landings
  - Precision approach
  - Crosswind landings
  - Waveoffs (manual and with Depart)
  - Landing gear system failure

Practice

- Hover/lowspeed work
- Vertical takeoff
- Transition to forward flight
- Pre-landing checklist
- Vertical landing
- Start/shutdown procedures

Performance Standards. Per CH-53K NATOPS and Maneuver Description Guide

Prerequisites. SFAM-1102

External Syllabus Support. FTD

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**Introduction to Flight Emergencies I**

Goal. Introduce aircraft in-flight emergencies. Review normal ground and flight procedures.

Introduce

- Engine Fire
- Engine compressor stall
- Engine chip detector light
- Engine overspeed
- Engine power loss (Fixed Power, Power Limited, Rate Limited)
- Engine shutdown in flight
- Engine fuel and lubrication system malfunction
- OEI Training modes
- Single and/or dual engine failures
- Max gross weight running takeoff (actual and with Weight Bias)
- Max gross weight takeoff from a hover (actual and with Weight Bias)
- Pr>Pa (FADEC limiter/Power Limit Cueing)
- Fuel dump
- Triple engine failure
- Autorotative descent and maneuvering
- Autorotative landings

Practice
**NAVMC 3500.129**

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Start/shutdown procedures
Vertical takeoff to a hover
Transition to forward flight
Normal approaches to a hover and normal vertical landing

**Performance Standards.** Per CH-53K NATOPS and Maneuver Description Guide

**Prerequisites.** SFAM-1103

**External Syllabus Support.** FTD

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**SFAM-1105 2.0 * BS D S FTD**

**Introduction to Flight Emergencies II**

**Goal.** Introduce aircraft in-flight emergencies. Review normal ground and flight procedures.

Introduce
- Flight Control system failures
- Degraded FCS modes (Passive, Direct, Jammed)
- WOW failures (Flight Mode Override, Ground Mode Override)
- Nose gearbox oil system failure
- Accessory module/rear gearbox failure
- Intermediate/Tail gearbox malfunctions
- Main gearbox failures
- Power train failures
- Tail rotor control malfunctions
- Hydraulic system malfunctions
- Electrical system malfunctions

Practice
- Start/shutdown procedures
- Vertical takeoff to a hover
- Transition to forward flight
- Normal approaches to a hover
- Vertical landing

**Performance Standards.** Per CH-53K NATOPS and Maneuver Description Guide

**Prerequisites.** SFAM-1104

**External Syllabus Support.** FTD

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**SFAM-1106 2.0 * B D S FTD**

**Introduction to Crew Resource Management Skills**

**Goal.** The ability of the PUI to implement the seven principles of Crew Resource Management as dictated by aircraft material condition, aircrew actions, and a dynamic environment.

**Requirement**

Introduce
- Principles of Crew Resource Management
- Obstacle takeoff
- Sender/receiver responsibilities and overcoming situational communication barriers
- ICS failures/malfunctions and radio failures/malfunctions
- Dynamic rollover
- Electrical fire
- Lightning strike
- Most conservative response rule, the two-challenge rule, and task saturation with compound emergencies

Practice
- Previously introduced emergencies
Flight procedures
Precision approach
Running takeoff
Running landing
Approach to a hover
Vertical landing
No hover landing
Autorotation
Max gross weight running takeoff
Max gross weight takeoff from a hover

Performance Standards. Per CH-53K NATOPS and Maneuver Description Guide

Prerequisites. SFAM-1105

External Syllabus Support. FTD

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Simulator Progress Check

Goal. For PUI to demonstrate a solid foundation of all previously introduced procedures.

Requirement

Review

All previously introduced checklists
All FAM Maneuvers
All emergency procedures

Performance Standards. Per CH-53K NATOPS and Maneuver Description Guide

Prerequisites. SFAM-1105

External Syllabus Support. FTD

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Introduction to Ground Operations

Goal. Introduce start, normal ground, and flight procedures including low work and normal approaches.

Requirement

Discuss

Communication systems and operation
Fuel management
Fuel dump system/procedures
Fuel supply system and pressure refueling system

Introduce

Normal cockpit procedures
Startup procedures
Radio procedures
Taxing
Shutdown procedures

Performance Standards. Per CH-53K NATOPS and FRS Maneuver Description Guide.

Prerequisites. SFAM-1107

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Introduction to Hover/Low Work

Goal. Introduce hover/low work in all flight control modes.

Requirement
Discuss

- Engine start/ignition system
- Engine restart during flight
- Effects of Pilot Induced Oscillations (PIO)
- Exhaust gas re-ingestion
- Effects of high AOB maneuvering and subsequent aircraft response
- Hot start
- AOB limitations and cueing
- Emergency shutdown

Introduce

- Vertical takeoff/landing
- Hover techniques (PFCS, AFCS, PHLD/PHO)
- Square patterns/turns on the spot
- Air taxi
- Sideward/rearward flight

Practice

- Start procedures
- Normal ground procedures
- Shutdown procedures

Performance Standards. Per CH-53K NATOPS and FRS Maneuver Description Guide

Prerequisites. FAM-1108

**FAM-1110** 1.0 * B D A 1 CH-53K

**Introduction to Forward Flight**

**Goal.** Introduce forward flight maneuvers in all flight control modes. Practice previously introduced FAM maneuvers.

**Requirement**

Discuss

- Engine system/limitations
- Engine compressor stall
- Engine chip detector light
- Engine overspeed
- Engine power loss
- Engine shutdown
- Engine fuel and lubrication system malfunction
- Single and/or dual engine compartment fires in-flight
- Three Simultaneous engine compartment fires in-flight
- FADEC Overheat
- Effects of gross weight on OEI performance
- Engine shutdown in flight
- Engine restart during flight

Introduce

- Transition to forward flight
- High Speed control moding (Command, Hold, Beep)
- Forward flight work (PFCS, AFCS)

Practice

- Cockpit procedures
- Hover/low work
- Vertical takeoff/landing
- Previously introduced FAM maneuvers

Performance Standards. Per CH-53K NATOPS and Maneuver Description Guide

Prerequisites. FAM-1109
FAM-1111  1.5  *  B  D  A  1 CH-53K

Introduction to Pattern Work and Normal Takeoffs and Landings

Goal. Introduce normal takeoffs, departures, patterns, approaches, and landings in all flight control modes. Practice previously introduced FAM maneuvers.

Requirement

Discuss

- OEI wave-off
- Fire detection/extinguishing system
- Engine compartment fire on the ground
- Engine compartment fires in flight
- APU fire
- Fuselage fire
- Engine post shutdown fire
- Electrical fire
- Smoke and fume elimination
- Hydraulic fire in main rotor pylon

Introduce

- No hover takeoffs/landings (PFCS, AFCS)
- Standard landing pattern
- Use of Depart Mode on departure and waveoff
- Decel-to-Hover approach
- Precision approach

Practice

Previously introduced FAM maneuvers

Performance Standards. Per CH-53K NATOPS and FRS Maneuver Description Guide

Prerequisites. FAM-1110

FAM-1112  1.5  *  B,S  D  A  1 CH-53K

Introduction to OEI Training and Running Takeoffs and Landings

Goal. Introduce OEI Training Mode and running takeoffs and landings. Practice previously introduced FAM maneuvers.

Requirement

Discuss:

- Pitch/Roll Inceptors (cyclic trim, station/mode deselect, Active Inceptor System (AIS) conflict/degradation)
- Yaw Inceptor
- Collective Inceptor (trim release, collective trim, attitude control, AIS conflict/degradation)
- Ground Operation Modes (intermediate/ground)
- In-Flight Modes
  - PFCS: Primary Flight Control System (Rate Command/Attitude Hold)
  - AFCS: Automatic Flight Control System (Attitude Command/Velocity Hold)
  - PHO: Position Hold Override (Velocity Command/Position Hold)
- Inertial Measuring Units
- Flight Control Computer Inputs
- Flight Control System Failures

Introduce

- OEI Training Mode (WT BIAS and OEI)
- Running takeoffs/landing
Simulated emergency procedures
Practice
Previously introduced FAM maneuvers

Performance Standards. Per CH-53K NATOPS and Maneuver Description Guide

Prerequisites. FAM-1111

Introduction to High Angle of Bank Maneuvers and Practice Autorotations

Goal. Introduce high AOB maneuvers and practice autorotations. Practice previously introduced FAM maneuvers and simulated emergency procedures.

Requirement
Discuss
Ground resonance
MFD Symbology
Blade and pylon fold
Tail-Rotor Control Malfunctions
Blade monitoring system
Bearing monitoring system
Introduce
High AOB maneuvers (PFCS, AFCS)
Aircraft cueing (G-limit, power limit, blade stall)
Autorotative descent and maneuvering
Autorotations with power recovery
Practice
Previously introduced FAM maneuvers
Simulated emergency procedures

Performance Standards. Per CH-53K NATOPS and FRS Maneuver Description Guide.

Prerequisites. FAM-1111

FAM-1114 2.0 * B D A 1 CH-53K
Familiarization and Emergency Procedure Review I

Goal. Practice all FAM maneuvers and simulated emergency procedures.

Requirement
Discuss
Transmission system
Pr>Pa
Vortex ring state
Nose gearbox oil system failure
Accessory module/rear gearbox failure
Intermediate/Tail gearbox malfunctions
Main gearbox failures
Power train failures
Practice
All FAM maneuvers
Simulated emergency procedures

Performance Standards. Per CH-53K NATOPS and Maneuver Description Guide

Prerequisites. FAM-1113

FAM-1115 2.0 * B,M,R D A 1 CH-53K
Familiarization and Emergency Procedure Review II
Goal. Practice all FAM maneuvers and simulated emergency procedures.

Requirement

Discuss

Rotor brake system
APU
Hydraulic power supply systems
Hydraulic system malfunctions
Utility hydraulic subsystems
Hydraulic Leak Detection and Isolation Logic

Practice

All FAM maneuvers
Simulated emergency procedures

Performance Standards. Per CH-53K NATOPS and FRS Maneuver Description Guide

Prerequisites. FAM-1114

Familiarization and Emergency Procedure Review III

Goal. Review all FAM maneuvers and simulated emergency procedures.

Requirement

Discuss

Ground cushion and ground effect
Effect of wind on translational lift
Effect of temperature and pressure altitude on power available
Power required for flight at various airspeeds (hover to VNE)
Effects of gross weight, altitude, temperature, turbulence, and wind on power required for hover
both in and out of ground effect
Effects of gross weight, altitude, temperature, and turbulence on blade stall
Maximum speed level flight with turns for existing ambient conditions
Pr>Pa
Vortex Ring State
Landing gear system
Weight on Wheels
Landing gear system failure
Integrated Vehicle Health Management System (IVHMS)

Practice

All FAM maneuvers
Simulated emergency procedures

Performance Standards. IAW CH-53K NATOPS and Maneuver Description Guide

Prerequisites. FAM-1115

Progress Pre-Check Review Flight

Goal. Conduct Progress Pre-Check.

Requirement

Practice

All FAM maneuvers
Simulated emergency procedures

Performance Standards. Demonstrate proficiency of FAM maneuvers IAW CH-53K NATOPS and FRS Maneuver Description Guide.

Prerequisites. FAM-1117
2.7.3 Night Familiarization (NFAM)

**Purpose.** To develop preliminary flight skills in the CH-53K and become familiar with aircraft characteristics, limitations, and emergency procedures; to develop proficiency in all maneuvers contained in the familiarization stage, and to develop proficiency to conduct safe operations during the night.

**General.** Pilots shall conduct Core Skill Introduction Night Systems (NS) phase flights under High Light Level (HLL) ambient conditions with an NS FAM Instructor (NSFI) or NS Instructor (NSI).

**SFAM-1200 2.0 * B,S HLL S FTD**

**Night Systems Adaptation**

**Goal.** Introduce NS adaptation.

**Requirement**

- Introduce
  - NS set-up/operation
  - Cockpit lighting
  - Blind cockpit drills
  - NS malfunctions
  - NS goggle/degoggle procedures
  - NS scan techniques
  - NS hover/low work
  - NS takeoff/departure/landing pattern/approach/landing (All FCS modes)
  - Emergencies while wearing NS
  - NS failure

**Performance Standards.** Per CH-53K NATOPS and Maneuver Description Guide

**Prerequisites.** The Night Imaging and Threat Evaluation (NITE) Lab syllabus. SFAM-1107.

**External Syllabus Support.** FTD

**FAM-1201 1.5 * B HLL A 1 CH-53K**

**Introduction to Night Systems Low and Pattern Work**

**Goal.** Introduce NS low work and pattern work.

**Requirement**

- Discuss
  - Aircraft lighting systems
  - Electrical failures
  - Electrical power supply system
  - Generator fail
  - DC Converter fail
  - Minimum aircraft equipment required for night flight
  - NS operations/failures
  - Cockpit lighting
  - Crew coordination
  - Comfort level
  - Low altitude emergencies
  - Inadvertent IMC procedures
  - Aircraft external lighting
  - NS visual characteristics and limitations
  - Scan techniques

- Introduce
  - Tip path plane awareness
  - FLIR operation
  - NS hover/low work
NS takeoff/departure/landing pattern/approach/landing (All FCS modes)

Performance Standards. Per CH-53K NATOPS, FRS Maneuver Description Guide, and MAWTS-1 NVD manual

Prerequisites. FAM-1117, SFAM-1200

FAM-1202 1.5 * B.R,M.R,S HLL A 1 CH-53K

Practice Night Systems Low and Pattern Work

Goal. Practice low work, takeoffs/landings and pattern work at unlit field while using NS.

Requirement

Discuss
- Solar Lunar Almanac Program (SLAP)
- Effects of shadowing on NS operations
- Effects of atmospheric conditions on NS performance
- Blooming/de-gaining
- Approach pattern
- Spectrum viewed by NS (FLIR/NS)

Practice
- FLIR operation
- NS hover/low work
- NS takeoff/departure/landing pattern/approach/landing (All FCS modes)


Prerequisites. FAM-1201

2.7.4 Instruments (INST)

Purpose. To develop proficiency in instrument flight procedures while using all installed navigation aids.

General. All instrument stage flights should terminate with an instrument approach, when possible. All events should fly appropriate maneuvers in all flight modes.

FRSI required for INST-1306/1307. CSII authorized for all R and S events.

Crew Requirement. IP/RAC/CC (AO required for NS events).

SINST-1300 2.0 * B,S (N) S FTD

Introduction To Basic Instruments

Goal. Introduce basic instruments, unusual attitude recovery, and decision making IAW CRM techniques.

Requirement

Introduce
- Flight Director modes for instrument flight
- Inertial Navigation System (INS) alignment procedures (manual and auto)
- Primary Flight Display (PFD)/Map Display/Flight Plan Display/Leg Data Display utilization
- Instrument cockpit setup
- Instrument takeoff (manual and Depart Mode)
- Flight maneuver options (manual/NAVAID only, AMS flightplan, Flight Director)
- Level speed change
- Standard rate timed turns
- Vertical S-1 pattern
- Oscar pattern
- Turn pattern
- Holding
- Unusual attitude recovery
- Decision making in the CH-53K IAW CRM techniques
- Troubleshooting strategies for degraded aircraft systems in IMC (ISIS use)
Performance Standards. IAW CH-53K NATOPS, Instrument NATOPS, FLIP publications and Maneuver Description Guide

Prerequisites. LAB-1014, SFAM-1107

External Syllabus Support. FTD

SINST-1301  1.0  *  B.R.S  (N)  S  FTD
Radio Instruments I (TACAN/VOR)

Goal. Introduce TACAN/VOR procedures and adaptability /flexibility per CRM techniques.

Requirement

Discuss

Cockpit setup for TACAN/VOR use
Changes in mission from the briefing, crew-member incapacitation, and overcoming personality differences within the cockpit and cabin
Adaptability/flexibility in the CH-53K per CRM techniques
Use/Failure of FCS functions in IMC conditions

Introduce

Point-to-point/Fix navigation
TACAN approach(s)
VOR approach(s)
Holding

Practice

Basic instruments

Performance Standards. Per CH-53K NATOPS, Instrument NATOPS, FLIP publications and Maneuver Description Guide

Prerequisites. INST-1300

External Syllabus Support. FTD

SINST-1302  1.0  *  B.R.S  (N)  S  FTD
Radio Instruments II (ILS/Localizer)

Goal. Introduce ILS/localizer approaches and mission analysis per CRM techniques. Practice aircraft emergency procedures.

Requirement

Discuss

Cockpit setup for ILS/localizer use
Flight Director techniques for ILS/localizer use

Introduce

ILS and localizer approaches
Localizer backcourse

Practice

TACAN and VOR approaches
Previously introduced emergency procedures

Performance Standards. Per CH-53K NATOPS, Instrument NATOPS, FLIP publications and Maneuver Description Guide

Prerequisites. INST-1301

External Syllabus Support. FTD
SINST-1303 1.0 * B.R.S (N) S FTD Radio

Instruments III (GPS/RNP/RNAV)

Goal. Introduce GPS approaches, Required Navigation Performance (RNP), Area Navigation (RNAV) and Flight Management System (FMS) operation.

Requirement

Discuss
- Cockpit setup for GPS approaches
- RNP requirements and cockpit indications

Introduce
- GPS approaches
- RNP and RNAV
- FMS operation (create full IFR flight plan manually via AMS)

Practice
- ILS and localizer approaches
- TACAN and VOR approaches
- Previously introduced emergency procedures

Performance Standards. Per CH-53K NATOPS, Instrument NATOPS, FLIP publications and Maneuver Description Guide

Prerequisites. INST-1302

External Syllabus Support. FTD

SINST-1304 1.0 * B (N) S FTD

Radar Approaches and IMC Lost COMM Procedures

Goal. Introduce NORDO procedures, ATC procedures in IMC conditions and leadership principles per CRM techniques.

Requirement

Introduce
- PAR and ASR approaches
- Task fixation during an instrument approach with an emergency or degraded system

Practice
- Any previously introduced Instrument Approach
- Inertial Navigation System (INS) alignment procedures
- Primary Flight Display (PFD)/Map Display/Flight Plan Display/Leg Data Display utilization/management
- Aircraft emergency procedures

Performance Standards. Per CH-53K NATOPS, Instrument NATOPS, FLIP publications and FRS Maneuver Description Guide

Prerequisites. INST-1303

External Syllabus Support. FTD

SINST-1305 2.0 * B.R (N) S FTD Simulator

Instrument Progress Check

Goal. Evaluate the PUI’s instrument knowledge and procedures prior to conducting the instrument flight stage.

Requirement

Practice
- FMS operation (create full IFR flight plan manually via AMS)
- IFR departure
- COMM/NAV failure under IMC

2-37
Crewmember relationships in the cockpit and cabin, and division of tasks
All previously conducted instrument procedures
Instrument Checklist

Performance Standards. Per CH-53K NATOPS, Instrument NATOPS, FLIP publications and Maneuver Description Guide

Prerequisites. INST-1304
External Syllabus Support. FTD

**INST-1306**  1.5  *  B,R  (N)  A  1 CH-53K

**Instrument Flight Review**

**Goal.** Review basic instrument, precision, and non-precision procedures.

**Requirement**
Discuss
- Approach minimums and helicopter-only approaches
- Flight Director operation
- ILS/LOC and LOC back course approaches
- RNP/RNAV Procedures
- Cockpit setup
- Inadvertent entry into IMC conditions
- Lost plane procedures
- Lighting strike
- Emergency descent
- Use/Failure of FCS functions in IMC conditions

Introduce
- Operation of the transponder modes
- VOR procedures
- TACAN procedures
- Point-to-point navigation (Direct To function)
- ILS/LOC procedures
- PAR procedures

Performance Standards. Per CH-53K NATOPS, Instrument NATOPS, FLIP publications and Maneuver Description Guide

Prerequisites. FAM-1111, SINST-1305

**INST-1307**  1.5  *  B,R,MR,S  (N)  A  1 CH-53K

**Instrument Progress Check**

**Goal.** Conduct IFR flight to an outlying airfield. Instrument progress check.

**Requirement.** Create an IFR Flight Plan with JMPS, if available, or directly via CDU if JMPS not available.

Discuss
- Range performance charts in the CH-53K NATOPS Manual

Practice
- Create full IFR flight plan in AMS (via JMPS or directly in CDU)
- Any previously introduced instrument procedure or approach

Performance Standards. Per CH-53K NATOPS, Instrument NATOPS, FLIP publications and Maneuver Description Guide

Prerequisites. INST-1306
2.7.5 Navigation (NAV)

Purpose. To develop the ability to conduct day VFR navigation utilizing the navigation features of the Flight Management System. Additionally, a basic understanding of the capabilities and limitations of the cargo compartment will be introduced in this stage of flight. All events should fly appropriate maneuvers in all flight modes.

FRSI required for NAV-1402. CSII authorized for all R and S events.

Crew Requirement. IP/RAC/CC

SNAV-1400 2.0 * B.R,MR D S FTD

Introduction To VFR Navigation

Goal. Introduce day VFR navigation utilizing the navigation features of the aircraft Flight Management System to arrive at an objective.

Requirement. The IP shall issue to the PUI the position of a departure point, an initial objective, and a secondary objective. The IP will additionally provide forecasted weather conditions for preflight planning considerations. PUI will prepare and generate all required mission documents and successfully transfer mission data to the appropriate portable media for use in the CH-53K Flight Management System.

Discuss

Route planning considerations
Pre-mission Planning
Route Brief
Communication skills and CRM
Flying pilot and non-flying pilot duties

Introduce

Moving Map Utilization
Height Above Terrain (HAT) shading
MFCU Digmap controls
Approach to Point (ATPT) procedure
Long Range Navigation and Fuel Management
PALT Flight Director Mode

Practice

Multifunctional Displays (MFD) Functionality: Primary Flight Display (PFD)/Map Display/Flight Plan Display/Leg Data Display
Flight plan management and functions (ETA/TOT, OFFSET, DIRECT TO, BINGO FUEL, Fuel Summary)

Performance Standards.

Accurately conduct mission preflight planning utilizing JMPS and prepare all required products for the conduct of flight. Properly employ CH-53K FMS and be familiar with its functionality. Accurately conduct INS alignment and updates as required.

Prerequisites. LAB-1014, SFAM-1107

External Syllabus Support. FTD

SNAV-1401 2.0 * B.R,S D S FTD

VFR Route and FLIR Navigation

Goal. To review the PUI's ability to conduct VFR Navigation and introduce internal cargo management. PUI shall utilize the aircraft Flight Management System to navigate to various objectives while delivering simulated cargo loads.

Requirement. The IP shall issue to the PUI the departure point, a notional load plan and delivery destinations. The IP will additionally provide forecasted weather conditions for preflight
planning considerations. The PUI will ensure proper weight/power/CG calculations are conducted. The PUI will develop a flight route with JMPS and account for the internal cargo deliveries at each objective and generate all required mission documents and successfully transfer mission data to the appropriate portable media for use in the CH-53K Flight Management System.

Discuss
- Cargo loading procedures
- Weight/power/CG requirements and limitations
- Load management and considerations (MFD MSN Plan/Sim modes)
- FLIR Capabilities and Limitations
- MFCU FLIR controls
- In flight emergencies
- Communication skills and CRM
- Flying pilot and non-flying pilot duties
- Conduct of the flight

Introduce
- Create full tactical flightplan via AMS (passengers, internal cargo, external cargo, fuel onload/offload)
- Aircrew brief
- FLIR Operations

Practice
- Pre-mission Planning/ Route Brief
- Multifunctional Displays (MFD) Functionality: Primary Flight Display (PFD)/Map Display/Flight Plan Display/Leg Data Display
- Flight plan management and functions (ETA/TOT, OFFSET, DIRECT TO, BINGO FUEL, Fuel Summary)
- Flight Director functions

Performance Standards. Accurately conduct mission preflight planning utilizing JMPS and prepare all required products for the conduct of flight. Properly employ CH-53K FMS and be familiar with its functionality. Be familiar with the basic operation of the FLIR.

Prerequisites. SNAV-1400

External Syllabus Support. FTD

**NAV-1402 1.5 * B,S D A 1 CH-53K**

**VFR Navigation Progress Check**

**Goal.** Introduce day VFR navigation supplemented by Forward Looking Infrared (FLIR) in the CH-53K. PUI shall utilize the aircraft Flight Management System and FLIR to arrive at an objective.

**Requirement.** The IP shall issue to the PUI the position of a departure point, an initial objective, and a secondary objective. Utilizing JMPS, the PUI will develop a flight route, identify hazards, and accentuate any applicable visual reference points. PUI will also prepare and generate all required mission documents and successfully transfer mission data to the appropriate portable media for use in the CH-53K Flight Management System.

Discuss
- Navigation to include GPS and FLIR checkpoint identification
- Fuel management
- In flight emergencies
- Communication skills and CRM
- Flying pilot and non-flying pilot duties
- Conduct of the flight

Practice
- Pre-mission Planning
- Flight Brief
Multifunctional Displays (MFD) Functionality: Primary Flight Display (PFD)/Map Display/Flight Plan Display/Leg Data Display
Flight plan management and functions (ETA/TOT, OFFSET, DIRECT TO, BINGO FUEL, Fuel Summary)
Flight Director functions
PFD FLIR Mode

Performance Standards. Accurately conduct mission preflight planning utilizing JMPS and prepare all required products for conduct of flight. Properly employ CH-53K FMS, in particular the PDF FLIR Mode, and be familiar with its functionality. Be able to accurately conduct INS alignment and updates as required

Prerequisites. SFAM-1111, SNAV-1401

2.7.6 Formation (FORM)

Purpose. To develop parade and cruise formation principles and techniques.

FRSI required for FORM-1501. NSFI/NSI required for SFORM-1502 and FORM-1503. CSII authorized for all R and SC events.

Crew Requirement. 1501: IP/RAC/CC. 1503: IP/RAC/CC/AO.

Ground Training. Pilots shall complete CBT-0025 (B only) and ACAD-0124.

SFORM-1500 1.0 * B D S FTD
Introduction to Day Formation Flight

Goal. Introduce day formation principles.

Requirement.

Discuss:
Visual Checkpoints
Closure rate
Cruise Turn Principles
Crossovers
Section Approaches
IIMC
CRM
Comfort level

Introduce
Section takeoffs
Cruise principles
Crossovers
Section approaches

Performance Standards. Per CH-53K NATOPS and Maneuver Description Guide

Prerequisites. CBT-0033 and SNAV-1401

External Syllabus Support. FTD

FORM-1501 1.5 * B,R,MR,S D A 2 CH-53K/E
Introduction to Parade, Cruise and Runway Section Landings

Goal. Introduce parade, cruise formation and section landings. Practice visual and FMS navigation.

Requirement. The IP shall issue to the PUI the position of a departure point, an initial objective, and a secondary objective. Utilizing JMPS, the PUI will develop a flight route, identify hazards, and accentuate any applicable visual reference points. PUI will also prepare and generate all required mission documents and successfully transfer mission data to the appropriate portable media for use in the CH-53K Flight Management System.

Discuss
Visual checkpoints for formation position
Formation considerations
Parade and Cruise formations
Cruise turn principles
Loss of visual contact
Break-up and rendezvous
Over-run procedures
Navigation techniques
Map preparation
Checkpoint selection
Boundaries/limiting features
JMPS utilization
FMS operation
Situational awareness
Communication skills and CRM

Introduce
Section takeoffs
Parade position
Crossovers
Breakups
Rendezvous
Lead changes
Section landings
Cruise formations
IMC break-up

Performance Standards. Per CH-53K NATOPS and Maneuver Description Guide

Prerequisite. FAM-1111 and SFORM-1500

SFORM-1502 1.0 * B HLL S FTD

Introduction to Night Systems Formation Flight

Goal. Introduce night formation principles.

Requirement

Discuss
Aircraft lighting
NVD Closure rate considerations
CRM
Comfort level

Introduce
Section takeoffs
Cruise principles
Crossovers
NS section approaches


Prerequisite. SFAM-1200 and SFORM-1500

External Syllabus Support. FTD

FORM-1503 1.5 * B,S HLL A 2 CH-53K/E

Night Systems Formation Flight

Goal. Introduce NS formation procedures and section landings. Practice visual and FMS navigation.

Requirement. The PUI’s will develop a flight route, identify hazards, and accentuate any applicable visual reference points. The PUI’s will also prepare and generate all required mission documents and successfully transfer mission data.
to the appropriate portable media for use in the CH-53K Flight Management System. As lead, the PUI will navigate to a minimum of objectives.

Discuss

- Aircraft lighting
- Closure rate
- CRM and comfort level
- NS visual checkpoints for formation position
- Use of the FLIR
- Low level hazards
- Dead reckoning techniques
- Section navigation considerations

Introduce

- Night section takeoffs
- Cruise principles
- Crossover
- Lead changes
- Section landings


Prerequisite. FAM-1202, FORM-1501, SFORM-1502

Range Requirements. Approved CAL/MAL site

2.7.7 Confined Area Landings (CAL) (1600)

Purpose. Develop takeoff and landing skills in confined areas.

FRSI required for CAL-1603-1605. NSFI/NSI required for SCAL-1606/1607 and CAL-1608/1609. CSII authorized for all R and SC events.

Crew Requirement. 1603/1604: IP/RAC/CC. 1605/1608: IP/RAC/CC/AO.

Ground Training. Pilots shall complete CBT-0026 (B only) and ACAD-0124.

SCAL-1600 1.0 * B,S D S FTD

Introduction to Confined Area Landings

Goal. Introduce precision approaches and introduce their application to CALs.

Requirement

Discuss

- Landing gear system/limitations
- Dynamic rollover
- Slope landing technique/limitations
- Loss of visual reference during landing (PFD Hover page symbology)
- Pr > Pa
- Main and tail rotor clearance factors over sloping or uneven terrain
- LZ considerations

Introduce

- Normal and precision approaches to confined areas (PFCS, AFCS)
- Obstacle approaches and departures
- ATPT and DTH use in confined area
- Use of hover page in DVE
- Scan pattern and techniques in DVE

Performance Standards. Per CH-53K NATOPS and Maneuver Description Guide.

Prerequisite. SFAM-1107
External Syllabus Support. FTD

**SCAL-1601** 1.0 * B D S FTD

*Introduction to Section CALs*

**Goal.** Introduce section CAL approaches and landings.

**Requirement**

Discuss
- Hazards associated with section CAL landings
- CRM
- Section Waveoffs
- Use of coupled and manual modes among section
- Inter/intraplane communication

Introduce
- Day Section CAL approaches and landings

**Section Brief**

**Practice**

- Normal and precision approaches to confined areas (PFCS, AFCS)
- Obstacle approaches and departures
- ATPT and DTH use in confined area
- Use of hover page in DVE
- Scan pattern and techniques in DVE

**Performance Standards.** Per CH-53K NATOPS and Maneuver Description Guide.

**Prerequisite.** SFORM-1500, SCAL-1600

**External Syllabus Support.** (2) Linked FTD Preferred.

**CAL-1602** 1.5 * B,S D A 1 CH-53K

*Introduction to Confined Area Landings*

**Goal.** Introduce normal and precision approaches with their application to CALs.

**Requirement**

Discuss
- Use of flight control modes in CAL environment

Introduce
- Normal and precision approach to confined areas (PFCS, AFCS)
- Obstacle approach and departure
- Manual waveoff
- Scan, cockpit setup, aids and automation
- Cockpit duties, approach sequence and standard terminology
- Landing profiles

Review
- Landing gear system/limitations
- Dynamic rollover
- Slope landing technique/limitations
- Loss of visual reference during landing
- Vortex Ring State
- Pr > Pa
- Main and tail rotor clearance factors over sloping or uneven terrain
- LZ considerations

**Performance Standards.** Per CH-53K NATOPS and Maneuver Description Guide.

**Prerequisite.** FAM-1111 and SCAL-1601

**Range Requirements.** Approved CAL/MAL site
**Introduction to Coupled Approaches and Decel to Hover in a CAL Environment**

**Goal.** Introduce coupled approaches to confined area landings.

**Requirement**

- Introduce
  - Approach to point
  - Decel to hover
  - Use of hover page
  - Waveoff using Depart mode

- Practice
  - Manual waveoffs
  - Precision approaches to confined areas

- Review
  - Landing profiles
  - Map screen orientation
  - Scan, cockpit setup, aids and automation
  - Application of FLIR to CAL approaches

**Performance Standards.** Per CH-53K NATOPS and Maneuver Description Guide.

**Prerequisite.** CAL-1602

**Range Requirements.** Approved CAL/MAL site

---

**Introduction to Section CALs**

**Goal.** Practice section CAL approaches and landings in the CH-53K.

**Requirement**

- Review
  - Hazards associated with section CAL landings.
  - CRM
  - Section Waveoffs
  - Inter/intraplane communication

- Introduce
  - Section CAL landing patterns (all flight control modes)
  - Section brief

**Performance Standards.** Per CH-53K NATOPS and Maneuver Description Guide.

**Prerequisite.** FORM-1501, SCAL-1603

**Range Requirements.** Approved CAL/MAL site

---

**Introduction to Night System CALs**

**Goal.** Introduce NS confined area landings.

**Requirement**

- Discuss
  - Precision obstacle approaches
  - CRM/comfort level
  - Aircraft lighting

- Introduce
  - NS CAL landing patterns
Performance Standards. Per CH-53K NATOPS and Maneuver Description Guide.

Prerequisite. SFAM-1200 and SCAL-1600

External Syllabus Support. FTD

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Introduction to Night System SEC CALs

Goal. Introduce NS SEC confined area landings.

Requirement

- Discuss
  - Hazards associated with NS section CAL landings
  - CRM
  - Section Waveoffs
- Introduce
  - NS SEC CAL landing patterns

Performance Standards. Per CH-53K NATOPS and Maneuver Description Guide.

Prerequisite. SFORM-1502, SCAL-1601, SCAL-1605

External Syllabus Support. (2) Linked FTDs Preferred

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Introduction to Night System CALs

Goal. Introduce NS confined area landings.

Requirement

- Discuss
  - Precision obstacle approach in a confined area
  - CRM/comfort level
  - Aircraft lighting
- Introduce
  - NS CAL landing patterns

Performance Standards. Per CH-53K NATOPS and Maneuver Description Guide.

Prerequisite. FAM-1202, SCAL-1603, SCAL-1605

Range Requirements. Approved CAL/MAL site

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<td>HLL A</td>
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Introduction to Night System Section CALs

Goal. Practice NS section confined area landings.

Requirement

- Discuss
  - Hazards associated with NS section CAL landings
  - CRM
  - Section Waveoffs
- Introduce
  - NS Section CAL landing patterns

Performance Standards. Per CH-53K NATOPS and Maneuver Description Guide.

Prerequisite. FORM-1503, CAL-1604, SCAL-1606, CAL-1607

Range Requirements. Approved CAL/MAL site
2.7.8 External Loads (EXT)

**Purpose.** To develop skills necessary for external cargo operations.

NSFI/NSI required for EXT-1703/1704. CSII authorized for all R and SC events.

**General.** Prior to EXT-1700, refer to operational and safety considerations discussed in the appropriate NATOPS Flight Manual, ANTTP series, MCRP 4-23E and Multi-Service Helicopter Sling Load Manual. Discuss and become familiar with all aspects of CRM applicable to external operations as described in the CH-53K NATOPS Flight Manual. All events should fly appropriate maneuvers in all flight modes.

**Crew Requirement.** IP/RAC/CC/AO.

**Ground Training.** Pilots shall complete CBT-0027 and ACAD-0124.

**External Syllabus Support.** Marine Common Aircrew Trainer (MCAT), Helicopter Support Team (HST), single and dual point external load(s) as required.

**SEXT-1700** 2.0 * B,R,MR,S D S FTD

**Introduction to Single & Dual Point Externals**

**Goal.** Introduce single point external cargo operations. Introduce communication skills between pilots and aircrew.

**Requirement**

Discuss
- CRM consideration for external operations
- Auto jettison
- JMPS considerations
- MFD MSN-LOAD page

Introduce
- Single & Dual point hook checks
- Performance calculations on MFD
- Weight and Power calculations in the zone (manual and via CDU Hover Override)
- External cargo weight and CG planning in flight via MFD
- Cargo pickup and release procedures (all flight control modes)
- Voice signals/standardized terminology
- Emergency Procedures during external operations

**Performance Standards.** Per CH-53K NATOPS and Maneuver Description Guide.

**Prerequisite.** SCAL-1600

**External Syllabus Support.** FTD with linked MCAT

**EXT-1701** 1.5 * B,S D A 1 CH-53K

**Introduce Single Point Externals**

**Goal.** Introduce single point external cargo operations.

**Requirement**

Discuss
- Airspeed considerations with external loads
- Weight and power calculations
- Power available/required considerations
- Pr>Pa
- Nr requirements
- Single point suspension system/operations
- Cargo pickup and delivery procedures
- Cargo release methods
- Cargo jettison procedures
- Hook open advisory light in flight
MFD MSN-LOAD page

Introduce
Single point load pickup and release procedures
Normal pattern with external load
CRM
Voice signals/standardized terminology

Performance Standards. Perform five hookups and releases using PFCS or AFCS as is best for PIUT performance, or until proficiency is demonstrated per CH-53K NATOPS, MCRP 4-23 and Multi-Service Helicopter Sling Load Manual, and Maneuver Description Guide.

Prerequisite. CAL-1603 and SEXT-1700

Range Requirements. Approved CAL/MAL site

External Syllabus Support. HST and single point load, dual point load acceptable for R and S.

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<th>B.R.MR</th>
<th>D</th>
<th>A</th>
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</table>

Introduce Dual Point Externals

Goal. Introduce dual point external cargo operations.

Requirement

Discuss
Dual point suspension system operations/limitations
CRM
Emergency Procedures during external operations
Forward/Aft hook open advisory light in flight
Pilot induced/assisted oscillations
Cargo jettison
MFD MSN-LOAD page
AUTO JETT FAIL

Introduce
Dual point load pickup and release procedures

Practice
Normal pattern with external load
CRM
Voice signals/standardized terminology

Performance Standards. Perform 5 hookups and releases using PFCS or AFCS as is best for PIUT performance, or until proficiency is demonstrated per CH-53K NATOPS, MCRP 4-23 and Multi-Service Helicopter Sling Load Manual, and FRS Maneuver Description Guide.

Prerequisite. CAL-1603 and SEXT-1700

Range Requirements. CAL/MAL site

External Syllabus Support. HST and dual point load

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</table>

Introduce Night System Single Point Externals

Goal. Introduce single point external cargo operations utilizing NS.

Requirement

Discuss
CRM
Comfort level
NS scan techniques
Aircraft emergencies
Cargo jettison procedures  
Power requirements  
Aircraft lighting  
Landing zone markings  
Introduce  
Single point external cargo pickup and delivery utilizing NS  

Performance Standards. Per CH-53K NATOPS and Maneuver Description Guide  

Prerequisite. CAL-1607 and EXT-1701  

Range Requirements. CAL/MAL site  

External Syllabus Support. HST and single point load  

**EXT-1704**  
1.5  
*  
B.R.S  
HLL  
A  
1  
CH-53K  

Introduce Night System Dual Point Externals  

Goal. Introduce dual point procedures utilizing NS.  

**Requirement**  
Discuss  
NS considerations  
CRM  
Comfort level  
Scan techniques  
Aircraft emergencies  
Cargo jettison procedures  
Aircraft lighting  
Landing zone markings  
Introduce  
Dual point external cargo pickup and release procedures utilizing NS  

Performance Standards. Per CH-53K NATOPS and Maneuver Description Guide  

Prerequisite. CAL-1607 and EXT-1702  

Range Requirements. CAL/MAL site  

External Syllabus Support. HST and dual point load, single point load acceptable for R and S.  

**2.7.9 Terrain Flight (TERF)**  

**Purpose.** To introduce skills necessary to perform TERF maneuvers safely. Emphasize the importance of crew coordination, comfort level, and standard terminology.  

**General.** T&R Program Manual requires a designated TERF instructor for all initial TERF flights. ANTTP 3-22.3-CH53 Tactical Employment contains all maneuver descriptions, and CBT-0036 explains all maneuvers. T&R Program Manual establishes all currency requirements/TERF altitude limitations. The RAC shall complete academic training prior to commencing the TERF flight syllabus. All events should fly appropriate maneuvers in all flight modes.  

FRSI required for TERF-1801. CSII authorized for all R and S events.  

**Crew Requirement.** IP/RAC/CC/AO.  

**Ground Training.** Pilots shall complete CBT-0028 (B only) and ACAD-0124.  

**STERF-1800**  
1.0  
*  
B  
D  
S  
FTD  

Introduce Terrain Flight  

Goal. Introduce TERF maneuvers and demonstrate TERF navigation.  

**Requirement**
Discuss
TERF maneuvers
CRM
Comfort level
Reduced reaction time
Emergency procedures at low altitudes
Climb-to-cope
Standardized terminology
Common mistakes
Hazard maps
Currency requirements
Blade walk-around

Introduce
High AOB maneuvering in PFCS and AFCS
Masking and unmasking
TERF turns
Rolls
Bunts
Quick stops
Low level/contour profiles
Using a 1:50,000 scale map, demonstrate TERF navigation

Performance Standards. Per CH-53K NATOPS, ANTTP 3-22.3-CH53, and Maneuver Description Guide.

Prerequisites. SFAM-1107

Range Requirements. FTD with linked MCAT

TERF-1801 1.5 * B,R,S D A 1 CH-53K

Goal. Introduce TERF navigation. Practice TERF maneuvers.

Requirement
Discuss
TERF maneuvers
CRM
Comfort level
Reduced reaction time
Emergency procedures at low altitudes
Climb-to-cope
Standardized terminology
Common mistakes
Hazard maps
Currency requirements
Blade walk-around
Common terms
Obstacle clearance
Low altitude emergencies
AOB limits and principles
Aircrew responsibilities

Introduce
Masking and unmasking
TERF turns
Rolls
Bunts
Quick stops
Low level/contour profiles
Using a 1:50,000 scale map, demonstrate TERF navigation
Performance Standards. Per CH-53K NATOPS, ANTPP 3-22.3-CH53, ANTPP 3-22.5 Tactical Pocket Guide and Maneuver Description Guide.

Range Requirements. TERF maneuver area/route

Prerequisite. FAM-1111 and STERF-1800

2.7.10 Review (REV)

Purpose. To demonstrate proficiency in performing duties as a core introduction phase complete copilot per CH-53K NATOPS and appropriate pubs.

Crew Requirement. IP/RAC/CC

CSII authorized for all R and S events.

Ground Training. RACs should complete CH-53K NATOPS open and closed book examination prior to the flight.

---

Core Skills

Goal. Review Core Introduction Phase training.

Requirement

Practice

All FAM stage maneuvers
Instrument stage maneuvers
Confined area landings
External operations
All emergency procedures
If possible, formation flight

Performance Standards. Per CH-53K NATOPS and FRS Maneuver Description Guide. PUI is responsible for all emergency procedures in the NATOPS Manual.

Prerequisite. Completion of all previous stages

External Syllabus Support. FTD

2.7.11 Core Introduction Phase Check

Purpose. To demonstrate proficiency in performing the duties as a Core Introduction Phase complete copilot per CH-53 NATOPS and appropriate pubs.

General. The RAC is responsible for all maneuvers and emergency procedures in the Core Introduction Phase.

Crew Requirement. IP/RAC/CC. A CH-53 NATOPS qualified instructor shall evaluate this flight.

Ground Training. Per the CH-53 NATOPS Flight Manual and CNAFINST 3710.7, all RACs shall successfully complete an open and closed book NATOPS test and systems test prior to H2P. Upon completion of this flight, the RAC will be CH-53 NATOPS qualified in model as a Helicopter 2nd Pilot (H2P).

---

Core Skills

Goal. Evaluate systems knowledge of the CH-53K and the capability to perform maneuvers in the Core Skill Introduction phase, including high AOB maneuvers.

Requirement

Practice

Systems and mission systems knowledge of the CH-53
Brief and demonstrate proficiency of all aircraft emergency procedures per the CH-53K NATOPS flight manual
Demonstrate proficiency and capability to perform Core Skill Introduction maneuvers, to include takeoffs, approaches, instrument procedures, emergency procedures, CALs, high AOB maneuvers, and landings

**Performance Standards.** Per CH-53K NATOPS and Maneuver Description Guide

**Prerequisite.** SREV-1900 and NATOPS-6000-6002

**Range Requirements.** Approved CAL/MAL site

### 2.8 CORE PHASE

**Purpose.** To introduce and develop proficiency in the execution of Core Phase skills required as a pilot within a Marine Heavy Helicopter Squadron (HMH). The Core Phase represents the basic skill sets required to conduct Mission Phase events. These basic functions serve as tactical enablers that allow crews to progress to the more complex Mission Phase. This phase encompasses a combination of academic and flight events to train the individual pilot to the level required to conduct assigned Mission Tasks.

**General.** The following events within this phase requires a Basic Instructor Pilot (BIP) for all initial or refresher flights:

- FAM-2100, 2101, 2102, 2103, 2104
- FORM-2110, 2115
- CAL-2200, 2201, 2210, 2211
- EXT-2400-2402, 2410, 2411
- AG-2810
- TAC-2910, 2911

All initial and refresher 2000-6000 Phase simulated events require a uniformed IP with appropriate designations. Any subsequent simulated event attempts at that event may be done single piloted. Any initial or refresher single aircraft training event may be flown in a section as the lead aircraft position.

Each phase throughout the core skills syllabus should attempt to utilize all available flight control modes to the maximum extent practicable.

**Stages.** The following stages are included in the Core Phase.

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### Ground/Academic Training

**Purpose.** Within the Core Phase the required academic syllabus shall be completed in accordance with this Manual and the MAWTS-1 CH-53 Course Catalog.

The Core Phase academic/ground training shall be complete IAW the POI requirements and prerequisites and IAW paragraph 2.8 of this manual. Upon completion, the PUI shall report to the PTO or designated representative(s), who will then manually update the training code in MSHARP and log the academic/ground training event in section 3, Aircrew Ground School Training of the APR, using the format listed in Enclosure 1 of this document.

**NIPR 2000-6000 classes will be located at the MAWTS-1 NIPR website under ASD, CH-53K, T&R:**

SIPR 2000-6000 classes will be located at the MAWTS-1 SIPR website under ASD, CH-53K, T&R:

https://intelshare.intelink.sgov.gov/sites/mawts1

Prerequisites. The following events/designations are prerequisites prior to the commencement of the Core Phase.

Academic: See event
Flight: H2P-1902
Designation/Qualification: H2P

2.9 CORE STAGES

2.9.1 Familiarization/Instruments (FAM/INST)

Purpose. To review familiarization, formation, navigation and instrument procedures in the daytime environment.

General. Pilots will find familiarization, formations and maneuver descriptions in the NATOPS, Maneuver Description Guide and ANTTP 3-22.3 CH-53.

The NATOPS Instrument Flight Manual defines basic instrument procedures. All instrument stage flights should terminate with an instrument approach when possible.

BIP required for all initial or refresher flights.


Academic Training. The MAWTS-1 CH-53 Course Catalog contains the required readings, chalk talks, and lectures which shall be completed IAW the FAM/FORM/INST event descriptions.

Prerequisites. The following events/designations are prerequisites prior to the commencement of the familiarization/formation/instrument stage:

Academic: ACAD-2180-2185
Flight: H2P-1902
Designation/Qualification: H2P

ACAD-2180 1.0 365 B,R,S,M G

Goal. Completion of CH-53K GPS tactical route planning academic requirements.

Requirement. Complete all required tactical route planning training modules.

Performance Standard. Per current evaluation criteria for route planning

ACAD-2181 1.0 365 B,R,S,M G

Goal. Completion of CH-53K Multifunction Display (MFD) academic requirements.

Requirement. Complete all required MFD training modules.

Performance Standard. Per current evaluation criteria for MFD training.

ACAD-2182 1.0 365 B,R,S,M G

Goal. Completion of CH-53K ARC-210 HAVEQUICK/SINGARS academic requirements.

Requirement. Complete all ARC-210 HAVEQUICK/SINGARS training modules.

Performance Standard. Per current evaluation criteria for ARC-210 HAVEQUICK/SINGARS training.

ACAD-2183 1.0 365 B,R,S,M G

Goal. Completion of CH-53K JMPS Cargo Planning Tool/Internal Cargo academic requirements.

Requirement. Complete all JMPS Cargo Planning Tool/Internal Cargo training modules.
Performance Standard. Per current evaluation criteria for JMPS Cargo Planning Tool/Internal Cargo training.

**ACAD-2184** 1.0 365 B.R,S,M G

**Goal.** Completion of CH-53K FLIR academic requirements.

**Requirement.** Complete all FLIR training modules.

Performance Standard. Per current evaluation criteria for CH-53K FLIR training.

**ACAD-2185** 1.0 365 B.R,M G

**Goal.** Completion of AN/AVS-7 CH-53K ANVIS HUD academic requirements.

**Requirement.** Complete all AN/AVS-7 CH-53K ANVIS HUD training modules.

Performance Standard. Per current evaluation criteria for AN/AVS-7 CH-53K ANVIS HUD training.

**SFAM-2100** 2.0 90 B.R,S,M (N) S/A 1 CFTD/CH-53K

**Goal.** Review normal, emergency, and instrument procedures. This event fulfills the NAVMC 3500.14 Aviation T&R Program manual Chapter 2 NATOPS quarterly emergency procedure event.

**Requirement**

**Discuss:**
- Basic FAM maneuvers
- Emergency procedures
- Operating limitations
- Basic instrument procedures
- Precision and non-precision approaches
- If flown at night, discuss night lighting and use, night scan, and fixation
- One engine inoperative training mode
- Simulated heavy/light gross weight operations

**Review:**
- Basic FAM maneuvers
- Emergency procedures
- Operating limitations
- Basic instrument procedures
- Precision and non-precision approaches
- Flight director navigation and approaches
- One engine inoperative training mode
- Simulated heavy/light gross weight operations


Instructor. BIP required for initial flights or refreshers

**Prerequisites.** H2P-1902

**External Syllabus Support.** CFTD

**SFAM-2101** 2.0 365 B.R (N) S/A 1 CFTD/CH-53K

**Goal.** Introduce and develop proficiency in the Aircraft Management and Navigation Systems.

**Requirement**

**Discuss:**
- Same as FAM/INST-2100
- CRM utilizing MFDs
- MFCU/MFD FLIR Operation
- MFCU/MFD Navigation Pages Operation

**Introduce:**
MFCU/MFD Operations in all phases of flight

**Review:**
- Same as FAM/INST-2100
- Low work
- Pattern work CAL/MAL
- Creating route in JMPS
- Loading route in AMS
- Manipulate routes while in flight
- Moving map
- Flight director navigation and approaches
- Approach to point/hover
- Hover display

**Performance Standards.** Same as FAM/INST-2100

**Instructor.** BIP required for initial flights or refreshers

**Prerequisite.** ACAD 2180-2185, SFAM-2100

**Range Requirements.** Approved CAL/MAL site

**External Syllabus Support.** CFTD

**SFAM-2102 2.0 * B,R,S (N) S/A 1 CFTD/CH-53K**

**Goal.** Gain proficiency in the Flight Control Modes while operating in the local working area.

**Requirement**

**Discuss:**
- Basic FAM maneuvers
- Emergency procedures
- Operating limitations
- Flight Control Modes
  - PFCS
  - AFCS
- Depart/Decel to hover/position hold
- Local course rules

**Review:**
- Basic FAM maneuvers
- Local course rules
- Emergency procedures
- Operating limitations
- Basic instrument procedures
- Precision and non-precision approaches


**Prerequisites.** SFAM-2101

**External Syllabus Support.** CFTD

**FAM-2103 1.5 365 B,R,S,M (N) 1 CH-53K**

**Goal.** Review normal, emergency, and instrument procedures.

**Requirements**

**Discuss:**
- Same as FAM/INST-2100

**Review:**
- Same as FAM/INST-2100

**Performance Standards.** Same as FAM/INST-2100
Prerequisites. SFAM-2102

FAM-2104 1.5 365 B.R.M A 1 CH-53K

Goal. Review Flight Control Modes.

Requirements

Discuss:
Same as FAM/INST-2102

Review:
Same as FAM/INST-2102

Performance Standards. Same as FAM/INST-2102

Prerequisites. FAM-2103

2.9.2 Formation Stage (FORM)

Purpose. To review formation, and navigation procedures in the daytime environment.

General. Pilots will find familiarization, formations and maneuver descriptions in the NATOPS, Maneuver Description Guide and ANTTP 3-22.3 CH-53.

Crew Requirement. FORM-2110: P/P. FORM-2115: P/P/CC/AG/O.

Academic Training. The MAWTS-1 CH-53 Course Catalog contains the required readings, chalk talks, and lectures which shall be completed IAW the FAM event descriptions.

Prerequisites. The following events/designations are prerequisites prior to the commencement of the familiarization/formation/instrument stage:

Academic: ACAD-2186
Flight: 2102
Designation/Qualification: H2P

ACAD-2186 1.0 * B G

Goal. Completion of CH-53K TACFORM academic requirements.

Requirement. Complete all CH-53K TACFORM training modules.

Performance Standard. Per current evaluation criteria for CH-53K TACFORM training.

SFORM-2110 2.0 * B D S CFTD

Goal. Conduct day formation and introduce tactical formation maneuvering.

Requirements

Discuss:
CRM
Comfort level
Closure rates
Formation maneuvers: Break turns, center turns, pinch/dig, cover, tac turns, in-place turns, split turns, and cross turns
Combat spread, combat cruise, and parade positions
Cruise Turn principles
Recovery from unusual attitudes
Loss of visual contact
Lost communications
Inadvertent IMC procedures
High density altitude
High AOB turns/aerodynamics performance
Inter- and intra-aircraft communications
Lead changes; include EMCON lead change
CFTD recording for training purposes

**Introduce:**
- Inadvertent IMC breakup and rendezvous
- Break turns, center turns, pinch/dig, cover, tac turns, in-place turns, split turns, and cross turns
- Combat spread and combat cruise formations
- CFTD recording for training purposes

**Review:**
- Parade position
- Cruise principles
- Crossovers
- Full COMM and no COMM lead changes

**Performance Standards**
- Successfully execute all TACFORM maneuvers as lead and wingman IAW ANTTP 3-22.3-CH53.
- Successfully execute inadvertent IMC breakup and rendezvous IAW ASTACSOP.

**Prerequisite.** ACAD-2186, SFAM-2102

**Instructor.** BIP required for initial flights or refreshers

**External Syllabus Support.** (2) Linked CFTDs. In the event that linked CFTDs are not available, this event can be conducted in a single CFTD with a simulated aircraft as lead.

**FORM-2115**

| 1.5 | 180 | B,R,S,M | (NS) | A | 2 | CH-53K |

**Goal.** Conduct day formation and introduce tactical formation maneuvering.

**Requirements**

**Discuss:**
- Same as SFORM-2110

**Review:**
- Same as SFORM-2110

**Performance Standards.** Same as SFORM-2110

**Instructor.** BIP required for initial flights or refreshers. NSI is required if not NS qualified in light level event is conducted.

**Prerequisites.** FAM-2104, SFORM-2110

2.9.3 **Confined/Mountainous Area Landings (CAL/MAL)**

**Purpose.** To conduct takeoffs and landings in confined/mountainous areas in the daytime environment.

**General.** Pilots may find a description of these maneuvers in the CH-53K NATOPS, Maneuver Description Guide and ANTTP 3-22.3–CH53. Events should be flown using all flight control modes.

**Crew Requirement.** SMAL-2200: P/P. SRVL-2201: P/P. CAL-2210-2111: P/P/CC. BIP required for all initial or refresher flights.

**Academic Training.** The MAWTS-1 CH-53 Course Catalog contains the required readings, lectures and chalk talks which shall be completed IAW the event descriptions in the Confined/Mountainous Area Landing stage.

**Prerequisites.** The following events/designations are prerequisites prior to the commencement of the Confined/Mountainous Area Landing stage:
- Academic: ACAD-2280-2282
- Flight: FAM-2104
- Designation/Qualification: H2P

**ACAD-2280**

| 1.0 | 365 | B,R,M | G |
Goal. Completion of CH-53K desert operations academic requirements.

Requirement. Complete all CH-53K desert operations training modules.

Performance Standard. Per current evaluation criteria for CH-53K desert operations training.

ACAD-2281 1.0 365 B,R,M G

Goal. Completion of CH-53K mountain operations academic requirements.

Requirement. Complete all CH-53K mountain operations training modules.

Performance Standard. Per current evaluation criteria for CH-53K mountain operations training.

ACAD-2282 1.0 365 B,R,S,M G

Goal. Completion of CH-53K techniques for Reduced Visibility Landings (RVL) operations academic requirements.

Requirement. Complete all CH-53K RVL operations training modules.

Performance Standard. Per current evaluation criteria for CH-53K RVL operations training.

SMAL-2200 1.0 * B D S/A 1 CFTD/CH-53K

Goal. Introduce CALs in mountainous terrain in day conditions.

Requirements. Conduct weight and power calculations, execute normal operations, takeoffs and landings to a simulated high density altitude landing environment (6000-10,000’ DA).

Discuss:

- High altitude physiology emergencies.
- Wind and weather effects.
- Orographic turbulence.
- Wind shear.
- High altitude operations.
- Power available vs power required.
- High DA/Gross Weight arrivals and landings.
- High altitude emergency procedures
- Aircraft handling qualities (turn radius, Phase lag, rate of climb).
- Use of parking brake.
- Sloped landings.
- IIMC procedures in mountainous terrain
- Tail rotor authority/effectiveness at high altitudes.
- Flight control and power cueing

Introduce:

- Mountainous area operations.
- Pinnacle landings.
- Slope landings.
- Confined area landings.
- Landings and operations in valleys and canyons.
- Crosswind landings
- CRM
- Dynamic rollover
- Crosswind approaches
- Limitations on landing on unprepared and uneven surfaces
- Vortex Ring State
- Pr>Pa
- Low altitude emergencies
- Wave-off / departure procedures
- MFD
- Engine emergencies
Obstacle clearance
High gross weight takeoffs/landings
Maneuvering at high gross weight/density altitude (GW/DA)
High AOB turns/aerodynamic performance
FLIR capabilities and limitations
LZ Diagram briefing and planning considerations

Review:
Normal approaches
Precision approaches
Hover and no hover landings
Low altitude emergencies

Performance Standards:
Demonstrate knowledge of proper MAL procedures IAW the NTTP and NATOPS.
Execute up-slope/down-slope and cross-slope landings.
Properly calculate power available and power required for high altitude LZs.
Land within 2 rotors of intended landing point or lead aircraft.
Pattern flown within + 50’ and +/- 10 Kts.
Conduct a standard approach to a no hover landing.

Prerequisites: ACAD-2281, SFAM-2102

SRVL 2201 2.0 365 B.R.S,M D S 2 CFTDs

Goal. Conduct single/dual-ship confined area takeoffs, approaches, and landings to a reduced visibility zone.

Requirements

Discuss:
CRM
Dynamic rollover
Crosswind approaches
Limitations on landing on unprepared and uneven surfaces
Loss of visual reference during landing and takeoff
Wave-off/departure procedures
MFD/flight control mode optimization
Obstacle clearance
FLIR capabilities and limitations
LZ Diagram briefing and planning considerations
Cross cockpit landings
NAVFLIR Day RVL Landing Code (R)

Introduce:
Crosswind approaches
Loss of visual reference during landing and takeoff
Obstacle takeoffs and approaches
MFD/flight control mode optimization
LZ Diagrams
Landing and departures to/from a CAL/MAL site
Wave-off/departure procedures
Cross cockpit landings

Review:
Normal approaches
Precision approaches
Hover and no hover landings
Low altitude emergencies

Performance Standards: On initial event, pilot under instruction shall fly pattern within 50’ and 10 kts of briefed altitude/airspeed and land within 2 rotors of designated landing point by the end of the flight event. For subsequent logging, pilot shall fly these parameters on the majority of patterns flown. Landings shall consist of various levels
of RVLs in simulated desert, maritime and arctic environments. Maintain safe obstacle clearance. Conduct a minimum of 5 landings as lead and 5 landings as wingman.

**Prerequisites.** ACAD-2180, 2182, SMAL-2200

**External Syllabus Support.** (2) Linked CFTDs. In the event that linked CFTDs are not available, this event can be conducted in a single CFTD with a simulated aircraft as lead.

**CAL-2210** 2.0  B  D  A  1  CH-53K

**Goal.** Conduct single-ship confined area approaches, landings, and departures and introduce tactical approaches to confined areas/mountainous terrain using all flight control modes.

**Requirements**

**Discuss:**
- Same as SCAL 2200 and SRVL 2201

**Introduce:**
- Same as SCAL 2200 and SRVL 2201

**Review:**
- Same as SCAL 2200 and SRVL 2201

**Performance Standards:** On initial event, pilot under instruction shall fly pattern within 50' and 10 kts of briefed altitude/airspeed and land within 2 rotors of designated landing point by the end of the flight event. For subsequent logging, pilot shall fly these parameters on the majority of patterns flown. Maintain safe obstacle clearance. Conduct a minimum of 5 landings.

**Prerequisites.** FAM-2104, SMAL-2200

**Range Requirements.** CAL/MAL site

**CAL-2211** 2.0  365  B, R, S, M  D  A  2  CH-53K

**Goal.** Conduct section confined area approaches, landings, and departures and introduce tactical approaches to confined areas/mountainous terrain. Execute reduced visibility approach techniques to a non-reduced visibility landing zone.

**Requirements**

**Discuss:**
- CRM
- Obstacle clearance
- Full COMM and no COMM lead changes
- Tactical formations
- Cruise turn principles (radius of turn)
- Cross cockpit landings

**Review:**
- LZ diagrams, planning, and briefing considerations

**Performance Standards:** Pilot shall fly pattern within 50’ and 10 kts of briefed altitude/airspeed. Land within 2 rotors of designated landing point (lead) and maintain section integrity during approach and landing (wingman). On initial event, pilot under instruction shall fly to this standard by the end of the flight event. For subsequent logging, pilot shall fly these parameters on the majority of patterns flown. Conduct a minimum of 4 landings as lead and 4 landings as wingman. Maintain safe obstacle clearance.

**Prerequisites.** FORM-2115, SRVL-2201, CAL-2210

**Range Requirements.** CAL/MAL site.

2.9.4 **Terrain Flight (TERF)**

**Purpose.** To conduct TERF maneuvers, navigation, approaches, and section maneuvering in the daytime TERF environment.
General. TERF rules of conduct are IAW T&R Program Manual and local SOPs. A description of all TERF maneuvers can be found in ANTTTP 3-22.3-CH53. Events should be flown using all flight control modes.

A PUI is TERF qualified when the following flights have been completed: ACAD-2380, STERF-2300, TERF-2310, 2311.

TERFI is required for all initial, refreshers or if not TERF qualified.

Crew Requirement. P/P/CC/AG/O.

Academic Training. The MAWTS-1 CH-53 Course Catalog contains the required readings, lectures and chalk talks which shall be IAW the Terrain Flight stage event descriptions.

Prerequisite. The following events/designations are prerequisites prior to the commencement of the Terrain Flight stage:

Academic: ACAD-2380
Flight: SRVL-2201
Designation/Qualification: H2P

**ACAD-2380 1.0 * B**
**G**

Goal. Completion of CH-53K Terrain Flight (TERF) operations academic requirements.

Requirement. Complete all CH-53K TEF operations training modules.

Performance Standard. Per current evaluation criteria for CH-53K TERF operations training.

**STERF-2300 2.0 * B**
**D S 1 CFTD**

Goal. Conduct single ship TERF maneuvers and navigation.

Requirements

Discuss:
TERF profiles and maneuvers IAW ANTTTP 3-22.3-CH53
TERF rules of conduct IAW T&R Program Manual and local SOPs
Comfort levels
CRM
Common terminology
Route and checkpoint selection
Route planning tools (JMPS)
Orientation techniques
Map preparation
Maneuvering at low altitude and high gross weight/high density altitude
High AOB turns/aerodynamic performance
Low altitude emergencies
Obstacle clearance
Aircraft navigation system
Enhanced terrain avoidance warning system (ETAWS)

Introduce:
Plan and brief a TERF route
Masking/unmasking
Quick stop
TERF turn and roll
Bunts
Low level and contour profiles
Tactical approaches
Blade stall / high G cueing
Enhanced terrain avoidance warning system (ETAWS)

Performance Standards: Safely control aircraft in the TERF environment. Remain oriented IAW ASTACSOP Magellan criteria while navigating to a minimum of 6 checkpoints while using 1:250,000 and 1:50,000 scale maps at
or below 200’ AGL and/or within 200’ of terrain. To the maximum extent possible TERF should be conducted for a total of 50 nm. Demonstrate correct procedure and usage of each TERF maneuver and approach. Demonstrate proficiency with aircraft navigation systems. Conduct at least 1 full COMM and 1 no COMM lead change.

**Prerequisites.** ACAD-2380, SRVL-2201

**Instructor:** TERFI required for initial flights, refreshers or if not TERF qualified

**External Syllabus Support.** CFTD

**TERF-2310**

* Goal. Conduct single ship TERF maneuvers and navigation.

**Requirements**

- **Discuss:** Same as STERF-2300
- **Introduce:** Same as STERF-2300

**Performance Standards.** Same as STERF-2300

**Prerequisites.** CAL-2210, STERF-2300

**Instructor:** TERFI required for initial flights, refreshers or if not TERF qualified

**Range Requirements.** Approved TERF maneuver area/route

**TERF-2311**

* Goal. Conduct section TERF maneuvers and navigation.

**Requirements**

- **Discuss:** Same items as in TERF-2310, as it applies to section TERF concepts
  - Tactical flight considerations per ANTTP 3-22.3-CH53
  - Tactical formation maneuvers in a TERF environment per ANTTP 3-22.3-CH53

**Performance Standards.** Same as TERF-2310 and incorporate tactical formation maneuvering in the navigation of the route which should be flown from both the lead and dash-2 position. Perform 1 full COMM and 1 no COMM lead change.

**Prerequisites.** FORM-2115 and TERF-2310.

**Instructor:** TERFI required for initial flights, refreshers or if not TERF qualified

**Range Requirements.** Approved TERF maneuver area/route.

**2.9.5 Heavy Lift External Loads (EXT) (2400)**

**Purpose.** To develop skills necessary for operating with external loads in all ambient conditions and flight regimes.

**General**

Review operational and safety considerations discussed in the appropriate NATOPS Flight Manual, ANTTP series and Multi-Service Helicopter Sling Load Manual. Events should be flown using all flight control modes.

- BIP required for EXT-2400-2402 and 2410-11 initial or refresher flights. NSI required for EXT-2420-2421, 2430 initial, refresher or when not NS qualified in light level event is conducted.

**Crew Requirement.** P/P/CC/AG/O.

**Academic Training.** The MAWTS-1 CH-53 Course Catalog contains the required readings, lectures and chalk talks which shall be completed IAW the External stage event descriptions.
**Prerequisites.** The following events/designations are prerequisites prior to the commencement of the External stage:

- **Academic:** ACAD-2480, 2481
- **Flight:** SRVL-2201/SHLL-2105 for sims or FAM-2210 for flights
- **Designation/Qualification:** H2P

**ACAD-2480** 1.0 365 B,R,M G

**Goal.** Completion of CH-53K Heavy Lift (EXT) operations academic requirements.

**Requirement.** Complete all CH-53K EXT operations training modules.

**Performance Standard.** Per current evaluation criteria for CH-53K EXT operations training.

**ACAD-2481** 1.0 * B G

**Goal.** Completion of assault support to artillery operations academic requirements.

**Requirement.** Complete all assault support to artillery operations training modules.

**Performance Standard.** Per current evaluation criteria for assault support to artillery operations training.

**SEXT-2400** 1.0 * B D S 1 CFTD

**Goal.** Conduct heavy lift external operations.

**Requirements**

- **Discuss:**
  - CRM
  - Comfort level
  - Preflight planning to include power computations, weight and balance considerations, and JMPS cargo load planning
  - External load information/characteristics
  - Hook preflight/Hook checks
  - Fuel Dump procedures
  - Form F
  - Vortex Ring State
  - Emergency procedures during external operations
  - MFD set-up and usage for externals
  - Shifts in CG with external and internal cargo
  - Normal and emergency cargo release procedures
  - Auto jettison
  - Switchology
  - Inadvertent hook release
  - HST operation and safety brief
  - Wave-off with the load
  - Reduced visibility conditions
  - Precision approach techniques
  - Independent hook CG considerations
  - Single and dual point external lift procedures

- **Introduce:**
  - Techniques for heavy external lift operations
  - Use of OEI HVY WT BIAS for simulating heavy lift external operations
  - Emergency procedures during external operations

**Performance Standards.** Demonstrate a working knowledge of MSHSL Manual WRT basic equipment rigging procedures, load inspection and airspeeds. Execute 2 pickups in PFCS, 2 pickups in AFCS, and 1 pickup using PHLD or demonstrate proficiency as defined by the ability to fly within 50’ and 10 kts of briefed altitude and airspeed, and deliver load within 5 meters of intended point of delivery while maintaining +/- 10 degrees of assigned heading without using PHLD or flight director augmentation. On initial event, pilot under instruction shall fly to
this standard by the end of the flight event. For subsequent logging, pilot shall fly these parameters on the majority of patterns flown. Demonstrate the ability to plan and compute power requirements based on preflight planning and in flight/zone power computations using actual ambient conditions.

**Prerequisites.** H2P-1902, ACAD-2480.2481, SRVL-2201

**External Syllabus Support.** CFTD

**SEXT-2402** 2.0 * B.R.S HLL S 1 CFTD

**Goal.** Conduct NS external operations.

**Requirements**

**Discuss:**
Same as HLL-2220, SEXT-2400

**Introduce:**
NS HLL single/dual point externals to a confined area

**Performance Standards.** Demonstrate a working knowledge of MSHSL Manual WRT basic equipment rigging procedures, load inspection and airspeeds. Execute 2 pickups in PFCS, 2 pickups in AFCS, and 1 pickup using PHLD or demonstrate proficiency as defined by the ability to fly within 50' and 10 kts of briefed altitude and airspeed, and deliver load within 5 meters of intended point of delivery while maintaining +/- 10 degrees of assigned heading without using PHLD or flight director augmentation. On initial event, pilot under instruction shall fly to this standard by the end of the flight event. For subsequent logging, pilot shall fly these parameters on the majority of patterns flown. Demonstrate the ability to plan and compute power requirements based on preflight planning and in flight/zone power computations using actual ambient conditions.

**Prerequisites.** SHLL-2105, SEXT-2400

**Instructor.** NSI required for initial flights, refresher or when not NS qualified in HLL conditions.

**External Syllabus Support.** CFTD

**EXT-2410** 1.5 485 B.R.M D A 1 CH-53K

**Goal.** Conduct single point external operations.

**Requirements**

**Discuss:**
Same as SEXT-2400

**Introduce:**
Single point system preflight
Single point external operations to a confined area
External lift procedures
In-flight weight and power computations
In-zone weight and power computations

**Performance Standards.** Demonstrate a working knowledge of MSHSL Manual WRT basic equipment rigging procedures, load inspection and airspeeds. Execute 2 pickups in PFCS, 2 pickups in AFCS, and 1 pickup using PHLD or demonstrate proficiency as defined by the ability to fly within 50' and 10 kts of briefed altitude and airspeed, and deliver load within 5 meters of intended point of delivery while maintaining +/- 10 degrees of assigned heading without using PHLD or flight director augmentation. On initial event, pilot under instruction shall fly to this standard by the end of the flight event. For subsequent logging, pilot shall fly these parameters on the majority of patterns flown. Demonstrate the ability to plan and compute power requirements based on preflight planning and in flight/zone power computations using actual ambient conditions.

**Prerequisites.** CAL-2210, SEXT-2400

**Range Requirements.** Approved CAL/MAL site

**External Syllabus Support.** HST and single point loads
### Goal
Conduct dual point external operations.

### Requirements
- **Discuss:**
  - Same as EXT-2410
- **Introduce:**
  - Dual point system preflight
  - Dual point external operations to a confined area
  - External lift procedures
  - In-flight weight and power computations
  - In-zone weight and power computations
  - Use of OEI HVY WT BIAS for simulating heavy lift external operations

### Performance Standards
Same as EXT-2410.

### Prerequisites
EXT-2410

### Range Requirements
Approved CAL/MAL site

### External Syllabus Support
HST and dual point load

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### EXT-2420  1.5  485  B.R,M  HLL  A  1  CH-53K

### Goal
Conduct NS HLL single point external operations.

### Requirements
- **Discuss:**
  - Same as HLL-2220 and EXT-2410
- **Introduce:**
  - NS HLL single point externals to a confined area
- **Review:**
  - EXT-2410 and HLL-2220

### Performance Standards
Same as EXT-2410

### Instructor
NSI required for initial flights, refresher or when not NS qualified in HLL conditions

### Prerequisites
HLL-2220, SEXT-2402, EXT-2410

### Range Requirements
Approved CAL/MAL site

### External Syllabus Support
HST and single point load

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### EXT-2421  1.5  180  B.R,S,M  HLL  A  1  CH-53K

### Goal
Conduct NS HLL dual point externals.

### Requirements
- **Discuss:**
  - Same as HLL-2220 and EXT-2411
- **Introduce:**
  - NS HLL dual point externals to a confined area
- **Review:**
  - Same as HLL-2220 and EXT-2411
  - Use of OEI HVY WT BIAS for simulating heavy lift external operations

### Performance Standards
Same as EXT-2411

### Instructor
NSI required for initial flights, refresher or when not NS qualified in HLL conditions

### Prerequisite
EXT-2420
Range Requirements. CAL/MAL site.

External Syllabus Support. HST and dual point load

EXT-2430 1.5 180 B,R,S,M LLL A 1 CH-53K

Goal. Conduct LLL NS external operations, dual point preferred.

Requirements

Discuss:

Same as EXT-2420,2421

Introduce:

LLL NS externals

Review:

EXT-2420,2421

Performance Standards. Execute 2 pickups in PFCS, 2 pickups in AFCS, and 1 pickup using PHLD or demonstrate proficiency as defined by the ability to fly within 50’ and 10 kts of briefed altitude and airspeed, and deliver load within 5 meters of intended point of delivery while maintaining +/- 10 degrees of assigned heading without using PHLD or flight director augmentation.

Instructor: NSI required for initial flights, refresher or when not NS qualified in LLL conditions

Prerequisites. NSQ-HLL, EXT-2420,2421 and CAL-2230.

Range Requirements. CAL/MAL site.

External Syllabus Support. HST and single or dual point load.

2.9.6 Ground Threat Reaction (GTR)

Purpose. To introduce and develop proficiency in using Aircraft Survivability Equipment (ASE), tactics and onboard weapons systems to evade ground-to-air radar and non-radar threats.

General. Initial SGTR-2500, 2540 and 2541 shall be conducted in daytime conditions in the aircraft. Subsequent events may be conducted in the simulator. WTI or DMI is required for initial or refreshers. GTR events shall be flown with operational ASE, MWPC GAU-21 installed at a minimum. Pilots shall conduct this stage against an electromagnetic threat simulator.

Crew Requirement. P/P/CC/AG/O.

Academic Training. The MAWTS-1 CH-53 Course Catalog contains the required readings, lectures and chalk talks which shall be completed IAW the GTR stage event descriptions.

Prerequisites. The following events/designations are prerequisites prior to the commencement of the Ground Threat Reaction stage:

Academic: ACAD-2580-2589, NTTP 3-22.3 Appendix B
Flight: TERF-2311
Designation/Qualification: TERF Qualified

ACAD-2580 1.0 365 B,R,S,M G

Goal. Completion of CH-53K APR-39 operations academic requirements.


Performance Standard. Per current evaluation criteria for CH-53K APR operations training.

ACAD-2581 1.0 365 B,R,S,M G

Goal. Completion of CH-53K ALE-47 operations academic requirements.

Requirement. Complete all CH-53K ALE-47 operations training modules.

**ACAD-2582** 1.0 365 B.R.S,M G

**Goal.** Completion of CH-53K DIRCM operations academic requirements.

**Requirement.** Complete all CH-53K DIRCM operations training modules.

**Performance Standard.** Per current evaluation criteria for CH-53K DIRCM operations training.

**ACAD-2583** 1.0 365 B.R.S,M G

**Goal.** Completion of CH-53K Missile Warning System operations academic requirements.

**Requirement.** Complete all CH-53K Missile Warning System operations training modules.

**Performance Standard.** Per current evaluation criteria for CH-53K Missile Warning System operations training.

**ACAD-2584** 1.0 365 B.R.M G

**Goal.** Completion of IR SAM threat to Assault Support operations academic requirements.

**Requirement.** Complete all IR SAM threat to Assault Support operations training modules.

**Performance Standard.** Per current evaluation criteria for IR SAM threat to Assault Support operations training.

**ACAD-2585** 1.0 365 B.R.M G

**Goal.** Completion of ADA threat to Assault Support operations academic requirements.

**Requirement.** Complete all ADA threat to Assault Support operations training modules.

**Performance Standard.** Per current evaluation criteria for ADA threat to Assault Support operations training.

**ACAD-2586** 1.0 365 B.R.M G

**Goal.** Completion of RF SAM operations academic requirements.

**Requirement.** Complete all RF SAM operations training modules.

**Performance Standard.** Per current evaluation criteria for RF SAM operations training.

**ACAD-2587** 1.0 * B G

**Goal.** Completion of radar principles academic requirements.

**Requirement.** Complete all radar principles training modules.

**Performance Standard.** Per current evaluation criteria for radar principles training.

**ACAD-2588** 1.0 * B G

**Goal.** Completion of CH-53K DM/GTR operations academic requirements.

**Requirement.** Complete all CH-53K DM/GTR operations training modules.

**Performance Standard.** Per current evaluation criteria for CH-53K DM/GTR operations training.

**ACAD-2589** 1.0 * B G

**Goal.** Completion of surface to air threat to the MAGTF operations academic requirements.

**Requirement.** Complete all surface to air threat to the MAGTF training modules.

**Performance Standard.** Per current evaluation criteria for surface to air threat to the MAGTF operations training.

**SGTR-2500** 1.5 * B.R.S,M D/NS S 1 CFTD
Goal. Introduce ground threat reactions and ASE against ADA, IR and radar threats.

Requirements

Discuss:
- Operation of the ALE-47, APR-39, and MWS
- The strengths and weaknesses of each ASE versus ground-to-air threats
- Backplate settings
- Magazine IDs
- MDF and OFP
- CRM
- Tactical EW/IR countermeasures
- TACFORM
- Tactical maneuvering to counter surface to air threat
- Inter- and intra-aircraft communications and standard terminology
- Threat identification and rules of engagement
- 5 axioms of survival
- High, medium and low altitude tactics
- JMPS integration with ASE
- MFD threat display

Introduce:
- Search, acquisition, track, and missile alert signals of all applicable threat systems on APR-39 and MWS
- Tactical maneuvering and ASE employment to counter the threat
- Inter- and intra-aircraft communications and standard terminology
- High and medium altitude break maneuvers

Performance Standards. Effectively maneuver aircraft against various ground-based threats. Utilize standard terminology in inter- and intra-aircraft communications. Demonstrate working knowledge of ASE. Execution of at least 1 line number should be accomplished using high or medium altitude tactics. Conduct forward, abeam, rear and any aspect engagements during non-radar GTR. Conduct range estimation, flat open terrain demo, ground clutter demo, terrain masking demo and any aspect engagement during radar GTR.

Instructor: WTI or DMI required for initial flight

Prerequisites. ACAD-2580-2589 and TERF-2311

External Syllabus Support. CFTD with operable ASE

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Goal. Conduct ground threat reactions and ASE familiarization.

Requirements

Discuss:
- Operation of the ALE-47, AAQ-24 and AAR-47
- The strengths and weaknesses of each ASE system versus non-radar ground-based threats
- Backplate settings
- Magazine IDs
- MDF AND OFP
- CRM
- IR countermeasures
- Tactical maneuvering to counter surface to air threat
- Inter- and intra-aircraft communications and standard terminology
- Threat identification and rules of engagement
- 5 axioms of survival
- High, medium and low altitude tactics
- MFD threat display
- The blue threat
Introduction:
Tactical maneuvering and ASE employment to counter the threat
Inter- and intra-aircraft communications and standard terminology

Review:
Same as GTR-2500
TACFORM maneuvering
TERF

Performance Standards. Effectively maneuver aircraft against various non-radar ground-based threats. Utilize standard terminology in inter- and intra-aircraft communications. Demonstrate working knowledge of ASE. Execution of at least 1 line number should be accomplished using high or medium altitude tactics. Conduct forward, abeam, rear and any aspect engagements during non-radar GTR.

Instructor: WTI or DMI required for initial flights, refreshers or when not NS qualified in the light level event is conducted.

Prerequisites. SGTR-2500. If flown under HLL conditions, TERF-2321. If flown under LLL condition, NS-HLL, TERF-2331. AG-2810, if .50 cal to be employed day, AG-2840 if .50 cal to be employed at night.

Ordnance. 60 flares minimum for initial or refresher

Range Requirements. Live Fire (as required) and expendable capable range. Approved TERF maneuver area/route

External Syllabus Support. Ground-based non-radar threat simulators are required for Basic and Refresher POI (e.g., Smokey SAMs, AAR-47 stimulator, handheld pyrotechnics, and target lights). Ground based non-radar threat simulators and expendables are not required for proficient aircrew, or delinquent aircrew not in a Refresher POI, and the event can be logged. GTR should be incorporated into all tactical evolutions. A basic example of incorporating GTR training for these aircrew is a non-radar threat call over intra-flight and appropriate TACFORM maneuvering.

GTR-2541 1.5 365 B,R,M (NS) A/S 2 CH-53K/CFTD

Goal. Conduct ground threat reactions and ASE familiarization.

Requirements

Discuss:
Operations of the ALE-47 and APR-39
Types of expendables
The strengths and weaknesses of each ASE system versus ground-to-air and air-to-air threats.
Current MDF and OFP
Backplate settings
CRM
Section tactics and tactical maneuvering against ground-based threat systems
Use of radar horizon, ground clutter, radar resolution cells, and radar masking techniques
MFCD threat display

Introduce:
Various threat signatures concentrating on threat recognition and detection
Surface fires evasive maneuvers coordinated with the dispensing of chaff.
Section maneuvering against radar guided threats on an EW range or with an emitter
Section threat avoidance, masking and the use of chaff and flares

Performance Standards. Effectively maneuver aircraft against various ground-based radar threats. Utilize standard terminology in inter- and intra-aircraft communications. Demonstrate working knowledge of ASE. Conduct range estimation, flat open terrain demo, background clutter demo, terrain masking demo, and any aspect engagement against a radar threat.

Instructor: DMI or WTI for initial or Refreshers. NSI/DMI is required if not NS qualified in light level event is conducted.

Prerequisite. TERF-2311, GTR-2500. If flown under HLL conditions, TERF-2321. If flown under LLL condition, NS-HLL, TERF-2331. AG-2810, if .50 cal to be employed day; AG-2840 if .50 cal to be employed at night.
NAVMC 3500.129  
6 Jul 21 

**Ordnance.** 60 Chaff minimum for initial or Refresher

**Range Requirements:** EW range or emitter with threat systems to include electromagnetic and ground based threat simulation. Emitter should include search, acquisition, and track capabilities. Expendables capable range as appropriate.

**External Syllabus Support.** Emitter with various threat system simulation.

2.9.7 Helicopter Air to Air Refueling (HAAR)

**Purpose.** To introduce HAAR.

**General.** KC-130 support required for all HAAR training evolutions. Discuss and become thoroughly familiar with all HAAR procedures and aspects of CRM as described in the CH-53K NATOPS Manual, ANTTP 3-22.3 CH-53 and the ATP-3.3.4.2 ARI required for initial flights and refreshers. ARI must be an NSI for HAAR-2640 if PUI is not NSQ for the appropriate light level. Successful completion of each initial or refresher flight requires a minimum of 3 contacts with demonstrated proficiency and movement to the refueling position. The ARI shall ensure PUI’s ATF is annotated with seat, hose position and number of contacts for each flight.

**Crew Requirement.** P/P/CC/AG/O.

**Academic Training.** The MAWTS-1 CH-53 Course Catalog contains the required readings, lectures and chalk talks which shall be completed IAW Helicopter Air to Air Refueling stage event descriptions.

**Prerequisites.** The following events/designations are prerequisites prior to the commencement of the Helicopter Air to Air Refueling stage:

- **Academic:** ACAD-2680
- **Flight:** SFAM-2110
- **Designation/Qualification:** H2P

**Goal.** Completion of CH-53K Helicopter air-to-air Refueling HAAR (AR) operations academic requirements.

**Requirement.** Complete all CH-53K HAAR (AR) training modules.

**Performance Standard.** Per current evaluation criteria for CH-53K HAAR (AR) training.

**SHAAR-2600**

- **Goal.** Conduct day HAAR.

**Requirements**

**Discuss:**
- ATP-3.3.4.2
- CRM
- Comfort level
- Rendezvous procedures, both VMC and IMC
- Voice procedures
- Join-up procedures
- Airspeeds/altitudes
- Crossovers
- Hose response/markings
- Inadvertent disconnects
- HAAR emergencies
- Control inputs and tip path awareness
- Blade stall
- NATOPS HAAR envelope chart

**Introduce:**
- Rendezvous/join-up
- Observation/astern/contact/refuel/disconnect positions

2-70
Aircraft movement around the tanker
Post HAAR procedures

**Performance Standards.** Demonstrate the ability to perform a successful join-up and movement to the observation position. Movement to a stable astern, refueling and disconnect position.

**Instructor.** ARI required for initial flights

**Prerequisite.** ACAD-2680, SFORM-2110

**External Syllabus Support.** CFTD

**HAAR-2610** 1.5 * B D A 1+ CH-53K

**Goal.** Conduct day HAAR, left hose preferred.

**Requirements**

**Discuss:**
- Same as HAAR-2600

**Review:**
- HAAR-2600

**Performance Standards.** Conduct the pre-contact checklist. Demonstrate the ability to perform a successful rendezvous, join-up and movement to the observation position. Movement to a stable astern, contact, refueling and disconnect position. Conduct post HAAR procedures. Initial qualification shall be performed right seat, left hose is preferred.

**Prerequisite.** FORM-2115, SHAAR-2600

**Instructor.** ARI required for initial flights and refreshers

**Range Requirements.** Special use airspace

**External Syllabus Support.** 1 KC-130 tanker

**HAAR-2611** 1.5 180 B,R,S,M D A 1+ CH-53K

**Goal.** Conduct day HAAR, left and right hose preferred.

**Requirements**

**Discuss:**
- Same as HAAR-2600
- Types of tanker rendezvous (per ATP-3.3.4.2)

**Introduce:**
- Refueling from both sides of the tanker if available
- No COMM procedures

**Review:**
- HAAR-2610

**Performance Standards.** Same as HaAR-2610. Demonstrate the ability to perform all 5 positions from right seat, both left and right hose (if available).

**Prerequisite.** HAAR-2610

**Instructor.** ARI required for initial flights and refreshers

**Range Requirements.** Special use airspace

**External Syllabus Support.** 1 KC-130 tanker

**HAAR-2640** 1.5 180 B,R,S,M NS A 1+ CH-53K

**Goal.** Conduct night HAAR with NS.

**Requirements**
Discuss:
Same as HAAR-2601

Introduce:
NS HAAR.

Performance Standards. Same as HAAR-2610. For initial qualification, demonstrate the ability to perform all 5 positions from right seat, both left and right hose (if available).

Prerequisites. HAAR-2611. If flown under HLL conditions, HLL-2120. If flown under LLL conditions, NSQ HLL.

Instructor. ARI required for initial flights and refreshers. NSI/ARI is required if not NS qualified in light level event is conducted.

Range Requirements. Special use airspace

External Syllabus Support. KC-130 tanker

2.9.8 Aerial Gunnery (AG)

Purpose. To introduce AG employment.

General. Discuss and become familiar with all aspects of AG as described in NTRP 3-22.4-CH-53, Fundamentals of AG, the ANTTP 3-22.3-CH53 and appropriate NATOPS flight manual.

Crew Requirements. P/P/CC/AG/O.

Academic Training. The MAWTS-1 CH-53 Course Catalog contains the required readings, lectures and chalk talks which shall be completed IAW the Aerial Gunnery stage event descriptions.

Prerequisites. The following events/designations are prerequisites prior to the commencement of the Aerial Gunnery stage:

Academic: ACAD-2880
Flight: FAM-2103
Designation/Qualification: H2P

AG-2810 1.5 * B.R,M D A 1+ CH-53K

Goal. Introduction day weapons employment.

Requirements

Discuss:
Door gun and tail gun nomenclature, capabilities, and limitations
Types of ammunition and ballistic effects
Safety considerations, malfunction procedures, jams, and hung ordnance procedures
Range procedures and course rules
Weapons conditions, fire control voice commands, and fire discipline
Range estimation and target engagement procedures
Flight profiles and weapons engagement per the ANTTP 3-22.3-CH53
Platform left, Platform right
Firing in approach, landing, and departure profiles
Landing profile with tail gun installed

Introduce:
Ordinance loading, weapons preflight and operations, and post-flight
Implementation of fire control voice commands, and fire discipline
Range estimation and target engagement
Flight profiles and weapons engagement per the ANTTP 3-22.3-CH53
Landing profile with tail gun installed

**Performance Standards.** Demonstrate effective fire control voice commands and fire discipline. Maintain briefed flight profiles IAW ANTTP 3-22.3-CH53. Demonstrate appropriate target engagement IAW ANTTP 3-22.3-CH53.

**Prerequisites.** ACAD-2880,FAM-2103.

**Ordnance.** Minimum of 2 .50 Cal (TG optional), and appropriate .50 CAL ammo

**Range Requirements.** Live fire AG(.50 cal) approved.

<table>
<thead>
<tr>
<th>AG-2840</th>
<th>1.5</th>
<th>365</th>
<th>B,R,M</th>
<th>NS</th>
<th>A</th>
<th>1+</th>
<th>CH-53K</th>
</tr>
</thead>
</table>

**Goal.** Introduce NS weapons employment.

**Requirements**

**Discuss:**
- Same as AG-2810
- Night adaptation and muzzle flash awareness
- Types of lasers, laser operations and safety per the ANTTP 3-22.3-CH53

**Introduce:**
- Same as AG-2810 in night environment

**Prerequisites.** AG-2810, if flown HLL, HLL-2105. If flown LLL, NS HLLQ.

**Instructor.** NSI required if not NS qualified in light level event is conducted

**Performance Standards.** Same as AG-2810

**Ordnance.** Minimum of 2 .50 Cal (TG optional) and appropriate .50 CAL ammo

**Range Requirements.** Live fire AG range (.50 cal). Laser-capable range if required

### 2.9.9 Tactics (TAC)

**Purpose.** To plan, brief, execute, and debrief a tactical mission in a low to medium threat environment.

**General.** All Tactics events shall be based on at least one of the Marine Corps Tasks (MCTs) of an HMH squadron. The PUI will log the TAC code and the instructor will log both the TAC code and the Mission Skill Code(s) that applies. Initial TAC codes shall be accomplished as a section or higher; subsequent evolutions (when logged in conjunction with a Mission Skill) may be done single ship, based on the tactical scenario. The total number of aircraft, as specified, may be a dissimilar mix of aviation assets.

The PUI will assist in the planning, briefing, and debriefing of each flight. Pilots shall use the ANTTP 3-22.3-CH53 and CH-53K TPG / ASTACSOP 3-22.5 as source documents for planning and developing proficiency in planning, briefing, execution, and debriefing.

TAC events shall be flown with operational ASE, door guns (as required for the tactical scenario) installed at a minimum (rounds and expendables optional), whenever practical.

**Crew Requirement.** P/P/CC/AG/O.

**Academic Training.** The MAWTS-1 CH-53 Course Catalog contains the required readings, lectures chalk talks, and lectures which shall be completed IAW the Tactics stage event descriptions.

**Prerequisites.** The following events/designations are prerequisites prior to the commencement of the Tactics flight stage:

- **Academic:** ACAD-2980-2984,
- **Flight:** CAL-2211
- **Designation/Qualification:** H2P
Goal. Completion of Objective Area Planning (TAC) academic requirements.

Requirement. Complete all Objective Area Planning (TAC) training modules.

Performance Standard. Per current evaluation criteria for Objective Area Planning (TAC) training.

Goal. Completion of CH-53K Rules of Engagement (ROE) academic requirements.

Requirement. Complete all CH-53K ROE training modules.

Performance Standard. Per current evaluation criteria for CH-53K ROE training.

Goal. Completion of CH-53K Execution Checklist academic requirements.

Requirement. Complete all CH-53K Execution Checklist training modules.


Goal. Completion of CH-53K Problem Framing academic requirements.

Requirement. Complete all CH-53K Problem Framing training modules.

Performance Standard. Per current evaluation criteria for CH-53K Problem Framing training.

Goal. Completion of Assault Support Escort Tactics academic requirements.

Requirement. Complete all Assault Support Escort Tactics training modules.


Goal. Conduct assault support tactical missions in a low threat environment.

Requirements

Discuss:

CRM
Planning based on METT-TC
Route planning
Objective area planning
KILSWITCH
JMPS-M CH-53 UPC Mission Data
JMPS-M CH-53 UPC Map Data
Air and ground unit coordination
Marine Aviation Command and Control System (MACCS)
Emissions control (EMCON), Transmission Security (TRANSEC) and Communication Security (COMSEC)
L-Hour (event versus time-driven)
ASE considerations

Introduce:

Tactical mission analysis, planning, briefing, execution and debriefing in support of assigned tasks
Objective area planning
MACCS utilization
EMCON, TRANSEC and COMSEC
Mission smartpack

Performance Standards. Assist in planning a tactical mission IAW ASTACSOP and ANTTP 3-22.3-CH53. Demonstrate an understanding of the MACCS. Remain oriented IAW ASTACSOP Magellan criteria while navigating to a minimum of 6 checkpoints while using 1:250,000 and 1:50,000 scale maps. To the maximum extent possible route should be a minimum of 50 nm. Demonstrate proficiency with aircraft navigation systems. Arrive in LZ within ± 30 sec of L-Hour and within 2 rotors of prebriefed landing point.

Prerequisite. ACAD-2980-2984, SGTR-2500

External Syllabus Support. (2) Linked CFTDs. In the event that linked CFTDs are not available, this event can be conducted in a single CFTD with a simulated aircraft as wing.

TAC-2910 2.0 * B D A 2+ CH-53K

Goal. Conduct assault support tactical missions in a low threat environment.

Requirements

  Discuss:
  Same as TAC-2900

  Introduce:
  Same as TAC-2900

Performance Standards. Assist in planning a tactical mission IAW ASTACSOP and ANTTP 3-22.3-CH53. Demonstrate an understanding of the MACCS. Remain oriented IAW ASTACSOP Magellan criteria while navigating to a minimum of 6 checkpoints while using 1:250,000 and 1:50,000 scale maps. To the maximum extent possible route should be a minimum of 50 nm. Demonstrate proficiency with aircraft navigation systems. Arrive in LZ within ± 30 sec of L-Hour and within 2 rotors of prebriefed landing point.

Prerequisite. CAL-2211, TERF-2311 (if flown in TERF regime), STAC-2900, (AG-2810 if .50 cal to be employed)

Ordnance. 2 GAU-21 and appropriate rounds, and Chaff and Flare as required, to the max extent possible.

Range Requirements. Approved Live fire AG (.50 cal) range. Expendable approved range. CAL/MAL site. Approved TERF maneuver area/route

TAC-2911 2.0 365 B,R,M D A 2+ CH-53K

Goal. Conduct assault support tactical missions in a medium threat environment.

Requirements

  Discuss:
  Same as TAC-2900
  Flight leadership
  ITG considerations
  Embark and debark of troops and equipment
  Sectors of fire
  Escort considerations
  Fire Support Coordination considerations
  Weapons preflight, control, and employment

  Review:
  TAC-2910

Performance Standards. Plan and brief a tactical mission IAW ASTACSOP and ANTTP 3-22.3-CH53. Demonstrate an understanding of the MACCS. Remain oriented IAW ASTACSOP Magellan criteria while navigating to a minimum of 6 checkpoints while using 1:250,000 and 1:50,000 scale maps. To the maximum extent possible route should be a minimum of 50 nm. Demonstrate proficiency with aircraft navigation systems. Arrive in LZ within ± 30 sec of L-Hour and within 2 rotors of prebriefed landing point.

Prerequisites. TAC-2910, (AG-2810 if .50 cal to be employed)
Ordnance. 2.50 cals and appropriate rounds, and Chaff and Flare as required, to the max extent possible

Range Requirements. Approved Live fire AG (.50 cal) range. Expendable approved range. CAL/MAL site. Approved TERF maneuver area/route.

2.9.10 NS High Light Level (HLL)

Purpose. To develop skill in the use of NS under light levels greater than or equal to .0022 lux (HLL) as predicted by the Solar Lunar Almanac Prediction (SLAP) data and to qualify the PUI in NS HLL operations.

General. Aircrew not NSQ HLL require supervision of an NSI for all events flown with NS. Events should be flown using all flight control modes.

A PUI is NSQ HLL (qualified to transport troops in HLL conditions) when the following conditions have been met: SHLL-2105, HLL-2120, HLL-2220, HLL-2221, HLL-2320, HLL-2321, and HLL-2920 completed and logged a minimum of 6.0 hours of HLL NVG flight time in model. Pilots shall fly the above listed flights as well as HLL-2420 and HLL-2421 under ambient light conditions greater than or equal to .0022 lux.

Successful completion of ACAD 2190-2198 and HLL-2920 constitutes Night Systems Qualified (NSQ) HLL. A qualification letter signed by the Squadron Commanding Officer is required, stating the pilot is NSQ HLL to carry troops under HLL conditions. The original letter shall be placed in the pilot’s NATOPS jacket, and a copy in the APR with a corresponding logbook entry.

Minimum Crew Requirements for all NS HLL flights. P/P/CC/AG/O.

Academic Training. The MAWTS-1 CH-53 Course Catalog contains the required readings, lectures and chalk talks which shall be completed IAW the High Light Level stage event descriptions.

Prerequisites. The following events/designations are prerequisites prior to the commencement of the High Light Level flight stage:

- Academic: ACAD-2190-2198.
- Flight: SFAM-2100 for SHLL-2205, CAL-2210, TERF-2310
- Designation/Qualification: H2P

**ACAD-2190** 1.0 * B G

Goal. Completion of assault AN/ANV-9 Components and Preflight Procedures academic requirements.

Requirement. Complete all assault AN/ANV-9 Components and Preflight Procedures training modules.

Performance Standard. Per current evaluation criteria for assault AN/ANV-9 Components and Preflight Procedures training.

**ACAD-2191** 1.0 * B G

Goal. Completion of NVG systems and image characteristics academic requirements.

Requirement. Complete all NVG systems and image characteristics training modules.

Performance Standard. Per current evaluation criteria for NVG systems and image characteristics training.

**ACAD-2192** 1.0 * B G

Goal. Completion of the night operational environment academic requirements.

Requirement. Complete all the night operational environment training modules.

Performance Standard. Per current evaluation criteria for the night operational environment training.

**ACAD-2193** 1.0 * B G

Goal. Completion of NVG misperceptions and illusions academic requirements.

Requirement. Complete all NVG misperceptions and illusions training modules.
Performance Standard. Per current evaluation criteria for NVG misperceptions and illusions training.

**ACAD-2194  1.0  *  B**

**Goal.** Completion of Night Vision Devices (NVD) route planning considerations academic requirements.

**Requirement.** Complete all NVD route planning considerations training modules.

**Performance Standard.** Per current evaluation criteria for NVD route planning considerations training.

**ACAD-2195  1.0  *  B**

**Goal.** Completion of Night Operation and Planning aides academic requirements.

**Requirement.** Complete all Night Operation and Planning aides training modules.

**Performance Standard.** Per current evaluation criteria for Night Operation and Planning aides training.

**ACAD-2196  1.0  *  B**

**Goal.** Completion of Human Factors academic requirements.

**Requirement.** Complete all Human Factors training modules.

**Performance Standard.** Per current evaluation criteria for Human Factors training.

**ACAD-2197  1.0  *  B**

**Goal.** Completion of Circadian Rhythm and Fatigue academic requirements.

**Requirement.** Complete all Circadian Rhythm and Fatigue training modules.

**Performance Standard.** Per current evaluation criteria for Circadian Rhythm and Fatigue training.

**ACAD-2198  1.0  *  B**

**Goal.** Completion of Intro to NVG Tactical Employment academic requirements.

**Requirement.** Complete all Intro to NVG Tactical Employment training modules.

**Performance Standard.** Per current evaluation criteria for Intro to NVG Tactical Employment training.

**SHLL-2105  2.0  *  B**

**Goal.** Introduce the operation and capabilities of aircraft NS.

**Requirements**

**Discuss:**
- CRM utilizing NS
- NS emergency procedures
- Night scan and fixation
- Aircraft lighting
- NS preflight, donning, and adjustment procedures
- MFCD/FLIR AAQ-29
- Simulator NS setup
- Differences in AN/AVS-9 NVGs
- Strengths and weaknesses of WP-B-01 NVGs

**Introduce:**
- CRM utilizing NS
- NS emergency procedures
- Night scan and fixation
- Aircraft lighting
- NS preflight, donning, and adjustment procedures
NAVMC 3500.129
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ANVIS-7 Heads-Up Display (HUD)
HUD operation, limitations, switchology, functionality/image
FLIR operation, limitations, switchology, functionality/image
Simulator NS setup

Performance Standards: Demonstrate basic proficiency, knowledge and the operation of all NS.

Prerequisites: ACAD-2190-2198, SFAM-2100.

Instructor: NSI required for initial flights

External Syllabus Support: CFTD. If CFTD is unavailable, a static aircraft with APP power is acceptable.

HLL-2120 1.5 * B HLL A 2 CH-53K

Goal: Conduct NS formation flight and navigation.

Requirements

Discuss:
Aircraft lighting
Night tactical formation
Closure rate
Recovery from unusual attitudes
CRM
Comfort level
NS emergencies
Inadvertent IMC
Dead reckoning techniques
Low level hazards
JMPS-M Mission Planning/topscene
FLIR considerations
Differences in AN/AVS-9 NVGs
Strengths and weaknesses of WP-B-01 NVGs

Introduce:
NS formation flight
NS tactical formation maneuvers
NS navigation to include GPS and FLIR checkpoint identification
JMPS topscene use

Review:
Combat Spread/Combat Cruise Formation principles

Performance Standards: Per ANTTP 3-22.3-CH53 and MAWTS-1 NVD Manual. Remain oriented IAW ASTACSOP Magellan criteria while navigating to a minimum of 6 checkpoints while using 1:250,000 and 1:50,000 scale maps. Minimum altitude 200 feet AGL. Conduct at least 1 full COMM and 1 no COMM lead change. Successfully execute TACFORM maneuvers as lead and wingman IAW ANTTP 3-22.3 CH-53. Successfully execute inadvertent IMC breakup and rendezvous IAW ASTACSOP.

Prerequisites: SHLL-2105 and FORM-2115.

Instructor: NSI required for initial flights, refreshers or when not HLL qualified.

HLL-2220 1.5 * B HLL A 1 CH-53K

Goal: Conduct HLL single-ship confined area approaches, landings, and departures and introduce tactical approaches to confined areas/mountainous terrain using all flight control modes.

Requirements

Discuss:
CRM
Landing zone Lighting
Cockpit lighting
Low altitude emergencies
NS failures
Inadvertent IMC procedures
Landings with reduced visibility
Wave-offs
FLIR capabilities and limitations
Electro-Optic Tactical Decision Aid (EOTDA) data
Solar/Lunar Almanac Program (SLAP), Sun Moon (SUMO) Tool, Solar/Lunar Almanac
Calculations (SLAC)
Night fixation and scan techniques
MFCD Hover Display use for low work and approach procedures
NAVFLIR Night RVLM Landing Code (S)

Introduce:
- NS CALs/MALs
- NS low work
- MFD Hover Display use for low work and approach procedures

Review:
- FAM/INST-2101
- CAL-2210

Performance Standards. On initial event, pilot under instruction shall fly pattern within 50’ and 10 kts of briefed altitude/airspeed and land within 2 rotors of designated landing point by the end of the flight event. For subsequent logging, pilot shall fly these parameters on the majority of patterns flown. Maintain safe obstacle clearance. Conduct a minimum of 5 landings which shall consist of precision approach, a normal approach, a hover and a no hover landing, and a max gross weight takeoff and landing. Simulated max GW takeoffs and landings, power shall be limited to 5 percent above 10’ hover power. Conduct NS low work.

Instructor. NSI required for initial flights, refreshers or when not NS HLL qualified.

Prerequisites. SHLL-2105 and CAL-2210.

Range Requirements. CAL/MAL site.

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<th>180</th>
<th>B.R.S.M</th>
<th>HLL</th>
<th>A</th>
<th>2</th>
<th>CH-53K</th>
</tr>
</thead>
</table>

Goal. Conduct section confined area approaches, landings, and departures and introduce tactical approaches to confined areas/mountainous terrain utilizing NS. Execute reduced visibility approach techniques to a non-reduced visibility landing zone.

Requirements

Discuss:
- Same as CAL-2211 and HLL-2220

Introduce:
- CRM
- Obstacle clearance
- Full COMM and no COMM lead changes
- Tactical Formations
- Section reduced visibility landings
- Cruise turn principles (radius of turn)
- Cross cockpit landings
- LZ diagram briefing and planning
- Loss of visual reference during landing
- Landing with reduced visibility
- Landing zone lighting
- Cockpit lighting
- Low altitude emergencies
- NS failures
IIMC procedures
Wave-offs
FLIR capabilities and limitations
EOTDA data
SLAP
Night fixation and scan techniques
Section takeoffs, approaches, landings, using NS
Capabilities and effects of all aircraft exterior lighting

Review:
HLL-2120, CAL-2211, and HLL-2220

Performance Standards. Same as CAL-2211

Prerequisites. HLL-2120 and 2220.

Instructor. NSI required for initial flights, refresher or when not HLL qualified

Range Requirements. Approved CAL/MAL site

**HLL-2320** 1.5 * B  HLL A 1 CH-53K

**Goal.** Conduct single ship TERF maneuvers and navigation while using NS.

**Requirement**

**Discuss:**
- Same as TERF-2310
- TERF navigation considerations while using NS
- FLIR capabilities and limitations
- Cockpit lighting
- Low altitude emergencies
- NS failures
- Inadvertent IMC procedures
- Electro-Optic Tactical Decision Aid (EOTDA) data
- Solar Lunar Almanac Program (SLAP)
- Night fixation and scan techniques

**Introduce:**
- TERF navigation flight while using NS

**Review:**
- TERF-2310
- FLIR operations

Performance Standards. Remain oriented IAW ASTACSOP Magellan criteria while navigating to a minimum of 6 checkpoints while using 1:250,000 and 1:50,000 scale maps at or below 200’ AGL and/or within 200’ of terrain. To the maximum extent possible conduct TERF navigation for a minimum of 50 nm. Demonstrate proficiency with aircraft navigation systems. Masking/unmasking, quick stop, TERF turn, rolls, bunts, low-level and contour profiles all flown IAW the ANTTP 3.22.3.

Prerequisite. SHLL-2105 and TERF-2310.

Instructor. NSI required for initial flights or when not HLL qualified.

Range Requirements. Approved TERF maneuver area/route.

**HLL-2321** 1.5 180 B,R,S,M  HLL A 2 CH-53K

**Goal.** Conduct section TERF maneuvers and navigation while utilizing NS.

**Requirement**

**Discuss:**
- Same as TERF-2311 and HLL-2320
Introduce:
Section TERF navigation while utilizing NS

Review:
Same as TERF-2311 and HLL-2320

Performance Standards: Same as HLL-2320

Prerequisite: TERF-2311, HLL-2120, HLL-2320

Instructor: NSI required for initial flights, refreshers or when not HLL qualified

Range Requirements. Approved TERF maneuver area/route

**HLL-2920**

| 2.0 | 365 | B,R,S,M | HLL | A | 2+ | CH-53K |

**Goal.** Conduct assault support tactical missions in a low threat environment at night.

**Requirements**

Discuss:
Same as TAC-2910
NS planning, briefing, and execution considerations

Introduce:
NS planning, briefing, and execution considerations

Review:
TAC-2910 FLIR operations

Performance Standards. Same as TAC-2910

Prerequisite. HLL-2221 and 2321, TAC-2911. (AG-2810 if .50 cal to be employed).

Instructor. NSI required for initial qualification, refresher or if PUI not proficient

Ordnance. 2 .50 cal (TG and .50 Cal rounds optional reference Chapter 2 of CH-53K T&R)

Range Requirements. Live fire AG(.50 cal) approved and laser safe range. CAL/MAL site. Approved TERF maneuver area/route

2.9.11 **NS Low Light Level (LLL)**

**Purpose.** To develop skill in the use of NS under light levels less than .0022 lux (LLL) as predicted by the Solar Lunar Almanac Prediction (SLAP) data and to qualify the PUI in NS LLL operations.

**General.** Aircrew not NSQ LLL require supervision of an NSI for all events flown with NS.

NS rules of conduct will be per the T&R Program Manual and this T&R; i.e. the PUI may begin the LLL syllabus when designated NSQ HLL. A PUI is NSQ LLL (qualified to transport troops in all light level conditions) when the following conditions have been met: SLLL-2106, LLL-2230, LLL-2231, LLL-2330, LLL-2331, and LLL-2930 completed and logged a minimum of 5.0 hours of LLL NVG flight time in model. Pilots shall fly the above listed flights and EXT-2430 under ambient light conditions of less than .0022 lux.

Successful completion of ACAD-2199, and LLL-2930 constitutes Night Systems Qualified (NSQ) LLL. A qualification letter signed by the Squadron Commanding Officer is required, stating the pilot is NSQ LLL to carry troops under LLL conditions. The original letter shall be placed in the pilot’s NATOPS jacket, and a copy in the APR with a corresponding logbook entry.

Crew Requirements for all NS LLL flights. P/P/CC/AG/O.

**Academic Training.** The MAWTS-1 CH-53 Course Catalog contains the required readings, lectures and chalk talks which shall be completed IAW the Low Light Level stage event descriptions.

**Prerequisites.** The following events/designations are prerequisites prior to the commencement of the Low Light Level stage flights:

Academic: ACAD-2199
Flight: NSQ-HLL  
Designation/Qualification: H2P

**ACAD-2199**  1.0  *  B  G

**Goal.** Completion of Battlefield Illumination and ITG Planning Considerations academic requirements.

**Requirement.** Complete all Battlefield Illumination and ITG Planning Considerations training modules.

**Performance Standard.** Per current evaluation criteria for Battlefield Illumination and ITG Planning Considerations training.

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**SLLL-2106**  1.5  *  B  LLL  S  1  CFTD

**Goal.** Conduct single-ship confined area approaches, landings, and departures and introduce tactical approaches to confined areas/mountainous terrain utilizing NS under LLL conditions.

**Requirements**

- **Discuss:**
  - Same as CAL-2220
  - LLL planning considerations

- **Introduce:**
  - Same as CAL-2220 under LLL conditions

**Performance Standards.** Same as CAL-2220

**Instructor.** NSI required for initial flights or when not LLL qualified

**Prerequisites.** ACAD-2199, SHLL-2105

**Range Requirements.** 1 CFTD

---

**LLL-2230**  1.5  *  B  LLL  A  1  CH-53K

**Goal.** Conduct LLL single-ship confined area approaches, landings, and departures and introduce tactical approaches to confined areas/mountainous terrain using all flight control modes.

**Requirements**

- **Discuss:**
  - Same as CAL-2220
  - LLL planning considerations

- **Introduce:**
  - Same as CAL-2220 under LLL conditions

**Performance Standards.** Same as CAL-2220

**Instructor.** NSI required for initial flights or when not LLL qualified

**Prerequisites.** SLLL-2106, NSQ HLL

**Range Requirements.** CAL/MAL site

---

**LLL-2231**  1.5  180  B,R,S,M  LLL  A  2  CH-53K

**Goal.** Conduct section confined area approaches, landings, and departures and introduce tactical approaches to confined areas/mountainous terrain utilizing NS under LLL conditions. Execute reduced visibility approach techniques to a non-reduced visibility landing zone.

**Requirements**

- **Discuss:**
  - Same as CAL-2221
  - LLL planning considerations

- **Introduce:**
Same as CAL-2221 under LLL conditions

Performance Standards. Same as HLL-2221

Instructor. NSI required for initial flights, refreshers or when not LLL qualified

Prerequisites. LLL-2230

Range Requirements. CAL/MAL site

**LLL-2330**  1.5  *  B  LLL  A  1  CH-53K

Goal. Conduct single ship TERF maneuvers and navigation under LLL conditions.

**Requirement**

**Discuss:**
- Same as HLL-2320
- LLL planning considerations

**Introduce:**
- Same as HLL-2320 under LLL conditions

Performance Standards. Same as HLL-2320

Instructor. NSI required for initial flights, refreshers or when not LLL qualified

Prerequisites. SLLL-2106, NSQ HLL

Range Requirements. Approved TERF maneuver area/route

**LLL-2331**  1.5  180  B,R,S,M  LLL  A  2  CH-53K

Goal. Conduct section TERF maneuvers and navigation under LLL conditions.

**Requirements**

**Discuss:**
- Same as HLL-2321 and LLL-2330
- LLL planning considerations

**Introduce:**
- Same as HLL-2321 under LLL conditions

**Review:**
- Same as TERF-2311 and HLL-2321

Performance Standards. Same as HLL-2320

Instructor. NSI required for initial flights, refreshers or when not LLL qualified

Prerequisite. LLL-2330

Range Requirements. Approved TERF maneuver area/route

**LLL-2930**  2.0  365  B,R,S,M  LLL  A  2+  CH-53K

Goal. Conduct assault support tactical missions in a medium threat environment during LLL conditions.

**Requirements**

**Discuss:**
- Same as TAC-2911 and TAC-2920
- LLL planning considerations
- Effects of ordnance delivery on NS
- Battlefield Illumination
- Differences in AN/AVS-9 NVGs
- Strengths and weaknesses of WP-B-01 NVGs

**Review:**
TAC-2911 and TAC-2920

Performance Standards. Same as TAC-2911

Instructor. NSI required for initial flights, refreshers or when not LLL qualified

Prerequisites. CAL-2231, TERF-2331 and HLL-2920 (AG-2810 if .50 cal to be employed)

Ordnance. .50 cal (TG and .50 Cal rounds optional reference Chapter 2 of CH-53K T&R)

Range Requirements. Live fire AG(.50 cal) approved and laser safe range. CAL/MAL site. Approved TERF maneuver area/route

2.10 MISSION PHASE

Purpose. To introduce and develop proficiency in tactical planning, briefing and execution of a HMH squadron’s assigned Marine Corps Tasks. The Mission Phase has been developed to ensure that squadrons are capable of performing the Marine Corps Tasks (MCTs) assigned to a HMH Squadron. Core Skills are the enablers that allow crews to perform Mission Skills.

General. For initial, refresher, or when the aircrew under instruction are not proficient in a particular Mission Phase code, training codes shall be given by an instructor pilot that is proficient in that Mission Phase code(s). Mission Phase codes should be given to all those aircrew (Pilots, Crew Chief, AG/O) within the aircraft that meet the prerequisite. Additionally, for larger flights, any flight lead, (SL, DL, AFL, AMC) that is proficient in that Mission Phase code can give the Mission Phase code to all aircrew within the flight that meet the prerequisite.

It is the intent that all TACEX scenarios in the Core and Core Plus Phase be based on a minimum of one of the Mission Phase events. If aircrew under instruction do not meet the prerequisite for the Mission Phase event, they will not log the Mission Phase event. However, the instructor of the Core or Core Plus Phase TACEX will log both the Core or Core Plus event and the Mission event (i.e: NSI logs a LLL-2930 and CAT-3140, PUI in the LLL syllabus logs a LLL-2930). Once aircrew have been designated NSQ LLL, all subsequent TACEXs should be coded with the appropriate Core or Core Plus and Mission Phase event provided aircrew under instruction meet all core event prerequisites. Aircrew that are not proficient in a Core or Core Plus event may update both the Core or Core Plus and the Mission Phase event on the same sortie.

Prior to the commencement of this phase, aircrew under instruction shall be NSQ-LLL and Aviation Career Progression Model (ACPM) 8201-8206, 8208 and 8221-8228 complete.

The aircrew under instruction will assist in the mission analysis, planning, briefing, execution and debriefing of each flight. Aircrew shall use the ANTTP series and NATOPS as source documents for planning, briefing, execution and debriefing.

Multiple Mission Phase training events may be logged per sortie (e.g. CAT-3140, AD-3240) as long as the requirement(s) is(are) met for each code. Mission Phase training events are intended to be flown and logged in conjunction with other T&R syllabus events (e.g. for pilots: CAT-3140, AD-3240, LLL-2930, EXT-2430, EXT-2441 and LLL-2331).

The PUI will log the TAC code and the instructor will log both the TAC code and the Mission Phase event(s) that apply. Initial TAC codes shall be accomplished as a section, subsequent evolutions (when logged in conjunction with a Mission Phase event) may be done single ship, based on the tactical scenario.

Mission Phase events shall be flown with operational ASE, .50 cal (as required for the tactical scenario) installed at a minimum (rounds and expendables optional), whenever practical.

Initial attempts to complete Mission Phase events shall be made in the aircraft, subsequent attempts may be accomplished in the simulator.

As of the signing of this manual, the current HMH Core MCTs are as follows:

MCT 1.3.4.1 Combat Assault Transport (CAT)
MCT 4.3.4.1 Heavy Rotary Wing Air Delivery (AD)
MCT 6.2.2.1 Aviation Support of Tactical Recovery of Aircraft and Personnel (TRAP)
MCT 6.2.2 Air Evacuation (AE)

Crew Requirements. P/P/CC/AG/O
Mission Skill Proficiency. To attain and maintain Mission Skill Proficiency (MSP) in CAT, AD, TRAP and AE, the pilot shall be Core Skill Proficient (CSP) in all required skills for the specific stage in order to count toward CMMR. For example, to be a qualified crew member for TRAP, the HAC must be GTR CSP: 2580,2581,2582,2583,2584,2585,2586,2587,2588,2589,2500,2540,2541 // AG CSP: 2880,2810,2840 // NS LLL CSP: 2199,2106,2230,2231,2330,2331,2930 // EXT CSP: 2480,2481,2400,2402,2410,2411,2420,2421,2430 // HAAR CSP: 2680,2600,2610,2611,2640

Stages. The following stages are included in the Mission Skill phase.

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2.11 MISSION STAGES

2.11.1 Academic Training

Purpose. Prior to commencement of each event within the Mission Phase, the required academic syllabus shall be completed in accordance with this Manual and the MAWTS-1 CH-53 Course Catalog.

The Mission Skill academic/ground training shall be complete IAW the POI requirements and prerequisites. Upon completion, the PUI shall report to the PTO or designated representative(s), who will then manually update the training code in M-SHARP and log the academic/ground training event in section 3, Aircrew Ground School Training of the APR, using the format listed in Enclosure 1 of this document.

NIPR 2000-6000 classes will be located at the MAWTS-1 NIPR website under ASD, CH-53K, T&R: https://mceits.usmc.mil/sites/mawts1/SitePages/CH-53.aspx

SIPR 2000-6000 classes will be located at the MAWTS-1 SIPR website under ASD, CH-53K, T&R: https://intelshare.intelink.sgov.gov/sites/mawts1.aspx

Prerequisites. The following events/designations are prerequisites prior to the commencement of the Mission Skill Phase.

Academic: See event; ACPM 8201-8206, 8208 and 8221-8228
Flight: LLL-2930
Designation/Qualification: NSQ-LLL

ACAD-3080 1.0 * B G
Goal. Completion of R2P2 academic requirements.
Requirement. Complete all R2P2 training modules.
Performance Standard. Per current evaluation criteria for R2P2 training.

ACAD-3081 0.7 * B G
Goal. Completion of Contested EMS Operations and Mitigation academic requirements.
Requirement. Complete all Contested EMS Operations and Mitigation training modules.
Performance Standard. Per current evaluation criteria for Contested EMS Operations and Mitigation training.

ACAD-3082 0.8 * B G
Goal. Completion of NEO Execution academic requirements.
Requirement. Complete all NEO Execution training modules.
Performance Standard. Per current evaluation criteria for NEO Execution training.
ACAD-3083  0.8  *  B  G
Goal.  Completion of ACE Intelligence Preparation of the Battlespace academic requirements.
Requirement.  Complete all ACE Intelligence Preparation of the Battlespace training modules.
Performance Standard.  Per current evaluation criteria for ACE Intelligence Preparation of the Battlespace training.

ACAD-3084  1.0  *  B  G
Goal.  Completion of Personnel Recovery academic requirements.
Requirement.  Complete all Personnel Recovery training modules.

ACAD-3085  1.0  *  B  G
Goal.  Completion of TRAP TTP’s academic requirements.
Requirement.  Complete all TRAP TTP’s training modules.
Performance Standard.  Per current evaluation criteria for TRAP TTP’s training.

ACAD-3086  0.5  *  B  G
Goal.  Completion of CASEVAC academic requirements.
Requirement.  Complete all CASEEVAC training modules.
Performance Standard.  Per current evaluation criteria for CASEVAC training.

2.11.2 Combat Assault Transport (CAT)

CAT-3140  2.0  180*  B,R,S,M  (N)  A/S  2+  CH-53K/Linked CFTD
Goal.  Demonstrate the capability to conduct combat assault transport operations in a low to medium threat environment. Aviation combat assault transport operations provides mobility to the MAGTF. It is used to deploy forces (air-landed or air-delivered) efficiently in offensive maneuver warfare, bypass obstacles, or quickly redeploy forces. CAT allows the MAGTF Commander to build up his forces rapidly at a specific time and location and allows him to apply and sustain combat power and strike the enemy where he is unprepared. This function comprises those actions required for the airlift of personnel, supplies and equipment into or within the battle area by helicopter, tiltrotor or fixed-wing aircraft. (JP 3-0, 4-0, MCWP 3-20, MAWTS-1).

Requirements
Discuss:
Same as 2930

Performance Standard.  Plan, brief and execute a tactical assault support mission (MARLOG, general support, NEO, resupply, insert, extract). If an L-Hour is utilized arrive in the LZ +/- 30 sec in the best position to support the ground combat element. Demonstrate a thorough understanding of objective area mechanics, command and control procedures, and fire support control measures.

Prerequisites.  NSQ LLL, ACAD-3080-3083, ACPM 8201-8206, 8208 and 8221-8228, 8361-8367

Ordnance.  IAW Phase.

Range Requirement.  Live fire and expendable range as required.

External Syllabus Support.  Command and Control system if available. Escort and/or Command and Control aircraft are preferred, if available.  Ground Combat Element preferred if available.
2.11.3 Heavy Rotary Wing Air Delivery (AD)

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<th>(N)</th>
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<th>2+</th>
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</table>

**Goal.** Demonstrate the ability to conduct heavy rotary wing air delivery (AD) in a low to medium threat environment. AD is in-flight transportation of equipment and supplies to remote areas or expeditionary sites [tactical landing zones, austere forward operating sites, Naval shipping, Forward Operating Bases (FOBs), Expeditionary Airfields (EAFs), Forward Arming and Refueling Points (FARPs), etc.]. AD operations are performed by fixed-wing, tiltrotor or rotary-wing aircraft when it is more advantageous not to land. Delivery can be accomplished with aircraft internal/external loads, or loads can be air dropped using specially rigged aerial delivery equipment and systems. AD operations require detailed planning and integration at all levels and must support units in a rapidly changing environment. (JP 1, 3-0, 4-0, MCWP 3-20, MCTP 3-01B, MCTP 3-20A, 4-1, 4-11, 4-11.3, NDP-4, NWP 4-01, NAVSUP PUB Series)

**Requirement**

**Discuss:**
- JMPS cargo loading application
- Same as EXT-2430
- Same as LLL-2930
- Same as HIE 4110, 4140, or 4141

**Performance Standard.** Plan, brief and execute an air delivery mission in a low to medium threat environment. If an L-Hour is utilized arrive in the LZ +/- 30 sec.

**Prerequisites.** NSQ LLL, ACPM 8201-8206, 8208 and 8221-8228, 8365

**Ordnance.** IAW Phase

**Range Requirement.** Live fire range and approved drop zone as required

**External Syllabus Support.** HST, as required. Jump master and ground safety personnel, as required.

2.11.4 Tactical Recovery of Aircraft and Personnel (TRAP)

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<thead>
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<th>TRAP-3340</th>
<th>2.0</th>
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<th>2+</th>
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**Goal.** Demonstrate the ability to conduct TRAP in a low to medium threat environment. TRAP is performed for the specific purpose of the recovery of personnel, equipment, and/or aircraft. TRAP is conducted to locate and extract distressed personnel and sensitive equipment from enemy controlled area during wartime or contingency operations to prevent capture. TRAP is performed by an assigned and briefed aircrew and is a subcomponent of Joint Personnel Recovery (PR). A TRAP mission may include personnel to conduct the search portion of recovery missions. The composition of a tactical recovery mission may vary from a single aircraft and aircrew to an assault support mission package that consists of multiple fixed-wing and rotary-wing aircraft with an onboard compliment of security, ground search, and medical personnel. (JP 1, 3-0, 3-50.2, MCRP 2-10A.2, 3-2, MCTP 3-01B, MCTP 3-20E, MCRP 3-20F.2, NDP 1, NWP 3-05)

**Requirements**

**Discuss:**
- TRAP template from ASTACSOP
- ISR employment
- Rescort considerations
- Rescue Vehicle responsibilities
- ISOPREP verification considerations
- RMC (Sandy) / On Scene Commander command and control considerations
- Survival Radio operation
- PR 15 line

**Performance Standard.** Plan, brief and execute a TRAP mission. Properly employ TRAP template. Effectively communicate with Isolated Personnel, Rescort, RMC and other supporting aircraft.
Prerequisites. NSQ-LLL, ACAD-3084,3085, ACPM 8201-8206, 8208 and 8221-8228

Ordnance. IAW Phase

Range Requirement. Live fire and expendable range as required

External Syllabus Support. Escort and/or Command and Control aircraft are preferred if available. Isolated personnel in the objective area is preferred. Use of survival radios is preferred. Ground combat element is preferred if available.

2.11.5 AIR EVACUATION

AE-3440 2.0 180 B,R,S,M (N) A/S 2+ CH-53K/ Linked CFTD

Goal. Demonstrate the ability to conduct an AE operation in a low to medium threat environment. AE is the transportation of personnel and equipment from areas of operations to secure rear areas, to include casualty evacuations (CASEVAC), extraction of forces, or civilians. Transport helicopters, tiltrotor, and fixed-wing transport aircraft perform AE. (JP 3-10.1, MCDP 1-0, MCWP 3-20, MCTP 3-01B, MCTP 3-10F, MCTP 3-20E, 3-25, MCRP 3-20.3, 3-36-

Requirements

Discuss:
Casualty priorities
Medical facility levels
Aircraft configuration considerations

Performance Standard. Plan, brief and execute a tactical air evacuation mission. If an L-Hour is utilized arrive in the LZ +/- 30 sec in a position to best support the ground combat element.

Prerequisites. NSQ-LLL, ACAD-3086, ACPM 8201-8206, 8208 and 8221-8228

Ordnance. IAW Phase

Range Requirement. Live fire and expendable range as required

External Syllabus Support. Ground Combat Element and/or Logistics Combat Element is preferred if available

2.12 CORE PLUS PHASE

Purpose. To introduce and develop proficiency in the execution of the Core Plus events required as a pilot within a HMH. Core Plus Phase events have a low probability of execution or are theater specific and are not included in the unit readiness evaluation.

General. The following events within this phase require a proficient BIP for all initial/Refresher flights:
HIE-4110, 4140, 4141
B1-4340
CBRN-4600
TAC-4940 & 4942(if done during the day)

All Mission Plus events shall follow the guideline of the Mission Phase section.

Stages. The following stages are included in the Mission Plus Phase of training.

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Conditions. Within the stages all training codes are further broken down according to ambient conditions.

(XX00) Sim
(XX10) Daylight
(XX20) High Light Level
(XX30) Low Light Level
(XX40) Can be done High or Low Light Level

2.13 CORE PLUS STAGES

2.13.1 Ground/Academic Training

Purpose. Within the Core Plus Phase the required academic syllabus shall be completed in accordance with this Manual and the MAWTS-1 CH-53 Course Catalog.

The Core Plus Phase academic/ground training shall be complete IAW the POI requirements and prerequisites for the stage. Upon completion, the PUI shall report to the PTO or designated representative(s), who will then manually update the training code in M-SHARP and log the academic/ground training event in section 3, Aircrew Ground School Training of the APR, using the format listed in Enclosure 1 of this document.

NIPR 2000-6000 classes will be located at the MAWTS-1 NIPR website under ASD, CH-53K, T&R: https://mceits.usmc.mil/sites/mawts1/SitePages/CH-53.aspx

SIPR 2000-6000 classes will be located at the MAWTS-1 SIPR website under ASD, CH-53K, T&R: https://intelshare.intelink.sgov.gov/sites/mawts1.aspx

Prerequisites. The following events/designations are prerequisites prior to the commencement of the Core Plus Phase.

Academic: See event
Flight: See event
Designation/Qualification: H2P

2.13.2 Helicopter Insertion & Extraction Techniques (HIE)

Purpose. To introduce HIE methods required in executing special operations.

General. The pilots shall conduct a brief with the supported unit. NSI required if not qualified in light level.

Crew Requirements. P/P/CC/AG/O.

Academic Training. The MAWTS-1 CH-53K Course Catalog contains the required readings and chalk talks which shall be completed IAW the Helicopter Insertion & Extraction Techniques event descriptions.

Prerequisites. The following events/designations are prerequisites prior to the commencement of the Helicopter Insertion & Extraction Techniques:

Academic: See event
Flight: CAL-2311
Designation/Qualification: H2P

ACAD-4180 0.5 *

Goal. Completion of HIE academic requirements.

Requirement. Complete all HIE training modules.

Performance Standard. Per current evaluation criteria for HIE training.

HIE-4110 1.5 485 B,R,M (NS) A 1 CH-53K

Goal. Conduct tactical insertion of a ground force via helocast.

Requirements
Discuss:
- CRM
- Safety precautions
- Training master procedures
- Signals/communications with jump master
- Obstacle clearance
- Precision taxi techniques over water
- Emergency procedures
- Vertigo and visual illusions
- MFCD Hover Display Utilization
- Tail rotor clearance
- Airspeed for helocast
- Responsibilities and duties of Helocast Master
- Responsibilities and duties of the HAC
- Responsibilities and duties of the Crew Chief
- Standard terminology
- Soft duck vs Hard duck
- MCRP 3-11.3XX series Special Forces Waterborne Operations

Introduce:
- Techniques for inserting personnel by helocast
- Signals/communications with jump master
- Precision taxi

Performance Standards. Execute approach/hover within ± 5 ft/± 3 kts of intended altitude and ground speed.

Prerequisites. ACAD-4180. CAL-2210 if conducted during day conditions. HLL-2220 if conducted under HLL conditions. LLL-2230 if conducted under LLL conditions.

Instructor. NSI required if not qualified in light level

Range Requirements. Approved helocast drop zone

External Syllabus Support. Jump master, safety boat and safety personnel

**HIE-4140** 1.5 * B,R,M (NS) A 1 CH-53K

Goal. Conduct tactical insertion and/or extraction of a ground force via fast rope, rappelling, or SPIE.

Requirements

Discuss:
- CRM
- Safety precautions
- Signals/communications with HRST master
- Training master procedures
- Rescue Hoist procedures and types of operations
- Obstacle clearance
- Precision hover/hover performance
- Emergency procedures to include NS emergencies if flown at night
- MFCD Hover Display Utilization
- MCRP 3-11.4XX series Helicopter Rope Suspension Techniques

Introduce:
- Techniques for inserting personnel by fastrope, rappelling, or SPIE
- Signals/communications with HRST master
- Precision hover

Performance Standards. Execute approach and hover within ± 5’ of intended altitude and within 2 meters of intended spot.

Prerequisites. ACAD-4180. CAL-2210 if conducted during day conditions. HLL-2220 if conducted under HLL conditions. LLL-2230 if conducted under LLL conditions.
Instructor. NSI required if not qualified in light level.

Range Requirements. Suitable CAL/MAL site

External Syllabus Support. HRST Master and ground safety personnel

HIE-4141 1.5 * B,R,M (NS) A 1 CH-53K

Goal. Conduct tactical insertion via para ops.

Requirements

Discuss:

CRM
Safety precautions
Signals/communications with jump master
Training master procedures
Obstacle clearance
Emergency procedures to include NS emergencies
MFD Moving Map utilization
Static vs. Freefall
JPAD planning considerations

Introduce:

Techniques for inserting personnel by para ops
Signals/communications with jump master

Performance Standards. Fly within ± 50’ of designated altitude and ± 5 kts of designated airspeed.

Prerequisites. ACAD-4180. CAL-2210 if conducted during day conditions. HLL-2220 if conducted under HLL conditions. LLL-2230 if conducted under LLL conditions.

Instructor. NSI required if not qualified in light level.

Range Requirements. Approved drop zone

External Syllabus Support. Jump master and ground safety personnel

2.13.3 Aviation-Delivered Battlefield Illumination (BI)

Purpose. To develop the ability to safely and accurately plan, brief and deploy Aircraft Parachute Flares (APF) from the CH-53K, in support of air or ground forces.

General. Review operational and safety considerations discussed in the NATOPS Flight Manual, ANTTP 3-22.3-CH-53 and NTRP 3-22.4 CH-53K.

NSI required if not qualified in light level.

Crew Requirement. P/P/CC/AG/O.

Academic Training. The MAWTS-1 CH-53 Course Catalog contains the required readings, lectures and chalk talks which shall be completed IAW the Aviation-Delivered Battlefield Illumination stage event descriptions.

Prerequisites. The following events/designations are prerequisites prior to the commencement of the Aviation-Delivered Battlefield Illumination stage:

Academic: N/A
Flight: CAL-2210
Designation/Qualification: H2P

BI-4340 1.0 1095 B NS A 1 CH-53K

Goal. Conduct Aviation-Delivered Battlefield Illumination in support of night tactical operations.

Requirements
Discuss:

- APF components
- Number of APFs required to achieve a desired light level
- Forecast wind and APF drift calculations
- Release altitude considerations (vertical problem)
- Required Airspace Coordination Measures (ACM)
- Cabin configuration and aircrew position during employment
- ICS Procedures and deployment commands
- APF Time On Target (TOT)
- Threat considerations
- Emergency procedures

Introduce:

APF deployment in a tactical environment

Performance Standards. The PUI will demonstrate a familiarity with the components, characteristics, and operation of APFs and be capable of planning the employment of APFs in all light levels and threat environments. The PUI will have a thorough understanding of aircraft cabin setup and aircrew communication procedures in accordance with the ANTPP 3-22.3-CH-53, as well as a working knowledge of emergency procedures described in the NTRP 3-22.4 CH-53. Fly within 50’ of designated ALT and 5 kts of intended airspeed.

Instructor. NSI required if not qualified in light level

Prerequisites. CAL-2210

Range Requirements. Approved range for the deployment of APFs

Ordnance Requirements. LUU-2 or LUU-19 Series APFs

2.13.4 Terrain Flight External Loads (EXT)

Purpose. To develop skills necessary for operating with external loads in all ambient conditions in the terrain flight regime. To develop skills necessary for operating the independent hook system.


TERFI required for SEXT-4412, EXT-4440 initial, refresher or when not TERF qualified.

NSI required for EXT-4440, 4441 initial, refresher or when not NS qualified in light level event is conducted.

Crew Requirement. P/P/CC/AG/O.

Academic Training. The MAWTS-1 CH-53 Course Catalog contains the required readings, lectures and chalk talks which shall be completed IAW the External stage event descriptions.

Prerequisites. The following events/designations are prerequisites prior to the commencement of the Terrain Flight External stage:

- Academic: ACAD-4480
- Flight: EXT-2400.
- Designation/Qualification: H2P

**ACAD-4480 0.7 * B G**

Goal. Completion of Independent Hook academic requirements.

Requirement. Complete all Independent Hook training modules.

Performance Standard. Per current evaluation criteria for Independent Hook training.

**SEXT-4411 2.0 485 B,R,S,M (NS) S 1 CFTD**

Goal. Conduct Independent point external operations.
Requirements

Discuss:
Same as EXT-2400
Independent / triple point considerations
Pick-up and delivery techniques
Emergency procedures

Introduce:
Techniques for Independent / triple point external lift operations
Emergency procedures during external operations

Performance Standards. Demonstrate a working knowledge of MSHSL Manual WRT basic equipment rigging procedures, load inspection and airspeeds. Execute 5 pickups and deliveries (or demonstrate proficiency) as defined by the ability to fly within 50’ and 10 kts of briefed altitude and airspeed, and deliver load within 5 meters of intended point of delivery while maintaining ± 10 degrees of assigned heading. On initial event, pilot under instruction shall fly to this standard by the end of the flight event. For subsequent logging, pilot shall fly these parameters on the majority of patterns flown. Flight should be conducted while operating in conditions approaching aircraft maximum gross weight or a performance limit, within the boundaries of existing safety considerations. Demonstrate the ability to plan and compute power requirements based on weight and power and in zone power computations using actual ambient conditions.

Instructor. TERFI required for all initial and refresher flights

Prerequisites. ACAD-4480, SEXT-2402

External Syllabus Support. CFTD

SEXT-4412 1.5 365 B,R (NS) S/A 1 CFTD/CH-53K

Goal. Conduct external flight in the TERF profile in a day and night environment.

Requirement

Discuss:
Same as EXT-2401 and EXT-2410 or EXT-2411

Introduce:
TERF externals

Review:
Single and/or dual point procedures
TERF maneuvers

Performance Standards. Demonstrate a working knowledge of MSHSL Manual WRT basic equipment rigging procedures, load inspection and airspeeds. Fly within 50’ and 10 kts of briefed altitude and airspeed and deliver load within 5 meters of intended point of delivery while maintaining ± 10 degrees of assigned heading. On initial event, pilot under instruction shall fly to this standard by the end of the flight event. For subsequent logging, pilot shall fly these parameters on the majority of patterns flown. Maintain situational awareness with regards to load clearance and limited power considerations while conducting TERF maneuvers. Demonstrate the ability to plan and compute power requirements based on weight and power and in zone power computations using actual ambient conditions. Minimum of 1 pickup and delivery required.

Instructor. TERFI required for all initial and refresher flights

Prerequisites. SEXT-2402.

Range Requirements. Approved CAL/MAL site. Approved TERF maneuver area/route

External Syllabus Support. CFTD and MCAT if conducted in sim. HST, single or dual point load if conducted in the aircraft.

EXT-4440 1.5 365 B,R,M (NS) A/S 1 CH-53K

Goal. Conduct external flight in the TERF profile under day or night conditions.
Requirements

Discuss:
Same as EXT-4412, EXT-2420 or EXT-2421
Terrain/obstacle clearance
Route planning considerations
Light level planning considerations

Introduce:
TERF externals in the night environment

Review:
Single and/or dual point procedures
TERF maneuvers

Performance Standards. Same as EXT-4412

Instructor. NSI required for initial flights, refreshers or when not NS qualified in the light level event is conducted.

Prerequisite. EXT-4412. If conducted under HLL conditions: TERF-2320, EXT-2420 (if single point) and EXT-2421 (if dual point). If conducted under LLL conditions: NSQ-HLL, TERF 2330 and EXT-2430. EXT-4441 (if independent hook)

Range Requirements. CAL/MAL site. TERF maneuver area/route

External Syllabus Support. Initial events to be conducted in the aircraft. CFTD and MCAT if conducted in sim. HST, single or dual point load if conducted in the aircraft.

**EXT-4441**

| 1.5 | B.R,S | (NS) | A | 1 | CH-53K |

Goal. Conduct Independent / triple point external operations.

Requirements

Discuss:
Same as SEXT-4411.

Introduce:
Independent / triple point system preflight
Independent / triple point external operations to a confined area
Independent / triple point lift procedures
In-flight weight and power computations
In-zone weight and power computations

Performance Standards. Demonstrate a working knowledge of MSHSL Manual WRT basic equipment rigging procedures, load inspection and airspeeds. Execute 5 pickups and deliveries or demonstrate proficiency as defined by the ability to fly within 50’ and 10 kts of briefed altitude and airspeed, deliver load within 5 meters of intended point of delivery while maintaining +/- 10 degrees of assigned heading. On initial event, pilot under instruction shall fly to this standard by the end of the flight event. For subsequent logging, pilot shall fly these parameters on the majority of patterns flown. Demonstrate the ability to plan and compute power requirements based on weight and power and in zone power computations using actual ambient conditions.

Prerequisites. SEXT-4411. If conducted under HLL conditions: TERF-2320. If conducted under LLL conditions: NSQ-HLL, TERF 2330.

Range Requirements. Approved CAL/MAL site

External Syllabus Support. HST and dual point load

2.13.5 Defensive Measures (DM)

Purpose. To develop proficiency in evading enemy air threats incorporating ASE in a medium threat environment. Upon completion of this stage, the pilot will be able to effectively maneuver to evade, in a multi-plane flight, low altitude air-to-air threats.
General. Pilots shall conduct this stage against Fixed Wing (FW) and Rotary Wing (RW) threats. Aggressor aircraft shall simulate enemy aircraft capabilities to the max extent possible. PUI is DM qualified upon completion of DM-4510 and DM-4511.

Crew Requirements. P/P/CC/AG/O.

Academic Training. The MAWTS-1 CH-53 Course Catalog contains the required readings, lectures and chalk talks which shall be completed IAW the Defensive Measures stage event descriptions.

Prerequisites. The following events/designations are prerequisites prior to the commencement of the Defensive Measures stage:

Academic: NTTP 3-22.3 Appendix A. ACAD-4580-4584
Flight: TERF-2311
Designation/Qualification: TERF Qualified

ACAD-4580 1.5 * B G
Goal. Completion of CH-53 DM/GTR II academic requirements.
Requirement. Complete all CH-53 DM/GTR II training modules.

ACAD-4581 1.0 * B G
Goal. Completion of DM Game Planning academic requirements.
Requirement. Complete all DM Game Planning training modules.
Performance Standard. Per current evaluation criteria for DM Game Planning training.

ACAD-4582 1.0 * B G
Goal. Completion of Helicopter PS and EM academic requirements.
Requirement. Complete all Helicopter PS and EM training modules.
Performance Standard. Per current evaluation criteria for Helicopter PS and EM training.

ACAD-4583 0.5 * B G
Goal. Completion of Attack Helicopter Threat to Assault Support academic requirements.
Requirement. Complete all Attack Helicopter Threat to Assault Support training modules.
Performance Standard. Per current evaluation criteria for Attack Helicopter Threat to Assault Support training.

ACAD-4584 1.0 * B G
Goal. Completion of Fixed-Wing Threat to Assault Support academic requirements.
Requirement. Complete all Fixed-Wing Threat to Assault Support training modules.
Performance Standard. Per current evaluation criteria for Fixed-Wing Threat to Assault Support training.

DM-4510 1.5 365 B,R,M D A 2 CH-53K
Goal. Conduct section DM against a rotary wing aggressor.

Requirements

Discuss:
CRM
Standard terminology
Five axioms of survival
DM training rules
Ps and EM
DM game planning
Friendly weapons employment
ASE utilization
MFCO threat display
Aircraft Categories
Adversary aircraft parameters
Adversary weapons envelopes
Mutual support
Section tactical maneuvers
Pre and post merge maneuvers
1 circle vs 2 circle fight
Free and engaged roles and responsibilities
ACM against actual threats in comparison to DM training

Introduce:
Section tactical maneuvers in response to a threat helicopter
ACM

Performance Standards. Demonstrate understanding of friendly and enemy energy states. Effectively maneuver aircraft against various rotary wing threats. Utilize standard terminology in inter- and intra-aircraft communications. Demonstrate and correctly apply 5 axioms of DM. Demonstrate working knowledge of ASE. Conduct range estimation/ weapons profile demo, forward hemisphere attack (extension and turn), abeam attack, rear hemisphere attack and any aspect engagement.

Instructor. DMI required for initial flights, refreshers or when not DM qualified.

Prerequisite. ACAD-4580-4584, TERF-2311.

Ordnance. 60 flares

Range Requirements. Special use airspace. Expendable capable range. Approved TERF maneuver area

External Syllabus Support. RW aircraft to serve as aggressor

DM-4511  1.5  365  B,R,M  D  A  2  CH-53K

Goal. Conduct section DM against a fixed wing aggressor.

Requirements

Discuss:
CRM
Standard terminology
Five axioms of survival
Ps and EM
DM game planning
Friendly weapons employment
ASE utilization
MFCO threat display
Aircraft Categories
Adversary aircraft parameters
Adversary weapons envelopes
Mutual support
Section tactical maneuvers
Pre and post merge maneuvers
1 circle vs 2 circle fight
Free and engaged roles and responsibilities
ACM against actual threats in comparison to DM training

Introduce
Section tactical maneuvers in response to a fixed wing aircraft
ACM

Performance Standards. Demonstrate understanding of friendly and enemy energy states. Effectively maneuver aircraft against various fixed wing threats. Utilize standard terminology in inter- and intra-aircraft communications. Demonstrate and correctly apply 5 axioms of DM. Demonstrate working knowledge of ASE. Conduct range estimation/weapons profile demo, forward hemisphere attack (level turn, pop and extension), abeam attack, rear hemisphere attack and an any aspect engagement.

Instructor. DMI required for initial flights, refreshers or when not DM qualified

Prerequisites. ACAD-4580-4584, TERF-2311

Ordnance. 60 flares

Range Requirements. Special use airspace. Expendable capable range. Approved TERF maneuver area

External Syllabus Support. FW aircraft to serve as an aggressor

2.13.6 Chemical, Biological, Radiological and Nuclear (CBRN)

Purpose. To conduct flight operations while wearing NBC protective equipment.

General. For the safe execution of initial CBRN flights, one pilot and one air crewman shall remain unmasked.

Crew Requirement. P/P/CC if done in the aircraft.

Academic Training. The MAWTS-1 CH-53 Course Catalog contains the required readings, lectures and chalk talks which shall be completed IAW the Chemical, Biological, Radiological and Nuclear stage event descriptions.

Prerequisites. The following events/designations are prerequisites prior to the commencement of the Chemical, Biological, Radiological and Nuclear stage:

Academic: ACAD-4680
Flight: SFAM-2100 if conducted in the SIM, FAM-2103 if conducted in the aircraft
Designation/Qualification: H2P

ACAD-4680 1.5 1095 B.R.M G

Goal. Completion of CBRN academic requirements.

Requirement. Complete all CBRN training modules.

Performance Standard. Per current evaluation criteria for CBRN training.

SCBRN-4600 1.0 * B (N) S/A 1 CFTD/CH-53K

Goal. Conduct flight in a simulated CBRN environment.

Requirements

Discuss:
CRM
Comfort level
Wearing of CBRN equipment in the aircraft
Distortion of vision
Communications
Proper use of CBRN defensive equipment
NS concerns with CBRN equipment

Introduce:
Taxi, low work, pattern work
Confined area landings
Communications

Performance Standards. Adequately taxi, hover, and fly while wearing CBRN gear. Communicate effectively while
wearing CBRN gear.

Instructor. NSI required if not NS qualified in light level event is conducted

Prerequisite. SFAM-2100 for sim, FAM-2103 for day, CAL-2220 for HLL, CAL-2230 for LLL

Range Requirements. CAL/MAL site, CFTD if conducted in the sim.

2.13.7 Field Carrier Landing Practice (FCLP)

Purpose. To qualify pilots in day and NS FCLP operations.

General:

Discuss and become familiar with all aspects of shipboard operations and CRM applicable to the Field Carrier Landing Practice and Carrier Qualification stage as described in the appropriate NATOPS Flight Manual, NAVMC 3500.14, NWP-42, LHA/LHD NATOPS, and CNAFINST 3710.7.

Each initial or refresher instructional flight requires a minimum of 5 FCLPs; additional FCLPs as required to demonstrate proficiency. Refer to CH-53K NATOPS, Shipboard Procedures.

Initial Night Systems Field Carrier Landing Practice training shall be accomplished under High Light Level conditions. Requalification and proficiency training may be accomplished under any light level condition.

FCLP-4710 and FCLP-4742 shall be conducted to a suitable FCLP pad.

Crew Requirement. FCLP-4700: P/P. FCLP-4710: P/P/CC. FCLP 4742 P/P/CC/AG/O.

Academic Training. The MAWTS-1 CH-53 Course Catalog contains the required readings, lectures and chalk talks which shall be completed IAW the Field Carrier Landing Practice stage event descriptions.

Prerequisites. The following events/designations are prerequisites prior to the commencement of the Field Carrier Landing Practice stage:

- Academic: ACAD-4780
- Flight: SFAM-2100
- Designation/Qualification: H2P

ACAD-4780 1.0 * B G

Goal. Completion of Introduction to Boat Operations academic requirements.

Requirement. Complete all Introduction to Boat Operations training modules.


SFCLP-4700 1.5 * B (N) S 1 CFTD

Goal. Conduct day and NS simulated shipboard flight operations.

Requirements

- Discuss:
  - CRM
  - Terminology
  - Shipboard day and night landing patterns
  - Shipboard instrument procedures
  - Shipboard emergency procedures
  - Blade/pylon fold procedures

- Introduce:
  - The LHA and LHD day and night VFR landing patterns
  - TACAN and CCA approaches in IMC or night conditions

Performance Standards. Conduct all communications with HDC and Tower. Execute proper cockpit switchology. Remain oriented around the landing pattern relative to the BRC. Pilot shall fly pattern within 50’ and 10 kts of briefed altitude/airspeed. On initial event, pilot under instruction shall fly to this standard by the end of the flight
event. For subsequent logging, pilot shall fly these parameters on the majority of patterns flown. Conduct a minimum of 5 landings. Initial qualification shall be performed from the right seat.

**Prerequisite.** SFAM-2100 and ACAD-4780

**External Syllabus Support.** CFTD

**FCLP-4710** 1.5 365 B,R,M D A 1 CH-53K

**Goal.** Conduct day FCLP.

**Requirements**

- **Discuss:** Same as FCLP-4700
- **Introduce:** FCLPs
- **Review:** FCLP-4700

**Performance Standards.** Conduct all communications with HDC and Tower. Execute proper cockpit switchology. Remain oriented around the landing pattern relative to the BRC. Pilot shall fly pattern within 50’ and 10 kts of briefed altitude/airspeed. On initial event, pilot under instruction shall fly to this standard by the end of the flight event. For subsequent logging, pilot shall fly these parameters on the majority of patterns flown. Conduct a minimum of 5 landings. Initial qualification shall be performed from the right seat. Conduct a minimum of 2 landings for refresher qualification.

**Prerequisite.** CAL-2210 and FCLP-4700

**Range Requirements.** FCLP pad

**External Syllabus Support.** FCLP pad

**FCLP-4740** 1.5 365 B,R,S,M NS A 1 CH-53K

**Goal.** Conduct NS FCLPs.

**Requirements**

- **Discuss:**
  - Same as FCLP-4700
  - NS landing techniques
  - NS emergencies
- **Introduce:**
  - NS FCLP

**Performance Standards.** Conduct all communications with HDC and Tower. Execute proper cockpit switchology. Remain oriented around the landing pattern relative to the BRC. Pilot shall fly pattern within 50’ and 10 kts of briefed altitude/airspeed. On initial event, pilot under instruction shall fly to this standard by the end of the flight event. For subsequent logging, pilot shall fly these parameters on the majority of patterns flown. Conduct a minimum of 5 landings. Initial qualification shall be performed from the right seat. Conduct a minimum of 2 landings for refresher qualification.

**Prerequisites.** FCLP-4710. If conducted under HLL conditions: CAL-2220. If conducted under LLL conditions: CAL-2230

**Instructor.** NSI required when not NS qualified in light level event is conducted

**Range Requirements.** FCLP pad

**External Syllabus Support.** FCLP pad

2.13.8 **Carrier Qualification (CQ)**

**Purpose.** To qualify pilots for day and NS shipboard operations. The term “day carrier qualification” encompasses all shipboard day landing operations. The term “night systems carrier qualification encompasses all NVG shipboard landing operations.
General. Discuss and become familiar with all aspects of shipboard operations and CRM applicable to the Carrier Qualification stage as described in the appropriate NATOPS Flight Manual, NAVMC 3500.14, NWP-42, LHA/LHD NATOPS, and CNAFINST 3710.7. Briefing should include patterns, altitudes, airspeeds and Helicopter director signals.

5 day and 5 night FCLPs shall be accomplished within 30 days prior to shipboard qualifications. Refer to CH-53 NATOPS, Shipboard Procedures. Each initial or refresher instructional flight requires a minimum of 5 CQs; additional CQs as required to demonstrate proficiency. Initial day carrier qualification shall be made under ideal weather conditions to include a visible horizon.

At least 2 day shipboard landings must be made on the day of the night qualification. Initial Night Systems Carrier Qualification training shall be accomplished under HLL conditions. IAW the Aviation Program Manual, any requalification and proficiency training may be accomplished under any light level condition. CQ-4742 requires an NSI. Initial night carrier qualification shall be made under ideal weather conditions to include a visible horizon.

Crew Requirement. CQ-4711: P/P/CC. CQ-4742: P/P/CC/AG/O. For passenger and cargo operations, the crew requirement is P/P/CC/AG/O.

Academic Training. PUI should read and be familiar with topics contained in the CH-53 NATOPS, LHA/LHD NATOPS, and CNAFINST 3710.7 regarding shipboard operations.

Prerequisites. The following events/designations are prerequisites prior to the commencement of the Carrier Qualification stage:

Academic: ACAD-4781
Flight: 5 day FCLPs within 30 days prior to shipboard qualification. 5 night FCLPs within 30 days prior to shipboard qualification. For night qualification, at least 2 shipboard landings must be made on the day of the night qualification.
Designation/Qualification: H2P

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<thead>
<tr>
<th>ACAD-4781</th>
<th>0.8 * B</th>
<th>G</th>
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Goal. Completion of Shipboard Operations Planning academic requirements.


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<thead>
<tr>
<th>CQ-4711</th>
<th>1.5 365 B.R.S.M</th>
<th>D A 1</th>
<th>CH-53K</th>
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</table>

Goal. Introduce day CQs.

Requirements

Discuss:
Standard CH-53 LHA/LHD landing pattern
Shipboard operations brief
CRM
Comfort level
Feet wet/landing checklist
Closure rate
Wind envelopes
Aircraft lighting procedures
Deck markings
LSE signals
Voice procedures/Lost communication procedures
Shipboard landing patterns
Shipboard holding patterns
Shipboard instrument patterns
Shipboard emergencies
Air space control in the shipboard environment
Introduce: Day CQ

Performance Standards. Same as FCLP-4710.

Prerequisites. ACAD-4781, FCLP-4710.

External Syllabus Support. Helicopter capable ship.

CQ-4742 1.0 365 B,R,S,M NS A 1 CH-53K

Goal. Conduct NS CQs.

Requirements. Initial CQ-4742 shall be conducted under HLL conditions.

Discuss:
- Same as CQ-4711
- Scan techniques
- NS aircraft/deck lighting
- NS landing techniques
- NS emergencies

Introduce: NS CQs.

Performance Standards. Same as FCLP-4740.

Instructor. Initial NVG CQs shall be flown with an NSI.

Prerequisites. 2920–HLL, FCLP-4740 and CQ-4711

External Syllabus Support. NS compatible helicopter capable ship

2.13.9 Night Unaided Carrier Qualification (Unaided CQ)

Purpose. To qualify pilots for unaided shipboard operations. The term “night unaided carrier qualification” encompasses all night unaided shipboard landing operations.

General. Discuss and become familiar with all aspects of unaided shipboard operations and CRM applicable to the Carrier Qualification stage as described in the appropriate NATOPS Flight Manual, NAVMC 3500.14, NWP-42, LHA/LHD NATOPS, and CNAFINST 3710.7. Briefing should include patterns, altitudes, airspeeds and Helicopter director signals.

5 day FCLPs shall be accomplished within 30 days prior to shipboard qualifications. Refer to CH-53 NATOPS, Shipboard Procedures. Each initial or refresher instructional flight requires a minimum of 5 CQs; additional CQs as required to demonstrate proficiency.

At least 2 day shipboard landings must be made on the day of the night unaided qualification. Initial Night Unaided Carrier Qualification training shall be accomplished under High Light Level conditions. IAW the Aviation Program Manual, any requalification and proficiency training may be accomplished under any light level condition. CQ-4741 requires an NSI. Initial night unaided carrier qualification shall be made under ideal weather conditions to include a visible horizon.

Crew Requirement. CQ-4741: P/P/CC/AG/O

Academic Training. PUI should read and be familiar with topics contained in the CH-53 NATOPS, LHA/LHD NATOPS, and CNAFINST 3710.7 regarding shipboard operations.

Prerequisites. The following events/designations are prerequisites prior to the commencement of the Carrier Qualification stage:
- Academic: N/A
- Flight: 5 day FCLPs within 30 days prior to shipboard qualification. For night qualification, at least 2 day shipboard landings must be made on the day of the night qualification.
- Designation/Qualification: H2P

CQ-4741 1.0 365 B,M N* A/S 1 CH-53/CFTD

Goal. Conduct night unaided CQs.
Requirements. Initial CQ-4741 shall be conducted under HLL conditions.

Discuss:
- Standard CH-53 LHA/LHD landing pattern
- Shipboard operations brief
- TACAN and CCA approaches in IMC or night conditions
- Scan techniques for unaided shipboard operations
- Aircraft/deck lighting
- Unaided landing techniques
- Closure rate/scan techniques
- Night unaided emergencies
- Spatial disorientation

Introduce: Night unaided CQs.

Performance Standards. Same as FCLP-4740.

Instructor. NSI required

Prerequisites. CQ-4711

External Syllabus Support. NS compatible helicopter capable ship or CFTD.

2.13.10 Tactics (TAC)

Purpose. To conduct practical application exercises using skills developed throughout the syllabus. Pilots shall emphasize the integration of Marine aviation assets, threat and threat counter-tactics, and the C3 system. These exercises will include mission planning, briefing, and execution of an assault support mission in a simulated medium threat environment. The total number of aircraft, as specified, may be a dissimilar mix of aviation assets.

General. Pilots should use the ANTTP 3-22.3-CH53 and the ASTACSOI as a source document for planning. Pilots may conduct these flights in high to low threat level conditions, and/or at night if the participating pilots have completed the prerequisites.

Crew Requirements. P/P/CC/AG/O.

Academic Training. The MAWTS-1 CH-53 Course Catalog contains the required readings, lectures and chalk talks which shall be completed in accordance with the Core Plus stage event descriptions.

Prerequisites. The following events/designations are prerequisites prior to the commencement of the Core Plus Tactics stage:

Academic: ACAD-4990-4993
Flight: TAC-2911Designation/Qualification: H2P

ACAD-4990 1.0 * B G

Goal. Completion of CH-53K Airborne Command and Control academic requirements.

Requirement. Complete all CH-53K Airborne Command and Control training modules.


ACAD-4991 1.0 * B G

Goal. Completion of Air Assault Operations academic requirements.

Requirement. Complete all Air Assault Operations training modules.

Performance Standard. Per current evaluation criteria for Air Assault Operations training.

ACAD-4992 1.0 * B G

Goal. Completion of MAGTF Targeting and Fire Support Planning academic requirements.


**ACAD-4993**  1.0  *  B  G

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<thead>
<tr>
<th>Goal</th>
<th>Completion of JCAS academic requirements.</th>
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<tbody>
<tr>
<td>Requirement</td>
<td>Complete all JCAS training modules.</td>
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<tr>
<td>Performance Standard</td>
<td>Per current evaluation criteria for JCAS training.</td>
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**TAC-4940**  2.0  365  B,R,M  (NS)  A  3+  CH-53K

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<thead>
<tr>
<th>Goal</th>
<th>Conduct division tactics in a low-to-medium threat environment.</th>
</tr>
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<tbody>
<tr>
<td>Requirements</td>
<td>Discuss:</td>
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<tr>
<td></td>
<td>Same as TAC-2911, 2920, and 2930</td>
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<tr>
<td></td>
<td>Division tactics</td>
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<td></td>
<td>Objective area analysis</td>
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<td>Threat analysis and counter-tactics</td>
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<td></td>
<td>Use of escort assets emphasizing responsibilities of air mission commander, assault flight leader, and escort flight leader</td>
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<tr>
<td>Introduce:</td>
<td>Division tactics</td>
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<tr>
<td></td>
<td>Use escort assets emphasizing responsibilities of the air mission commander, assault flight leader, and escort flight leader</td>
</tr>
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Performance Standards. Plan and brief a tactical mission IAW ASTACSOP and ANTTTP 3-22.3-CH53. Remain oriented IAW ASTACSOP magellan criteria while navigating to a minimum of 6 checkpoints while using 1:250,000 and 1:50,000 scale maps. To the maximum extent possible TERF navigation should be conducted for a minimum of 50 nm. Demonstrate proficiency with CH-53K FMS. Arrive in LZ within ± 30 sec of L-Hour and within 2 rotors of pre-briefed landing point.

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<thead>
<tr>
<th>Instructor</th>
<th>NSI required when not NS qualified in the light level event is conducted.</th>
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<tbody>
<tr>
<td>Prerequisites</td>
<td>TAC-2911, ACAD-4990-4993</td>
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<tr>
<td>Ordnance</td>
<td>Two .50 cal (TG and .50 Cal rounds optional reference Chapter 2 of CH-53K T&amp;R)</td>
</tr>
<tr>
<td>Range Requirements</td>
<td>Live fire AG range (.50 cal). CAL/MAL site. Approved TERF maneuver area/route</td>
</tr>
<tr>
<td>External Syllabus Support</td>
<td>Assault support escort aircraft if available.</td>
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</tbody>
</table>

**TAC-4941**  2.0  365  B,R,M  (NS)  A  2  CH-53K

<table>
<thead>
<tr>
<th>Goal</th>
<th>Develop tactical flight proficiency in urban terrain operations.</th>
</tr>
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<tbody>
<tr>
<td>Requirements</td>
<td>Discuss:</td>
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<tr>
<td></td>
<td>Effects of ambient lighting on NS in an urban area</td>
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<td>Urban navigation</td>
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<td>Targeting and fire support coordination in an urban area</td>
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<td>Urban obstacles and evasive maneuvering considerations</td>
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<td>Threat considerations in a three dimensional environment</td>
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<td>Introduce:</td>
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<td></td>
<td>Targeting and fire support coordination in an urban area</td>
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</table>
Performance Standards. Plan and brief a tactical mission IAW ASTACSOP and ANTTP 3-22.3-CH53. Remain oriented IAW ASTACSOP Magellan criteria while navigating while using 1:250,000 and 1:50,000 scale maps. To the maximum extent possible TERF navigation should be conducted for a minimum of 50 nm. Demonstrate proficiency with CH-53K FMS. Arrive in LZ within ± 30 sec of L-Hour and within 2 rotors of pre-briefed landing point.

Instructor. NSI required when not NS qualified in light level event is conducted

Prerequisites. TAC-2911 and ACAD-4990-4993

Range Requirements. CAL/MAL site in urban environment

External Syllabus Support. Assault support escort aircraft if available

TAC-4942  4.0  365  B.R.M  (NS)  A  2  CH-53K

Goal. Conduct a long range mission in a low-to-medium threat environment utilizing HAAR, TFBDS, and/or FARP/ADGR.

Requirements

Discuss:

Same as TAC-2911 and TAC-2930
Refueling considerations
Detailed fuel planning
Escort/fire support coordination
Utilization of TBFDS, FARP/RGR considerations
Multiple tanker/receiver operations

Introduce:

Detailed fuel planning
Utilization of TBFDS, FARP/RGR considerations
Multiple tanker/receiver operations if available

Performance Standards. Plan and brief a tactical mission IAW ASTACSOP and ANTTP 3-22.3-CH53. Remain oriented IAW ASTACSOP Magellan criteria while navigating while using 1:250,000 and 1:50,000 scale maps. To the maximum extent possible TERF navigation should be conducted for a minimum of 50 nm. Demonstrate proficiency with aircraft navigation systems. Arrive in LZ/DZ within ± 30 sec of L-Hour and within 2 rotors of pre-briefed landing point. Utilize fuel from external source (TBFDS may be used).

Instructor. NSI required when not NS qualified in light level event is conducted

Prerequisite. TAC-2911 and ACAD-4990-4993

Ordnance. Two .50 cal (TG and .50 Cal rounds optional)

Range Requirements. Live fire AG(.50 cal) approved and laser safe range. CAL/MAL site. Approved TERF maneuver area/route. Special use airspace for HAAR

External Syllabus Support. Assault support escort aircraft if available. KC-130 Tanker as required. AGS as required.

2.14 MISSION PLUS PHASE

Purpose. To plan, brief, and execute Mission Plus events in a low to medium threat environment.

General. For initial, refresher, or when the aircrew under instruction are not proficient in a particular Mission Plus event, training codes shall be given by an instructor pilot that is proficient in that Mission Plus event. Mission Plus events should be given to all those aircrew (Pilots, Crew Chief, AG/O) within the aircraft that meet the prerequisite. Additionally, for larger flights, any flight lead, (SL,DL,AFL,AMC) that is proficient in that Mission Plus event can give the Mission Plus code to all aircrew within the flight that meet the prerequisite.

It is the intent that all TACEX scenarios in the Mission and Mission Plus Phase be based on a minimum of one of the Mission tasks. If aircrew under instruction do not meet the prerequisite for the Mission Plus Phase event, they will not log the Mission Plus Phase event. However, the instructor of the Core or Core Plus TACEX will log
both the Core or Core Plus event and the Mission Plus event (EX: NSI logs a LLL-2930, CAT-3140, and RIE-4980). The PUI in the LLL syllabus logs a LLL-2930. Once aircrew have been designated NSQ-LLL, all subsequent TACEXs should be coded with the appropriate Core or Core Plus and Mission or Mission Plus code. Aircrew that are not proficient in a Core or Core Plus event may update both the Core or Core Plus and the Mission or Mission Plus event on the same sortie. Prior to the commencement of this phase, aircrew under instruction shall be NSQ-LLL.

The aircrew under instruction will assist in the mission analysis, planning, briefing, execution and debriefing of each flight. Aircrew shall use the ANTTP series and NATOPS as source documents for planning, briefing, execution and debriefing.

Multiple Mission and Mission Plus training events may be logged per sortie (e.g. CAT-3140, AD-3240, AE-3440, RIE-4980,) as long as the requirement(s) is met for each event. Mission and Mission Plus training events are intended to be flown and logged in conjunction with other T&R syllabus events (e.g. for pilots: CAT-3140, AD-3240, AE-3440, RIE-4980, ADGR-4981, LLL-2930, EXT-2430, EXT-2440, EXT-2441 and LLL-2331). Initial attempts to complete Mission and Mission Plus should be made in the aircraft, subsequent attempts may be accomplished in the simulator.

The PUI will log the TAC code and the instructor will log both the TAC code and the Mission and/or Mission Plus event(s) that applies. Initial TAC codes shall be accomplished as a section, subsequent evolutions (when logged in conjunction with a Mission or Mission Plus event) may be done single ship, based on the tactical scenario. Mission Plus events shall be flown with operational ASE, .50 cals (as required for the tactical scenario) installed at a minimum (rounds and expendables optional), whenever practical.

As of the signing of this manual, the current HMH Core Plus MCTs are as follows:

MCT 1.3.4.1.1 Conduct Airborne Rapid Insertion/Extraction (RIE)
MCT 1.3.4.2.1 Provide Aviation-Delivered Ground Refueling (ADGR)
MCT 1.3.3.3.1 Aviation Operations from Expeditionary Sea-Based Sites (SEA)

Stages. The following stages are included in the Mission Plus phase.

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Crew Requirements. P/P/CC/AG/O.

Academic Training. Prior to commencement of each event within the Mission Plus Skill Phase, the required academic syllabus shall be completed in accordance with this Manual and the MAWTS-1 CH-53 Course Catalog. The Mission Plus academic/ground training shall be completed IAW the POI requirements and prerequisites. Upon completion, the PUI shall report to the PTO or designated representative(s), who will then manually update the training code in M-SHARP and log the academic/ground training event in section 3, Aircrew Ground School Training of the APR, using the format listed in Enclosure 1 of this document.

Prerequisites. The following events/designations are prerequisites prior to the commencement of the Core Plus Tactics stage:

Academic: See event description
Flight: LLL-2930
Designation/Qualification: NSQ-LLL

2.15 MISSION PLUS STAGES

2.15.1 Rapid Insertion Extraction (RIE)

RIE-4980 2.0 365 B.R,M (N) A/S 1+ CH-53K/CFTD

Goal. Demonstrate the ability to conduct tactical airborne rapid insertion/extraction operations in a low to medium threat environment. Helicopter Rope Suspension Techniques (HRST) provides Marines with the ability to conduct
insertions and extractions where landings are impractical. Airborne rapid insertion/extraction includes methods such as rappelling, fast rope, special patrol insertion and extractions, etc. (MCWP 3-2, MCTP 3-01B, MCTP 3-20E, MCRP 3-01B.1). A landing to the X, Y, or Offset may be used for the insert and/or extract if tactical considerations dictate that a landing would be most appropriate.

Requirements

Discuss:
Same as TAC-2930

Introduce:
Conduct a rapid insertion/extraction operation

Performance Standard. Plan, brief and execute a tactical airborne rapid insertion/extraction mission. If an L-Hour is utilized arrive in the LZ +/- 30 sec in the best position to support the ground combat element. Execute an approach and hover within +/- 5’ of intended altitude and/or land within 10’ of intended spot and/or fly with +/- 50’ of designated altitude and +/- 5 kts of designated airspeed.

Instructor. NSI required when not NS qualified in the light level event is conducted

Prerequisite. NSQ LLL and ACAD-4991-4993. Proficiency in HIE-4110 if helocast TTPs are employed, HIE-4140 if SPIE, fast rope or rappelling TTPs are employed, or HIE-4141 if paraops TTPs are employed

Ordnance. Two .50 cal (TG and rounds per weapon are optional)

Range Requirement. Suitable CAL/MAL site

External Syllabus Support. HRST Master and ground safety personnel, if applicable

2.15.2 Aviation Delivered Ground Refueling (ADGR)

ACAD-4994 1.0 * B G

Goal. Completion of ADGR academic requirements.

Requirement. Complete all ADGR training modules.

Performance Standard. Per current evaluation criteria for ADGR training.

ADGR-4981 2.0 365 B,R,M (N) A 1+ CH-53K

Goal. Demonstrate the ability to provide aviation-delivered ground refueling to combat aircraft or tactical vehicles in a low to medium threat environment. Aviation-delivered ground refueling is a method of providing fuel to aircraft and tactical ground vehicles (TGV) utilizing CH-53K aircraft in austere locations, where no other source of fuel is readily available. This method of refueling permits operation of fixed- and rotary-wing aircraft and TGV without the requirement to commit the significant logistical assets necessary to operate helicopter expeditionary refueling systems (HERS), or tactical airfield fuel dispensing systems (TAFDS). ADGR can also quickly resupply established forward-arming and refueling (FARP) sites and forward-operating bases (FOB). The capability of the CH-53K to operate as a tactical ground refueler enhances MAGTF operations. (ANTTP 3-22.3-KC-130)

Requirements

Discuss:
TBDFS capabilities and considerations
Fuel delivery from auxiliary fuel tanks to receiver assets
LZ Markings
Arm/De-Arm procedures and ordnance considerations
Site security
Aircraft sequencing and airspace considerations

Performance Standard. Plan and brief a tactical mission IAW ASTACSOP and ANTTP 3-22.3-CH53. Remain oriented IAW ASTACSOP Magellan criteria. Arrive in LZ within +/- 30 sec of L-Hour and within 2 rotors of prebriefed landing point and or lead aircraft. Plan, brief and execute a tactical TBDFS refueling evolution. Calculate accurate fuel requirements; ensure aircraft integration and FARP site security.
Instructor: NSI required when not NS qualified in the light level event is conducted.

Prerequisite: NSQ LLL and ACAD-4994

Ordnance: Two .50 cal (TG and 500 rounds per weapon are optional)

Range Requirement: Live fire range as required

External Syllabus Support: TBFDS system, escort, MMT and/or Command and Control aircraft are optional

2.15.3 Expeditionary Sea-Based Operations (SEA)

SEA-4982  2.0  365  B,R,M (N)  A/S  1+  CH-53K

Goal: Demonstrate the capability to operate from Sea based sites. Marine aviation units maintain the capability to operate from naval shipping (amphibious platforms, carriers, etc.) in line with platform and unit capabilities. (JP 3-0, MCWP 3-20).

Requirements

Discuss:
- Same as CQ-4742
- Deck cycle
- Combat Cargo/troop loading considerations while in shipboard environments
- Airspace considerations
- IFF procedures

Performance Standard: Plan and brief and execute a tactical mission to or from a sea based sire or FCLP pad. Ensure aircrew properly plans for and demonstrates knowledge of the particulars of operating in the shipboard environment.

Instructor: NSI required when not NS qualified in the light level event is conducted.

Prerequisite: NSQ LLL and appropriate CQ/FCLP event.

Ordnance: Two .50 cal (TG and 500 rounds per weapon are optional)

Range Requirement: Live fire range as required

External Syllabus Support: Ship or FCLP pad as required.

2.16 INSTRUCTOR TRAINING PHASE

Purpose: This phase contains instructor workup and evaluations certification syllabus events.

General: Upon the successful completion of the check flight, the instructor will be designated in writing by the squadron Commanding Officer. Copies of the designation or qualification shall be placed in the APR and NATOPS.

Stages: The following stages are included in the Instructor Training phase.

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2.17  **INSTRUCTOR TRAINING STAGES**

2.17.1  **Academic/Ground Training**

**Purpose.** Within this phase the required academic syllabus shall be completed in accordance with this Manual and the MAWTS-1 CH-53 Course Catalog. The Instructor Training Phase academic/ground training shall be complete IAW the POI requirements and prerequisites for the stage. Upon completion, the PUI shall report to the PTO or designated representative(s), who will then manually update the training code in MSHARP and log the academic/ground training event in section 3, Aircrew Ground School Training of the APR, using the format listed in Enclosure 1 of this document.

NIPR 2000-6000 classes will be located at the MAWTS-1 NIPR website under ASD, CH-53K, T&R: [https://mceits.usmc.mil/sites/mawts1/SitePages/CH-53.aspx](https://mceits.usmc.mil/sites/mawts1/SitePages/CH-53.aspx)

SIPR 2000-6000 classes will be located at the MAWTS-1 SIPR website under ASD, CH-53K, T&R: [https://intelshare.intelink.sgov.gov/sites/mawts1.aspx](https://intelshare.intelink.sgov.gov/sites/mawts1.aspx)

**Prerequisites.** The following events/designations are prerequisites prior to the commencement of the Instructor Training Phase.

- Academic: See event
- Flight: Core and Mission Skill complete
- Designation/Qualification: NSQ LLL

2.17.2  **Basic Instructor Pilot (BIP)**

**Purpose.** To develop qualified instructor pilots for single ship or wingman events in the day familiarization, instrument, CAL, or external syllabus.

**General.** In order to begin the BIP syllabus, a pilot must be recommended by the Standardization Board (in conjunction with a recommendation for HAC), have a minimum of 450 hours, be core and mission skill complete, and demonstrate the maturity, judgment, and discipline required of a pilot serving in an instructor role.

The BIP syllabus can be completed in conjunction with the HAC syllabus. All BIP instructional flights shall be conducted by a section leader or higher. BIP events may be combined with each other or another training event. Upon successful completion of SBIP 5101 and HAC-6122, the Squadron commanding officer will designate the PUI a BIP. A designation letter signed by the Squadron commanding officer stating that the pilot is a qualified BIP shall be placed in the pilot’s NATOPS jacket and a copy in the pilot’s APR with a corresponding logbook entry.

Previously designated BIPs may attain re-designation by the Squadron commanding officer, at his/her discretion, upon successful completion of HAC-6122/NATOPS-6100 (NATOPS check specifying they are aircraft commanders and BIPs). NATOPS-6100 should emphasize instructional techniques for all HACs and above.

If a designated BIP loses proficiency in any of the prerequisite events listed in paragraph (e), he/she may not instruct in that event until he/she regains proficiency.

**Crew Requirements**

- SBIP-5100 P/P
- SBIP-5101 P/P
- BIP-5110 P/P/CC/AG/O

**Academic Training.** The MAWTS-1 CH-53 Course Catalog contains the required readings, lectures and chalk talks which shall be completed prior to starting the Basic Instructor Pilot stage.

**Prerequisites.** The following events/designations are prerequisites prior to the commencement of the Basic Instructor Pilot stage:

- Academic: 5180
- Flight: Core and Mission Skill complete
- Designation/Qualification: NSQ-LLL

<table>
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<th>SBIP-5100</th>
<th>1.5</th>
<th>*</th>
<th>B</th>
<th>D</th>
<th>S/A</th>
<th>1+</th>
<th>CFTD/CH-53K</th>
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</table>
Goal. Introduce general instructional techniques for FAM, CAL, and INST events.

Requirements

Discuss:
- Instructor role during initial syllabus events.
- Syllabus event performance standards.
- Role of instructor when a student does not meet the performance standard.
- Instructor EATF writing responsibilities.
- Proper EATF writing.
- Instructor SA vs student SA.
- Instructor comfort level and when to intervene during student performed maneuvers.
- CRM during T&R syllabus events.
- Effective instruction vs non effective instruction.
- Preflight and post-flight pilot briefings.
- Cockpit procedures during initial syllabus events.
- Breaking down the mechanics of an approach as an instructor.
- Simulated emergency procedures during initial syllabus events.
- Actual emergency procedures during initial syllabus events.
- IFR planning.
- Local course rules.
- Squadron, Group, Wing, and/or MEU SOPs.
- Techniques of instruction.

Introduce:
- Techniques of instruction during FAM, CAL and INST maneuvers.
- Breaking down the mechanics of an approach as an instructor.
- Instrument procedures with emphasis on instruction.
- Attitude instrument flight.
- Recovery from unusual attitudes as an instructor.
- Techniques of instruction during Precision and non-precision approaches.
- Techniques of instruction for use of OEI and max gross weight training mode.

Performance Standards. BIP(UI) will conform to instructional techniques set forth by the squadron Standardization Board and/or applicable SOPs/directives. BIP(UI) will be prepared to discuss the seven critical skills of CRM as applicable to each event. BIP(UI) shall fly pattern within 50’ and 10 kts of briefed altitude/airspeed. Land within 2 rotors of designated landing point. BIP(UI) shall conduct one of each familiarization maneuver with emphasis on instructional techniques. Conduct a minimum of 5 landings which shall consist of a precision approach, a normal approach, a hover and a no hover landing, and a max gross weight takeoff and landing. Simulated high GW takeoffs and landings power shall be limited to 5 percent above 1’ hover power. Maintain safe obstacle clearance. All of the above should be done while emphasizing instructional techniques during the conduct of each maneuver.

Prerequisites. NSQ-LLL, Core/Mission Skill complete, ACAD-5180

External Syllabus Support. CFTD if conducted in the sim.

Goal. Introduce general instructional techniques for EXT and CQ events.

Requirements

Discuss:
- CRM during initial EXT and CQ events.
- Comfort level during externals.
- Instructor ATF writing responsibilities.
- Proper ATF writing.
- Instructor SA vs student SA.
- Single and dual point operations with emphasis on instructional techniques.
- Preflight load computations and in-zone power computations.
- Simulated emergency procedures during EXT and CQ events.
Instructor comfort level and when to intervene during student performed maneuvers.
Actual emergency procedures during EXT and CQ events
Aircraft EXT and CQ limitations.
Feet wet/landing checklist.
Closure rate with the ship.
Wind envelopes.
Aircraft lighting procedures.
Deck markings.
LSE signals.
Voice procedures/Lost communication procedures.
Shipboard landing patterns.
Shipboard holding patterns.
Shipboard instrument patterns.
Shipboard emergencies.
Airspace control in the shipboard environment.
Techniques of instruction WRT to movement around the ship.

Introduce:
External operations with emphasis on instructional techniques.
Breaking down the mechanics of a precision hover, pick-up and delivery of an external load.
Day CQ with emphasis on instructional techniques.
Apply instructional technique using the Mission Load page and Hover override page

Review:
Any previously introduced maneuvers as necessary.

Performance Standards. BIP(UI) will conform to instructional techniques set forth by the squadron Standardization Board and/or applicable SOPs/directives. BIP(UI) will be prepared to discuss the seven critical skills of CRM as applicable to each event. For external operations, BIP(UI) shall execute five pickups and deliveries or demonstrate proficiency as defined by the ability to fly within 50’ and 10 kts of briefed altitude and airspeed, and deliver load within 5 meters of intended point of delivery and +/- 10 degrees of assigned heading while emphasizing instructional techniques. For shipboard operations, BIP(UI) shall conduct all communications with HDC and Tower. Execute proper cockpit switchology. Remain oriented around the landing pattern relative to the BRC. Fly pattern within 50’ and 10 kts of briefed altitude/airspeed. Conduct a minimum of 5 landings.

Prerequisites. SBIP-5100

External Syllabus Support. CFTD if conducted in the sim

BIP-5110 1.5 * B (N) A 1+ CH-53K

Goal. Introduce techniques of instruction for day FAM, CAL and INST events. The focus should be on instructional techniques and performance deviation recognition and analysis.

Requirements

Discuss:
Same as 5100
Local course rules

Introduce:
Same as SBIP-5100

Review:
Same as SBIP-5100

Performance Standards. Same as SBIP5100

Prerequisites. SBIP-5101
2.17.3 Terrain Flight Instructor (TERFI)

**Purpose.** To develop qualified instructor pilots for day terrain flight. The MAWTS-1 Course Catalog contains the POIs and the appropriate training codes for TERFI. The community considers the TERF stage of the T&R syllabus sufficient to maintain proficiency as an instructor.

**TERF-5200-5202:** Refer to MAWTS-1 CH-53 Course Catalog.

2.17.4 Aerial Refueling Instructor (ARI)

**Purpose.** To develop qualified instructor pilots for HAAR events using a standardized flight training program. The MAWTS-1 Course Catalog contains the POIs and the appropriate training codes for ARI. The community considers the HAAR stage of the T&R syllabus sufficient to maintain proficiency as an instructor.

2.17.5 Tactical Simulator Instructor (TSI)

**Purpose.** To qualify the IUT as a TSI capable of providing tactical simulation training in the CH-53K CFTD.

**General.** IUT shall be in the BIP syllabus prior to beginning TSI training and shall be designated a HAC prior to designation as a TSI.

The TSI is qualified to instruct all phases of flight simulation except those requiring NI, ANI, NII, AIR, NSI, DMI or WTI designations. The TSI shall demonstrate sound knowledge of all aircraft weapon systems, threat systems and current tactics, techniques and procedures.

The IUT will assist in developing, controlling and instructing tactical simulator events designed to meet the performance requirements of the Core Skills Phase, Mission Skills Phase and Core Plus/Mission Plus Skills Phase simulator events.

**Crew Requirements.** As listed at the end of each event.

**Prerequisites.** IUT must be in the BIP syllabus prior to beginning TSI stage.

### STSI-5410

**Goal.** Simulator control position; Introduce simulator control functions and capabilities.

**Requirements**

**Discuss:**
- Leaving Objectives
- Performance standards
- M-SHARP simulator logging
- Basic simulator functions (motion, communication, etc.)
- Simulator MAF submission
- Instructor role during initial syllabus events

**Demonstrate/Introduce:**
- Environment/weather conditions
- ASE configuration
- Systems malfunctions
- Threat systems incorporation and capabilities
- Friendly system incorporation and capabilities
- Instrument/approach functions
- Shipboard configuration and functions
- Effective vs non-effective instruction
- Simulated emergency procedures

**Performance Standards.** IUT shall demonstrate the ability to operate the simulator basic flight, shipboard configurations and adjust environmental conditions and threat conditions.
Prerequisites. ACAD-5180 and SBIP-5100

Crew. CSI or TSI/IUT

**STSI-5411** 1.0 * BS (NS) S 1 CFTD

**Goal.** Simulator control position; Review simulator control functions, capabilities and scenario development.

**Requirements**

**Discuss:**
- Advanced simulation scenario development (METT-TC)
- Instructor techniques
- Simulator set-up
- Instructor briefing and debriefing techniques

**Demonstrate/Introduce:**
- TEN+ employment

**Review:**
- Environment/weather conditions
- ASE configurations
- Systems malfunctions
- Threat systems incorporation and capabilities
- Friendly system incorporation and capabilities
- Instrument/approach functions
- Shipboard configuration and functions
- Effective vs non-effective instruction
- Simulated emergency procedures

**Performance Standards.** IUT shall develop, brief and execute a low to medium threat tactical scenario from the control position. The IP will act as the PUI and will fly in support of the IUT’s training. IUT shall select and control friendly systems and enemy threat systems.

**Prerequisites.** STSI-5410

Crew. TSI/IUT. MATSS TSI preferred.

2.17.6 **FRS Instructor Training (FRSI-E)**

**Purpose.** To develop qualified instructor pilots for events using a standardized flight training program.

**General.** Fly IUT flights with a designated FRS Instructor Pilot. Pilots undergoing instructor training should fly in the right seat. All IUTs should complete every event of the IUT training syllabus.

**Training Objectives.** All IUT flights emphasize instructional techniques, briefing, and debriefing. The IUT will be capable of demonstrating all training objectives listed for the referenced syllabus flight. Emphasis on all flights is on training objectives, method of instruction, and student problem areas. At the completion of this stage of training, the Pilot will be designated an Instructor Pilot (IP) and is qualified to instruct all day and night unaided Core Skill Introduction events.

**Prerequisites.** The following events/designations are prerequisites prior to the commencement of the FRS instructor stage:

- Designation/Qualification: Section Leader, TERFI.

The following requirements are prerequisites for designation as an FRSI:

- Academic: FRSI ground phase
- Flight: Jump seat review
- Designation/Qualification: Section Lead, TERFI.

**FRSI-E-5500** 1.5 * B D A 1 CH-53K

**Goal.** Introduce the IP brief and demonstrate standardized procedures for flight planning, preflight, and all day
FAM stage maneuvers.

Requirements

Discuss:
- CRM
- Preflight and postflight pilot briefings
- Cockpit procedures
- Techniques of instruction
- Local course rules

Performance Standards. Per CH-53K NATOPS and Maneuver Description Guide. Instructors shall emphasize the ability to teach using all appropriate references and SOPs, evaluate problems, and apply corrective instruction.

Prerequisite. TERF-5202 and SL-6203

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<th>CFTD</th>
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Goal. Conduct initial simulator training of Replacement Aircrew (RAC) in familiarization, formation, terrain flight and/or external stage events under supervision of a designated FRSI, integrating concepts of CRM.

Requirements: FRSI-UT will, under instruction of a designated FRSI (CRMI as appropriate), plan/brief and conduct a 1000-level simulator event with a RAC in order to establish baseline expectations of general RAC capabilities and tendencies as well as develop introductory-level instructional techniques. FRSI-UT should also conduct CRM Flight evaluation in performing required mission tasks under supervision of the CRMI.

Discuss:
- CRM
- Instructional techniques
- Instructor and RAC comfort levels
- RAC common tendencies
- Applicable discussion items for RAC’s T&R event

Demonstrate:
- Instructional Techniques during the application of specific in-flight skills and maneuvers
- CRM integration, demonstrating critical skills as applied to specific missions set(s)

Instructor Requirements: FRSI, CRMI as applicable

Performance Standards. Per CH-53K NATOPS and Maneuver Description Guide.

Prerequisite. FRSI-5500

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<th>S/A</th>
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Goal. Review basic instrument maneuvers, IFR planning, filing, and airway procedures.

Requirements

Discuss:
- CRM
- IFR planning
- Filing a DD-175
- Airway procedures
- Precision/non-precision approaches

Review:
- Instrument checklist.
- Attitude instrument flight.
- Standard rate climbing and descending turns.
- Recovery from unusual attitudes.
- Vertical S-1 pattern.
- Oscar pattern.
- Precision and non-precision approaches.
Performance Standards. Per CH-53K NATOPS and Maneuver Description Guide.

Prerequisite. TERF-5202 and SL-6203

External Syllabus Support. CFTD if conducted in the sim

**FRSI-E-5503** 1.5 * B D A 1 CH-53K

Goal. Review CAL instruction techniques.

Requirements

Discuss:

- CRM
- Comfort level

Review:

- All CAL stage maneuvers

Performance Standards. Per CH-53K NATOPS and Maneuver Description Guide.

Range Requirements. CAL/MAL site.

Prerequisites. FRSI-5500

**FRSI-E-5504** 1.5 * B D A 2 CH-53K

Goal. Review formation instructional techniques and formation stage maneuvers emphasizing closure rates and radius of turn.

Requirements

Discuss:

- Loss of visual contact
- Parade position
- Cruise turn principles
- Section CALs principles

Performance Standards. Per CH-53K NATOPS and Maneuver Description Guide

Prerequisites. FRSI-5500

**FRSI-E-5505** 1.5 * B D A 1 CH-53K

Goal. Review external operation instructional techniques.

Requirements

Discuss:

- CRM
- Single, dual and independent hook operations
- Load computations, preflight and in-flight
- Emergency procedures
- Aircraft limitations

Review:

- Single, dual and independent hook operations.

Performance Standards. Per CH-53K NATOPS and Maneuver Description Guide. Execute 2 pickups in PFCS, 2 pickups in AFCS, and 1 pickup using PHLD or demonstrate proficiency as defined by the ability to fly within 50' and 10 kts of briefed altitude and airspeed, and deliver load within 5 meters of intended point of delivery while maintaining +/- 10 degrees of assigned heading without using PHLD or flight director augmentation.

Range Requirements. Approved CAL/MAL site

External Syllabus Support. HST, single point loads
**Prerequisites**. FRSI-5500

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**Goal.** Flight instructor standardization check.

**Requirements**

**Discuss:**
- CRM
- CH-53K limitations
- Course Rules
- Maneuver Description Guide
- Instruction techniques

**Demonstrate:**
- Ability to execute and instruct Maneuver Description Guide items

**Performance Standards.** Per CH-53K NATOPS and Maneuver Description Guide

**Prerequisites.** FRSI-5500 through FRSI-5505

2.17.7 **Core Skill Introductory Instructor Training (CSII)**

**Purpose.** To develop qualified instructor pilots for events using a standardized flight training program.

**General.** Conduct an IUT check-ride in the aircraft or simulator. IUTs must be proposed based on flight leadership experience, qualifications, and designations in the same manner as a FLSE is selected.

**Training Objectives.** IUT flight emphasizes instructional techniques, briefing, and debriefing. The IUT will be capable of demonstrating all training objectives listed for the referenced syllabus flight. Emphasis is on training objectives, method of instruction, and student problem areas. At the completion of this stage of training, the Pilot will be designated an Instructor Pilot (IP) and is qualified to instruct all day and night Core Skill Introduction refresher and series conversion events.

**Prerequisites.** The following events/designations are prerequisites prior to the commencement of the CSII instructor stage:

- Academic: N/A
- Flight: N/A
- Designation/Qualification: Section Lead, Night Systems Instructor.

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**Goal.** Flight instructor standardization check.

**Requirements**

**Discuss:**
- CRM
- CH-53K limitations
- Course Rules
- Maneuver Description Guide
- Instruction techniques

**Demonstrate:**
- Ability to execute and instruct Maneuver Description Guide items

**Performance Standards.** Per CH-53K NATOPS and Maneuver Description Guide

**Prerequisites.** Section Lead, NSI

2.17.8 **Advanced Instructor Designations**

**General.** There are 4 graduate level courses that qualify instructors for specific portions of the T&R syllabus. These courses are as follows:
The MAWTS-1 Course Catalog contains the POIs and the appropriate training codes, in addition to the POIs and training codes for TERFI and ARI. Additionally, the WTI course catalog contains the POI for a WTI. The community considers each particular stage of the T&R syllabus sufficient to maintain proficiency as an instructor.

NSFI-5600-5603: Refer to MAWTS-1 CH-53 Course Catalog.
DMI-5700-5702: Refer to MAWTS-1 CH-53 Course Catalog.
NSI-5800-5805: Refer to MAWTS-1 CH-53 Course Catalog.
WTI: Refer to MAWTS-1 WTI Course Catalog.

2.17.9 Flight Leadership Standardization Evaluator (FLSE)

**Purpose.** To designate qualified pilots as Flight Leadership Standardization Evaluators (FLSE) in accordance with the T&R Program Manual. The MAWTS-1 FLSE Program Guide and individual T/M/S Course Catalogs contain the POI and the appropriate training codes in the FLSE syllabus.

2.17.10 Contract Instructor Training Stage (CIUT)

**Purpose.** To develop qualified contract instructor (CI) pilots for core skill introduction (1000 phase) day events using a standardized flight training program.

**General.** The below requirements shall not supersede any current contracts or legal agreements. However, this document shall be adhered to for the development and establishment of new contracts as of the signing of this manual. CIs shall have at least 1000 hours total pilot time and, at a minimum, hold prior designation of aircraft commander in an H-53. 1000-level S, S/A, or A/S flights may be flown under the instruction of a designated CI. 5000-level CIUT flights shall be flown in the simulator under the instruction of a designated Standardization Pilot. CIUTs should fly in the right seat. Every event in the CIUT training syllabus shall be completed prior to designation as a CI. While it is preferred that all CIs be qualified CRMIs, at a minimum all CIUTs shall be designated CRM(F) prior to designation as a CI. All CIUTs shall complete an Instrument Evaluation, to include all prerequisites in accordance with CNAF 3710.7 and the NATOPS Instrument POI, prior to designation as a CI.

All CIUT flights shall emphasize instructional techniques, briefing and debriefing, training objectives, methods of instruction, current TTPs and common student errors. The CIUT will be capable of demonstrating all training objectives listed in the T&R for the applicable syllabus flight. At the completion of this stage of training, the CIUT will be designated a Contract Instructor Pilot (CI) by the MATSS OIC and is qualified to instruct day Core Skill Introduction (1000) level simulator events only. All initial 2000-6000 level simulated events require a uniformed IP.

**Annual requirements:**

CRM ground class.
Instrument minimums and requirements (all requirements able to be met in simulator) in accordance with CNAF 3710.7 and the NATOPS Instrument POI, to include an instrument evaluation given by a uniformed NATOPS Instrument Evaluator or Instructor.
Open and closed book NATOPS tests.
Annual NATOPS evaluation given by a uniformed NATOPS Evaluator or Assistant NATOPS Instructor in accordance with the NATOPS POI.

**Crew Requirement.** IP/CIUT.

**Academic/Ground Training.** CBT 0001-0028, ACAD 0100-0134.

**CIUT-5900 1.0 * CIUT D S 1 CFTD**

**Goal.** Same as FAM 1108

**Requirement.**
Same as FAM 1108s

**Performance Standards.** Per CH-53K NATOPS and Maneuver Description Guide.

**Prerequisites.** CBT and ACAD complete

**External Syllabus Support.** CFTD

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Performance Standards. Per CH-53K NATOPS and Maneuver Description Guide

Prerequisites. CIUT-5904

External Syllabus Support. CFTD

### CIUT-5906 1.0 * CIUT D S 1 CFTD

Goal. Same as FAM 1109

Requirement.

Same as FAM 1109

Performance Standards. Per CH-53K NATOPS and Maneuver Description Guide

Prerequisites. CIUT-5905

External Syllabus Support. CFTD

### CIUT-5907 1.5 * CIUT D S 1 CFTD

Goal. Same as FAM 1111

Requirement.

Same as FAM 1111

Performance Standards. Per CH-53K NATOPS and Maneuver Description Guide.

Prerequisites. CIUT-5906

External Syllabus Support. CFTD

### CIUT-5908 1.5 * CIUT D S 1 CFTD

Goal. Same as FAM 1112

Requirement.

Same as FAM 1112

Performance Standards. Per CH-53K NATOPS and Maneuver Description Guide

Prerequisites. CIUT-5907

External Syllabus Support. CFTD

### CIUT-5909 2.0 * CIUT D S 1 CFTD

Goal. Same as FAM 1116

Requirement.

Same as FAM 1116

Performance Standards. Per CH-53K NATOPS and Maneuver Description Guide

Prerequisites. CIUT-5908

External Syllabus Support. CFTD

### CIUT-5910 1.5 * CIUT D S 1 CFTD

Goal. Same as FAM 1202

Requirement.
Same as FAM 1202

Performance Standards. IAW CH-53K NATOPS and Maneuver Description Guide
Prerequisites. CIUT-5909
External Syllabus Support. CFTD

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Goal. Same as SINST 1300

Requirement.

Same as SINST 1300

Performance Standards. Per CH-53K NATOPS and Maneuver Description Guide
Prerequisites. CIUT-5910
External Syllabus Support. CFTD

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Goal. Same as SINST 1302

Requirement.

Same as SINST 1302

Performance Standards. IAW CH-53K NATOPS, Instrument NATOPS, FLIP publications and Maneuver Description Guide.
Prerequisites. CIUT-5911
External Syllabus Support. CFTD

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Goal. Same as INST 1306

Requirement.

Same as INST 1306

Performance Standards. Per CH-53K NATOPS, Instrument NATOPS, FLIP publications and Maneuver Description Guide
Prerequisites. CIUT-5912
External Syllabus Support. CFTD

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Goal. Same as SNAV 1401

Requirement.

Same as SNAV 1401

Performance Standards. Per CH-53K NATOPS, Instrument NATOPS, FLIP publications and Maneuver Description Guide
Prerequisites. CIUT-5913
External Syllabus Support. CFTD

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Goal. Same as FORM 1501
Requirement.
Same as FORM 1501

Prerequisites. CIUT-5914

External Syllabus Support. CFTD

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Goal. Same as CAL 1603
Requirement.
Same as CAL 1603

Prerequisites. CIUT-5916

External Syllabus Support. CFTD

Prerequisites. CIUTD-5918

Goal. Same as CAL 1604
Requirement.
Same as CAL 1604

Prerequisites. CIUT-5917

External Syllabus Support. CFTD

Prerequisites. CIUTD-5918

Goal. Same as CAL 1608
Requirement.
Same as CAL 1608
Performance Standards. Per CH-53K NATOPS and FRS Maneuver Description Guide

Prerequisites. CIUTD-5918
**External Syllabus Support. CFTD**

**CIUT-5920  1.5  *  CIUT  D  S  1 CFTD**

**Goal.** Same as EXT 1702

**Requirement.**

Same as EXT 1702

**Performance Standards.** Per CH-53K NATOPS and FRS Maneuver Description Guide

**Prerequisites.** CIUTD-5919

**External Syllabus Support. CFTD**

**CIUT-5921  1.0  *  CIUT  N  S  1 CFTD**

**Goal.** Same as EXT 1704

**Requirement.**

Same as EXT 1704

**Performance Standards.** Per CH-53K NATOPS and Maneuver Description Guide

**Prerequisites.** CIUT-5920

**External Syllabus Support. CFTD**

**CIUT-5922  1.0  *  CIUT  D  S  1 CFTD**

**Goal.** Same as TERF 1801

**Requirement.**

Same as TERF 1801

**Performance Standards.** Per CH-53K NATOPS and Maneuver Description Guide

**Prerequisite.** CIUT-5921

**External Syllabus Support. CFTD**

**CIUT-5923  1.0  *  CIUT  D  S  1 CFTD**

**Goal.** Review Core Skill Introduction training.

**Requirement.**

**Practice:**

- All FAM stage maneuvers
- Instrument stage maneuvers
- Confined area landings
- External cargo procedures
- If possible, formation flight

**Performance Standards.** Per CH-53K NATOPS and FRS Maneuver Description Guide. CIUT is responsible for all emergency procedures in the NATOPS Manual.

**Prerequisite.** CIUT-5922

**External Syllabus Support. CFTD**

**CIUT-5925  1.0  *  CIUT  D  S  1 CFTD**

**Goal.** Evaluate systems knowledge of the CH-53K and the capability to perform maneuvers in the Core Skill Introduction phase, including high AOB maneuvers.
Requirement.

Practice:
Evaluate systems knowledge of the CH-53K to include external lift systems
Brief and demonstrate proficiency of all aircraft emergency procedures per the CH-53K NATOPS Flight Manual
Demonstrate proficiency and the capability to perform in the Core Skill Introduction to include takeoffs, approaches, instrument procedures, emergency procedures, CALs, high AOB maneuvers, and landings

Performance Standards. Per CH-53K NATOPS and Maneuver Description Guide
Prerequisite. Open and Closed book NATOPS exams; CIUT-5923

External Syllabus Support. CFTD

| CIUT-5931 | 1.0 * | CIUT | D | S | 1 CFTD |
Goal. Introduce the IP brief and demonstrate standardized procedures for flight planning, preflight, and all day FAM stage maneuvers.

Requirement.

Discuss:
CRM
Preflight and postflight pilot briefings
Cockpit procedures
Techniques of instruction
Local course rules

Performance Standards. Per CH-53K NATOPS and FRS Maneuver Description Guide. Instructors shall emphasize the ability to teach using all appropriate references and SOPs, evaluate problems, and apply corrective instruction.

Prerequisites. CIUT-5925

External Syllabus Support. CFTD

| CIUT-5932 | 1.0 * | CIUT | D | S | 1 CFTD |
Goal. Review all familiarization stage maneuvers at night.

Requirement.

Discuss:
CRM
The night unaided environment

Performance Standards. Per CH-53K NATOPS and FRS Maneuver Description Guide. IUT will perform all night familiarization stage maneuvers with emphasis on the IUT's instructional technique. Instructors shall emphasize the ability to teach, evaluate problems, and apply corrective instruction of FAM maneuvers in the unaided night environment.

Prerequisites. CIUT-5931

External Syllabus Support. CFTD

| CIUT-5933 | 1.0 * | CIUT | D | S | 1 CFTD |
Goal. Review basic instrument maneuvers, IFR planning, filing, and airway procedures.

Requirement.

Discuss:
CRM
IFR planning
Filing a DD-175
Airway procedures
Precision/non-precision approaches

Review:
Instrument checklist
Attitude instrument flight
Standard rate climbing and descending turns
Recovery from unusual attitudes
Vertical S-1 pattern
Oscar pattern
Precision and non-precision approaches

Performance Standards. Per CH-53K NATOPS and FRS Maneuver Description Guide

Prerequisites. CIUT-5932

External Syllabus Support. CFTD

CIUT-5934 1.0 * CIUT D S 1 CFTD

Goal. Review CAL instruction techniques.

Requirement.
Discuss:
CRM
Comfort level

Review:
All CAL stage maneuvers

Performance Standards. Per CH-53K NATOPS and FRS Maneuver Description Guide

Prerequisites. CIUT-5933

External Syllabus Support. CFTD

CIUT-5935 1.0 * CIUT D S 1 CFTD

Goal. Review formation instructional techniques and formation stage maneuvers emphasizing closure rates and radius of turn.

Requirement.
Discuss:
Loss of visual contact
Parade position
Cruise turn principles
Section CALs principles

Performance Standards. Per CH-53K NATOPS and FRS Maneuver Description Guide

Prerequisites. CIUT-5934

External Syllabus Support. CFTD

CIUT-5936 1.0 * CIUT D S 1 CFTD

Goal. Review external operation instructional techniques.

Requirement.
Discuss:
CRM
Single and dual point operations
Load computations, preflight and in-flight
Emergency procedures
Aircraft limitations

**Review:**
Single and dual point operations

**Performance Standards.** Per CH-53K NATOPS and FRS Maneuver Description Guide. Execute five pickups and deliveries or demonstrate proficiency as defined by the ability to fly within 50’ and 10 kts of briefed altitude and airspeed, and deliver load within 5 meters of intended point of delivery and +/- 10 degrees of assigned heading.

**Prerequisites.** CIUT-5935

**External Syllabus Support.** CFTD with external aircrew trainer

**CIUT-5937 1.0 * CIUT D S 1 CFTD**

**Goal.** Flight instructor standardization check.

**Requirement.**

Discuss:
- CRM
- CH-53K limitations
- Course Rules
- FRS Maneuver Description Guide
- Instruction techniques

**Performance Standards.** Per CH-53K NATOPS and FRS Maneuver Description Guide

**Prerequisites.** Open and Closed Book NATOPS; CIUT-5936

**External Syllabus Support.** CFTD

2.18 **REQUIREMENTS, CERTIFICATIONS, QUALIFICATIONS, AND DESIGNATIONS (RCQD) PHASE**

**Purpose.** This phase contains standardized combat/leadership workup and evaluation events.

**General.** Squadrons should use this phase of training for check flights and designations. The PUI will demonstrate sound levels of aircraft/flight leadership and judgment required in a combat environment.

Squadrons shall evaluate pilots for required flight leadership designations at the discretion of the squadron commanding officer per the criteria in the CH53 NATOPS Flight Manual, CNAF 3710, and local SOPs.

Upon the successful completion of the check flight, the new Helicopter Aircraft Commander, Section/Division/Flight Leader, or Air Mission Commander will be designated in writing by the squadron commanding officer. Copies of the designation shall be placed in the APR and NATOPS.

Flight leadership codes do not chain other syllabus events. Log appropriate T&R syllabus events in addition to flight leadership codes. Range, ordnance, and external support will be IAW the appropriate T&R syllabus events.

Flight leadership re-designation criteria for pilots that did not require Core Skill Introduction Refresher training is at the discretion of the Squadron Commanding Officer, upon regaining core and mission skill proficiency and a NATOPS-6100. Pilots that required Core Skill Introduction Refresher shall complete those flight leadership events designated as R POI events and be re-designated at the discretion of the Squadron commander. Refresher pilots that were previous Flight Leaders (FL) and Air Mission Commanders (AMC) may be re-designated with their highest previous flight leadership designation, following successful completion of the R coded HAC, Section lead and Division lead events.

Upon completion of the HAC syllabus, model conversions may be re-designated with their highest previous flight leadership designation at the discretion of the Squadron Commanding Officer, assuming they have not been out of the cockpit for more than 485 days prior to converting. If the model conversion has been out of the cockpit 485 days or greater, they must complete the R coded flight leadership events for their previous flight leadership
designations up to Division lead, to include HAC and Section lead. Upon completion of the R coded Division lead event, re-designation as FL and AMC can occur at the discretion of the Commanding Officer. Flight Leadership proficiency shall be tracked in MSHARP, when completing the NAVFLIR.

### Stages

The following stages are included in the RQD phase.

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#### Academic/Ground Training

**Purpose.** Within the Flight Leadership Training Phase the required academic syllabus shall be completed in accordance with this Manual and the MAWTS-1 CH-53 Course Catalog.

The Flight Leadership Training Phase academic/ground training shall be complete IAW the POI requirements and prerequisites for the stage. Upon completion, the PUI shall report to the PTO or designated representative(s), who will then manually update the training code in M-SHARP and log the academic/ground training event in section 3, Aircrew Ground School Training of the APR, using the format listed in Enclosure 1 of this document.

| NIPR 2000-6000 classes will be located at the MAWTS-1 NIPR website under ASD, CH-53K, T&R: | https://mceits.usmc.mil/sites/mawts1/SitePages/CH-53.aspx |
| SIPR 2000-6000 classes will be located at the MAWTS-1 SIPR website under ASD, CH-53K, T&R: | https://intelshare.intelink.sgov.gov/sites/mawts1.aspx |

**Prerequisites.** The following events/designations are prerequisites prior to the commencement of the Requirements, Certifications, Qualifications, Designations, (RQD) Phase.

- **Academic:** See event
- **Flight:** See Event
- **Designation/Qualification:** See Event

2.19  **REQUIREMENTS, CERTIFICATIONS, QUALIFICATIONS, DESIGNATIONS STAGES**

2.19.1  **CH-53K NATOPS POI**

**Purpose.** To evaluate the airman’s knowledge of aircraft systems, performance limitations, emergency procedures, flight and ground operations IAW CNAF 3710.7 and CH-53K NATOPS.

**General.** NATOPS Instructors/Assistant Instructor shall conduct the NATOPS evaluation in accordance with CNAF 3710.7 series and other applicable directives, instructions, and orders.

The NATOPS Evaluator shall utilize the NATOPS Model Manager generated NATOPS Aviation Training Form (ATF) and the evaluation metrics required for the accomplishment and performance of the standardized criterion to determine whether the PUI completed the sortie.

NATOPS PUIs shall complete and have a graded Open Book and Closed Book prior to the commencement of the oral evaluation and flight event.

**Crew Requirements.** P/P/CC/AG/O (as required).

**Academic Training.** Open, closed book and oral evaluation IAW CNAF 3710.7 and the CH-53K NATOPS.
Goal. Open book written examination to evaluate the airman’s NATOPS knowledge IAW 3710.

Performance Standard. IAW CNAF 3710.

**NATOPS-6001** 1.0 365 B,R,S,M G Closed Book NATOPS Exam

Goal. Closed book written examination to evaluate the airman’s NATOPS knowledge IAW 3710 and CH-53K NATOPS.

Performance Standard. IAW CNAF 3710 and CH-53K NATOPS.

Prerequisite. NATOPS-6000

**NATOPS-6002** 2.0 365 B,R,S,M G Oral NATOPS Exam

Goal. Oral examination to evaluate the airman’s NATOPS knowledge IAW 3710 and CH-53K NATOPS.

Performance Standard. IAW CNAF 3710 and CH-53K NATOPS.

Prerequisite. NATOPS-6000

**NATOPS-6004** 1.0 30 B,R,S,M G Monthly EP Exam


Performance Standard. IAW CNAF 3710 and CH-53K NATOPS.

**NATOPS-6100** 1.5 365 B,R,S,M (N) S/A 1 CFTD/CH-53K

Goal. Conduct Annual NATOPS evaluation by evaluating the Marine’s knowledge of mission planning, briefing, normal operating procedures (flight and ground), crew resource management, aircraft systems, performance criteria, emergency procedures, and debriefing. The focus is on normal and emergency procedures. Emphasis shall be placed on the aforementioned items with the addition of comprehensive knowledge and understanding of NATOPS, local SOPs, and local course rules. The NATOPS evaluation is intended to evaluate compliance with NATOPS procedures. The NATOPS evaluation is the means to measure the Marine’s efficiency in the execution of normal operating procedures and reaction to emergencies and malfunctions. The NATOPS evaluation process should be as much a learning tool and/or experience as it is an evaluation.

Requirement. As directed in the CH-53K NATOPS Flight Manual and CNAF 3710.7. Demonstrate comprehensive knowledge and understanding of NATOPS, local SOPs, and local course rules. The PUI shall accomplish the following criterion:

Performance Standards. The proficiency expected by the evaluator in this flight shall be commensurate with the experience level of the pilot under evaluation.

Prerequisite. NATOPS-6002

Range Requirements. CAL/MAL site

External Syllabus Support. CFTD as required

2.19.2 CRM Training

Purpose. To conduct annual CRM training.

General. CRM Flight may be flown concurrent with any operational or training flight or simulator, including NATOPS-6100 or INST-6102. The CRM Flight Evaluator must be designated a CRM Facilitator or CRM Instructor.

**CRM-6003** 3.0 365 B,R,M G CH-53K CRM Class

Goal. Conduct annual CH-53K CRM Ground Training IAW CH-53K NATOPS, CNAF 3710.7 and CNAFINST 1542.7.
Performance Standards. Per CH-53K NATOPS, CNAF 3710.7 and CNAFINST 1542.7.

| CRM-6101 | 1.5 | 365 | B.R.M | (N) | S/A | 1 | CFTD/CH-53K |

Goal. Practice/review CRM principles presented in the CH-53K annual CRM Ground Training.

Requirement

Discuss:
- Decision making
- Assertiveness
- Mission analysis
- Communication
- Leadership
- Adaptability/Flexibility
- Situational awareness

Evaluate:
- Decision making
- Assertiveness
- Mission analysis
- Communication
- Leadership
- Adaptability/Flexibility
- Situational awareness

Performance Standards. Demonstrate effective use of the 7 CRM critical skills and IAW CH-53K NATOPS, CNAF 3710.7, CNAFINST 1542.7.

Prerequisite. CRM-6003

2.19.3   CH-53K Instrument Evaluation

Purpose. To evaluate the airman’s knowledge of instrument procedures and aircraft instrument systems.

General. NATOPS Instrument Instructors (NII) shall conduct the Instrument evaluation in accordance with CNAF 3710.7 series and other applicable directives, instructions, and orders.

The (NII) shall utilize the locally generated Instrument Aviation Training Form (ATF) and the evaluation metrics required for the accomplishment and performance of the standardized criterion to determine whether the PUI completed the sortie.

Instrument PUIs shall complete local instrument ground school prior to the commencement of the actual Instrument oral evaluation event.

Academic Training: Instrument Ground School IAW CNAF 3710.7.

Prerequisites. Per CNAF 3710 annual instrument requirements and Instrument Ground School.

| INST-6005 | 4.0 | 365 | B.R.M | G | Instrument Ground School(IGS) |

Goal. The Instrument Ground School shall be a Commander Naval Air Forces (CNAF) approved syllabus and IAW CNAF 3710.7.

Performance Standards. Per CNAF 3710.7

| INST-6006 | 1.0 | 365 | B.R.M | G | Written Instrument Exam |

Goal. The Instrument Written Instrument Examination shall be a Commander Naval Air Forces (CNAF) approved syllabus and IAW CNAF 3710.7.

Performance Standards. Per CNAF 3710.7

Prerequisite. INST-6005
Goal. Conduct annual instrument evaluation. Following completion of the ground evaluation events, an instrument flight/simulator evaluation event shall be flown and completed with a grade of “Qualified”. Conduct an objective evaluation of the Marine’s knowledge of flight planning, filing, briefing, and conduct of flight under normal operating conditions, emergency procedures, closing out flight plans, and debriefing.

Requirement. As directed in the CH-53K NATOPS Flight Manual and CNAF 3710.7.

Performance Standards. Executes flight and/or ground operations safely IAW CNAF 3710.7 Series, Platform NATOPS, NATOPS Instrument Flight Manual, and training rules. All areas on the instrument flight evaluation are critical. An “Unsatisfactory” grade in any area shall result in an “Unsatisfactory” grade for the flight.

Prerequisites. INST-6006

External Syllabus Support. CFTD as required

2.19.4 Helicopter Aircraft Commander (HAC)

Purpose. Demonstrate knowledge, leadership, airmanship, and judgment in all phases of flight commensurate with a Helicopter Aircraft Commander.

General. Squadrons shall evaluate pilots for designations at the discretion of the Commanding Officer per the criteria in the CH-53K NATOPS Flight Manual, CNAF 3710.7, and local SOPs. Upon the successful completion of the check flight the new HAC will be designated in writing by the Squadron Commanding Officer. Prerequisite requirements may be waived at the discretion of the Squadron Commanding Officer and details of the waiver will be annotated in the APR.

Flight leadership codes do not chain other syllabus events. Log the appropriate T&R syllabus event in addition to the flight leadership code. Range, ordnance, and external support will be IAW the appropriate T&R syllabus event.

Academic Training. The MAWTS-1 CH-53 Course Catalog contains the required readings, lectures and chalk talks which shall be completed prior to starting the Helicopter Aircraft Commander Syllabus.

Prerequisites. NSQ-LLL, Core and Mission Skill complete. 450 total hours to start the syllabus and be recommended by the Squadron Standardization Board. PUI must have 500 total hours prior to designation.

HAC-6120 1.5 * B D A/S 1 CH-53K/CFTD

Goal. Conduct day HAC review.

Requirement. As directed in the CH-53K NATOPS and CNAF 3710.7, to include but not limited to all practicable operations and procedures contained in the T&R syllabus.

Evaluate:
- Low work
- Pattern work
- Normal/precision hover
- No hover landings
- Hook/pendant preflight
- External precision hover
- External pickup
- External pattern work
- External delivery
- Actions in the objective area
- Ability to accurately assess mission, recall events, provide reconstruction and analysis


Prerequisites. NSQ-LLL, Core and Mission Skill complete, 450 Flight hours
Range Requirements. CAL/MAL site

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<tr>
<th>HAC-6121</th>
<th>1.5 *</th>
<th>B</th>
<th>NS</th>
<th>A/S</th>
<th>1</th>
<th>CH-53K/CFTD</th>
</tr>
</thead>
</table>

Goal. Conduct NS HAC review.

Requirement. Same as HAC-6120 with emphasis on NS planning and considerations.

Evaluate:
- Low work
- Pattern work
- Normal/precision hover
- No hover landings
- NS formation
- NS landings
- Hook/pendant preflight
- External precision hover
- External pickup
- External pattern work
- External delivery
- Actions in the objective area
- Ability to accurately assess mission, recall events, provide reconstruction and analysis


Prerequisites. NSQ-LLL, Core and Mission Skill complete, 450 flight hours

Range Requirements. CAL/MAL site

<table>
<thead>
<tr>
<th>HAC-6122</th>
<th>2.0 *</th>
<th>B,R,S</th>
<th>(N)</th>
<th>A</th>
<th>1</th>
<th>CH-53K</th>
</tr>
</thead>
</table>

Goal. Conduct day into night HAC check.

Requirements. As directed in the CH-53K NATOPS and CNAF 3710.7, to include but not limited to all practicable operations and procedures contained in the T&R syllabus.

Evaluate:
- Low work
- Pattern work
- Normal/precision hover
- No hover landings
- NS formation
- NS landings
- Hook/pendant preflight
- External precision hover
- External pickup
- External pattern work
- External delivery
- Actions in the objective area
- Ability to accurately assess mission, recall events, provide reconstruction and analysis

Performance Standards. Squadrons shall evaluate pilots for HAC designation at the discretion of the Commanding Officer per the criteria in the CH-53K NATOPS, CNAF 3710.7, and local SOPs. This flight will cover all practicable operations and procedures contained in the T&R syllabus.

Instructor. NATOPS Instructor or Assistant NATOPS Instructor

Prerequisites. HAC-6120 and HAC-6121, NATOPS-6001

Ordnance. As required.
External Syllabus Support. As required.

2.19.5 Section Leader (SL)

Purpose. To prepare and evaluate the prospective Section Leader’s ability to plan, brief and lead an event as a Section Leader (SL).

General. The Section Leader syllabus is comprised of four total flights; 2 events focusing on Core Skill based evaluations and 2 events focusing on Mission Skill based scenarios. Two of the four events may be flown in the simulator and two events shall be flown at night employing night systems in the aircraft. In addition, the Section Leader syllabus can be flown in any order with the exception of SL-6203 which shall be flown last and in the aircraft.

All prospective Section Leader events shall be evaluated by a designated Division Leader or higher. During syllabus flights, the instructor may fly in a separate aircraft than the student. The Section Leader evaluation flight (SL-6203) shall be administered by a Flight Leadership Standardization Evaluator (FLSE) in the aircraft with the Section Leader Under Instruction (SLUI).

Completion of the Section Leader syllabus meets the requirements for designation as Section Leader. At the discretion of the Squadron Commanding Officer, a letter designating the pilot as Section Leader shall be placed in the NATOPS jacket and APR. For aircrew requiring Core Skill introduction refresher training, re-designation will require only the successful completion of the evaluation event at the discretion of the Squadron Commanding Officer.

The SLUI will perform preflight planning, conduct a tactical brief as required, NATOPS brief, lead a section and conduct a debrief. Evaluation will be based on mission accomplishment, adherence to all applicable directives, orders, SOPs, ATC and course rules. Further evaluation will concentrate on flight safety, section control, formation integrity, and communication procedures. Aircraft should be configured with all weapons and systems required for the scenario.

Crew Requirements. P/P/CC/AG/O

Academic Training. The MAWTS-1 CH-53 Course Catalog contains the required readings, and chalk talks which shall be completed prior to starting the Section Leader Syllabus.

Prerequisites. Prior to beginning the Section Leader syllabus, the SLUI must be designated a HAC with a minimum of 25 aircraft commander hours, be nominated by the Standardization Board, and have flown a minimum of three flights as a HAC in a wingman position. The following events/designations are prerequisites prior to the commencement of the Section Leader Syllabus:

- Academic: ACPM-8661-8664
- Flight: HAC-6122
- Designation/Qualification: HAC

Goal. Conduct a day or night Core Skill based Section Leader review.

Requirements. Plan, brief, lead, and debrief a section flight utilizing the principles of CRM and flight leadership. The flight should offer sufficient opportunity to demonstrate cruise principles, conduct lead changes, TERF flight and navigation, cruise and parade formations, and section landings. The SLUI shall demonstrate comprehensive knowledge and understanding of the T&R Manual, NATOPS, CNAF 3710.7, ASTACSOPO, local SOPs, local course rules, and ORM/CRM principles.

Performance Standards. TERF events shall navigate a route at or below 200’ AGL and/or within 200’ of terrain and remain oriented IAW ASTACSOPO Magellan criteria while navigating to a minimum of six checkpoints while using 1:250,000 and 1:50,000 scale maps as appropriate. To the max extent possible the route should be a minimum of 50nm.

NS (HLL or LLL) events shall ensure proper NVD considerations and planning is accomplished. Brief event IAW SOPs and TTPs Conduct event IAW NATOPS and CNAF 3710.7
Maintain proper formation and mutual support to and from the working area
Ensure effective CRM for navigation and obstacle clearance
Demonstrate effective inter and intra cockpit communication and leadership required for precise navigation and flight management.
Effectively manage fuel and airspace.
Accurately recall and reconstruct events during debrief.
Provide valid learning points

Instructor: Division Leader or higher

Prerequisites. ACPM-8661-8664, Designated HAC with a minimum of three flights as a HAC in a wingman position

External Syllabus Support. CFTD TEN+ (as required)

**Goal.** Plan, brief, lead, and debrief a MCT based tactical scenario, day or night, utilizing principles of CRM and flight leadership to ensure mission success.

**Requirements.** Plan, brief, lead and debrief a day or night section in a low/medium threat MCT based tactical flight to include escort and fire support considerations. The SLUI shall demonstrate comprehensive knowledge and understanding of T&R Manual, NATOPS, ASTACSO, local SOPs, local course rules, and ORM/CRM principles. Emphasis should be on mission analysis using METT-TC, the mission planning process, weapons and ASE employment (evasive actions, sectors of fire), integrated objective area planning, and escort considerations. Additional emphasis on night considerations as applicable, detailed fuel planning, contingency planning, and mission delegation of tasks.

**Performance Standards**

- Plan and brief a tactical mission IAW the ASTACSO, ANTTP 3-22.3 and all applicable SOPs
- Arrive at LZ +/- 30 seconds of L-Hour
- TERF events shall navigate a route at or below 200’ AGL and/or within 200’ of terrain and remain oriented IAW ASTACSO Magellan criteria while navigating to a minimum of six checkpoints while using 1:250,000 and 1:50,000 scale maps as appropriate. To the max extent possible the route should be a minimum of 50nm
- Land at points best supporting the Ground Combat Element’s scheme of maneuver
- Demonstrate proper employment and understanding of ASE
- Demonstrate proper use of tactical formations
- Demonstrate situational awareness of other aircraft through all phases of flight
- Demonstrate positive control of flight
- As applicable, demonstrate proper understanding of NS considerations with multiple aircraft and aerial gunnery
- As applicable, demonstrate proper understanding of laser employment
- Demonstrate proper understanding of MACCS system to facilitate execution and information flow
- Demonstrate appropriate consideration for threat from planning through execution
- Demonstrate understanding of aircraft maneuver with regard to threat response in concert with proper aerial gunnery employment
- Demonstrate proper understanding of escort considerations
- Demonstrate proper understanding and utilization of secure and active communications
- Demonstrate understanding of FSCM utilization
- Demonstrate understanding of contingency considerations

Instructor. Division Leader or higher

Prerequisites. ACPM-8661-8664, Designated HAC with a minimum of three flights as a HAC in a wingman position.

External Syllabus Support. Escort FW/RW aircraft optional, CFTD TEN+ (as required)
Goal. Conduct a day or night Core Skill based Section Leader review.

Requirements. Plan, brief, lead, and debrief a section flight utilizing principles of CRM and flight leadership to ensure mission success. The flight should offer sufficient opportunity to demonstrate cruise principles, conduct lead changes, TERF flight and navigation, cruise and parade formations, and section landings. The SLUI shall demonstrate comprehensive knowledge and understanding of T&R Manual, NATOPS, CNAF 3710.7, ASTACSOP, local SOPs, local course rules, and ORM/CRM principles.

Performance Standards

TERF events shall navigate a route at or below 200’ AGL and/or within 200’ of terrain and remain oriented IAW ASTACSOP Magellan criteria while navigating to a minimum of six checkpoints while using 1:250,000 and 1:50,000 scale maps as appropriate. To the max extent possible the route should be a minimum of 50nm.

NS (HLL or LLL) events shall ensure proper NVD considerations and planning is accomplished

Brief event IAW SOPs and TTPs

Conduct event IAW NATOPS and CNAF 3710

Maintain proper formation and mutual support to and from the working area

Ensure effective CRM for navigation and obstacle clearance

Demonstrate effective inter and intra cockpit communication and leadership required for precise navigation and flight management

Effectively manage fuel and airspace

Accurately recall and reconstruct events during debrief

Provide valid learning points

Instructor. Division Leader or higher

Prerequisites. ACPM-86661-86664; Designated HAC with a minimum of three flights as a HAC in a wingman position.

External Syllabus Support. CFTD TEN+ (as required).

Goal. Conduct a Section Leader evaluation using an MCT based tactical scenario in a low to medium threat night environment. Emphasis should be on situational awareness, flight maturity, CRM, and the tactical and operational knowledge required of a Section Lead.

Requirement. Completion of 6200, 6201, and 6202 meets the requirement for the SLUI to be designated a Section Leader. The SLUI shall plan, brief, lead, and debrief a night section in a low/medium threat MCT based tactical flight. This flight should include escort, fire support considerations, and aerial gunnery. The SLUI shall demonstrate comprehensive knowledge and understanding of T&R Manual, NATOPS, ASTACSOP, local SOP, local course rules, and ORM/CRM principles.

Performance Standards

Plans and brief a tactical mission IAW the ASTACSOP, ANTTP 3-22.3 and all applicable SOPs.

Arrive at LZ +/- 30 seconds of L-Hour.

TERF events shall navigate a route at or below 200’ AGL and/or within 200’ of terrain and remain oriented IAW ASTACSOP Magellan criteria while navigating to a minimum of six checkpoints while using 1:250,000 and 1:50,000 scale maps as appropriate. To the max extent possible the route should be a minimum of 50nm.

Land at points best supporting the Ground Combat Elements scheme of maneuver.

Demonstrate proper employment of ASE.

Demonstrate proper use of tactical formations.

Demonstrate situational awareness of other aircraft through all phases of flight.

Demonstrate positive control of flight.

As applicable, demonstrate proper understanding of NS considerations with two aircraft and aerial gunnery.

As applicable, demonstrate proper understanding of laser employment.
Demonstrate proper understanding of MACCS system to facilitate execution and information flow.
Demonstrate appropriate consideration for threat from planning through execution.
Demonstrate understanding of aircraft maneuver with regard to threat response in concert with proper aerial gunnery employment.
Demonstrate proper understanding of escort considerations.
Demonstrate proper understanding and utilization of secure and active communications.
Demonstrate understanding of FSCM utilization.
Demonstrate understanding of contingency considerations.

Instructor: FLSE

Prerequisites. 6200, 6201, 6202

2.19.6 Division Leader (DL)

Purpose. To prepare and evaluate the prospective Division Lead’s ability to plan, brief and lead an event as a Division Lead.

General. The Division Leader syllabus is comprised of three flights; one event focusing on core skill based evaluation and two events focusing on MCT based scenarios. One of the three events may be flown in the simulator and two of the three events shall be flown at night. The two events flown at night shall be flown in the aircraft. In addition, the Division Leader syllabus can be flown in any order with the exception of DL-6302 which shall be flown last and in the aircraft.

All prospective Division Leader events shall be evaluated by a designated FL or higher. During syllabus flights, the instructor may fly in a separate aircraft than the student. The Division Leader evaluation flight (DL-6302) shall be flown with a Flight Leadership Standardization Evaluator (FLSE) in the aircraft with the Division Lead Under Instruction (DLUI).

Completion of the Division Leader syllabus meets the requirements for designation as Division Leader at the discretion of the squadron Commanding Officer. A letter designating the pilot as a Division Leader shall be placed in the NATOPS jacket and APR. Aircraft should be configured with all weapons and systems required for the scenario.

For aircrew that require Core Skill introduction refresher training, re-designation will require successful completion of the evaluation event only. Refresher evaluations may be flown during the day.

For aircrew that require Core Skill introduction refresher training, and were previously designated a Flight Leader and/or Air Mission commander, successful completion of the R coded Division Leader Evaluation event fulfills all requirements for re-designation as a Flight Leader and/or Air Mission Commander, at the discretion of the squadron Commanding Officer.

The DLUI will perform preflight planning, conduct a tactical mission and NATOPS brief, lead a division and conduct a debrief. Evaluation will be based on mission accomplishment, adherence to all applicable directives, orders, SOPs, ATC and course rules. Further evaluation will concentrate on flight safety, division control, formation integrity, and communication procedures. Aircraft should be configured with all weapons and systems required for the scenario.

Crew Requirements. P/P/CC/AG/O

Academic Training. The MAWTS-1 CH-53 Course Catalog contains the required readings and chalk talks which shall be completed prior to starting the Division Leader Syllabus.

Prerequisites. Prospective division leaders shall be designated section leaders with 600 total flight hours, 200 hours in type, 50 hours in model, and must be nominated by the standardization board prior to beginning the division leader syllabus. The following events/designations are prerequisites prior to the commencement of the Division Leader Syllabus:

Academic: ACPM-8688
Flight: SL-6203 and three flights as a Section Leader
Designation/Qualification: Section Lead
Goal. Conduct a day or night Core Skill based Division Leader review.

Requirements. Plan, brief, lead, and debrief a division flight utilizing the principles of CRM and flight leadership. The flight should offer sufficient opportunity to demonstrate cruise principles, conduct lead changes, TERF flight and navigation, cruise and parade formations, and division landings. The DLUI shall demonstrate comprehensive knowledge and understanding of the T&R Manual, NATOPS, CNAF 3710.7, ASTACSOP, local SOPs, local course rules, and ORM/CRM principles.

Performance Standards. TERF events shall navigate a route at or below 200’ AGL and/or within 200’ of terrain and remain oriented IAW ASTACSOP Magellan criteria while navigating to a minimum of six checkpoints while using 1:250,000 and 1:50,000 scale maps as appropriate. To the max extent possible the route should be a minimum of 50nm.

- NS (HLL or LLL) events shall ensure proper NVD considerations and planning is accomplished
- Brief event IAW SOPs and TTPs
- Conduct event IAW NATOPS and CNAF 3710.7
- Maintain proper formation and mutual support to and from the working area
- Ensure effective CRM for navigation and obstacle clearance
- Demonstrate effective inter and intra cockpit communication and leadership required for precise navigation and flight management
- Effectively manage fuel and airspace
- Accurately recall and reconstruct events during debrief
- Provide valid learning points

Instructor. Flight Leader or higher

Prerequisites. ACPM-8688, Designated SL with a minimum of three flights as a Section Leader

External Syllabus Support. CFTD TEN+ (as required)
Demonstrate understanding of aircraft maneuver with regard to threat response in concert with proper aerial gunnery employment
Demonstrate proper understanding of escort considerations
Demonstrate proper understanding and utilization of secure and active communications
Demonstrate understanding of FSCM utilization
Demonstrate understanding of contingency considerations

Prerequisites
ACPM-8688
Designated SL
Minimum of three flights as a Section Leader

External Syllabus Support: CFTD TEN+ (as required). Escort FW/RW aircraft optional

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**Goal.** Conduct a Division leader check utilizing a Mission Skill based tactical scenario in a low to medium threat environment. Emphasis should be on situational awareness, flight maturity, CRM, and the tactical and operational knowledge required of a Division Lead.

**Requirements.** Plan, brief, lead, and debrief a tactical division flight utilizing principles of CRM and flight leadership to ensure mission success. Flight should offer sufficient opportunity to conduct lead changes, cruise principles, cruise and parade formations, and division landings. The DLUI shall demonstrate comprehensive knowledge and understanding of T&R Manual, NATOPS, ASTACSOP, local SOP, local course rules, and ORM/CRM principles.

**Performance Standards**

Plans and briefs a tactical mission IAW the ASTACSOP, ANTTP 3-22.3 and all applicable SOPs

Arrive at LZ +/- 30 seconds of L-Hour

TERF events shall navigate a route at or below 200’ AGL and/or within 200’ of terrain and remain oriented IAW ASTACSOP Magellan criteria while navigating to a minimum of six checkpoints while using 1:250,000 and 1:50,000 scale maps as appropriate. To the max extent possible the route should be a minimum of 50nm

Land at points best supporting the Ground Combat Elements scheme of maneuver

Demonstrate proper employment of ASE

Demonstrate proper use of tactical formations

Demonstrate situational awareness of other aircraft through all phases of flight

Demonstrate positive control of flight

As applicable, demonstrate proper understanding of NS considerations with multiple aircraft and aerial gunnery

As applicable, demonstrate proper understanding of laser employment

Demonstrate proper understanding of MACCS system to facilitate execution and information flow

Demonstrate appropriate consideration for threat from planning through execution

Demonstrate understanding of aircraft maneuver with regard to threat response in concert with proper aerial gunnery employment

Demonstrate proper understanding of escort considerations

Demonstrate proper understanding and utilization of secure and active communications

Demonstrate understanding of FSCM utilization

Demonstrate understanding of contingency considerations

**Instructor.** FLSE

**Prerequisites.** 600 total flt hours, 200 in type, 50 hours in model, DL-6300-6301

**External Syllabus Support:** Escort FW/RW aircraft optional

2.19.7 **Flight Leader (FL)**

**Purpose.** To evaluate the prospective Flight Leader’s ability to plan, brief and lead an event as a Flight Leader.
General. The Flight Lead evaluation flight shall be flown in the aircraft and may be flown either day or night. Aircraft should be configured with all weapons and systems required for the scenario.

The FL evaluation flight shall be evaluated by a FLSE. Completion of the Flight Leader evaluation meets the requirements for designation as a Flight Leader, at the discretion of the Squadron Commanding Officer. A letter designating the pilot as a Flight Leader shall be placed in the NATOPS jacket and APR. For aircrew requiring Core Skill introduction refresher training and previously designated a Flight Leader, re-designation will require successful completion of the R coded Division Leader evaluation event, at the discretion of the squadron Commanding Officer.

The Flight Lead Under Evaluation (FLUI) will perform preflight planning, conduct a tactical mission brief, lead a flight of five (5) or more assault aircraft with optional escorts, and conduct a debrief. Evaluation will be based on mission accomplishment, adherence to all applicable directives, orders, SOPs, ATC and course rules. Further evaluation will concentrate on flight safety, flight control, formation integrity, and communication procedures. Additionally, evaluation will address tactical soundness, contingency planning, brief delivery, and use of supporting arms and flexibility during execution. Aircraft should be configured with all weapons and systems required for the scenario.

Prospective Flight Leads shall be Division Leaders with a minimum of 700 total flight hours and nominated by the Standardization Board. Prospective Flight Leads shall have flown three division leader flights.

Crew Requirements. P/P/CC/AG/O

Academic Training. The MAWTS-1 CH-53 Course Catalog contains the required readings, chalk talks which shall be completed prior to starting the Flight Leader Syllabus.

Prerequisites. The following events/designations are prerequisites prior to the commencement of the Flight Leader Syllabus:

- Academic: ACPM-8685-8687
- Flight: DL-6302 and Minimum three flights as a Division Leader, one of which may be flown in a TEN+ simulator
- Designation/Qualification: Division Lead

**FL-6400** 1.5 * B (NS) A 5+ AslSpt Aircraft

**Goal.** Conduct Flight Leader check utilizing a MCT based tactical scenario. Scenario used should not be the same MCT scenario used during Division Leader Check. Emphasis should be on planning, coordination and control of all supporting arms, escorts and agencies in meeting with mission requirements.

**Requirement.** Plan, brief, lead and debrief a tactical flight utilizing principles of CRM and flight leadership to ensure mission success. Flight should offer sufficient opportunity to conduct lead changes, cruise principles, cruise and parade formations, and Flight landings. The FLUI shall demonstrate comprehensive knowledge and understanding of T&R Manual, NATOPS, ASTACSOR, local SOP, local course rules, and ORM/CRM principles.

The FLUI shall accomplish the following criteria:

- Brief in accordance with ASTACSOR and ANTTP 3-22.3-CH53
- Complies with Wing, MAG, and squadron SOPs

**Performance Standards**

- Plan and brief a MCT based tactical mission IAW ASTACSOR and ANTTP 3-22.3-CH-53K
- TERF events shall navigate a route at or below 200’ AGL and/or within 200’ of terrain and remain oriented IAW ASTACSOR Magellan criteria while navigating to a minimum of six checkpoints while using 1:250,000 and 1:50,000 scale maps as appropriate. To the max extent possible the route should be a minimum of 50nm.
- Comply with all applicable SOPs
- Arrive at LZ +/- 30 seconds of briefed plan
- Land at points best supporting the Ground Combat Elements scheme of maneuver
- Demonstrate proper employment and understanding of ASE
- Demonstrate proper use of tactical formations
- Demonstrate situational awareness of other aircraft through all phases of flight
Demonstrate positive control of flight
As applicable, demonstrate proper understanding of NS considerations with multiple aircraft, aerial gunnery, and laser employment
Demonstrate proper understanding of MACCS system to facilitate execution and information flow
Demonstrate appropriate threat consideration from planning through execution
Demonstrate understanding of aircraft maneuver with regard to threat response in concert with proper aerial gunnery employment
Demonstrate proper understanding of escort considerations
Demonstrate proper understanding and utilization of secure and active communications
Demonstrate understanding of FSCM utilization
Demonstrate understanding of contingency considerations
Demonstrate GCE accountability to and from the objective area
Demonstrate the ability to conduct timely and effective contingency planning

**Instructor**: FLSE

**Prerequisites.** ACPM-8685-8687, minimum 3 flights as a Division Leader: Minimum 700 Flight hours

**External Syllabus Support.** CAL/MAL sites and authorized TERF areas as required. RW and/or FW escort preferred but not required

2.19.8 **Air Mission Commander (AMC)**

**Purpose.** To prepare and evaluate the prospective Air Mission Commander’s ability to plan, brief and lead an event as an Air Mission Commander.

**General.** Air Mission Commander evaluation event may be conducted from an aircraft, a C&C platform, or an appropriate ground based COC. The AMC evaluation flight shall be evaluated by a FLSE.

Completion of AMC-6500 meets the requirements for designation as Air Mission Commander, at the discretion of the squadron Commanding Officer. A letter designating the pilot as an Air Mission Commander shall be placed in the NATOPS jacket and APR. For aircrew requiring Core Skill introduction refresher training and previously designated an Air Mission Commander, re-designation will require successful completion of the R coded Division Leader evaluation event, at the discretion of the squadron Commanding Officer. Aircraft should be configured with all weapons and systems required for the scenario.

The AMC designation is a function of flight leadership, maturity and experience. The AMC should lead the mission from a C&C aircraft, if available. The Air Mission Commander Under Evaluation (AMCUI) will perform preflight planning, conduct a tactical mission brief, command a flight of two divisions or more, and conduct a debrief. The AMC shall be evaluated on his ability to integrate the six functions of Marine Aviation. Evaluation will be based on mission accomplishment, adherence to all applicable directives, orders, and SOPs. Further evaluation will concentrate on communication planning, coordination of multiple agencies and flight safety. Additionally, evaluation will address tactical soundness of contingency planning, brief delivery, and use of supporting arms and flexibility during execution. Aircraft should be configured with all weapons and systems required for the scenario.

**Crew Requirements.** As required.

**Academic Training.** The MAWTS-1 CH-53 Course Catalog contains the required readings, chalk talks, and lectures which shall be completed prior to starting the Air Mission Commander Syllabus.

**Prerequisites.** Prospective Air Mission Commanders shall be an FL and shall be nominated by the Standardization Board. The following events/designations are prerequisites prior to the commencement of the Air Mission Commander Syllabus:

- Academic: ACAD-6580
- Flight: FL-6400
- Designation/Qualification: Flight Lead

| AMC-6500 | 1.5 | * | B | (NS) | GE | 5+ | MULTIPLE ELEMENTS |

**Goal.** Conduct a day or night Air Mission Commander (AMC) check utilizing a MCT based tactical scenario.
Requirement. Plan, brief, lead, and debrief a day or night multi-element, multi-T/M/S tactical mission in any threat environment. The AMCUI shall be evaluated on his/her ability to integrate the six functions of Marine Aviation and should lead the mission from a C&C platform or COC (as appropriate).

Discuss:
- Mission analysis and METT-TC
- Marine Corps Planning Process (MCPP) / Rapid Response Planning Process (R2P2)
- COA development and task delegation
- Six functions of Marine Aviation
- Aviation Ground Support (AGS) capabilities
- MACCS agencies, functions, and employment
- Threat planning considerations for multiple T/M/S aircraft
- GCE support considerations
- Objective area planning considerations
- Fire Support Coordination Measures (FSCMs)
- Fire support/supporting arms considerations and integration (e.g. indirect fires, CAS)
- RW and FW escort considerations and escort tactics
- Assault support considerations and tactics
- Contingency planning
- Immediate tasking
- Go vs. No-Go criteria
- Event vs. time driven mission execution
- Chain of responsibility and delegation of authority
- C&C platform considerations and Mission Coordination Area (MCA) selection
- Secure vs. active communications
- EMCON and radio procedures
- Information flow requirements
- Execution checklist utilization

Review:
- Tactical mission planning and briefing.
- Command and control during a tactical mission.

Performance Standards. The AMCUI shall conduct mission analysis IAW MCWP 5-10, delegate mission tasks to the most advantageous asset/flight, ensure coordination and supervision of key personnel during planning, conduct tactical planning IAW ANTTP series publications, develop a plan that integrates the six functions of Marine Aviation and AGS, develop a plan that fully supports the GCE ground scheme of maneuver and Essential Fire Support Tasks (EFSTs), conduct an AMC brief IAW ANTTP series publications, maintain SA of all assets participating in the mission, maintain SA on mission progress/execution, maximize C&C platform capabilities, demonstrate proper decision making and task delegation in response to immediate missions and/or contingencies, execute appropriate command and control to ensure mission success. Demonstrate proper understanding and utilization of C4I to facilitate information flow and execution, RW and/or FW escort, secure and active communications, FSCM utilization and supporting arms, and contingency planning and execution. Possess the tactical and operational knowledge required of an AMC.

Prerequisite. Designated Flight Leader, ACAD-6580

Ordnance. As required

Range Requirements. As required

External Syllabus Support. GCE, MACCS agencies, AGS assets, multiple T/M/S RW and/or FW assets as required, and any other support required based on the tactical scenario (HST, threat emitter/simulator).

2.19.9 Functional Check Pilot (FCP)

Purpose. To prepare and evaluate the prospective functional check pilot’s ability to safely and proficiently conduct Functional Check Flights.

General. The CH-53K model manager for the CH-53K, will manage the FCP instructor standardization program. A designated FCP shall be the instructor for all FCPUT training events. Aircraft in a test status are preferred but are
not required for the completion of an FCPUT event. FCP evaluation flights shall be administered by a senior squadron FCP as determined by the Squadron Commanding Officer.

**Crew Requirements.** P/P/CC.

**Prerequisites.** Prospective Functional Check Pilots shall be a designated HAC with a minimum of 25 aircraft commander hours prior to the start of the syllabus, and nominated by the Standardization Board. Prior to their FCP designation, pilots must attain a minimum of 50 aircraft commander hours.

**Academic Training.** FCPUI will have a thorough understanding of the readings from CNAF 3710.7, CH-53K NATOPS, 4790 Naval Aviation Maintenance Program, MIMS, and local SOP's that pertain to FCF operations. The FCP required readings and lectures included in ACAD-6012 shall be administered by FCPIs or AFCPIs.

### FCP-6610 1.0 * B,S  D  S/A  1  CFTD/CH-53K

**Goal.** Introduce IVHMS Functional Check Flight procedures

**Requirements**

**Discuss:**
- IVHMS
- Maintenance actions requiring AFCS checks
- QA brief/debrief

**Introduce:**
- Use of IVHMS
- QA brief/debrief

**Performance Standards.** FCPUI is expected to have a working knowledge of the procedures and concepts listed above as written in CH-53K NATOPS (CH. 10). FCPUI is able to answer questions and discuss the systems being checked as outlined above. As required, the FCP will demonstrate procedures in order to ensure standardized execution. The FCP should point out common errors in execution as well as common system failures that the FCPUI should look for.

**Prerequisite.** Recommendation by Stan Board. 25 HAC hours.

### FCP-6611 1.0 * B  D  S/A  1  CFTD/CH-53K

**Goal.** Review IVHMS Functional Check Flight procedures.

**Requirements**

**Discuss:**
- Conditions requiring a AFCS checks
- AFCS check procedures
- QA brief/debrief

**Practice:**
- AFCS check procedures
- QA brief/debrief

**Performance Standards.** FCPUI will demonstrate the ability to navigate and gather appropriate information from IVHMS. The evaluator should only need to offer little procedural guidance and troubleshooting input. The FCPUI shall be evaluated on all stages of the evolution from QA briefing though QA debriefing and MAF initiation. FCPUI will be evaluated on overall systems knowledge, procedural correctness, time management, cockpit management and aircrew coordination.

**Prerequisites.** FCP 6610

### FCP-6612 1.0 * B,S  D  S/A  1  CFTD/CH-53K

**Goal.** Introduce full card Functional Check Flight procedures

**Requirements**
Discuss:
- Conditions requiring mechanical flight control checks
- QA brief/debrief

Introduce:
- QA brief/debrief

Performance Standards. FCPUI is expected to have a working knowledge of the procedures and concepts listed above as written in CH-53K NATOPS (CH. 10). FCPUI is able to answer questions and discuss the systems being checked as outlined above. As required, the FCP will demonstrate procedures in order to ensure standardized execution. The FCP should point out common errors in execution as well as common system failures that the FCPUI should look for.

Prerequisites. Recommendation by Stan Board. 25 HAC hours

**FCP-6613** 1.0 * B,S D S/A 1 CFTD/CH-53K

Goal. Evaluate full card Functional Check Flight procedures.

Requirements

**Discuss:**
- Conditions requiring a mechanical flight control checks
- Mechanical flight control check procedures
- QA brief/debrief

**Practice:**
- Mechanical flight control check procedures
- QA brief/debrief

Performance Standards. FCPUI will demonstrate the ability to conduct a C-card functional check flight. The evaluator should only need to offer little procedural guidance and troubleshooting input. The FCPUI shall be evaluated on all stages of the evolution from QA briefing though QA debriefing and MAF initiation. FCPUI will be evaluated on overall systems knowledge, procedural correctness, time management, cockpit management and aircrew coordination.

Prerequisites: FCP 6612 (mechanical flight control SIM Flight)

**FCP-6614** 1.5 * B D A 1CH-53K

Goal. Review full card Functional Check Flight procedures

Requirements

**Discuss:**
- Conditions requiring a full test card
- Full test card procedures
- IVHMS testing procedures
- QA brief/debrief

**Introduce:**
- Full test card procedures
- IVHMS testing procedures
- QA brief/debrief

Performance Standards. FCPUI is expected to have a working knowledge of the procedures and concepts listed above as written in CH-53K NATOPS (CH. 10). FCPUI is able to answer questions and discuss the systems being checked as outlined above. As required, the FCP will demonstrate procedures in order to ensure standardized execution. The FCP should point out common errors in execution as well as common system failures that the FCPUI should look for.

Prerequisites. FCP-6610-6613

**FCP-6615** 1.5 * B,R,S D S/A 1 CH-53K
Goal. Conduct a functional check pilot evaluation.

Requirements. Squadrons shall evaluate pilots for designation at the discretion of the Commanding Officer per the criteria in the CH-53K NATOPS Flight Manual, CNAF 3710.7, 4790 Naval Aviation Maintenance Program, MIMS, and local SOPs.

Discuss:
Any previously discussed item in the FCP syllabus.

Review:
Full test card procedures.
Perform a full test card FCF

Performance Standards. FCPUI will be evaluated on the ability to conduct a full-systems functional check flight. The evaluator should not need to offer procedural guidance or provide troubleshooting input. The FCPUI shall be evaluated on all stages of the evolution from QA briefing though QA debriefing and MAF initiation. FCPUI will be evaluated on overall systems knowledge, procedural correctness, time management, cockpit management, and aircrew coordination.

Instructor. FCP or AFCPI

Prerequisites. FCP-6610-FCP-6614, completion of the squadron academic syllabus, and as determined by squadron CO, AMO, QAO, and STAN Board.

2.20 MISSION ESSENTIAL TASK (MET) PHASE

2.20.1 Purpose

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

To fulfill the requirements of a Marine Corps Combat Readiness Evaluation (MCCRE) as specified in MCO 3502.1XX, Marine Corps Combat Readiness Evaluation.

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

Admin Notes. The proficiency period for conducting elements of the 7000 phase are:

- No less than once every 2 years for active components
- No less than once every 5 years for reserve components

Units not scheduled to be assessed at a service level training venue (SLTE) shall conduct elements of the 7000 level phase as a minimum requirement for a unit to deploy.

The MAW Flight Leadership Standardization and Evaluation (FLSE) cadre is the resource used to assess Type/ Model/ Series units for MET capability in accordance with the MCCRE Order. The units assessor will be designated at the Wing level of the unit to be assessed.

Events in this Phase normally require a Force Generation Order prior to commencing the 7000 Stage. Once a unit deploys, is removed from the Force Generation Order, or completes the required 7000-Stage, 7000 Phase currency no longer needs to be maintained. Multiple Events may be accomplished during the same sortie. Results of the MCCRE assessment shall be formatted per Appendix D, 3500.14E and submitted to CG, MCCDC (via AMHS message attachment to CG TECOM MTESD) no later than 45 days after MCCRE completion.

2.20.2 Stages. The following stages are included in the Mission Essential Task (MET) Phase of training. Only METs required per the Force Generation Order shall be evaluated.

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2.21 MISSION ESSENTIAL TASK (MET) STAGE

Purpose. To assess squadrons or detachments executing community specific MET(s) or MET preparatory Events.

General

Prerequisite. If an event requires prerequisites in addition to those listed for the MET Phase, they will be covered in the individual event.

Crew Requirements. The participants required for the 7000 Phase are the evaluated unit and the assessor. The crew requirement is based on the specific event. The assessment shall be conducted from a crew position of the assessor’s T/M/S. At the discretion of the assessor, observation of mission planning, briefing/debriefing, and execution from an OP may satisfy a portion of the assessment.

Respectively, the primary, alternate, and tertiary assessors shall be a MATSS representative, WTI (FLSE) from within the parent command designated by the owning Wing, or MAWTS-1 representative. The number of crews evaluated will be based on a percentage required to deploy per the Force Generation Order.

MET-7001 1.5 730 B.R,M (NS) A 2+ CH-53K

Goal. Demonstrate the capability to conduct combat assault transport operations in a low to medium threat environment. Aviation combat assault transport operations provides mobility to the MAGTF. It is used to deploy forces (air-landed or air-delivered) efficiently in offensive maneuver warfare, bypass obstacles, or quickly redeploy forces. Combat assault support allows the MAGTF Commander to build up his forces rapidly at a specific time and location, and allows him to apply and sustain combat power and strike the enemy where he is unprepared. This function comprises those actions required for the airlift of personnel, supplies and equipment into or within the battle area by helicopter, tiltrotor or fixed-wing aircraft. (JP 3-0, 4-0, MCWP 3-20, MAWTS-1).

Performance Standard. Plan, brief and execute a tactical assault support mission (MARLOG, general support, NEO, resupply, insert, extract). If an L-Hour is utilized arrive in the LZ +/- 30 sec in the best position to support the ground combat element. Demonstrate a thorough understanding of objective area mechanics, command and control procedures, and fire support control measures. Demonstrate a thorough understanding of proper procedures to secure cargo and personal gear.

Instructor. MATSS representative, WTI (FLSE) designated by Wing, or MAWTS-1 representative

Prerequisites. CAT-3140

Ordnance. IAW Phase.

Range Requirement. Live fire and expendable range as required.

External Syllabus Support. Command and Control system if available. Escort and/or Command and Control aircraft are preferred, if available. Ground Combat Element preferred if available.

MET-7002 1.5 730 B.R,M (NS) A 2+ CH-53K

Goal. Demonstrate the ability to conduct heavy rotary wing air delivery (AD) in a low to medium threat environment. AD is in-flight transportation of equipment and supplies to remote areas or expeditionary sites [tactical landing zones, austere forward operating sites, Naval shipping, Forward Operating Bases (FOBs), Expeditionary Airfields (EAFs), Forward Arming and Refueling Points (FARPs), etc.]. AD operations are performed by fixed-wing, tiltrotor or rotary-wing aircraft when it is more advantageous not to land. Delivery can be accomplished with aircraft internal/external loads, or loads can be air dropped using specially rigged aerial delivery equipment and systems. AD operations require detailed planning and integration at all levels and must support units in a rapidly changing environment. (JP 1, 3-0, 4-0, MCWP 3-20, MCTP 3-01B, MCTP 3-20A, 4-1, 4-11, 4-11.3, NDP-4, NWP 4-01, NAVSUP PUB Series)
**Performance Standard.** Plan, brief and execute a tactical airdrop delivery mission (External operations, internal cargo operations, or air drop) in a low to medium threat environment. If an L-Hour is utilized arrive in the LZ +/- 30 sec.

**Instructor.** MATSS representative, WTI (FLSE) designated by Wing, or MAWTS-1 representative

**Prerequisites.** AD-3240

**Ordnance.** IAW Phase

**Range Requirement.** Live fire range and approved drop zone as required

**External Syllabus Support.** HST, as required. Jump Master and ground safety personnel, as required

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**Goal.** Demonstrate the ability to conduct TRAP in a low to medium threat environment. TRAP is performed for the specific purpose of the recovery of personnel, equipment, and/or aircraft. TRAP is conducted to locate and extract distressed personnel and sensitive equipment from enemy controlled area during wartime or contingency operations to prevent capture. TRAP is performed by an assigned and briefed aircrew and is a subcomponent of Joint Personnel Recovery (PR). A TRAP mission may include personnel to conduct the search portion of recovery missions. The composition of a tactical recovery mission may vary from a single aircraft and aircrew to an assault support mission package that consists of multiple fixed-wing and rotary-wing aircraft with an onboard compliment of security, ground search, and medical personnel. (JP 1, 3-0, 3-50.2, MCRP 2-10A.2, 3-2, MCTP 3-01B, MCTP 3-20E, MCRP 3-20F.2, NDP 1, NWP 3-05)

**Performance Standard.** Plan, brief and execute a TRAP mission. Properly employ TRAP template. Effectively communicate with Isolated Personnel, Rescort, RMC and other supporting aircraft.

**Instructor.** MATSS representative, WTI (FLSE) designated by Wing, or MAWTS-1 representative

**Prerequisites.** TRAP-3340

**Ordnance.** IAW Phase

**Range Requirement.** Live fire and expendable range as required

**External Syllabus Support.** Escort and/or Command and Control aircraft are preferred if available. Isolated personnel in the objective area is preferred. Use of survival radios is preferred. Ground combat element is preferred if available.

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**Goal.** Demonstrate the ability to conduct an air evacuation operation in a low to medium threat environment. Air evacuation is the transportation of personnel and equipment from areas of operations to secure rear areas, to include casualty evacuations (CASEVAC), extraction of forces, or civilians. Transport helicopters, tiltrotor, and fixed-wing transport aircraft perform air evacuations. (JP 3-10.1, MCDP 1-0, MCWP 3-2, 3-11.4, 3-16, 3-24, 3-25, 3-27, 3-36)

**Performance Standard.** Plan, brief and execute a Tactical Air Evacuation Mission. If an L-Hour is utilized arrive in the LZ +/- 30 sec in a position to best support the ground combat element.

**Instructor.** MATSS representative, WTI (FLSE) designated by Wing, or MAWTS-1 representative

**Prerequisites.** AE-3440

**Ordnance.** IAW Phase

**Range Requirement.** Live fire and expendable range as required

**External Syllabus Support.** Ground Combat Element and/or Logistics Combat Element is preferred if available

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**Goal.** Demonstrate the ability to conduct tactical airborne rapid insertion/extraction operations in a low to medium threat environment. Helicopter Rope Suspension Techniques (HRST) provides Marines with the ability to conduct insertions and extractions where landings are impractical. Airborne rapid insertion/extraction includes methods such
as rappelling, fast rope, special patrol insertion and extractions, etc. (MCWP 3-2, MCTP 3-01B, MCTP 3-20E, MCRP 3-01B.1). A landing to the X, Y, or Offset may be used for the insert and/or extract if tactical considerations dictate that a landing would be most appropriate.

**Performance Standard.** Plan, brief and execute a tactical airborne rapid insertion/extraction mission. If a L-Hour is utilized arrive in the LZ +/- 30 sec in the best position to support the ground combat element. Execute an approach and hover within +/- 5’ of intended altitude and within 10’ of intended spot and/or fly with +/- 50’ of designated altitude and +/- 5 kts of designated airspeed.

**Instructor.** MATSS representative, WTI (FLSE) designated by Wing, or MAWTS-1 representative

**Prerequisites.** RIE-4980

**Ordnance.** Two .50 cal (TG and rounds per weapon are optional).

**Range Requirement.** Suitable CAL/MAL site.

**External Syllabus Support.** HRST Master and ground safety personnel, if applicable.

**MET-7006** 1.5 730 B,R,M 2+ CH-53K

**Goal.** Demonstrate the ability to provide aviation-delivered ground refueling to combat aircraft or tactical vehicles in a low to medium threat environment. Aviation-delivered ground refueling is a method of providing fuel to aircraft and tactical ground vehicles (TGV) utilizing CH-53K aircraft in austere locations, where no other source of fuel is readily available. This method of refueling permits operation of fixed- and rotary-wing aircraft and TGV without the requirement to commit the significant logistical assets necessary to operate helicopter expedient refueling systems (HERS), or tactical airfield fuel dispensing systems (TAFDS). ADGR can also quickly resupply established forward-arming and refueling (FARP) sites and forward-operating bases (FOB). The capability of the CH-53K to operate as a tactical ground refueler enhances MAGTF operations. (ANTTP 3-22.3-KC-130)

**Performance Standard.** Plan and brief a tactical mission IAW ASTACSOP and ANTTP 3-22.3-CH53. Remain oriented IAW ASTACSOP Magellan criteria. Arrive in LZ within +/- 30 sec of L-Hour and within 2 rotors of prebriefed landing point and or lead aircraft. Plan, brief and execute a tactical TBFDS refueling evolution. Calculate accurate fuel requirements; ensure aircraft integration and FARP site security.

**Instructor.** MATSS representative, WTI (FLSE) designated by Wing, or MAWTS-1 representative

**Prerequisites.** ADGR-4981

**Ordnance.** Two .50 cal (TG and 500 rounds per weapon are optional).

**Range Requirement.** Live fire range as required.

**External Syllabus Support.** TBFDS system, escort, MMT and/or Command and Control aircraft are optional.

**MET-7007** 1.5 730 B,R,M 2+ CH-53K

**Goal.** Demonstrate the capability to operate from Sea based sites. Marine aviation units maintain the capability to operate from Naval shipping (amphibious platforms, carriers, etc.) in line with platform and unit capabilities. (JP 3-0, MCWP 3-20)

**Performance Standard.** Plan, brief and execute a tactical mission to or from a sea based site or FCLP pad. Ensure aircrew properly plans for and demonstrate knowledge of the particulars of operating in the shipboard environment.

**Instructor.** MATSS representative, WTI (FLSE) designated by Wing, or MAWTS-1 representative

**Prerequisites.** SEA-4982

**Ordnance.** 2 .50 cal (TG and 500 rounds per weapon are optional).

**Range Requirement.** Live fire range as required.

**External Syllabus Support.** Ship or FCLP pad as required.
2.22 AVIATION CAREER PROGRESSION MODEL (ACPM) PHASE

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

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

**General.** The ACPM is intended to be an integrated series of academic events contained within each phase of training. All ACPM classes are available on the MAWTS-1 NIPR website:

https://MCALMS.usmc.mil

On the MCALMS NIPR website, under course catalog tab, are all ACPM course categories. Under the category links, all the ACPM classes are in media site format.

The PTO or designated representative will then manually update MSHARP and the Pilot’s APR Section III, Aircrew Ground School Training section using Enclosure 1 of this document.

Pilots who have previously completed classes listed under the ACPM syllabus may be given grandfather status and manually updated via MSHARP by the PTO or designated representative, at the discretion of the Squadron Commanding Officer. Additional applicability is IAW NAVMC 3500.14 Aviation T&R Program Manual, paragraph 2.11.

ACPM academic events are like any other academic event in that they serve as pre-requisites to selected flight events or stages. Several ACPM academic events are integrated as prerequisites for flight leadership syllabi. Squadron Commanding Officers shall ensure the requisite ACPM training requirements have been met prior to designating flight leaders. ACPM academic events, along with their identifying prerequisite association with other training phases/stages/events are listed below.

At the completion of each ACPM event, the appropriate training code shall be logged in M-SHARP by the squadron Pilot Training Officer (PTO) or designated representative, as appropriate. ACPM events do not have refly intervals.

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2.25 **T&R SYLLABUS MATRIX.** The below matrix summarizes T&R syllabus event Information.
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**TOTAL FAM STAGE**: 0 0.0 9 18.0 12 19.0

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| SINST | 1301  | RADIO INSTRUMENTS I (TACAN/VOR) | X X | 1.0 | (N) | S | 1 | 730 | 1300 |
| SINST | 1302  | RADIO INSTRUMENTS II (ILS/LOCALIZER) | X X | 1.0 | (N) | S | 1 | 730 | 1301 |
| SINST | 1303  | RADIO INSTRUMENTS III (GPS/RNP/RNAV) | X X | 1.0 | (N) | S | 1 | 730 | 1302 |
| SINST | 1304  | RADAR APPROACHES & LOST COMM PROCEDURES | X | 1.0 | (N) | S | 1 | * | 1303 |
| SINST | 1305  | SIM INSTRUMENT PROGRESS CHECK | X X | 2.0 | (N) | S | 1 | 730 | 1304 |
| INST   | 1306  | INSTRUMENT FLIGHT REVIEW | X X | 1.5 | (N) | A | 1 | 730 | 1305 |
| INST   | 1307  | INSTRUMENT PROGRESS CHECK | X X X X | 1.5 | (N) | A | 1 | 486 | 1306 |

**TOTAL INST STAGE**: 0 0.0 6 8.0 2 3.0

| NAV   | 1400  | INTRO TO VFR NAVIGATION | X X X | 2.0 | D | S | 1 | 486 | 1300 |
| NAV   | 1401  | VFR ROUTE AND FLIR NAVIGATION | X X X | 2.0 | D | S | 1 | 730 | 1400 |
| NAV   | 1402  | VFR NAV PROGRESS CHECK | X X X | 1.5 | D | A | 1 | * | 1401 |

**TOTAL NAV STAGE**: 0 0.0 2 4.0 1 1.5

2-152
### CH-53K PILOT T&R MATRIX (1000 & 5000 PHASE)

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**TOTAL ACAD STAGE**: B 40.0 | R 6.0 | S 0.0 | D 0.0 | E 0.0 | KOD 0.0

**FAM/INST STAGE**

| **FAM** | 2180 | CH-53K GPS TACTICAL ROUTE PLANNING | X | X | X | | G | | | | | | | | | | | |
| **FAM** | 2181 | CH-53K GPS TACTICAL ROUTE PLANNING | X | X | X | | G | | | | | | | | | | | |
| **FAM** | 2182 | CH-53K GPS TACTICAL ROUTE PLANNING | X | X | X | | G | | | | | | | | | | | |
| **FAM** | 2183 | CH-53K GPS TACTICAL ROUTE PLANNING | X | X | X | | G | | | | | | | | | | | |
| **FAM** | 2184 | CH-53K FLIR | X | X | X | | G | | | | | | | | | | | |
| **FAM** | 2185 | CH-53K FLIR | X | X | X | | G | | | | | | | | | | | |
| **FAM** | 2100 | FAM INST. EP SIM | X | X | X | 2.0 | (N) S/A 1 | 90 | 1902 | | | | | | | | | |
| **FAM** | 2101 | AIRCRAFT MANAGEMENT / RAD SYSTEMS SIM | X | X | X | 2.0 | (N) S/A 1 | 365 | 2100 | | | | | | | | | |
| **FAM** | 2102 | FLIGHT CONTROL MODES | X | X | X | 2.0 | (N) S/A 1 | * | 2101 | | | | | | | | | |
| **FAM** | 2103 | FAM INST. EP SIM | X | X | X | 1.5 | (N) A 1 | 365 | 2102 | | | | | | | | | |
| **FAM** | 2104 | FLIGHT CONTROL MODES | X | X | X | 1.5 | D A 1 | 365 | 2103 | | | | | | | | | |

**TOTAL FAM/INST STAGE**: B 0.0 | R 3.6 | S 0.0 | D 3.0 | E 0.0 | KOD 0.0

**FORM STAGE**

| **FORM** | 2186 | CH-53 TACTFORM | X | | G | | | | | | | | | | | | | |
| **FORM** | 2110 | TACTFORM SIM | X | | 2.0 | D S 2 | * | 2102 | | | | | | | | | |
| **FORM** | 2115 | TACTFORM SIM | X | X | X | 1.5 | (NS) A 2 | 180 | 2104, 2110 | | | | | | | | | |

**TOTAL FORM STAGE**: B 0.0 | R 1.0 | S 2.0 | D 1.5 | E 0.0 | KOD 0.0
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**CH-53K PILOT T&R MATRIX (2000-8000 PHASE)**

**GROUND THREAT REACTION STAGE (GTR)**

**HELICOPTER AIR TO AIR REFUELING STAGE (HAAR)**

**AERIAL GUNNERY STAGE (AG)**
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**TACTICS STAGE (TAC)**

**TOTAL TAC STAGE**

**NIGHT SYSTEMS HIGH LIGHT LEVEL STAGE (NS HLL)**

**TOTAL NS HLL STAGE**

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ACAD STAGE (ACAD)

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| ACAD   |       | 3081      | CONTested EMi OPERATIONS AND MITIGATION         | X | 0.7|   |   |       |       |     |     |      |        |       |              |                       |           |   |     |
| ACAD   |       | 3082      | NE EXECUTION                                    | X | 0.8|   |   |       |       |     |     |      |        |       |              |                       |           |   |     |
| ACAD   |       | 3083      | ACE, INTEL PREP OF THE BATTLESPACE              | X | 0.8|   |   |       |       |     |     |      |        |       |              |                       |           |   |     |
| ACAD   |       | 3084      | PERSONNEL RECOVERY (T)                          | X | 1.0|   |   |       |       |     |     |      |        |       |              |                       |           |   |     |
| ACAD   |       | 3085      | TRAP TTP (T)                                    | X | 1.0|   |   |       |       |     |     |      |        |       |              |                       |           |   |     |
| ACAD   |       | 3086      | CASEVAC                                         | X | 0.8|   |   |       |       |     |     |      |        |       |              |                       |           |   |     |
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3000 PHASE: MISSION SKILLS

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**COMBAT ASSAULT TRANSPORT STAGE (CAT)**

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**TOTAL AE STAGE: 0**

**TOTAL MISSION PHASE: 0**

**4000 PHASE - CORE PLUS**

**ACADEMIC STAGE (ACAD)**

| ACAD  | ACAD  | 4130      | INDEPENDENT HOOK | X |   |   | 0.5 |      | G   |   | +   |       |       |   |     |   |       |               |                |          |   |     |
| ACAD  | ACAD  | 4430      | FLIGHT DISCRETS | X |   |   | 0.7 |      | G   |   | *   |       |       |   |     |   |       |               |                |          |   |     |
| ACAD  | ACAD  | 4530      | DAS DISCRETS | X |   |   | 1.5 |      | G   |   | *   |       |       |   |     |   |       |               |                |          |   |     |
| ACAD  | ACAD  | 4551      | HHC PAY DISCRETS | X |   |   | 1.9 |      | G   |   | *   |       |       |   |     |   |       |               |                |          |   |     |
| ACAD  | ACAD  | 4582      | HELICOPTER PI & CM | X |   |   | 1.9 |      | G   |   | *   |       |       |   |     |   |       |               |                |          |   |     |
| ACAD  | ACAD  | 4583      | LUTT CALIST ICTY ASSAULT SUPPORT | X |   |   | 0.5 |      | G   |   | *   |       |       |   |     |   |       |               |                |          |   |     |
| ACAD  | ACAD  | 4584      | LUTT CALIST ICTY ASSAULT SUPPORT | X |   |   | 1.0 |      | G   |   | *   |       |       |   |     |   |       |               |                |          |   |     |
| ACAD  | ACAD  | 4680      | LUTT AIRASS(4000) | X | X |   | 1.5 |      | G   |   | *   |       |       | 1095 |          |   |       |               |                |          |   |     |
| ACAD  | ACAD  | 4780      | LUTT AIRASS(4000) | X | X |   | 1.0 |      | G   |   | *   |       |       | 1095 |          |   |       |               |                |          |   |     |
| ACAD  | ACAD  | 4781      | LUTT OPERATIONS PLANNING | X |   |   | 0.8 |      | G   |   | *   |       |       |   |     |   |       |               |                |          |   |     |
| ACAD  | ACAD  | 4900      | LUTT AIRASS(4000) | X |   |   | 1.0 |      | G   |   | *   |       |       |   |     |   |       |               |                |          |   |     |
| ACAD  | ACAD  | 4991      | LUTT AIRASS(4000) | X |   |   | 1.0 |      | G   |   | *   |       |       |   |     |   |       |               |                |          |   |     |
| ACAD  | ACAD  | 4992      | LUTT AIRASS(4000) | X |   |   | 1.0 |      | G   |   | *   |       |       |   |     |   |       |               |                |          |   |     |
| ACAD  | ACAD  | 4993      | LUTT AIRASS(4000) | X |   |   | 1.0 |      | G   |   | *   |       |       |   |     |   |       |               |                |          |   |     |
| ACAD  | ACAD  | 4994      | LUTT AIRASS(4000) | X |   |   | 1.0 |      | G   |   | *   |       |       |   |     |   |       |               |                |          |   |     |

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**CH-53K PILOT T & R MATRIX (2000-8000 PHASE)**

**ACADEMICS STAGE (ACAD)**

**NATOPS STAGE**

**CREW RESOURCE MANAGEMENT STAGE (CRM)**

- **TOTAL ACADEMIC STAGE**: 327.8
- **TOTAL NATOPS STAGE**: 60
- **TOTAL CRM STAGE**: 9

**AERIAL REFUELING INSTRUCTOR STAGE (ARI)**

**TACTICAL SIMULATOR INSTRUCTOR STAGE (TSI)**

**DEFENSIVE MEASURES INSTRUCTOR STAGE (DMI)**

**NIGHT SYSTEMS INSTRUCTOR STAGE (NSI)**

**6000 PHASE - REQUIREMENTS, CERTIFICATIONS, QUALIFICATIONS, DESIGNATIONS (RQD)**

**NATOPS STAGE**

**CREW RESOURCE MANAGEMENT STAGE (CRM)**

**TOTAL CHAINING**

2-170
## CH-53K PILOT T&R MATRIX (2000-8000 PHASE)

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6 Jul 21
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<td>ACPM</td>
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**TOTAL ACPM STAGE**: 53.9 0.0 0.0 0.0
CHAPTER 3
CH-53 CREW CHIEF (MOS 6173)

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<tr>
<th>PARAGRAPH</th>
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<td>INDIVIDUAL TRAINING AND READINESS REQUIREMENTS</td>
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<td>REQUIREMENTS, CERTIFICATIONS, QUALIFICATIONS, DESIGNATIONS STAGES</td>
<td>3.19</td>
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<tr>
<td>MISSION ESSENTIAL TASK (MET) PHASE</td>
<td>3.20</td>
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<td>MISSION ESSENTIAL TASK (MET) STAGE</td>
<td>3.21</td>
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<td>AVIATION CAREER PROGRESSION MODEL (ACPM) PHASE</td>
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<td>3.23</td>
</tr>
<tr>
<td>ELECTRONIC AIRCREW TRAINING FORM (EATF) REASON CODES</td>
<td>3.24</td>
</tr>
<tr>
<td>T&amp;R SYLLABUS MATRIX MATRICES</td>
<td>3.25</td>
</tr>
<tr>
<td>ACADEMIC TRACKING FORMS</td>
<td>3.26</td>
</tr>
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</table>
3.0 CREW CHIEF INDIVIDUAL TRAINING AND READINESS REQUIREMENTS: This T&R Syllabus is based on specific goals and performance standards designed to ensure individual proficiency in Core Skills, and Mission Skills, and Core Plus Skills. The goal of this chapter is to develop individual and unit war fighting capabilities.

3.1 CREW CHIEF (6173) TRAINING PROGRESSION MODEL: This model represents the recommended training progression for the average Crew Chief (6173) crewmember. Units should use the model as a point of departure to generate individual training plans.

3.2 CREW CHIEF PROGRAMS OF INSTRUCTION (POI): These tables reflect the average time-to-train versus the minimum to maximum time-to-train parameters in the Training Progression Model.

Program of Instruction (POI) Assignment

3.2.1 Basic, and Transition POI: Crew Chiefs assigned to Basic (B) and Transition (T) POIs shall fly the entire Basic (B) POI.

3.2.2 Basic POI

<table>
<thead>
<tr>
<th>Weeks</th>
<th>Phase of Instruction</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>Core Skill Introduction</td>
<td>HMHT-302</td>
</tr>
<tr>
<td>72</td>
<td>Core Skill Training</td>
<td>Tactical Squadron</td>
</tr>
<tr>
<td>112</td>
<td>Mission Skill Training</td>
<td>Tactical Squadron</td>
</tr>
</tbody>
</table>
3.2.3 Refresher POI

CH-53K CREW CHIEF
Refresher POI

<table>
<thead>
<tr>
<th>Weeks</th>
<th>Phase of Instruction</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>Core Skill Training</td>
<td>Tactical Squadron</td>
</tr>
<tr>
<td>12</td>
<td>Mission Skill Training</td>
<td>Tactical Squadron</td>
</tr>
<tr>
<td>16</td>
<td>Core Plus Training</td>
<td>Tactical Squadron</td>
</tr>
</tbody>
</table>

3.2. Refresher POI. The Refresher (R) POI is predicated on the experience of the Refresher Crew Chief. Previously designated Crew Chiefs returning to a flying status after being in a non-flying status for a period greater than 365 days shall be assigned to the Refresher (R) POI and fly all (R) coded events. The Squadron Commanding Officer may tailor the individual’s Refresher POI per the squadron standardization board recommendations and IAW NAVMC 3500.14 Chapter 2. When the (R) coded events within a stage of training are complete, the Crew Chief may be credited with the entire stage of training. This assumes the Crew Chief has previous proficiency in a stage of training. If the Crew Chief has no previous proficiency in a stage or particular event (i.e. event Never Been Attempted (NBA)), then the Refresher Crew Chief shall fly the entire stage or all events not previously attempted.

3.2.5 Series Conversion POI

CH-53K CREW CHIEF
Series Conversion POI

<table>
<thead>
<tr>
<th>Weeks</th>
<th>Phase of Instruction</th>
<th>Unit</th>
</tr>
</thead>
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<tr>
<td>6</td>
<td>Maintenance Conversion Training</td>
<td>CNATT</td>
</tr>
<tr>
<td>4</td>
<td>Core Skill Introduction Academics</td>
<td>HMHT-302</td>
</tr>
<tr>
<td>8</td>
<td>Core Skill Training</td>
<td>HMHT-302 / Tactical Squadron</td>
</tr>
</tbody>
</table>

3.2.6 Series Conversion POI. The series conversion POI is prescribed for personnel converting from CH-53E to CH-53K. All current CH-53E crew chiefs are required to attend the conversion training at CNATT, complete the Core Skill Introduction Academics from HMHT-302, and fly those 1000-6000 level flights designated by an (S) in the event description. When the (S) coded events within a stage of training are complete, the crew chief may be credited with the entire stage of training. If the series conversion crew chief has no previous proficiency in a stage or particular event (i.e. event Never Been Attempted (NBA)), then they shall fly the entire stage or all events not previously attempted. Crew chief instructors may be re-designated as their previous instructor designations at the completion of the prerequisite T&R events at the discretion of the Squadron Commanding Officer.

3.2.7 Conversion POI. The conversion POI is prescribed for personnel converting from other model aircraft into the CH-53K (i.e. a UH-1 Crew Chief converting to a CH-53K). Conversion crew chiefs shall complete at a minimum all flight events designated by an (S) in the event description as well as all applicable academic events. The Squadron Commanding Officer may add additional training requirements to fit the experience of the conversion crew chief as necessary. If the conversion crew chief has no similar previous proficiency in a stage or particular event (i.e. a UH-1 Crew Chief conducting internal cargo or dual point externals), then the conversion crew chief should fly the entire stage or all events not previously attempted.

3.2.8 Completion of (S) Events. Upon completion of all series conversion events within a stage of training, M-SHARP will automatically log all other events in that stage. This feature will only take place within the 2000, 3000, or 4000 level stages. All other stages with series conversion codes will not automatically update other codes within the stage and will require the squadron’s MSHARP administrators to baseline applicable codes within the stage.

3.2.9 Fleet Replacement Instructor FRSI POI.

CH-53K CREW CHIEF
Instructor Training

<table>
<thead>
<tr>
<th>Weeks</th>
<th>Phase of Instruction</th>
<th>Unit</th>
</tr>
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<tbody>
<tr>
<td>3</td>
<td>FRSI Academics</td>
<td>HMHT-302</td>
</tr>
<tr>
<td>3</td>
<td>Instructor Training</td>
<td>HMHT-302</td>
</tr>
</tbody>
</table>

3.3 PROFICIENCY & CURRENCY

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

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

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

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

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

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

3.3.3 **Skill Currency.** Currency is a control measure used to provide an additional margin of safety based on exposure frequency to a particular skill and applies to all MOS’s that must comply with NATOPS and CNAFINST 3710.7 requirements. It is a measure of time since the last event demanding that specific skill. For example, currency determines minimum altitudes in rules of conduct based upon the most recent low altitude fly date. Specific currency requirements for aircrew individual type mission profiles can be found in NAVMC 3500.14D Chapter 3.

3.4 **CERTIFICATION, QUALIFICATION, AND DESIGNATION TABLES.** The tables below delineate T&R events required to be proficient or waived to attain Requirements, Certifications, Qualifications and Designations. In addition to event requirements, all required stage lectures, briefs; squadron training, prerequisites, and other criteria shall be completed prior to completing final events. Certifications, qualification and designation letters signed by the Squadron Commanding Officer shall be placed in section 4 of the Aircrew Performance Records and NATOPS. Loss of proficiency in any qualification event causes the associated qualification to be lost. Regaining a qualification requires completing delinquent R-coded events associated with that qualification. Waiving of all Required Events leading to a Requirement, Certification, Qualification, or Designation, is not allowed.

<table>
<thead>
<tr>
<th>CH-53K CREW CHIEF/ AG/O REQUIREMENTS, CERTIFICATIONS, QUALIFICATIONS, AND DESIGNATIONS (RCQD)</th>
<th>INDIVIDUAL QUALIFICATION REQUIREMENTS (RCQD)</th>
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<tr>
<td>DM</td>
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<td>TG</td>
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<td>6601, 6602, 6610</td>
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<td>CRM</td>
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INDIVIDUAL DESIGNATION REQUIREMENTS

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<th>Event Requirements</th>
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<td>1901 and Designation Letter from FRS CO</td>
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<tr>
<td>TERFI</td>
<td>5700, 5701</td>
</tr>
<tr>
<td>AFFI</td>
<td>5300, 5301</td>
</tr>
<tr>
<td>NSFI</td>
<td>5600, 5601, 5602</td>
</tr>
<tr>
<td>NFI</td>
<td>5900, 5901, 5902</td>
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<tr>
<td>AGI</td>
<td>5400 through 5408</td>
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<tr>
<td>DMI</td>
<td>5800, 5801, 5802</td>
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<tr>
<td>FRSI</td>
<td>5100 through 5107</td>
</tr>
<tr>
<td>CRMF</td>
<td>6100, See CNAFINST 1542.7 Series</td>
</tr>
<tr>
<td>CRMI</td>
<td>6100, See CNAFINST 1542.7 Series</td>
</tr>
<tr>
<td>ANI</td>
<td>6100 given by a NATOPS Instructor</td>
</tr>
<tr>
<td>NI</td>
<td>6100 given by Model Manager</td>
</tr>
<tr>
<td>WTI</td>
<td>See WTI Course Catalog</td>
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3.5 SYLLABUS NOTES

3.5.1 AIRCREW TRAINING REFERENCES. Aircrew shall use the following references to ensure safe and standardized training procedures, grading criteria, and aircraft operation.

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<th>Designator</th>
<th>Title</th>
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<tr>
<td>CNAF M-3710.7</td>
<td>NATOPS General Flight and Operating Instructions</td>
</tr>
<tr>
<td>A1-H53XX-NFM-000</td>
<td>CH-53K NATOPS Flight manual</td>
</tr>
<tr>
<td>NAVMC 3500.14</td>
<td>Aviation Training and Readiness (T&amp;R) Program manual</td>
</tr>
<tr>
<td>MCO 4790.20</td>
<td>Individual training standards</td>
</tr>
<tr>
<td>MCRP 4-11.3E</td>
<td>Multiservice helicopter sling load manual</td>
</tr>
<tr>
<td>NTPP 3-22.3-53</td>
<td>CH-53 Air Naval Tactics Techniques and Procedures</td>
</tr>
<tr>
<td>NTPP 3-22.5-ASTACSOP</td>
<td>USMC Assault Support Tactical SOP</td>
</tr>
<tr>
<td>NTPP 3-22.5-CH-53</td>
<td>CH-53 Tactical Pocket Guide</td>
</tr>
<tr>
<td>NVD Manual</td>
<td>USN/USMC Helicopter Night Vision Device</td>
</tr>
<tr>
<td>A1-H53XX-CLG-000</td>
<td>CH-53K Cargo loading manual</td>
</tr>
<tr>
<td>TM HM-020-800-23&amp;P-M</td>
<td>Tactical Bulk Fuel Delivery System</td>
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<td>TM HM-020-800-10</td>
<td>TBFDS Operators Manual</td>
</tr>
<tr>
<td>NTRP 3-22.4 CH53E, Appendix H</td>
<td>TBFDS Checklist</td>
</tr>
<tr>
<td>EA Academic support package</td>
<td>MAWTS-1 Course Catalog</td>
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<tr>
<td>EA Instructor support package</td>
<td>MAWTS-1 Course Catalog</td>
</tr>
<tr>
<td>NTPP 3-22.3-53 Appendix B</td>
<td>Ground Threat Training</td>
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<tr>
<td>NTPP 3-22.3-53 Appendix A</td>
<td>Defensive Measures Training</td>
</tr>
<tr>
<td>NTRP 3-22.4</td>
<td>Naval Aviation Technical Information</td>
</tr>
</tbody>
</table>

3.5.2 General. This Manual is written to allow for local conditions and yet remain unclassified. DC AVN and CG MCCDC encourage squadrons to use the full range of tactics in the tactical manuals and adopt the latest developed and proven tactics. All events shall terminate with a comprehensive debrief with emphasis on aircrew performance using all evaluation techniques. Aircrew shall fly night events in accordance with the table of acronyms for environmental conditions.
3.5.3 Acronyms for crew requirements

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
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<tbody>
<tr>
<td>CCUI</td>
<td>Crew Chief Under Instruction</td>
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<tr>
<td>CC</td>
<td>Crew Chief</td>
</tr>
<tr>
<td>AG/OUI</td>
<td>Aerial Gunner/Observer Under Instruction</td>
</tr>
<tr>
<td>AG/O</td>
<td>Aerial Gunner/Observer</td>
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</table>

3.5.4 Environmental Conditions Matrix

<table>
<thead>
<tr>
<th>Code</th>
<th>Meaning</th>
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<tbody>
<tr>
<td>D</td>
<td>Shall be flown daytime</td>
</tr>
<tr>
<td>N</td>
<td>Shall be flown at night, may be aided or unaided.</td>
</tr>
<tr>
<td>N*</td>
<td>Shall be flown at night, must be flown unaided.</td>
</tr>
<tr>
<td>(N*)</td>
<td>May be flown at night – If flown at night, must be flown unaided.</td>
</tr>
<tr>
<td>(N)</td>
<td>May be flown at night – If flown at night; may be flown aided or unaided.</td>
</tr>
<tr>
<td>NS</td>
<td>Shall be flown at night – Mandatory use of Night Vision Devices.</td>
</tr>
<tr>
<td>(NS)</td>
<td>May be flown at night – If flown at night; must be flown with Night Vision Devices.</td>
</tr>
</tbody>
</table>

Note - Aircrew shall fly all night time events at least 30 minutes after official sunset.
Note – If the event is to be flown in the simulator the Instructor shall set the desired environmental conditions for the event.

3.5.5 Event Terms

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

3.5.6 Program of Instruction Matrix

<table>
<thead>
<tr>
<th>PROGRAM OF INSTRUCTION MATRIX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program of Instruction (POI)</td>
</tr>
<tr>
<td>Basic</td>
</tr>
<tr>
<td>Series Conversion</td>
</tr>
<tr>
<td>Conversion</td>
</tr>
<tr>
<td>Refresher</td>
</tr>
<tr>
<td>Maintain</td>
</tr>
</tbody>
</table>

Note - Transition Crew Chiefs shall be assigned to the Basic POI.

3.5.7 Re-Qualification (TERFO, AGO, DCO, UACO, NSCO, NSO HLL, NSO LLL, TGQ, DMQ, BIQ). Upon demonstration of proficiency, by flying those (R) coded events, IAW the Program Manual NAVMC 3500.14D, within the applicable stage in a specific core skill, aircrew may be re-qualified at the discretion of the Squadron Commanding Officer.

3.5.8 Instructor Re-Designation (TERFI, AGI, APFI, NSI, DMI). All Crew Chiefs that were previously designated as an Instructor returning to a flying status after being in a non-flying status for a period between 366 to 485 days shall fly the appropriate Refresher POI IAW with the above paragraph. Once the Crew Chief has demonstrated proficiency for the appropriate core skills and completed the appropriate pre-requisite may be re-designated an Instructor at the discretion of the Squadron Commanding Officer.

For those Crew Chiefs that were previously designated an Instructor returning to a flying status after being in a non-flying status for a period greater than 485 days shall by assigned to the Refresher POI per the MAWTS-1
CH-53 Course Catalog for the specific instructor syllabus. Once the Crew Chief has completed the required Refresher POI for the specific Instructor syllabus the Crew Chief may then be re-designated as an Instructor at the discretion of the Squadron Commanding Officer.

3.5.9 **Aviation Training Forms (ATF)**

All initial Basic (B), Series Conversion (S), and Conversion (S) POI events shall require an ATF. The ATF shall be filled out and signed by the Crew Chief Instructor as outlined by the instructor requirement per the individual T&R event. All ATFs shall have the NAVFLIR number logged and be marked either “SATISFACTORY” or “UNSATISFACTORY”.

All initial Refresher (R) POI events shall require an ATF. The ATF shall be filled out and signed by the Crew Chief Instructor as outlined by the instructor requirement per the individual T&R event. All Refresher ATFs shall be annotated with a (R) after the T&R event code to annotate that the event was a refresher. All ATFs shall have the NAVFLIR number logged and be marked either “SATISFACTORY” or “UNSATISFACTORY”.

All POI events deemed to be “UNSATISFACTORY” shall require an ATF. The ATF shall be filled out and signed by the Crew Chief Instructor as outlined by the instructor requirement per the individual T&R event. These events shall not be logged on the NAVFLIR for the individual nor shall they receive credit for conducting these events.

All individual instructors shall report to the Enlisted Aircrew Training Manager (EATM) within a 24 hour period and provide them with the completed ATFs for the event. The EATM shall ensure that all ATFs are properly logged in the individual’s APR within 48 hours after the event has been completed.

All ATFs shall be logged in section 3 of the individual’s APR jacket under the T&R Evaluated Flights tab. The ATFs shall be logged in order of the “T&R Tracker Table” with the highest numbered T&R code on top. All Refresher ATFs shall be logged in the same manner except that they shall all be grouped together and placed on the top of the other ATFs and have the refresher syllabus letter signed by the Squadron Commanding Officer placed on top. All “UNSATISFACTORY” ATFs shall be logged in the same order and shall remain the individuals APR jacket. The T&R Tracker Table shall be placed in section 3 of the APR and placed on top of the T&R Evaluated Flights Tab. The tracker table is located in the MAWTS-1 course catalog Appendix F.

3.5.10 **ACADEMIC TRAINING:** The Academic syllabus is designed to ensure aircrew receive the proper academic training prior to starting a new phase and stage of training. Within each phase of training (0000-6000) there are corresponding stages, each stage has an academic syllabus. The required academic syllabus for each stage of training is further delineated in the beginning paragraphs of each phase. Each phase and stage contain specific academic requirements which must be completed either prior to phase and/or stage initiation or prior to phase and/or stage completion. Academic/ground training events can either be accomplished by an individual utilizing self-paced courseware or presented by a qualified instructor. The Enlisted Aircrew Training Manager shall ensure that the appropriate academic/ground training event is manually updated in MSHARP and logged in the APR.

The purpose of the academic syllabus is to ensure that required academic courses for each phase/stage of training are completed and logged in M-SHARP for each Crew Member. A summary of academic classes required for all of the phases of training (0000-6000) are listed below with their corresponding T&R code. Where indicated, standardized academic training materials exist and may be obtained from the sponsoring activity.

The academic/ground training shall be complete IAW the phase and/or stage requirements and prerequisites. Upon completion, the Crew Chief shall report to the Enlisted Aircrew Training Manager (EATM) in the Operations Department.

The EATM shall manually update the training code in MSHARP.
The EATM shall log the academic/ground training event on the Academic Tracker.
The EATM shall ensure that the Academic Tracker is located in the individuals APR jacket in section 3 under the ground school tab.

Additional academic/ground training classes not listed as requirements in the T&R shall be logged on the Additional Academic Tracker and logged in section 3 of the individuals APR jacket under the ground school tab.
3.6 **CORE INTRODUCTION PHASE**

**General.** Prior to starting 1000 phase, aircrew must complete: flight physical, Naval Aviation Water Survival Training Program (NAWSTP) and Naval Aviation Physiology Training Program (NAPTP).

**Stages.** The following stages are included in the Core Skill Introduction phase.

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3.7 **CORE INTRODUCTION STAGES**

3.7.1 **Academics (ACAD)**

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<td>EVALUATION (EVAL)</td>
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</tbody>
</table>

3.7.1.1 **Computer Based Training (CBT)**

**Purpose.** To provide the CCUI with a basic understanding of CH-53K systems and operating characteristics.

**General.** Instructors shall complete all applicable academic events in this phase of training prior to performing instructor duties.

**Crew Requirement.** CCI/CCUI

**Goal.** Provide the CCUI with CH-53 Historical background.

**Requirement**

**Introduce.** General CH-53 historical information

**Performance Standard.** CCUI is responsible for completing statements to demonstrate understanding of CH-53: Historical information; NATOPS manual and related maintenance publications

**External Syllabus Support.** Electronic classroom

**Prerequisite.** LECT-0200

**Goal.** Provide the CCUI with the basic knowledge required to navigate the CH-53K publications.

**Requirement**

**Introduce.**

CH-53K NATOPS manual
Training and Readiness (T&R) manual
Interactive Electronic Technical Manual (IETM)

**Performance Standard.** CCUI is responsible for completing statements to demonstrate understanding of CH-53: NATOPS manual, T&R Manual, and IETM.

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External Syllabus Support: Electronic classroom

Prerequisite: CBT-0100

**CBT-0102** 1.0 * B.S * G CBT

Goal. Introduce CCUI to the components of the cockpit and cabin interior and the identification of water lines, butt lines, and stations.

Requirement

- Introduce
  - Cabin interior
  - Water lines, butt lines, & stations
  - Cockpit
  - Cabin emergency equipment
  - Emergency Egress Locations

Performance Standard. CCUI is responsible for completing statements to demonstrate understanding of Cabin interior, Cockpit, waterlines, butt lines, stations, and Cabin emergency equipment.

External Syllabus Support: Electronic classroom

Prerequisite: CBT-0101

Reference. A1-H53XX-NFM-000

**CBT-0103** 1.0 * B.S * G CBT

Goal. Introduce the CCUI to the location of aircraft exterior components, panels, danger areas, and hand/foot holds.

Requirement

- Introduce
  - Helicopter dimensions
  - Component locations
  - Danger areas
  - Hand/Foot Holds and safe walking areas.

Performance Standard. CCUI is responsible for completing statements to demonstrate understanding of Helicopter dimensions, Component locations, hand/foot holds, and Danger areas.

External Syllabus Support: Electronic classroom

Prerequisite. CBT-0102

Reference. A1-H53XX-NFM-000

**CBT-0104** 1.0 * B.S * G CBT

Goal. Introduce CCUI to the blade and pylon fold and spread procedures and functions.

Requirement

- Introduce
  - Blade/Pylon fold/spread safety considerations
  - Blade fold procedures
  - Blade spread procedures
  - Pylon fold procedures
  - Pylon spread procedures

Performance Standard. CCUI is responsible for completing statements to demonstrate understanding of Blade/Pylon fold/spread safety considerations, Blade fold procedures, Blade spread procedures, Pylon fold procedures, and Pylon spread procedures.

External Syllabus Support: Electronic classroom

Prerequisite. CBT-0103
Reference. A1-H53XX-NFM-000

CBT-0105 1.0 * B.S * G CBT

Goal. Introduce Emergency Procedures (EPs) to the CCUI.

Requirement

Introduce

- Fire EPs
- Smoke/Fumes EPs
- Emergency landing
- Landing gear system failure
- Transmission Failure
- Engine Failure
- Hydraulic Failure
- Electrical Failure

Performance Standard. CCUI is responsible for completing statements to demonstrate understanding of Fire, Smoke/Fumes, Emergency landing, Landing gear system failure, transmission failure, engine failure, hydraulic failure, and electrical failure.

External Syllabus Support. Electronic classroom

Prerequisite. CBT-0103

Reference. A1-H53XX-NFM-000

CBT-0106 1.0 * B.S * G CBT

Goal. Introduce the CCUI to taxi, take off and in-flight checks and procedures.

Requirement

Introduce

- Hand and arm signals
- Aircraft clearance
- Pre-taxi, take off, in-flight, and landing checklists

Performance Standard. CCUI is responsible for completing statements to demonstrate understanding of Hand and arm signals, aircraft clearance, Pre-taxi, take off, in-flight, and landing checklists.

External Syllabus Support. Electronic classroom

Prerequisite. CBT-0103

Reference. A1-H53XX-NFM-000

CBT-0107 1.0 * B.S * G CBT

Goal. Introduce the CCUI to the functionality of cargo securing equipment and how to properly utilize the equipment to secure cargo.

Requirement

Introduce

- Functionality of cargo securing equipment
- Proper use of cargo securing equipment
- Stowage of cargo securing equipment
- Cabin rollers and pallet guide rail and lock system
- Winch operation and procedures
- Cargo ramp and flippers operations and procedures

Performance Standard. CCUI is responsible for completing statements to demonstrate understanding of Functionality of cargo securing equipment, proper use of cargo securing equipment, stowage of cargo securing equipment, cabin rollers and pallet guide rail and lock system, winch operation and procedures, cargo ramp and flippers operations and procedures.

External Syllabus Support. Electronic classroom
Goal. Introduce the CCUI to the multifunctional display system (MFD).

Requirement

Introduce
MFD system operation
Line Select Key (LSK) navigation
MFD page manipulation

Performance Standard. CCUI is responsible for completing statements to demonstrate understanding of: MFD system operation, Line Select Key (LSK) navigation, and MFD page manipulation.

External Syllabus Support. Electronic classroom

Goal. Familiarize the CCUI with basic weight and balance procedures.

Requirement

Introduce
CG Limitations
Control Display Unit (CDU)
Aircraft axle weight limitations
Proper loading of various weights IAW CG limitations.

Performance Standard. CCUI is responsible for completing statements to demonstrate understanding of weight and balance.

External Syllabus Support. Electronic classroom

Goal. Familiarize the CCUI with the integrated vehicle health monitoring system (IVHMS).

Requirement

Introduce
Theory of operation.
Principles of operation for the engine indication & crew alerting system (EICAS)
Understanding of warnings, cautions, and advisories (WCAs)
Understanding of the systems (SYS) pages

Performance Standard. CCUI is responsible for completing statements to demonstrate understanding of IVHMS: Theory of operation, principles of EICAS, WCAs, and SYS pages.

External Syllabus Support. Electronic classroom

Reference. A1-H53XX-NFM-000
3.7.1.2 Lectured Training (LECT)

Purpose. To provide the CCUI with a basic understanding of the procedures required to perform a CH-53K Daily Inspection and prepare the CCUI and helicopter for flight.

General. Crew Chief Instructors under training (CCIUT) shall complete all applicable 0500 stage events in this phase of training prior to performing instructor duties.

Crew Requirement. CCI/CCUI

**LECT-0200** 2.0 * B * G CLSRM

**Goal.** Provide Course Introduction Brief to ensure (CCUI) understands the expectations and requisite knowledge required to complete the CH-53 Crew Chief Training Course.

Requirement

Discuss

- Course overview and design
- Study guide
- Class schedule
- Squadron check-in
- Academic handouts
- Course References
- Expectations of CCUI
- Schoolhouse procedures

Demonstrate

- Classroom computer access
- Basic operation of Training Assets

Performance Standard

a) CCUI is responsible for knowledge of: Course overview and design, Study guide, Class schedule, Squadron check-in, Academic handouts, Course References, Expectations of CCUI and Schoolhouse procedures.

b) CCUI is responsible for observing while Instructor performs: Classroom computer access and Basic operation of Training Assets

Prerequisite. Squadron operations department check-in.

Reference. HMT-302 Marine Enlisted Aircrew Training SOP

**LECT-0201** 1.5 * B * G CLSRM

**Goal.** The CCUI understands the safety considerations for operations on the flightline and on the helicopter.

Requirement

Discuss

- Personal Protective Equipment (PPE)
- Aircraft caution areas
- Flightline safety procedures

Performance Standard. CCUI is responsible for knowledge of procedures required for: PPE, aircraft caution areas, flightline safety procedures.

Reference. Naval Aviation Maintenance Program (NAMP)

**LECT-0202** 1.5 * B * G CLSRM

**Goal.** The CCUI understands the procedures, common terminology and hand and arm signals for basic ground handling and aircraft movement procedures and safety protocols.

Requirement

Discuss

- Ground handling procedures
Fire extinguisher safety considerations
Aircraft movement
Required personnel and positions during aircraft movement
Basic hand and arm signals

Performance Standard. CCUI is responsible for knowledge of procedures required for: Describe component location, operation, and procedures related to ground handling operations.

Prerequisite. CBT-0103
Reference. A1-H53XX-NFM-000, IETM

LECT-0203 1.0 * B,S * G CLSRM

Goal. Familiarize CCUI with the nomenclature, Theory of Operation and Daily inspection criteria for the aircraft interior.

Requirement
Discuss
Cockpit section
Pilot and Copilot Seats
Inceptors
Co-pilot fire bottle
General security, integrity, and FOD.
Pilot overhead circuit breaker panel
Cabin section
IMARS
APU accumulators
Seats
Escape hatches
Fire bottles
IFAKs
Fuel, oil, and hydraulic lines
Windows
Cabin Miscellaneous Control Panel
Crew Chief Communication Control Panel
Gust Lock
Cabin floor storage
Cabin Rollers & Pallet Guides

Performance Standard. CCUI is responsible for knowledge of nomenclature, theory of operation, and procedures required to perform a daily inspection of: aircraft interior.

Prerequisite. LECT-0201, LECT-0202
Reference. IETM

LECT-0204 1.5 * B,S * G CLSRM

Goal. Familiarize CCUI with the nomenclature, theory of operation and Daily inspection criteria for the electronics compartments, Spot lights, Pitot and static tube ports, aerial refueling probe, and FLIR.

Requirement
Discuss
Right electronics compartment
Battery circuit breakers
Nose electronics compartment
Left side electronics compartments
Spot lights
FLIR
Pitot and static tube ports
Aerial refueling probe

**Performance Standard.** CCUI is responsible for knowledge of nomenclature, theory of operation, and procedures required to perform a daily inspection of: aircraft electronics bays, pitot and static tube ports, spot lights, aerial refueling probe, and FLIR.

**Prerequisite.** LECT-0201, LECT-0202

**Reference.** IETM

**LECT-0205 1.0  * B.S  * G  CLSRM**

**Goal.** Familiarize CCUI with the nomenclature, theory of operation and Daily inspection criteria for landing gear and all associated lines and hardware.

**Requirement**

**Discuss**

- Nose gear door
- Safety pins
- Emergency blow down cylinders
- Nose landing gear
- Pitot static drain lines
- Main Landing Gear (MLG)
- MLG brake assembly
- Servicing and inflation.
- Shock struts for wear and leakage

**Performance Standard.** CCUI is responsible for knowledge of nomenclature, theory of operation, and procedures required to perform a daily inspection of: landing gear.

**Prerequisite.** LECT-0201, LECT-0202

**Reference.** IETM

**LECT-0206 1.5  * B.S  * G  CLSRM**

**Goal.** Familiarize CCUI with the nomenclature, theory of operation and Daily inspection criteria for the refuel panel, sponsons and left and right fuselage.

**Requirement**

**Discuss**

- Pressure refueling panel
- Sump drain valves
- Engine drain outlets
- Gravity fill caps
- Sponson
- Fuselage
- Formation lights
- Position lights

**Performance Standard.** CCUI is responsible for knowledge of nomenclature, theory of operation, and procedures required to perform a daily inspection of refuel panel, sponsons, and left and right fuselage.

**Prerequisite.** LECT-0201, LECT-0202

**Reference.** IETM

**LECT-0207 1.5  * B.S  * G  CLSRM**

**Goal.** Familiarize CCUI with the nomenclature, theory of operation and Daily inspection criteria for all components associated with engines, nose gear boxes, and engine air particle protection system (EAPPS).

**Requirement**

**Discuss**
Engines
- Engine Nacelles
- Engine drains and fluid lines for leakage
- Fire extinguisher lines and sensors
- Starter system
- Oil level and servicing
- Engine mounts
- Exhaust mounts and tailpipe
- T5 assembly
- Fuel system
- Bleed air lines
- Electrical system
- Variable Geometry Actuators (VGA)
- Full authority digital engine control (FADEC)
- Fuel metering unit (FMU)
- EAPPS
- EAPPS blower and latches
- NGB
- Chip detector
- Filler cap and servicing
- Oil filter
- Oil cooler
- Impeller
- NGB fairing
- Output drive shafts & coupling assemblies
- Support bearing
- Mid shaft hangar bearing sensor

Performance Standard. CCUI is responsible for knowledge of nomenclature, theory of operation, and procedures required to perform a daily inspection of: Engine, EAPPS, and NGB.

Prerequisite. LECT-0201, LECT-0202

Reference. IETM

LECT-0208 1.5 * B.S * G CLSRM

Goal. Familiarize CCUI with the nomenclature, theory of operation and Daily inspection criteria for the aft main rotor pylon.

Requirement Discuss
- Rotor brake system
- On board inert gas generating system (OBIGGS)
- Blade fold safety valve
- MGB oil cooler system
- 2nd stage hydraulic heat exchanger
- 2nd stage hydraulic system

Performance Standard. CCUI is responsible for knowledge of nomenclature, theory of operation, and procedures required to perform a daily inspection of: Aft main rotor pylon.

Prerequisite. LECT-0201, LECT-0202

Reference. IETM

LECT-0209 1.0 * B.S * G CLSRM

Goal. Familiarize CCUI with the nomenclature, theory of operation and Daily inspection criteria for the tail drive shafts and disconnect coupling.
Requirement

Discussion

Tail driveshaft assemblies
Tail driveshaft flexible diaphragm couplings
Tail driveshaft hangar bearings & sensors
Disconnect coupling
Cleaning and greasing
Formation lights

Performance Standard

a) CCUI is responsible for knowledge of nomenclature, theory of operation, and procedures required to perform a daily inspection of: tail driveshaft’s and disconnect coupling.

b) CCUI is responsible for understanding procedures required to clean and grease the disconnect coupling.

Prerequisite. LECT-0201, LECT-0202

Reference. IETM

LECT-0210 1.5  * B,S  *  G  CLSRM

Goal. Familiarize CCUI with the nomenclature, theory of operation and Daily inspection criteria for the Tail skid, Intermediate gearbox, Tail pylon and stabilizer structure, rotor positioner, and tail rotor actuator.

Requirement

Discussion

Tail pylon and stabilizer structure
Intermediate gearbox
    Chip detector
    Intermediate gearbox sight gauge, filler cap, & servicing
    Intermediate gearbox input and output flexible diaphragm couplings
Rotor positioner
Tail rotor actuator
Tail bumper rod
Tail bumper actuator

Performance Standard. CCUI is responsible for knowledge of nomenclature, theory of operation, and procedures required to perform a daily inspection of: tail pylon and stabilizer structure, intermediate gearbox, rotor positioner, tail rotor actuator, and tail skid.

Prerequisite. LECT-0201, LECT-0202

Reference. IETM

LECT-0211 1.0  * B,S  *  G  CLSRM

Goal. Familiarize CCUI with the nomenclature, theory of operation and Daily inspection criteria for the tail rotor head, tail rotor servo, tail gear box, and tail rotor blades.

Requirement

Discussion

Tail rotor head
Horizontal stabilizer
Pitch beam
Pitch change shaft
Tail rotor servo
Tail gearbox
    Sight gauge, filler cap, & servicing
    Fairings
Tail rotor blades
    Tip drain hole
Blade pitch links
Formation lights

Performance Standard. CCUI is responsible for knowledge of nomenclature, theory of operation, and procedures required to perform a daily inspection of: tail rotor head, tail gearbox, tail rotor servo, and tail rotor blades.

Prerequisite. LECT-0201, LECT-0202

Reference. IETM

LECT-0212 1.5 * B.S * G CLSRM

Goal. Familiarize CCUI with the nomenclature, theory of operation and Daily inspection criteria for the Main gearbox.

Requirement
Discuss
Main gearbox
   Main gearbox remote mounting unit (RMU)
   Chip detectors
   Oil filters
   Sight gauge, filler cap, & servicing
   Pressure sensors
   Gust lock
   Main rotor shaft seal runner
   Oil cooler lines
   #1 & 2 Generators and permanent magnetic alternators (PMAs)

Performance Standard. CCUI is responsible for knowledge of nomenclature, theory of operation, and procedures required to perform a daily inspection of: main gearbox.

Prerequisite. LECT-0201, LECT-0202

Reference. IETM

LECT-0213 1.5 * B.S * G CLSRM

Goal. Familiarize CCUI with the nomenclature, theory of operation and Daily inspection criteria for the forward main rotor pylon compartment.

Requirement
Discuss
   1st stage hydraulic system
   1st stage hydraulic heat exchanger
   Utility hydraulic system
   Utility hydraulic heat exchanger
   Ground operations pump (GOP)
   APU start motor and accumulators

Performance Standard. CCUI is responsible for knowledge of nomenclature, theory of operation, and procedures required to perform a daily inspection of: main rotor pylon hydraulics.

Prerequisite. LECT-0201, LECT-0202

Reference. IETM

LECT-0214 1.5 * B.S * G CLSRM

Goal. Familiarize CCUI with the nomenclature, theory of operation and Daily inspection criteria for the auxiliary power unit (APU) and environmental control system (ECS).

Requirement
Discuss
APU
Exhaust
Intake
Barrier filter
Fuel system
Oil system & servicing
Engine control harness
#3 APU generator

ECS
Components
Ducting
Hydraulic lines
Condenser bracket
Electronic control unit

Performance Standard. CCUI is responsible for knowledge of nomenclature, theory of operation, and procedures required to perform a daily inspection of: APU and ECS.

Prerequisite. LECT-0201, LECT-0202

Reference. IETM

LECT-0215 1.0 * B.S * G CLSRM

Goal. Familiarize CCUI with the nomenclature, theory of operation and Daily inspection criteria for the main rotor head and main rotor blades.

Requirement

Discuss

Main rotor head
Hub, Yokes, Sleeves, and Hinge cuff assemblies
CF spherical and centering elastomeric bearings
Dampers
Droop and flap stops
Pitch control rods (PCRs) and PCR bearings
PCR locking keys
Rotating and stationary scissors
Upper servo
MR servo output bearing
Electrical harnesses
Pitch locks
Hydraulic hoses
Blade lock pins

Main rotor blades
Hinge cuff
Root and tip drain holes
Tip cap
Bonding jumpers and wire harnesses
Security, integrity

Performance Standard. CCUI is responsible for knowledge of nomenclature, Theories of Operation, and procedures required to perform a daily inspection of: main rotor head and main rotor blades.

Prerequisite. LECT-0201, LECT-0202

Reference. IETM

LECT-0216 1.0 * B.S * G CLSRM

Goal. Familiarize CCUI with the nomenclature, theory of operation and Daily inspection criteria for the mission systems.
**Requirement**

**Discuss**

- Pendants
- Emergency Release Mechanism (ERMS)
- Center hook tension member
- Electrical connectors
- Grounding strap
- Load cells
- Cargo hook/pendant retrieval line
- Cartridge activated device(s) (CADs)
- Pendant covers
- Breakaway safety wire
- Cargo hook lights
- Aircrew portable pendant control
- Operational check of cargo winch(s)
- Fast rope system
- Ensuring proper aircraft configuration

**Performance Standard.** CCUI is responsible for knowledge of nomenclature, theory of operation, and procedures required to perform a daily inspection of mission systems.

**Prerequisite.** LECT-0201, LECT-0202

**Reference.** IETM

**LECT-0217**  
1.0  *  B,S  *  G  CLSRM

**Goal.** Familiarize CCUI with the inspection criteria for performing a turnaround inspection.

**Requirement**

**Discuss**

- Turnaround inspection criteria
- Turnaround inspection
- Fuel samples

**Performance Standard.** CCUI is responsible for knowledge of procedures required to perform turnaround inspection and fuel samples.

**Prerequisite.** LECT-0201, LECT-0202

**Reference.** IETM

**LECT-0218**  
1.0  *  B,S  *  G  CLSRM

**Goal.** Familiarize the CCUI with the procedures for Auxiliary Power Unit (APU) operation.

**Requirement**

**Discuss**

- APU preflight/inspection
- Cockpit preflight/inspection
- Safety precautions
- Fire bottle procedures
- Hand and arm signals
- APU operation
- ECS operations

**Performance Standard.** CCUI is responsible for knowledge of procedures required to perform: APU preflight/inspection, cockpit preflight/inspection, safety precautions, fire bottle procedures, hand and arm signals, and APU operation.

**Prerequisite.** LECT-0201, LECT-0202

**Reference.** A1-H53XX-NFM-000
LECT-0219  2.5 *   B *   G  CLSRM
Goal. Familiarize the CCUI with the fundamentals of security, integrity, FOD, and leakage and introduce the responsibilities associated with the plane captain program.

Requirement
Discuss
Fundamentals and qualities that make up a plane captain
Plane captain program

Performance Standard. CCUI is responsible for knowledge of procedures required for: fundamentals and qualities that make up a plane captain, and the plane captain program.

Reference. COMNAVFORINST 4790.2

LECT-0220  1.0 *   B *   G  CLSRM
Goal. Familiarize the CCUI with the proper CH-53K egress procedures.

Requirement
Discuss
Water egress procedures
Proper egress procedures
CH-53K egress points

Performance Standard. CCUI is responsible for knowledge of: water egress procedures, proper egress procedures, and CH-53K egress points.

Prerequisite. LECT-0201
Reference. A1-H53XX-NFM-000

LECT-0221  3.0 *   B,S *   G  CLSRM
Goal. Familiarize the CCUI with the proper CH-53K preflight, prestart, and post flight inspections.

Requirement
Discuss
Preflight procedures
   Aircraft configuration
   Visual inspection
   Panel check
Prestart procedures
   PFBIT
   APU operation
Post flight procedures
   Visual inspection
   A/C tie down procedures

Performance Standard. CCUI is responsible for knowledge of: preflight, prestart, and post flight inspections.

Prerequisite. LECT-0201, CBT-0108
Reference. A1-H53XX-NFM-000

LECT-0222  3.5 *   B *   G  CLSRM
Goal. Introduce aircrew responsibilities.

Requirement
Discuss
Flight schedules
   Taxiing & In-flight responsibilities
   Hot seat procedures
Training and Readiness manual (T&R)
Flight equipment
Aircraft turn-up/shut down
Standard Terminology
NATOPS briefing
Confined Area Landings (CALS)
Pressure refueling
ICS procedures

Performance Standard. CCUI is responsible for knowledge of: flight schedules, flight equipment, aircraft turn-up/shutdown, standard terminology, NATOPS briefing, CALs, and pressure refueling.

Prerequisite. LECT-0201, CBT-0106

Reference. A1-H53XX-NFM-000, NTTP 3-22.3-53

LECT-0223 1.0 * B * G CLSRM

Goal. Introduce general flight information.

Requirement
Discuss
Weather
Automatic Terminal Information Service (ATIS)
Navigation
Standard Terminology
Radio calls

Performance Standard. CCUI is responsible for knowledge of general flight information.

Prerequisite. FAM-1104

Reference. CNAF M-3710.7

LECT-0224 1.0 * B,S * G CLSRM

Goal. Familiarize the CCUI with external transportation of cargo, standard terminology, and operating with a Helicopter Support Team (HST).

Requirement
Discuss
Single point external cargo operations
Dual point external cargo operations
Independent load cargo operations
Emergency jettison of cargo
Safety considerations while operating with HST

Performance Standard. CCUI is responsible for knowledge of procedures required to perform: single point external cargo operations, dual point external cargo operations, independent load cargo operations, emergency jettison of cargo, and safety considerations while operating with HST.

Prerequisite. LECT-0201

Reference. A1-H53XX-NFM-000, NTTP 3-22.3-53

LECT-0225 1.0 * B * G CLSRM

Goal. Familiarize the CCUI with terrain flight maneuvers and common terminology.

Requirement
Discuss
3 types of terrain flight
Terrain flight maneuvers
Aircraft clearances
Standard terminology

**Performance Standard.** CCUI is responsible for knowledge of procedures required to perform 3 types of terrain flight, terrain flight maneuvers, aircraft clearances, standard terminology.

Reference. NTTP 3-22.3-53

<table>
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<tr>
<th>LECT-0226</th>
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**Goal.** Familiarize the CCUI with formation flight operations.

**Requirement**

- Discuss
  - Standard terminology
  - Formation flight considerations
  - Aircraft clearances

**Performance Standard.** CCUI is responsible for knowledge of procedures required to perform formation flight operations.

Reference. NTTP 3-22.3-53

### 3.7.1.3 LAB Training (LAB)

**Purpose.** To provide the CCUI with basic skills required to perform CH-53K Daily and Turnaround Inspections and prepare the CCUI and helicopter for flight.

**General**

- **Instructors shall**
  - a) Complete all applicable 0500 stage events in this phase of training prior to performing instructor duties.
  - b) Be a designated CH-53K Plane Captain.

**Crew Requirement.** CCI/CCUI

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**Goal.** Provide the CCUI with the fundamental skills required for promoting safe procedures and considerations when conducting ground operations on and/or around the aircraft.

**Requirement**

- **Discuss**
  - Procedures for entering/exiting rotor arc
  - Engine exhaust danger areas
  - Fire bottle considerations during APU and engine start
  - Movement of aircraft

- **Introduce**
  - Entering/exiting rotor arc
  - Movement of aircraft

**Performance Standard**

a) CCUI is responsible for recognizing and avoiding: rotor arc hazard areas, procedures for entering/exiting rotor arc, engine exhaust danger areas, and fire bottle considerations during APU and engine start.

b) CCUI is responsible for performing procedures required for: movement of aircraft Hand and arm signals and entering/exiting rotor arc.

**Prerequisite.** LECT-0201, LECT-0202

**Reference.** A1-H53XX-NFM-000

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**Goal.** Provide the CCUI with the fundamental skills required to perform a daily inspection of the aircraft interior.
NAVMC 3500.129
6 Jul 21

Requirement

Introduce Inspection of:
  Cockpit section
  Pilot and Copilot Seats
  Interceptors
  Co-pilot fire bottle
  General security, integrity, and FOD.
  Pilot overhead circuit breaker panel
  Cabin section
  IMARS
  APU accumulators
  Seats
  Escape Hatches
  Fire bottles
  IFAKs
  Fuel, oil, and hydraulic lines
  Windows
  Cabin Miscellaneous Control Panel
  Cabin Communication Control Panel
  Gust Lock
  Cabin floor storage
  Cabin Rollers & Pallet Guides

Performance Standard. CCUI is responsible for performing procedures required to inspect: cockpit section and cabin section.

Prerequisite. LECT-0203

Reference. IETM

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</table>

Goal. Provide the CCUI with the fundamental skills required to perform a daily inspection of the electronics compartments, spot lights, pitot and static tube ports, aerial refueling probe, and FLIR.

Requirement

Introduce Inspection of:
  Right electronics compartment
  Battery circuit breakers
  Nose electronics compartment
  Left side electronics compartments
  Spot lights
  Pitot and static tube ports
  FLIR
  Aerial refueling probe

Performance Standard. CCUI is responsible for performing procedures required to inspect: electronics compartments, spot lights, pitot and static tube ports, aerial refueling probe, and FLIR.

Prerequisite. LECT-0204

Reference. IETM

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</table>

Goal. Provide the CCUI with the fundamental skills required to perform a daily inspection of the landing gear and all associated lines and hardware.

Requirement

Introduce Inspection of:
  Nose landing gear
Nose gear door
Emergency blow down cylinders
Pitot static drain lines
Main Landing Gear (MLG)
MLG brake assembly
Servicing and inflation.
Shock struts for wear and leakage

**Performance Standard.** CCUI is responsible for performing procedures required to inspect: landing gear.

**Prerequisite.** LECT-0205

**Reference.** IETM

---

LAB-0304 1.0 * B,S * G S/A

**Goal.** Provide the CCUI with the fundamental skills required to perform a daily inspection of the refuel panel, sponsons and left and right fuselage.

**Requirement**
- **Introduce Inspection of:**
  - Pressure refueling panel
  - Sump drain valves
  - Engine drain outlets
  - Gravity fill caps
  - Sponson
  - Fuselage
  - Formation lights
  - Position lights

**Performance Standard.** CCUI is responsible for performing procedures required to inspect: refuel panel, sponsons and left and right fuselage.

**Prerequisite.** LECT 0206

**Reference.** IETM

---

LAB-0305 2.0 * B,S * G S/A

**Goal.** Provide the CCUI with the fundamental skills required to perform a daily inspection of the engines, nose gear boxes and engine air particle protection system (EAPPS).

**Requirement**
- **Introduce Inspection of:**
  - Engine
  - Engine Nacelles
  - Engine drains and fluid lines for leakage
  - Fire extinguisher lines and sensors
  - Starter system
  - Oil level and servicing
  - Engine mounts
  - Exhaust mounts and tailpipe
  - T5 assembly
  - Fuel system
  - Bleed air lines
  - Electrical system
  - Variable Geometry Actuators (VGA)
  - Full authority digital engine control (FADEC)
  - Fuel metering unit (FMU)
  - EAPPS
    - EAPPS blower and latches
NGB

Chip detector
Filler cap and servicing
Oil filter
Oil cooler
Impeller
NGB fairing
Output drive shafts & coupling assemblies
Support bearing
Mid shaft hangar bearing sensor

**Performance Standard.** CCUI is responsible for performing procedures required to inspect: engine, EAPPS, and NGB.

**Prerequisite.** LECT-0207s

**Reference.** IETM

**LAB-0306** 1.5 * B.S * G S/A

**Goal.** Provide the CCUI with the fundamental skills required to perform a daily inspection of the aft main rotor pylon.

**Requirement**

Introduce Inspection of:

- Rotor brake system
- On board inert gas generating system (OBIGGS)
- Blade fold safety valve
- MGB oil cooler system
- 2nd stage hydraulic heat exchanger
- 2nd stage hydraulic system

**Performance Standard.** CCUI is responsible for performing procedures required to inspect: aft main rotor pylon.

**Prerequisite.** LECT-0208

**Reference.** IETM

**LAB-0307** 1.0 * B.S * G S/A

**Goal.** Provide the CCUI with the fundamental skills required to perform a daily inspection of the tail drive shafts and disconnect coupling.

**Requirement**

Introduce Inspection of:

- Tail driveshaft assemblies
- Tail driveshaft flexible diaphragm couplings
- Tail driveshaft hangar bearings & sensors
- Disconnect coupling
- Cleaning and greasing
- Formation lights

**Performance Standard**

a) CCUI is responsible for performing procedures required to inspect: tail driveshafts and disconnect coupling for wear.

   b) CCUI is responsible for performing procedures required to: clean and grease disconnect coupling.

**Prerequisite.** LECT-0209

**Reference.** IETM
Goal. Provide the CCUI with the fundamental skills required to perform a daily inspection of the tail skid, Intermediate Gearbox (IGB), tail pylon and stabilizer structure, rotor positioner, and tail rotor actuator.

Requirement

Introduce Inspection of:
- Tail pylon and stabilizer structure
- Intermediate gearbox
- Chip detector
- Sight gauge, filler cap, & servicing
- Input and output flexible diaphragm couplings
- Rotor positioner
- Tail rotor actuator
- Tail bumper rod
- Tail bumper actuator

Performance Standard. CCUI is responsible for performing procedures required to inspect: tail pylon and stabilizer structure, intermediate gearbox, rotor positioner, tail rotor actuator, and tail skid.

Prerequisite. LECT-0210

Reference. IETM

LAB-0308 1.5 * B,S * G S/A

Goal. Provide the CCUI with the fundamental skills required to perform a daily inspection of the tail rotor head, tail rotor servo, tail gear box, and tail rotor blades.

Requirement

Introduce inspection of:
- Tail rotor head
- Horizontal stabilizer
- Pitch beam
- Pitch change shaft
- Tail rotor servo
- Tail gearbox
  - Sight gauge, filler cap, & servicing
  - Fairings
  - Tail rotor blades
  - Tip drain hole
  - Blade pitch links
  - Formation lights

Performance Standard. CCUI is responsible for performing procedures required to inspect: tail rotor head, tail gearbox, tail rotor servo, and tail rotor blades.

Prerequisite. LECT-0211

Reference. IETM

LAB-0309 1.5 * B,S * G S/A

Goal. Provide the CCUI with the fundamental skills required to perform a daily inspection of the Main gearbox.

Requirement

Introduce Inspection of:
- Main gearbox
  - Main gearbox remote mounting unit (RMU)
  - Chip detectors
  - Oil filters
  - Sight gauge, filler cap, & servicing

LAB-0310 1.5 * B,S * G S/A

Goal. Provide the CCUI with the fundamental skills required to perform a daily inspection of the Main gearbox.
Pressure sensors
Gust lock
Main rotor shaft seal runner
Oil cooler lines
#1 & 2 Generators and permanent magnetic alternators (PMAs)

**Performance Standard.** CCUI is responsible for performing procedures required to inspect: main gearbox, main rotor primary servo cylinders and control rods, and flight control mixer unit.

**Prerequisite.** LECT-0212

**Reference.** IETM

**LAB-0311  1.5  *  B.S  *  G  S/A**

**Goal.** Provide the CCUI with the fundamental skills required to perform a daily inspection of the forward main rotor pylon.

**Requirement**

Introduce Inspection of:
- 1st stage hydraulic system
- 1st stage hydraulic heat exchanger
- Utility hydraulic system
- Utility hydraulic heat exchanger
- Ground operations pump (GOP)
- APU start motor and accumulators

**Performance Standard.** CCUI is responsible for performing procedures required to inspect: forward main rotor pylon.

**Prerequisite.** LECT-0213

**Reference.** IETM

**LAB-0312  1.5  *  B.S  *  G  S/A**

**Goal.** Provide the CCUI with the fundamental skills required to perform a daily inspection of the auxiliary power unit (APU) and environmental control system (ECS).

**Requirement**

Introduce Inspection of:
- APU
  - Exhaust
  - Intake
  - Barrier filter
  - Fuel system
  - Oil system & servicing
  - Engine control harness
  - #3 APU generator
- ECS
  - Components
  - Ducting
  - Hydraulic lines
  - Condenser bracket
  - Electronic control unit

**Performance Standard.** CCUI is responsible for performing procedures required to inspect: APU and ECS.

**Prerequisite.** LECT-0214

**Reference.** IETM
LAB-0313 1.5 * B,S * G S/A

Goal. Provide the CCUI with the fundamental skills required to perform a daily inspection of the main rotor head and main rotor blades.

Requirement

Introduce inspection of:
Main rotor head
- Hub, Yokes, Sleeves, and Hinge cuff assemblies
- CF spherical and centering elastomeric bearings
- Dampers
- Droop and flap stops
- Pitch control rods (PCRs) and PCR bearings
- PCR locking keys
- Rotating and stationary scissors
- Upper servo
- MR servo output bearing
- Electrical harnesses
- Pitch locks
- Hydraulic hoses
- Blade lock pins

Main rotor blades
- Hinge cuff
- Root and tip drain holes
- Tip cap
- Bonding jumpers and wire harnesses
- Security, integrity

Performance Standard. CCUI is responsible for performing procedures required to inspect: main rotor head, and main rotor blades.

Prerequisite. LECT-0215

Reference. IETM

LAB-0314 1.5 * B,S * G S/A

Goal. Provide the CCUI with the fundamental skills required to perform a daily inspection of mission systems and ability to configure aircraft for assigned missions.

Requirement

Introduce Inspection of:
- Cargo hooks and pendants
- Center hook tension member
- Emergency release mechanism
- Electrical connectors
- Grounding strap
- Load cells
- Cargo hook/pendant retrieval line
- Cartridge activated device(s) (CADs)
- Pendant covers
- Breakaway safety wire
- Cargo hook lights
- Forward and Aft cargo hook and pendant
- Aircrew portable pendant control
- Fast Rope System
- Cargo winch(s)

Introduce performing
- Cargo hook system operational check and cargo jettison test
- Operational check of cargo winch(s).
Operational check of utility hoist
Operational check of snatch blocks

Demonstrate
Ensuring proper aircraft configuration

Performance Standard
a) CCUI is responsible for performing procedures required to inspect: forward, center, and back cargo hook and pendants, aircrew portable pendant control, and fast rope system.

b) CCUI is responsible for performing: cargo hook system operational check and cargo winch operational check.

c) CCUI is responsible for ensuring proper aircraft configuration.

Prerequisite. LECT-0216

Reference. IETM

LAB-0315 1.5 * B,S * G S/A

Goal. Provide the CCUI with the fundamental skills required to perform a turnaround inspection.

Requirement
Introduce
Turnaround inspection
Fuel sample procedures

Performance Standard. CCUI is responsible for performing: turnaround inspection and fuel samples.

Prerequisite. LECT-0217

Reference. IETM

LAB-0316 1.5 * B * G S/A

Goal. Provide the CCUI with the fundamental skills required to perform passenger embarkation and debarkation procedures.

Requirement
Introduce
Aircraft configuration
Passenger Brief
Passenger PPE
Passenger embarkation
Passenger debarkation

Performance Standard. CCUI is responsible for performing: passenger embarkation and debarkation.

Prerequisite. CBT-0107

Reference. A1-H53XX-NFM-000

LAB-0317 4.0 * B,S * G S/A

Goal. Provide the CCUI with the fundamental skills required to perform loading, securing, and unloading of warehouse palletized cargo.

Requirement
Introduce
Weight and Balance Considerations
MFD Utilization
Aircraft configuration
Rollers
Straps
Chains
Common Cargo Nets
Pallet Buildup
Winch operations
Tie down procedures
Hand and arm signals

**Performance Standard.** CCUI is responsible for performing: loading, securing, and unloading of warehouse palletized cargo.

**Prerequisite.** CBT-0107, CBT-0108, CBT-0109

**Reference.** A1-H53XX-NFM-000, IETM

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</table>

**Goal.** Provide the CCUI with the fundamental skills required to perform loading, securing, and unloading of 463L (type I and type II) palletized cargo.

**Requirement**

**Introduce**
- Weight and Balance Considerations
  - MFD Utilization
- Aircraft configuration
  - Rollers
  - Straps
  - Chains
  - Rails/Rail locks
- Common Cargo Nets
- Pallet Buildup
  - Tie down procedures
- Pallet rail locking procedures
- Winch operations
- Hand and arm signals

**Performance Standard.** CCUI is responsible for performing: loading, securing, and unloading of 463L (type I and type II) palletized cargo.

**Prerequisite.** CBT-0107, CBT-0108, CBT-0109

**Reference.** A1-H53XX-NFM-000, IETM

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**Goal.** Provide the CCUI with the fundamental skills required to perform loading, securing, and unloading non-palletized cargo and rolling stock.

**Requirement**

**Introduce**
- Weight and Balance Considerations
  - MFD Utilization
- Non-palletized cargo
  - Aircraft configuration
  - Straps
  - Chains
  - Common Cargo Nets
  - Loading procedures
  - Winch operations
  - Tie down procedures
  - Hand and Arm Signals
- Rolling stock
  - Loading procedures
Brakes
Aircraft configuration
Straps
Chains
Tie down procedures
Winch operations
Hand and arm signals

**Performance Standard.** CCUI is responsible for performing: loading, securing, and unloading of non-palletized cargo and rolling stock.

**Prerequisite.** CBT-0107, CBT-0108, CBT-0109

**Reference.** A1-H53XX-NFM-000, IETM

**Goal.** Provide the CCUI with the fundamental skills required to perform blade and pylon fold and spread procedures.

**Requirement**

- **Introduce**
  - MFD Utilization
  - Blade Fold/Spread
    - Automatic
    - Semi-Automatic
  - Pylon Fold/Spread
    - Automatic
    - Semi-Automatic
    - Manual (Power on)
    - Hydraulic Valves
    - Exterior Switch
    - Manual (Power off)

**Performance Standard.** CCUI is responsible for performing: blade and pylon fold and spread procedures.

**Prerequisite.** CBT-0104, LAB-0300

**Reference.** A1-H53XX-NFM-000

**Goal.** Provide the CCUI with the fundamental skills required to perform preflight and post flight procedures.

**Requirement**

- **Introduce**
  - Preflight Inspection
    - Exterior
    - Interior
    - Mission Systems (as applicable)
    - Panel Check
    - Preflight Sign-off
  - Post flight Inspection
    - Exterior
    - Interior

**Performance Standard.** CCUI is responsible for performing: preflight and post flight procedures.

**Prerequisite.** LECT-0201, LECT-0221

**Reference.** A1-H53XX-NFM-000
**LAB-0322  1.0  *  B,S  *  G  S/A**

**Goal.** Provide the CCUI with the fundamental skills required for Auxiliary Power Unit (APU) operation.

**Requirement**

- **Introduce**
  - APU preflight/inspection
  - Cockpit preflight/inspection
  - Safety precautions
  - Fire bottle procedures
  - Hand and arm signals
  - APU operation

**Performance Standard.** CCUI is responsible for performing: APU preflight/inspection, cockpit preflight/inspection, safety precautions, fire bottle procedures, hand and arm signals, and APU operation.

**Prerequisite.** LECT-0218

**Reference.** A1-H53XX-NFM-000

---

**LAB-0323  1.5  *  B,S  *  G  S/A**

**Goal:** Provide the CCUI with the fundamental skills required to perform aircraft prestart procedures.

**Requirement**

- **Introduce**
  - MFD Utilization
  - Pre-Flight Built In Test (PFBIT)
  - Cockpit Configuration

**Performance Standard.** CCUI is responsible for performing: aircraft prestart procedures.

**Prerequisite.** LECT-0201, LECT-0221, LAB-0321, LAB-0322

**Reference.** A1-H53XX-NFM-000

---

**LAB-0324  1.5  *  B,S  *  G  S/A**

**Goal.** Discuss and demonstrate the proper egress procedures.

**Requirement**

- **Discuss**
  - Water egress procedures
  - Proper egress procedures

- **Introduce**
  - Proper egress procedures

**Performance Standard.** CCUI is responsible for performing proper egress procedures.

**Prerequisite.** LECT 0220

**Reference.** A1-H53XX-NFM-000

---

**FRSI-0500  2.0  *  B  *  G  CLSRM**

**3.7.1.4  Instructor Events**

**Purpose.** To ensure the CCI possesses the requisite knowledge and technical skills required to instruct CH-53 Aircrew Core Skill Introduction FRS Academic Phase training events.

**General.** CCIUT may complete these events in conjunction with the CCUI CH-53 Aircrew Core Skill Introduction FRS Academic Phase syllabus. CIUT shall be evaluated by a qualified CH-53 Aircrew Core Skill Introduction FRS Instructors prior to performing instructor duties.

**Crew Requirement.** CCI/CCIUT
Goal. Provide Crew Chief Instructor Under Training (CCIUT) with the skills required to conduct a Computer Aided Instruction (CAI) period of instruction.

Requirement
   Introduce. Conducting CAI

Performance Standard. CCIUT is responsible for: properly conducting a CAI period of instruction.

External Syllabus Support. Electronic classroom

Reference. HMT-302 Marine Enlisted Aircrew Training SOP

FRSI-0501 2.0 * B * G CLSRM

Goal. Provide CCIUT with the skills required to conduct a LAB period of instruction.

Requirement
   Introduce. Conducting LAB

Performance Standard. CCIUT is responsible for: properly conducting a LAB period of instruction.

External Syllabus Support. Electronic classroom

Prerequisite. FRSI 0500

Reference. HMT-302 Marine Enlisted Aircrew Training SOP

FRSI-0502 2.0 * B * G CLSRM

Goal. Provide CCIUT with the opportunity to demonstrate mastery of instructional skills.

Requirement
   Review. CCIUT's ability to properly conduct period of instruction

Performance Standard. CCIUT is responsible for: demonstrating ability to properly conduct period of instruction.

External Syllabus Support. Electronic classroom

Prerequisite. FRSI 0501

Reference. HMHT-302 Marine Enlisted Aircrew Training SOP

FRSI-0503 2.0 * B * G CLSRM

Goal. Review Crew Chief Instructors (CCI) ability to conduct period of instruction.

Requirement
   Review. Instructional techniques

Performance Standard. CCIUT is responsible for: demonstrating proper instructional techniques by properly conducting a period of instruction.

External Syllabus Support. Electronic classroom

Prerequisite. FRSI 0502

Reference. HMT-302 Marine Enlisted Aircrew Training SOP

3.7.1.5 Evaluation Events (EVAL)

Purpose. To ensure CCUI possess the requisite knowledge and technical skills required perform CH-53 daily and turnaround inspections.

General. CCUI shall complete these events in conjunction with COMNAVAIRFORINST 4790.2A requirements.

Crew Requirement. FRSI, CCUI

3-34
3.7.2 Familiarization (FAM)

**Purpose.** To familiarize Aircrew with CH-53 operations and emergency procedures.

**General.** Aircrew (CCUI) may fly these events in conjunction with the Pilot syllabus.

**Crew Requirement.** P/CP/FRSI/CCUI

**Aircraft Requirement**
- FAM-1101, 1103, & 1106 require cold start aircraft.
- FAM-1105 requires shutdown at completion of flight.

**Academic Training.** Instructor led classroom instruction on applicable publications and directives. Crew Resource Management class.

---

**SFAM-1100**

**Goal.** Introduce CCUI to standard aircrew communication and CRM principles.

**Requirement.** CCUI will be introduced to and perform standard communication and CRM principles.

**Practice**
- Crew Resource Management (CRM)
- Standard Terminology
- Utilization of ICS

**Performance Standard.** Per CH-53 NATOPS and FRS Maneuver Description Guide.

**External Syllabus Support.** Aircrew Procedures Trainer

**Instructor.** FRSI

**Prerequisite.** LECT-0222, CRM-6003

---

**FAM-1101**

**Goal.** Introduce basic aircraft duties and procedures for normal flight operations while incorporating CRM.

**Requirement**

**Discuss**
- Aircrew/Mission Brief

**Demonstrate**
- Aircrew/Mission Brief
- Preflight
- Prestart
- APU Operation
- Engine Start
- Pre-Taxi/Taxi
- Pre-Takeoff/Takeoff
- Inflight Responsibilities
- Pre-Landing/Landing
- Refueling Procedures
- Shutdown Procedures
- Hot seat Procedures
- ICS/ISWICS
- IMARS
- Post Flight
- Debrief
- CRM

**Practice**
- Utilize ICS/ISWICS
- Utilize IMARS

**Review**
Emergency Egress
Emergency Egress Equipment

Performance Standard. Be introduced to all procedures and operations Per CH-53 NATOPS and FRS Maneuver Description Guide.

Required Equipment. Requires a cold start aircraft.

Instructor. CCI

Prerequisite. SFAM-1100

FAM-1102 1.5 * B D A 1 CH-53K

Goal. Practice basic aircrew responsibilities while incorporating CRM.

Requirement
  Practice
    Aircrew/Mission Brief
    Preflight
    Prestart
    APU Operation
    Engine Start
    Pre-taxis/taxis
    Pre-takeoffs/takeoffs
    In-Flight Responsibilities
    Pre-landing/landings
    Refueling procedures
    Shutdown procedures
    Hotseat procedures
    ICS/ISWICS
    IMARS
    Post flight
    Debrief
    CRM

Performance Standard. Conduct all procedures and operations IAW CH-53 NATOPS and FRS Maneuver Description Guide.

Instructor. CCI

Prerequisite. FAM-1101

FAM-1103 1.5 * B D A 1 CH-53K

Goal. Practice basic aircrew responsibilities while incorporating CRM Part 2

Requirement
  Discuss
    Aircraft Configuration
  Introduce
    Aircraft Configuration
  Practice
    Aircrew/Mission Brief
    Preflight
    Prestart
    APU Operation
    Engine Start
    Pre-taxis/taxis
    Pre-takeoffs/takeoffs
    In-Flight Responsibilities
Pre-landing/landing
Refueling procedures
Shutdown procedures
Hotseat procedures
ICS/ISWICS
Post flight
Debrief
CRM

Review
IMARS

Performance Standard. Conduct all procedures and operations IAW CH-53 NATOPS and FRS Maneuver Description Guide.

Required Equipment. Requires a cold start aircraft.

Instructor. CCI

Prerequisite. FAM-1102

FAM-1104 1.5 * B D A 1 CH-53K

Goal. Practice and Review Aircrew duties while incorporating emergency procedures and CRM.

Requirement
Introduce
Emergency procedures

Practice
Aircrew/Mission Brief
Preflight
Prestart
APU Operation
In-Flight Responsibilities
Shutdown procedures
ICS/ISWICS
Debrief

Review
Engine Start
Aircraft Configuration
Pre-taxi/taxi
Pre-takeoff/takeoff
Pre-landing/landing
Refueling procedures
Hotseat procedures
Post flight
CRM

Performance Standard. Per CH-53 NATOPS and FRS Maneuver Description Guide.

Instructor. CCI

Prerequisite. FAM-1103

FAM-1105 1.5 * B,S D A 1 CH-53K

Goal. Practice and Review Aircrew duties while incorporating emergency procedures and CRM part 2.

Requirement
Introduce
Emergency procedures

Practice
Aircrew/Mission Brief
Preflight
Prestart
APU Operation
In-Flight Responsibilities
Debrief

Performance Standard. Per CH-53 NATOPS and FRS Maneuver Description Guide.

Required Equipment. Requires shutdown at completion of flight.

Instructor. CCI

Prerequisite. FAM-1104

FAM-1106 1.5 * B D A 1 CH-53K

Goal. Review Aircrew duties while incorporating emergency procedures and CRM.

Requirement

Review
Aircrew/Mission Brief
Preflight
Prestart
APU Operation
In-Flight Responsibilities
Debrief

Performance Standard. Per CH-53 NATOPS and FRS Maneuver Description Guide.

Required Equipment. Requires cold start aircraft.

Instructor. FRSI

Prerequisite. FAM-1105

3.7.3 Night Familiarization (NFAM)

Purpose. To familiarize Aircrew with CH-53 operations at night.

General. Aircrew (CCUI) may fly these events in conjunction with the pilot syllabus. Instructors (CCI) shall be a NSI or NSFI for NFAM-1200 and NFAM-1201.

Crew Requirement. CCI/CCUI

Academic Training. Instructor led classroom instruction on applicable publications and directives.

SNFAM-1200 1.5 * B NS S MCAT

Goal. Introduce Night Systems while incorporating CRM.

Requirement

Discuss
Night operation safety
Night Vision Goggles (NVGs)
Night Vision Goggles emergency procedures

Introduce
Lookout doctrine
Obstacle clearance/Hazards
NS Aircraft considerations/configurations
**Practice**

- NVG operation
- NVG goggle/de-goggle procedures
- Adjustment procedures

**Performance Standard.** Per CH-53 NATOPS and FRS Maneuver Description Guide.

**External Syllabus Support.** Aircrew Procedures Trainer

**Instructor.** CCI and NSFI or NSI

**Prerequisite.** CAL-1600, Night Imaging and Threat Evaluation (NITE) Lab Instruction

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**Goal.** Practice and review night systems while incorporating CRM.

**Requirement**

**Introduce**
- Monitoring procedures
- In-Flight support duties

**Practice**
- NVG operation
- Night Vision Goggles emergency procedures
- Lookout doctrine
- Obstacle clearance/Hazards
- NS Aircraft considerations/configurations

**Review**
- NVG goggle/de-goggle procedures
- Adjustment procedures

**Performance Standard.** Per CH-53 NATOPS and FRS Maneuver Description Guide.

**Instructor.** CCI and NSFI or NSI

**Prerequisite.** SNFAM-1200

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**Goal.** Practice night systems while incorporating CRM.

**Requirement**

**Practice**
- NVG operation
- Night Vision Goggles emergency procedures
- Lookout doctrine
- Obstacle clearance/Hazards
- NS Aircraft considerations/configurations
- Monitoring procedures
- In-Flight support duties

**Performance Standard.** Per CH-53 NATOPS and FRS Maneuver Description Guide.

**Instructor.** CCI and NSFI or NSI

**Prerequisite.** NFAM-1201

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**Goal.** Review night systems while incorporating CRM.

**Requirement**

**Review**
NVG operation
Night Vision Goggles emergency procedures
Lookout doctrine
Obstacle clearance/Hazards
NS Aircraft considerations/configurations
Monitoring procedures
In-Flight support duties

**Performance Standard.** Per CH-53 NATOPS and FRS Maneuver Description Guide.

**Instructor.** CCI and NSFI or NSI

**Prerequisite.** NFAM-1202

### 3.7.4 Formation (FORM)

**Purpose.** To introduce aircrew duties associated with formation flight.

**General.** Aircrew (CCUI) may fly these events in conjunction with the pilot syllabus. Instructors (CCI) shall be a NSI or NSFI for FORM-1501.

**Crew Requirement.** CCI/CCUI

### FORM-1500 2.0 * B D S MCAT

**Goal.** Introduce day formation flight while incorporating CRM.

**Requirement**

- **Discuss**
  - Formation flight procedures
  - Wingman responsibilities
  - Standard Terminology
  - Lost comm procedures
  - Lead change procedures
    - Full Comm
    - No Comm
  - Formation flight profiles
    - Combat Cruise
    - Combat Spread
    - Parade
  - Aircraft lighting considerations

- **Introduce**
  - Formation flight procedures
  - Wingman responsibilities
  - Standard Terminology

**Performance Standard.** Per CH-53 NATOPS and FRS Maneuver Description Guide.

**Instructor.** CCI

**Prerequisite.** FAM-1106, LECT-0226

**External Syllabus Support.** Aircrew Procedures Trainer

### FORM-1501 2.0 * B D A 2 CH-53K

**Goal.** Introduce day formation flight while incorporating CRM.

**Requirement**

- **Practice**
  - Formation flight procedures
  - Wingman responsibilities
Standard Terminology
Lead change procedures
Formation flight profiles

Performance Standard. Per CH-53 NATOPS and FRS Maneuver Description Guide.

External Syllabus Support. Aircrew Procedures Trainer

Instructor. CCI

Prerequisite. SFORM-1500

**FORM-1502 2.0 * B NS A 2 CH-53K**

Goal. Introduce night formation flight while incorporating CRM.

Requirement

Practice
- Formation flight procedures
- Wingman responsibilities
- Standard Terminology
- Lead change procedures
- Formation flight profiles
- Aircraft lighting considerations

Performance Standard. Per CH-53 NATOPS and FRS Maneuver Description Guide.

External Syllabus Support. Aircrew Procedures Trainer

Instructor. CCI

Prerequisite. SFORM-1500

**3.7.5 Confined Area Landings (CAL)**

Purpose. To introduce aircrew duties associated with Confined Area Landings (CAL).

General. Aircrew (CCUI) may fly these events in conjunction with the CAL stage of the pilot syllabus. Instructors (CCI) shall be a NSI or NSFI for CAL-1603 and CAL-1604.

Crew Requirement. CCI/CCUI

**SCAL-1600 1.5 * B D S MCAT**

Goal. Introduce Confined Area Landings (CALS) while incorporating CRM.

Requirement

Discuss
- Loss of visual reference during landing
- Standard Terminology
- Waveoff Criteria
- Closure rates
- Distance estimation

Introduce
- Loss of visual reference during landing
- Confined Area Landings (CALS)/takeoff procedures
- Landing considerations in an austere environment
- Section considerations

Performance Standard. Per CH-53 NATOPS and FRS Maneuver Description Guide.

External Syllabus Support. Aircrew Procedures Trainer

Instructor. FRSI
Prerequisite: FAM-1106,

CAL-1601 1.5 * B, SC D A 1 CH-53K

Goal. Practice Confined Area Landings (CALs) while incorporating CRM.

Requirement

Practice
- Standard Terminology
- Waveoff Criteria
- Closure rates
- Distance estimation
- Confined Area Landings (CALs)/takeoff procedures
- Landing considerations in an austere environment

Performance Standard. Per CH-53 NATOPS and FRS Maneuver Description Guide.

Instructor: CCI

Prerequisite: SCAL-1600

CAL-1602 1.5 * B D A 2 CH-53K

Goal. Practice section Confined Area Landings (CALs) while incorporating CRM.

Requirement

Practice
- Standard terminology
- Section considerations
- Waveoff Criteria
- Closure rates
- Distance estimation
- Confined Area Landings (CALs)/takeoff procedures
- Formation landing considerations
- Landing considerations in an austere environment

Performance Standard. Per CH-53 NATOPS and FRS Maneuver Description Guide.

Instructor: CCI

Prerequisite: SCAL-1600

CAL-1603 1.5 * B, SC NS A 1 CH-53K

Goal. Practice Confined Area Landings (CALs) while incorporating CRM.

Requirement

Discuss
- Night systems considerations
- Closure rates
- Distance estimation
- Depth perception

Practice
- Standard Terminology
- Night systems considerations
- Waveoff Criteria
- Closure rates
- Distance estimation
- Landing considerations in an austere environment

Performance Standard. Per CH-53 NATOPS and FRS Maneuver Description Guide.
Instructor. CCI, NSI or NSFI
Prerequisite. NFAM-1201 and CAL-1601

**CAL-1604**  1.5  *  B  NS  A  2 CH-53K

**Goal.** Practice Night Systems (NS) Section Confined Area Landings (CALS) while incorporating CRM.

**Requirement**

**Discussed**
- NS Section considerations

**Practiced**
- Standard terminology
- NS Section considerations
- Waveoff Criteria
- Closure rates
- Distance estimation
- Formation landing considerations
- Landing considerations in an austere environment

**Performance Standard.** Per CH-53 NATOPS and FRS Maneuver Description Guide.

Instructor. CCI, NSI or NSFI
Prerequisite. CAL-1602

3.7.6 **External Loads (EXT)**

**Purpose.** To introduce aircrew duties associated with external cargo operations.

**General.** Aircrew (CCUI) may fly these events in conjunction with the external stage of the Pilot syllabus. Instructors (CCI) shall be a NSI or NSFI for 1705 and 1706.

Crew Requirement. CCI/CCUI

**SEXT-1700**  1.5  *  B  D  S  MCAT

**Goal.** Introduce Single-Point External Operations while incorporating CRM.

**Requirement**

**Discussed**
- Standard Terminology
- Preflight
- Safety Procedures
- Single Point Operational Procedures
- Emergency procedures
- Aircraft Configuration
- Weight and balance considerations

**Demonstrated**
- Perform maneuver calls using standard terminology
- Single point operational procedures
- Emergency release
- Use of external cargo equipment

**Practiced**
- Perform maneuver calls using standard Terminology
- Preflight
- Safety procedures
- Single point operational procedures
- Emergency release
- Use of external cargo equipment
- Aircraft configuration
Performance Standard. Per CH-53 NATOPS and FRS Maneuver Description Guide.

External Syllabus Support. Aircrew External Procedures Trainer

Instructor. CCI

Prerequisite. CAL-1601

**SEXT-1701** 1.5 * B D S MCAT

**Goal.** Introduce Dual-Point External Operations while incorporating CRM.

**Requirement**

Discus

- Standard Terminology
- Preflight
- Safety Procedures
- Dual Point Operational Procedures
- Emergency procedures
- Aircraft Configuration
- Weight and balance considerations

Demonstrate

- Perform maneuver calls using standard terminology
- Dual point operational procedures
- Emergency release
- Use of external cargo equipment

Practice

- Perform maneuver calls using standard Terminology
- Preflight
- Safety procedures
- Dual point operational procedures
- Emergency release
- Use of external cargo equipment
- Aircraft configuration

Performance Standard. Per CH-53 NATOPS and FRS Maneuver Description Guide.

External Syllabus Support. Aircrew External Procedures Trainer

Instructor. CCI

Prerequisite. CAL-1601

**EXT-1702** 1.5 * B,S D A 1 CH-53K

**Goal.** Practice Single-Point External Operations while incorporating CRM.

**Requirement**

Discuss

- External load safety inspection

Practice

- Perform maneuver calls using standard Terminology
- Preflight
- Safety procedures
- Single point operational procedures
- Use of external cargo equipment
- Aircraft configuration
- Lookout doctrine
- HST considerations

Performance Standard. Per CH-53 NATOPS and FRS Maneuver Description Guide.
Instructor: CCI

Prerequisite: SEXT-1700

**EXT-1703** 1.5 * B,S D A 1 CH-53K

**Goal.** Practice Dual-Point External Operations while incorporating CRM.

**Requirement**

**Discuss**
- External load safety inspection

**Practice**
- Perform maneuver calls using standard Terminology
- Preflight
- Safety procedures
- Dual point operational procedures
- Use of external cargo equipment
- Aircraft configuration
- Lookout doctrine
- HST considerations

**Performance Standard.** Per CH-53 NATOPS and FRS Maneuver Description Guide.

Instructor: CCI

Prerequisite: SEXT-1701

**EXT-1704** 1.5 * B NS A 1 CH-53K

**Goal.** Practice night systems (NS) Single-Point External Operations while incorporating CRM.

**Requirement**

**Discuss**
- NS considerations
  - Closure rate
  - Distance estimation
  - Depth perception
- Lighting considerations
  - Crows foot
  - Hook lights
  - Aircraft lighting

**Practice**
- Perform maneuver calls using standard Terminology
- Preflight
- Safety procedures
- Single point operational procedures
- Use of external cargo equipment
- Aircraft configuration
- Lookout doctrine
- HST considerations
- NS considerations
  - Closure rate
  - Distance estimation
  - Depth perception

**Performance Standard.** Per CH-53 NATOPS and FRS Maneuver Description Guide.

Instructor: CCI, NSI or NSFI

Prerequisite: EXT-1702
EXT-1705 1.5 * B.S NS A 1 CH-53K

Goal. Practice night systems (NS) Dual-Point External Operations while incorporating CRM.

Requirement

Discuss
- NS considerations
- Closure rate
- Distance estimation
- Depth perception
- Lighting considerations
- Crows foot
- Hook lights
- Aircraft lighting

Practice
- Perform maneuver calls using standard Terminology
- Preflight
- Safety procedures
- Dual point operational procedures
- Use of external cargo equipment
- Aircraft configuration
- Lookout doctrine
- HST considerations
- NS considerations
- Closure rate
- Distance estimation
- Depth perception

Performance Standard. Per CH-53 NATOPS and FRS Maneuver Description Guide.

Instructor. CCI, NSI or NSFI

Prerequisite. EXT-1703

SEXT-1706 1.5 * B D S MCAT

Goal. Introduce Independent load external operations while incorporating CRM.

Requirement

Discuss
- Standard Terminology
- Safety Procedures
- Independent load considerations
- Independent pickup and drop-off location considerations
- Emergency procedures
- Weight and balance considerations

Practice
- Perform maneuver calls using standard Terminology
- Preflight
- Emergency release
- Safety procedures
- Independent load operational procedures
- Use of external cargo equipment

Performance Standard. Per CH-53 NATOPS and FRS Maneuver Description Guide.

Instructor. CCI

Prerequisite. EXT 1703

External Syllabus Support. Aircrew External Procedures Trainer
3.7.7 Terrain Flight (TERF)

**Purpose:** To introduce aircrew duties associated with terrain flight.

**General:** Aircrew (CCUI) may fly these events in conjunction with the terrain flight stage of the pilot syllabus. Instructors (CCI) shall be a TERFI.

**Crew Requirement:** CCI/CCUI

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<th>S</th>
<th>MCAT</th>
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</table>

**Goal:** Practice Terrain Flight (TERF) while incorporating CRM.

**Requirement**

- **Discuss**
  - Lookout doctrine
  - Standard terminology
  - Obstacle/terrain clearance
  - TERF maneuvers

- **Practice**
  - Perform maneuver calls using standard Terminology
  - Terrain Flight (TERF) procedures

**Performance Standard:** Per CH-53 NATOPS and FRS Maneuver Description Guide.

**Instructor:** CCI

**Prerequisite:** CAL-1601

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<th>B,S</th>
<th>D</th>
<th>A</th>
<th>1 CH-53K</th>
</tr>
</thead>
</table>

**Goal:** Practice Terrain Flight (TERF) while incorporating CRM.

**Requirement**

- **Discuss**
  - Standard terminology

- **Practice**
  - Perform maneuver calls using standard Terminology
  - Terrain Flight (TERF) procedures
  - TERF maneuvers
  - Lookout doctrine

**Performance Standard:** Per CH-53 NATOPS and FRS Maneuver Description Guide.

**Instructor:** CCI

**Prerequisite:** CAL-1601

3.7.8 Core Skill Introduction Review (REV)

**Purpose:** To demonstrate proficiency in performing aircrew duties.

**General**

Aircrew (CCUI) shall complete a CH-53 NATOPS Flight Manual Open and Closed Book evaluation prior to performing this stage of flight.

Upon completion of this stage of flight, the aircrew will be NATOPS qualified as Crew Chief (CC) in appropriate T/M/S.

Qualified Crew Chief Fleet Replacement Squadron Instructor (FRSI) shall evaluate this stage of flight.

**Crew Requirement:** FRSI/CCUI

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</table>

**Goal:** Review emergency procedures while incorporating Crew Resource Management (CRM).
NAVMC 3500.129
6 Jul 21

**Requirement**

**Discuss**
- Performing emergency procedures
- Emergency procedure safety

**Practice**
- Standard NATOPS brief
- Engine emergency procedures
- Electrical system emergency procedures
- Transmission emergency procedures
- Fuel system emergency procedures
- Fire emergency procedures
- Emergency landing

**Performance Standard.** Demonstrate the ability to conduct an appropriate NATOPS flight brief and utilize CRM to ensure proper crew coordination. Demonstrate knowledge of Emergency Procedures and aircraft limitations IAW CH-53 NATOPS.

**Instructor.** CCI

**Prerequisite.** Completion of all applicable 1000 level flight events (TERF-1801 and below).

REV-1901 2.0 * B.S (NS) A 1 CH-53

**Goal.** Review emergency procedures while incorporating Crew Resource Management (CRM).

**Requirement**

**Discuss**
- Performing emergency procedures
- Emergency procedure safety

**Review**
- Standard NATOPS brief
- Engine emergency procedures
- Electrical system emergency procedures
- Transmission emergency procedures
- Fuel system emergency procedures
- Fire emergency procedures
- Emergency landing

**Performance Standard.** Demonstrate the ability to conduct an appropriate NATOPS flight brief and utilize CRM to ensure proper crew coordination. Demonstrate knowledge of Emergency Procedures and aircraft limitations IAW CH-53 NATOPS.

**Instructor.** CCI

**Prerequisite.** SREV-1900.

3.7.9 **Core Skill Introduction Evaluation (CSIX)**

CSIX-1902 1.5 * B.S (NS) A 1 CH-53K

**Goal.** Review Aircrew duties while incorporating Crew Resource Management (CRM).

**Requirement**

**Discuss**
- Aircrew duties
- Performing emergency procedures
- Emergency procedure safety

**Review**
- Aircrew duties
- Engine emergency procedures
- Electrical system emergency procedures

3-48
Fuel system emergency procedures
Fire emergency procedures
Emergency landing

**Performance Standard.** Demonstrate the ability to conduct an appropriate NATOPS flight brief and utilize CRM to ensure proper crew coordination and flight safety. Demonstrate knowledge of and execute multiple Emergency Procedures and aircraft limitations IAW CH-53 NATOPS.

**Instructor.** FRSI

**Prerequisite.** REV-1900

### 3.8 CORE PHASE (2000)

**Purpose.** To introduce and develop proficiency in the execution of Core Skills required as Crew Chief/Aerial Gunner/Observer within a Marine Heavy Helicopter Squadron (HMH). The Core Skill Phase represents the basic skill sets required to conduct Mission Skills (3000 Phase). These basic functions serve as tactical enablers that allow crews to progress to the more complex Mission Phase. This phase encompasses a combination of academic and flight events to train the individual aircrew to the level required to conduct assigned Mission Skills.

**General**

A Crew Chief (CC) will no longer be referred to as a Crew Chief Under Instruction (CCUI) upon graduation for HMHT-302 as the individual is a designated Naval Aircrewman per CNAF M-3710.7. For all 2000-5000 phase of training the crew requirement of “CC” shall refer to a designated Crew Chief who is eligible for that level event per the event prerequisites. This individual may fulfill either the “CC” or the “AG/O” portion of the crew requirement.

An Aerial Gunner/Observer Under Instruction (AG/OUI) is an individual that has been approved by a unit Commanding Officer to begin the AG/OUI syllabus per Chapter 4 of this manual, but has not yet completed the syllabus and has not yet been designated a Naval Aircrewman. This individual shall not be used to fulfill the crew requirement per the individual event.

An Aerial Gunner/Observer (AG/O) is an individual that has completed the prescribed AG/OUI syllabus per Chapter 4 of this manual, and has been designated a Naval Aircrewman by a unit Commanding Officer. This individual may be used to fulfill the “AG/O” portion of the crew requirement for any event for which they are eligible per the event prerequisites.

Aircrew is considered NSQ HLL (able to transport troops under HLL conditions) when the following 6 events have been completed: HLL-2120, HLL-2220, HLL-2221, HLL-2320, HLL-2321, and HLL-2920. Aircrew shall fly all NS events in the NSQ HLL syllabus under ambient light conditions of .0022 LUX or greater.

Aircrew is considered NSQ LLL (able to transport troops under LLL conditions) when the following events have been completed: LLL-2230, LLL-2231, LLL-2330, LLL-2331, and LLL-2930. Aircrew shall fly all NS events in the NSQ LLL syllabi under ambient light conditions of below .0022 LUX.

### Ground/Academic Training

**Purpose.** Aircrew undergoing instruction in this phase must have completed the MAWTS-1 Course Catalog Academic Support Package lectures applicable to this phase of training.

Upon completion, the CC/AG/OUI/AG/O shall report to the designated representative(s), who will then manually update the training code in M-SHARP and log the academic/ground training event in section 3 (Aircrew Ground School Training) of the APR, using the Enlisted Aircrew Performance Record/Qualification Jacket Academic Tracker in Paragraph 3.17.2 of this document.

2000-5000 classes are located at the MAWTS-1 NIPR website under ASD, CH-53K T&R: [https://www.intranet.tecom.usmc.mil/sites/mawts1/default.aspx](https://www.intranet.tecom.usmc.mil/sites/mawts1/default.aspx)

SIPR 2000-6000 classes are located at the MAWTS-1 SIPR website under ASD, CH-53K T&R: [http://www.mawts1.usmc.smil.mil/](http://www.mawts1.usmc.smil.mil/)

**Prerequisites.** The following events/designations are prerequisites for crew chiefs prior to the commencement of the Core Skill Phase. Aerial observers shall begin their training in the Core Skill Phase (2000).
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3.9  CORE STAGES

3.9.1 Internal Loads (INT)

**Purpose.** To introduce and refine aircrew duties in loading, securing, unloading passengers, cargo and vehicles.

**Ground/Academic Training.** All self-paced readings and lectures pertaining to this stage shall be completed prior to flight initiation. Utilize academic courseware as outlined in the MAWTS-1 Course Catalog.

**ACAD-2003 1.0 * B G**

**Goal.** Completion of CH-53 Internal Cargo Operations academic requirements.

**Requirement.** Complete all required CH-53 Internal Cargo Operations training modules.

**Performance Standard.** Per current evaluation criteria for CH-53 Internal Cargo Operations.

**ACAD-2050 1.0 * B G**

**Goal.** Completion of EA Tactical Aircrew Considerations and Responsibility (TACR) academic requirements.

**Requirement.** Complete all required EA Tactical Aircrew Considerations and Responsibility (TACR) Training modules.

**Performance Standard.** Per current evaluation criteria for EA Tactical Aircrew Considerations and Responsibility (TACR) Training

**INT-2100 1.5 * B (N) G 1-STATIC CH-53K/SIM**

**Goal.** Introduce and practice aircrew duties when loading, unloading and securing internal cargo and/or vehicle.

**Requirement**

- Introduce/Discuss
  - CC vs. AG/O responsibilities during cargo operations
  - CRM and crew coordination during cargo operations
  - Aircraft danger zones
  - Aircraft limitations
  - Cabin configuration/security
  - CG limitations and considerations
  - Cargo loading, unloading, securing procedures
  - Cargo winch operation w/ snatch blocks
  - Various types of support equipment
  - Forklift procedures
  - J-Bar usage
  - Palletized vs. Non-palletized cargo
Safety precautions transporting various cargo
Deceased casualties
Petroleum, oxygen, lubricants (POL)
Liquid oxygen (LOX)
Pyrotechnics
Class V cargo (ammunition)
Taxi drop procedures
Scan pattern with cargo/vehicles
Hand and arm signals
Cargo on-load/off-load with RMWS installed
Ramp/flipper position during on-load/off-load/taxi drop
Terrain suitability for cargo/vehicle on-load/off-load
NVG considerations
Cabin/cargo lighting considerations
Safety precautions during cargo operations
Assault Support Requests
Arrival/Departure Airfield Control Group Operations (A/DACG)

Performance Standards. Conduct various types of cargo and/or vehicle loading, securing, and unloading procedures IAW the cargo loading manual, NTTP 3-22.3-CH53, NATOPS, and any applicable NAVAIR white papers. Perform crew coordination along with all applicable hand and arm signals associated with vehicle loading and forklift procedures to direct simulated vehicle/forklift into the A/C. Discuss RMWS and ramp position considerations during cargo or vehicle on-load/off-load.

External Syllabus Support. Applicable cargo and/or vehicles, applicable support equipment, static CH-53 or approved load trainer.

Instructor. TERFI required for all personnel in the Basic (B). NSI required if conducted at night.

Prerequisite. ACAD-2003, ACAD-2050, (ACAD-2052 if conducted at night)

INT-2101 1.5 * B (N) G 1 STATIC CH-53K/SIM

Goal. Introduce and practice passenger briefing, embark, securing, and debark procedures.

Requirement
Introduce
CC vs. AG/O responsibilities during passenger embark/debark
CRM and crew coordination during passenger operations
A/C danger zones
Cabin configuration/security
Litter considerations
NFM-900 Passenger briefing guide
Hand and arm signals
Communication with passengers
ICS station for AFC or serial leader
Passenger embarking procedures
Passenger securing procedures
Passenger debarking procedures
Passenger accountability
Scan pattern with passengers
Passenger embark/debark considerations with RMWS installed
Ramp/flipper position during passenger embark/debark
Terrain suitability for passenger embark/debark
NVG considerations
Cabin lighting considerations
Passenger lighting considerations
Passenger safety/weapons considerations
Emergency passenger egress
Crew responsibilities for flight over water with PAX
Abandon/ditching aircraft

Performance Standards. Conduct passenger briefing, embarking, securing, and debarking procedures IAW applicable NATOPS. Demonstrate keeping personnel clear of all A/C danger zones. Discuss RMWS and ramp position considerations during passenger embark/debark.

External Syllabus Support. Static CH-53 or approved load trainer.

Instructor. TERFI required for all personnel in the Basic (B) POI. NSI required if conducted at night.

Prerequisite. ACAD-2003, ACAD-2050, (ACAD-2052 if conducted at night)

**INT-2102** 1.5 * B.S (N) G 1-STATIC CH-53K/SIM

**Goal.** Introduce and practice aircrew duties while loading, unloading, and securing 463L pallets.

**Requirement**

**Introduce/Discuss:**
- 463L Pallet
- GSE required for 463L pallet
- Cabin configuration/security and use of locking rail mechanism
- MFD cargo CG Input
- CG limitations and considerations
- Certified vs. Non-Certified loads
- Tail to Tail Joint operations

**Performance Standards.** Conduct loading, securing, and unloading procedures of 463L pallets IAW the cargo loading manual, NTTP 3-22.3-CH53, NATOPS, and any applicable NAVAIR white papers. Perform crew coordination along with all applicable hand and arm signals associated forklift procedures to direct simulated forklift into the A/C. Discuss RMWS and ramp position considerations during 463L pallet on-load/off-load.

**External Syllabus Support.** Applicable cargo, applicable support equipment, 463L pallet, and static CH-53 or approved load trainer.

**Instructor.** TERFI required for all personnel in the Basic (B) and Series Conversion (S) POI. NSI required if conducted at night.

**Prerequisite.** ACAD-2003, ACAD-2050, (ACAD-2052 if conducted at night)

**INT-2105** 1.5 365 B.R.M (NS) A 1 CH-53K

**Goal.** Introduce and practice aircrew duties when loading, unloading and securing internal cargo and/or vehicles.

**Requirement**

**Discuss/Practice:**
- CC vs. AG/O responsibilities during cargo operations
- CRM and crew coordination during cargo operations
- Cabin configuration/security
- Cargo loading, securing, unloading procedures
- Cargo winch operation w/snatch blocks (if applicable)
- Support equipment utilization (if applicable)
- Taxi drop procedures
- Vehicle loading, securing, and off-load procedures
- Scan pattern with cargo/vehicles
- Hand and arm signals
- Cargo on-load/off-load with RMWS installed
- Ramp/flipper position during on-load/off-load/taxi drop
- Safety precautions during cargo operations
- ICS procedures
- Assault Support Requests
- Arrival/Departure Airfield Control Group Operations (A/DACG)

**Performance Standards.** Conduct various types of cargo and/or vehicle loading, securing, and unloading procedures
IAW above listed items, cargo loading manual, NTTP 3-22.3-CH53, NATOPS, and any applicable NAVAIR white papers. Perform crew coordination along with applicable hand and arm signals associated with vehicle loading and forklift procedures. Discuss RMWS and ramp position considerations during cargo or vehicle on-load/off-load.

**Crew Requirements.** P/P/CC

**Instructor.** TERFI required for all personnel in the Basic (B) and Refresher (R) POI. NSI required if conducted at night.

**External Syllabus Support.** Applicable cargo and/or vehicles

**Prerequisite.** ACAD-2003, ACAD-2050, (ACAD-2052 if conducted at night), INT-2100

**INT-2106**

| 1.5 | * | B,R,M | (NS) | A | 1 CH-53K |

**Goal.** Introduce and practice passenger briefing, embark, securing, and debark procedures.

**Requirement**

**Discuss/Practice:**
- CC vs. AG/O responsibilities during passenger embark/debark
- CRM and crew coordination during passenger operations
- Cabin configuration/security
- NFM-900 Passenger briefing guide
- Communication with passengers
- Passenger debarking, securing, debarking, accountability
- ICS procedures during embark/debark
- Ramp/flipper position during passenger embark/debark

**Performance Standards.** Conduct passenger briefing, embark, securing, and debark procedures IAW above listed items, cargo loading manual, NTTP 3-22.3-CH53, and CH-53 NATOPS. Practice keeping personnel clear of all A/C danger zones. Discuss RMWS and ramp/flipper position considerations during passenger embark/debark.

**Crew Requirements.** P/P/CC

**Instructor.** TERFI required for all personnel in the Basic (B) and Series Conversion (S) POI. NSI required if conducted at night.

**Prerequisite.** ACAD-2003, ACAD-2050, (ACAD-2052 if conducted at night), INT-2101

**INT-2107**

| 1.5 | * | B,S | (NS) | G | 1-STATIC CH-53K/SIM |

**Goal.** Introduce and practice aircrew duties while loading, unloading, and securing 463L pallets. 463L pallets with heavy loads optional but preferred.

**Requirement**

**Discuss/Practice:**
- 463L Pallet
- GSE required for 463L pallet
- Cabin configuration/security and use of locking rail mechanism
- MFD cargo CG Input
- CG limitations and considerations
- Certified vs. Non-Certified loads
- Tail to Tail Joint operations

**Performance Standards.** Conduct loading, securing, and unloading procedures of 463L pallets IAW the cargo loading manual, NTTP 3-22.3-CH53, NATOPS, and any applicable NAVAIR white papers. Perform crew coordination along with all applicable hand and arm signals to direct forklift into the A/C. Discuss RMWS and ramp position considerations during 463L pallet on-load/off-load.

**External Syllabus Support.** Applicable cargo, applicable support equipment, and 463L pallet.

**Instructor.** TERFI required for all personnel in the Basic (B) and Series Conversion (S) POI. NSI required if conducted at night.

**Crew Requirements.** P/P/CC
Prerequisite: ACAD-2003, ACAD-2050, (ACAD-2052 if conducted at night), INT-2102.

3.9.2 Formation (FORM)

Purpose: To introduce and practice aircrew responsibilities during formation flight and introduce responsibilities of tactical formation flight during the day.

Crew Requirement: P/P/CC/AG/O

Ground/Academic Training: All self-paced readings and lectures pertaining to this stage shall be completed prior to flight initiation. Utilize academic courseware as outlined in the MAWTS-1 Course Catalog.

**FORM-2110  1.5  180  B,R,M,S  D  A  2  CH-53K**

Goal. Introduce and practice aircrew duties during basic formation flight and introduce tactical formation flight.

**Requirement**

**Introduce/Discuss**

- Basic tactical formations
- Wingman considerations
- Wingman updates using standard terminology
- “Visual” vs. “Blind”
- Inadvertent Instrument Meteorological Conditions (IIMC) “Popeye”
- Tactical formation maneuvering
- Tactical vs. Formation lead change

**Practice**

- CC vs. AG/O responsibilities during formation flight
- CRM and crew coordination during formation flight
- Standard terminology
- Identifying closure rate to wingman
- Cabin configuration/security

**Performance Standards.** Conduct aircrew duties and demonstrate proficient knowledge of aircrew considerations during tactical formation flight IAW above listed items, NATOPS and NTTP 3-22.3-CH53.

**Instructor.** TERFI required for all personnel in the Basic (B), Refresher (R), and Series Conversion (S) POI.

**Prerequisite.** ACAD-2050

3.9.3 Confined/Mountainous Area Landings (CAL/MAL)

Purpose. To introduce and practice aircrew responsibilities while conducting CAL/MAL operations with single ship and multiple aircraft during the day.

**General.** Aircrew may find a description of these maneuvers in the CH-53 NATOPS and NTTP 3-22.3-CH-53.

**Crew Requirement.** P/P/CC for CAL-2210, P/P/CC/AG/O for CAL-2211

**Ground/Academic Training.** The MAWTS-1 CH-53 Course Catalog contains all self-paced readings and lectures pertaining to this stage which shall be completed as outlined in the MAWTS-1 Course Catalog.

**CAL-2210  1.5  *  B  D  A/S  1  CH-53K/MCAT**

Goal. Introduce and practice CALs/MALs using tactical approaches.

**Requirement**

**Introduce/Discuss:**

- CALs / MALs
- Airspeed/altitude during landing approach
- Desert landing profile
- Effects of wind
- Tactical approaches
- A/C landing gear brake limitations
- Rotor-wash effects

3-54
Brown out/white out procedures/Reduced Visibility Landings (RVL)
Aircraft lighting conditions

Practice
CC vs. AG/O responsibilities during CAL/MAL operations
CRM and crew coordination during CAL/MAL operations
Cabin configuration/Security
Identifying closure rate to ground during landing
Lookout doctrine
Aircraft/Obstacle clearance
Identifying terrain suitability
Standard Terminology
Drift correction/Heading control

Performance Standards: Conduct CAL/MAL operations IAW above listed items and the CH-53 NATOPS and NTTP 3-22.3.53. Perform a minimum of 5 confined area landings.

Range Requirements: See training resource requirements in Chapter 1 of this document.

External Syllabus Support: MCAT as required.

Instructor: TERFI required for all personnel in the Basic (B) POI.

Prerequisite: ACAD-2050

| CAL-2211 | 1.5 | 365 | B,R,M,S | D | A | 2 CH-53K |

Goal: Introduce and practice CALs/MALs using tactical approaches within a section.

Requirement

Introduce/Discuss
Wingman situational awareness during section CALs
Wingman terminology during section CALs
Wingman update during section CALs
Wingman crossover during section CALs
Section takeoffs, approaches, landings to a CAL/MAL site

Practice
CC vs. AG/O responsibilities during section CAL/MAL operations
CRM and crew coordination during section CAL/MAL operations
Cabin configuration/security
Tactical approaches
Identifying closure rate to ground during landing
Lookout doctrine
Aircraft/Obstacle clearance
Identifying terrain suitability
Standard Terminology
Drift correction/Heading control
Wave off procedures

Performance Standards: Perform aircrew duties during tactical CAL/MAL operations within a section IAW the above listed items and IAW CH-53 NATOPS and NTTP 3-22.3-53. Perform a minimum of 5 confined area landings in lead position and 5 confined area landings in the wingman position.

Range Requirements: IAW Training Resource Requirements in Chapter 1 of this document.

Instructor: TERFI required for all personnel in the Basic (B), Refresher (R), and Series Conversion (S) POI.

Prerequisite: FORM-2110, CAL-2210

3.9.4 Terrain Flight (TERF)

Purpose: To enhance aircrew responsibilities and lookout doctrine with TERF maneuvers/navigation and introduce section maneuvering in the day TERF environment.
General. Currency restrictions per T&R Program Manual. Crew Chiefs will be considered TERF qualified at the completion of TERF-2311. AG/OUI will complete the TERF syllabus prior to being designated an AG/O. The AG/OUI shall not be considered TERF qualified until after they have completed the NATOPS and CRM evaluation flight and have been designated an AG/O.

Crew Requirement. P/P/CC/AG/O

Ground/Academic Training. All self-paced readings and lectures shall be completed prior to stage initiation. Utilize academic courseware as outlined in the CH-53 chapter of the MAWTS-1 Course Catalog.

**ACAD-2051** 1.0 * B G

Goal. Completion of EA Terrain Flight academic requirements.

Requirement. Complete all required EA Terrain Flight training modules.


**TERF-2310** 1.5 * B D A/S 1 CH-53K/MCAT

Goal. Introduce and practice maneuvers, clearance, standard terminology, and aircrew responsibilities while flying in the TERF environment.

Requirement

* Introduce/Discuss
  - TERF profiles
  - Cockpit Scan
  - Aircraft limitations
  - Operational power checks
  - Navigational assistance
  - Terrain Flight Considerations
  - Terrain Flight Maneuvers
  - Standard terminology
  - Blade tip walk around
  - Rules of Conduct (Program Manual)
  - Terrain Flight Maneuvers
  - Forward aggressive scanning

* Practice
  - CC vs. AG/O responsibilities
  - CRM and crew coordination
  - Cabin configuration/security
  - Lookout doctrine
  - Obstacle clearance
  - Identifying closure rate to terrain

Performance Standards. Conduct aircrew duties and responsibilities during TERF/maneuvers and maintain aircraft clearance IAW above listed items, CH-53 NATOPS and NTTP 3-22.3-CH53.

Range Requirements. IAW Training Resource Requirements in Chapter 1 of this document.

External Syllabus Support. MCAT as required.

Instructor. TERFI required for all personnel in the Basic (B) POI.

Prerequisite. ACAD-2050, ACAD-2051

**TERF-2311** 1.5 365 B,R,M,S D A 2 CH-53K

Goal. Introduce and practice maneuvers, clearance and aircrew responsibilities for a section of aircraft in the TERF environment.

Requirement

* Introduce/Discuss
Tactical section maneuvering within the TERF environment

**Practice**
- TERF profiles
- Cockpit Scan during TERF
- Aircraft limitations
- Operational power checks
- Navigational assistance during TERF
- Terrain Flight Maneuvers
- Standard terminology
- Wingman Crossover considerations during TERF
- CC vs. AG/O responsibilities
- CRM and crew coordination
- Cabin configuration/security
- Lookout doctrine
- Obstacle clearance
- Identifying closure rate to terrain
- Forward aggressive scanning

**Performance Standards.** Conduct aircrew duties and responsibilities during TERF/maneuvers and maintain aircraft clearance IAW the NATOPS and NTTP 3-22.3-CH53.

**Range Requirements.** IAW Training Resource Requirements in Chapter 1 of this document.

**Instructor.** TERFI required for all personnel in the Basic (B), Refresher (R), and Series Conversion (S) POI.

**Prerequisite.** FORM-2110 and TERF-2310

3.9.5 **External Operations (EXT)**

**Purpose.** To develop skills necessary to conduct external operations in confined areas. AG/Os shall make the calls from the external hatch while over the external load in order to receive attainment/proficiency for the initial event.

**Crew Requirement.** P/P/CC/AG/O

**Ground/Academic Training.** All self-paced readings and lectures shall be completed prior to stage initiation. Utilize academic courseware as outlined in the CH-53 MAWTS-1 Course Catalog.

**NOTE**
- It is recommended that consideration should be given to adding a third crewmember in the cabin in order to maintain a full 360 degree lookout capability while conducting external operations

**SEXT-2400 2.0 485 B,R,M (NS) S/A 1 MCATT/CH-53K**

**Goal.** Introduce and practice external operations.

**Requirement**

- Introduce /Discuss:
  - Single point cargo hook system
  - Dual point cargo hook system
  - Independent/Triple hook system
  - Pre-flight/hook checks
  - Cargo hook control panel/switches
  - Aircrew portable pendant control
  - Cargo hook emergency release methods
  - Cabin configuration/inspection prior to 1st external lift
  - Gunner’s belt attachment location
  - Operational Power Checks
  - Brown out/white out procedures
  - Movement in the cabin with external hatch open
  - Multiservice Helicopter Sling Load Manual
Weight limitation for external load (min & max)
HST brief per NTTP 3-22.5
Hand and arm signals
Static discharge precautions
Obstacle clearance on ingress/departure
Blowing debris in zone
Standard terminology
Hook placement in relation to HST personnel
Drift identification/correction over the external load
Safe pick up/drop off vs. perfect pick up/drop off
Hazards/damage of dragging of external load
Sling considerations during external load drop off
Wave off procedure before, during, & after hook is loaded
Terrain suitability for external drop off
ICS failure while in the single point external hatch
Aircraft emergency with external load
AG/O duties during Externals

Practice:
CC vs. AG/O responsibilities
CRM and crew coordination
Cabin configuration/security

Performance Standards. Conduct simulated external operations as outlined in the NATOPS and NTTP 3-22.3-CH53. Perform all above listed items.

External syllabus support. Aircraft/Simulator

Instructor. TERFI required for all personnel in the Basic (B), Refresher (R) POL. NSI required if conducted in simulated night time environment.

Prerequisite. CSIX-1901

Goal. Introduce and practice single point external operations.

Requirement
Introduce /Discuss:
Single point cargo hook system
Pre-flight/hook checks
Cargo hook control panel.switches
Aircrew portable pendant control
Cargo hook emergency release methods
Cabin configuration/inspection prior to 1st external lift
Gunner’s belt attachment location
Operational Power Checks
Brown out/white out procedures
Movement in the cabin with external hatch open
Multiservice Helicopter Sling Load Manual
Weight limitation for external load (min & max)
HST brief per NTTP 3-22.5
Hand and arm signals
Static discharge precautions
Obstacle clearance on ingress/departure
Blowing debris in zone
Standard terminology
Hook placement in relation to HST personnel
Drift identification/correction over the external load
Safe pick up/drop off vs. perfect pick up/drop off
Hazards/damage of dragging of external load  
Sling considerations during external load drop off  
Wave off procedure before, during, & after hook is loaded  
Terrain suitability for external drop off  
ICS failure while in the single point external hatch  
Aircraft emergency with external load  
AG/O duties during Externals

**Practice**
- CC vs. AG/O responsibilities  
- CRM and crew coordination  
- Cabin configuration/security  
- Lookout doctrine

**Performance Standards.** Conduct single point external operations as outlined in the NATOPS and NTTP 3-22.3-CH53. Perform all above listed items. Execute 5 pickups and 5 drop offs within 5 meters of intended point of delivery.

**Range Requirements.** IAW Training Resource Requirements in Chapter 1 of this document.

**Instructor.** TERFI required for all personnel in the Basic (B) POI.

**Prerequisite.** CAL-2210, SEXT-2400

**EXT-2411  1.5  365  B.R.M.S  D  A  1  CH-53K**

**Goal.** Introduce and practice dual point external operations.

**Requirement**

**Introduce/Discuss**
- Dual Point cargo hook system  
- AG/O duties during Externals

**Practice**
- Dual point cargo hook system  
- Pre-flight/hook checks  
- Aircrew portable pendant control  
- Cabin configuration/inspection prior to 1" external lift  
- Gunner’s belt attachment location  
- Brown out/white out procedures  
- Movement in the cabin with external hatch open  
- Multiservice Helicopter Sling Load Manual  
- Weight limitation for external load (min & max)  
- HST Considerations  
- Static discharge precautions  
- Obstacle clearance on ingress/departure  
- Standard terminology  
- Drift identification/correction over the external load  
- Safe pick up/drop off vs. perfect pick up/drop off  
- Sling considerations during external load drop off  
- Wave off procedure before, during, & after hook is loaded  
- Terrain suitability for external drop off  
- Aircraft emergency with external load  
- Standard external load vs. heavy lift load  
- AG/O duties during Externals  
- CC vs. AG/O responsibilities  
- Cabin configuration/security  
- Lookout doctrine

**Performance Standards.** Conduct dual point external operations as outlined in the NATOPS and NTTP 3-22.3-
CH53. Perform all above listed items. Execute 5 pickups and 5 drop offs within 5 meters of intended point of delivery.

Range Requirements. IAW Training Resource Requirements in Chapter 1 of this document.

External syllabus support. HST, dual point load. **Instructor:** TERFI required for all personnel in the Basic (B), Refresher (R), and Series Conversion (S) POI.

**Instructor.** TERFI required for all personnel in the Basic (B), Refresher (R), and Series Conversion (S) POI.

**Prerequisite.** CAL-2210

**EXT-2420**

| 1.5 | * | B | HLL | A | 1 CH-53K |

**Goal.** Introduce and practice single point external operations utilizing Night Systems in HLL conditions.

**Requirement**

**Introduce**

- HLL NS considerations as applicable to Single Point external operations
- Aircraft lighting considerations
- Crows foot/NATO Y setup/usage
- Use of chemical lights

**Discuss/Practice:**

- Single point cargo hook system
- Pre-flight/hook checks
- Aircrew portable pendant control
- Cabin configuration/inspection prior to 1st external lift
- Gunner’s belt attachment location
- Brown out/white out procedures
- Movement in the cabin with external hatch open
- Multiservice Helicopter Sling Load Manual
- Weight limitation for external load (min & max)
- HST Considerations
- Static discharge precautions
- Obstacle clearance on ingress/departure
- Standard terminology
- Drift identification/correction over the external load
- Safe pick up/drop off vs. perfect pick up/drop off
- Sling considerations during external load drop off
- Wave off procedure before, during, & after hook is loaded
- Terrain suitability for external drop off
- Aircraft emergency with external load
- Standard external load vs. heavy lift load
- AG/O duties during Externals
- CC vs. AG/O responsibilities
- Cabin configuration/security
- Lookout doctrine

**Performance Standards.** Conduct single point external operations while utilizing Night Systems in HLL conditions as outlined in the NATOPS and NTTP 3-22.3-CH53. Perform all above listed items. Execute 5 pickups and 5 drop offs within 5 meters of intended point of delivery.

Range Requirements. IAW Training Resource Requirements in Chapter 1 of this document.

**External Syllabus Support.** HST, single point load.

**Instructor.** NSI required for all personnel in the Basic (B) POI.

**Prerequisite.** CAL-2220 and EXT-2410
Goal. Introduce and practice dual point external operations using NS in HLL conditions.

Requirement

<table>
<thead>
<tr>
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<th>Credit</th>
<th>Field</th>
<th>Load</th>
<th>Considerations</th>
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<td>1.5</td>
<td>180</td>
<td>B,R,M</td>
<td>HLL</td>
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<td>A 1 CH-53K</td>
</tr>
</tbody>
</table>

Introduce/Discuss

- HLL NS considerations as applicable to dual point external operations
- Field of View (FOV) vs. Field of Regard (FOR)
- Scan pattern/Sight fixation
- Crows foot/NATO Y setup/usage
- Use of chemical lights

Practice

- CC vs. AG/O responsibilities during HLL D/P EXT operations
- CRM and crew coordination during HLL D/P EXT operations
- Aircrew portable pendant control
- Pre-flight/hook checks
- Cabin configuration/inspection prior to 1st external lift
- Gunner’s belt attachment location
- Operational Power Checks
- Brown out/white out procedures
- Movement in the cabin with external hatch open
- Multiservice Helicopter Sling Load Manual
- Weight limitation for external load (min & max)
- HST considerations
- Hand and arm signals
- Static discharge precautions
- Obstacle clearance on ingress/Departure
- Standard terminology
- Drift identification/correction over the external load
- Safe pick up/drop off vs. perfect pick up/drop off
- Sling considerations during external load drop off
- Wave off procedure before, during, & after hook is loaded
- Terrain suitability for external drop off
- ICS failure while in the external hatch
- Aircraft emergency with external load
- Standard external load vs. heavy lift load
- AG/O duties during Externals
- Cabin configuration/security
- Lookout doctrine

Performance Standards. Conduct dual point external operations while utilizing Night Systems in HLL conditions as outlined in the NATOPS and NTTP 3-22.3-CH53. Perform all above listed items. Execute 5 pickups and 5 drop offs within 5 meters of intended point of delivery.

Range Requirements. IAW Training Resource Requirements in Chapter 1 of this document.

External Syllabus Support. HST, dual point load

Instructor. NSI required for all personnel in the Basic (B) and Refresher (R) POI.

Prerequisite. CAL-2220 and EXT-2411

Goal. Introduce and practice external operations in LLL conditions, dual point preferred.

Requirement

Introduce/Discuss:

- LLL NS considerations as applicable to external operations:
  - Visual Acuity
  - Depth perception vs. Distance estimation

EXT-2430  1.5  180  B,R,M,S  LLL  A  1 CH-53K
Optical Flow
Closure rate
Scintillation

Practice
CC vs. AG/O responsibilities during LLL EXT operations
CRM and crew coordination during LLL EXT operations
Aircrrew portable pendant control
Pre-flight/hook checks
Cabin configuration/inspection prior to 1st external lift
Gunner’s belt attachment location
Operational Power Checks
Brown out/white out procedures
Movement in the cabin with external hatch open
Multiservice Helicopter Sling Load Manual
Weight limitation for external load (min & max)
HST considerations
Hand and arm signals
Static discharge precautions
Obstacle clearance on ingress/departure
Standard terminology
Drift identification/correction over the external load
Safe pick up/drop off vs. perfect pick up/drop off
Sling considerations during external load drop off
Wave off procedure before, during, & after hook is loaded
Terrain suitability for external drop off
ICS failure while in the external hatch
Aircraft emergency with external load
Standard external load vs. heavy lift load
AG/O duties during Externals

Performance Standards. Conduct external operations while utilizing Night Systems during LLL conditions as outlined in the NATOPS and NTTP 3-22.3-CH53. Perform all above listed items. Execute 5 pickups and 5 drop offs within 5 meters of intended point of delivery.

Range Requirement. IAW Training Resource Requirements in Chapter 1 of this document.

External Syllabus Support. HST, certified load

Instructor. NSI required for all personnel in the Basic (B), Refresher (R), and Series Conversion (S) POI.

Prerequisite. CAL-2230, EXT-2420, EXT-2421, NSQ-HLL

3.9.6 Ground Threat Reaction (GTR) and Radar Ground Threat Reaction (GTR)

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

General. Aircrew shall conduct this stage against appropriate ground-based radar or non-radar threats. Utilizing a range of threat simulation systems (e.g., Smokey SAMs, target lights, handheld pyrotechnics, AAR-47 stimulator) and detailed coordination with radar operators and ground crews will greatly enhance aircrew training.

Crew Requirement. P/P/CC/AG/O

Ground/Academic Training. All self-paced readings and lectures shall be completed prior to stage initiation. Utilize academic courseware as outlined in the CH-53 MAWTS-1 Course Catalog.

Prerequisites
Academic: See event
Flight: TERF-2311
Designation: CC/AG/O
Qualification: TERFQ, AGQ
ACAD-2580  1.0  *  B  
Goal. Completion of APR-39 academic requirements.
Requirement. Complete all APR-39 training modules.

ACAD-2581  1.0  *  B  
Goal. Completion of CH-53K AAR/ALE-47 academic requirements.

ACAD-2582  1.0  *  B  
Goal. Completion of CH-53K AAQ-24 academic requirements.

ACAD-4050  1.0  *  B  
Goal. Completion of Basic Principals of EW academic requirements.
Requirement. Complete all Basic Principals of EW training modules.
Performance Standard. Per current evaluation criteria for Basic Principals of EW training.

ACAD-4051  1.0  *  B  
Goal. Completion of DM/GTR 1 academic requirements.
Requirement. Complete all DM/GTR 1 training modules.
Performance Standard. Per current evaluation criteria for DM/GTR 1 training.

GTR-2540  1.5  365  B,R,M  (NS)  A/S  2  CH-53K/MCAT
Goal. Introduce and practice non-radar ground based threat reactions and ASE familiarization.

Requirement
  Introduce/Discuss:
  Types of Non-Radar ground threat (Small arms, HMG, RPG, and MANPADS)
  Operation of AAR-47, ALE-47, and AAQ-24
  IR countermeasures
  GTR Training (IAW NTTP Appendix B)
  Five axioms of survival
  Inter and intra-aircraft communications
  Weapons handling
  Section tactical maneuvers to counter ground-based threat
  High, medium, and low altitude tactics
  Low altitude emergencies
  ASE employment to counter threat
  Standard Terminology

Practice
  CC vs. AG/O responsibilities during Non-Radar ground threat reaction
  CRM and crew coordination during CC vs. AG/O responsibilities during
  Cabin configuration
  Section tactical maneuvers to counter ground-based threat
Performance Standards. Conduct helicopter section tactics against a low altitude surface-to-air non-radar threat IAW the NTTP 3-22.3-53 Appendix B Ground Threat Reaction Training. Utilize appropriate ASE and on board weapons in relation to the threat. Utilize standard terminology while giving the attack warning against various non-radar ground-based threats and during intra-aircraft communications. Execution of at least 1 line number should be accomplished using high or medium altitude tactics.

Ordnance. 60 flares and 2 .50 Caliber machine guns

Range Requirements. IAW Training Resource Requirements in Chapter 1 of this document.

External Syllabus Support. Ground-based non-radar threat simulators (e.g., Smokey SAMs, AAR-47 stimulator, handheld pyrotechnics, target lights). MCAT as required for Maintain and Refresher POI only.

Instructor. WTI or DMI required for all personnel in the Basic (B) and Refresher (R) POI. A WTI or DMI that is also an NSI is required if conducted at night for all personnel in the Basic (B) and Refresher (R) POI.

Prerequisite. ACAD-2581, ACAD-2582, ACAD-4051, ACAD-4052 TERFQ. HLL-2321~NS, LLL-2331~LLL.

Goal: Conduct ground based RADAR threat reactions, TTP validation, and ASE familiarization.

Requirement

Introduce/Discuss/Practice:
   CC vs. AG/O responsibilities during RADAR GTR
   CRM and crew coordination during RADAR GTR
   Cabin configuration
   Various threat signatures
   Evasive maneuvers coordinated with dispensing of chaff
   Section threat avoidance
   Terrain masking and use of chaff and flares
   Operation of APR-39 and ALE-47
   GTR training syllabus 3-22.3-CH53 Appendix B
   GTR Walk through
   Five axioms of survival
   Rules of engagement
   Inter and intra-aircraft communications
   Standard terminology
   Section tactics and maneuvers to counter radar threat
   High, medium, and low altitude tactics
   Low altitude emergencies
   Use of radar horizon, ground clutter, radar resolution cells, and radar masking techniques

Performance Standards. Conduct helicopter section tactics against a surface-to-air radar threat IAW the NTTP 3-22.3-53 Appendix B Ground Threat Reaction Training. Explain/Demonstrate utilization of the appropriate ASE and on board weapons in relation to the threat. Demonstrate attack warning against various surface-to-air radar threats. Utilize standard terminology in intra-plane communications. Execution of at least 1 line number should be accomplished using high or medium altitude tactics.

Ordnance. 30 chaff, 30 flares and 2 .50 Caliber machine guns

Range Requirements. IAW Training Resource Requirements in Chapter 1 of this document.

External Syllabus Support. Ground emitter

Instructor. WTI or DMI required for all personnel in the Basic (B) and Refresher (R) POI. A WTI or DMI that is also an NSI required for all personnel in the Basic (B) or Refresher (R) POI if conducted at night.

Prerequisite. ACAD-2581, ACAD-2582, ACAD-4051, ACAD-4052 TERFQ. TERF-2321~HLL, TERF-2331~LLL, TERF-2311
3.9.7 Aerial Gunnery (AG)

**Purpose.** To demonstrate proficiency in delivering fire on targets of opportunity using the GAU-21 Medium Window Pintle Connection (MWPC) .50 caliber machine gun.

**General**

Aircrew shall be TERF qualified prior to beginning GAU-21 aerial gunnery stage of training. The exception to this is; an AG/OUI may enter this stage of training in order to fulfill their training requirements. They will have completed their TERF events but will not be officially “TERF Qualified” until all paper work is routed to the Commanding Officer for signature (TERF/AG qualification letters and NATOPS). See Chapter 4 of this document for AG/O training requirements.

All aircrew employing weapons shall have the current A1-H53BE-NFM-900 with all of the interim changes incorporated, on their person.

AG-2843 certifies the aircrew as an aerial gunner with the GAU-21 MWPC. Aircrew may be qualified as an aerial gunner on the GAU-21 MWPC at the discretion of the Commanding Officer after completing AG-2843. If the commanding officer chooses to qualify aircrew as an aerial gunner a qualification letter signed by the commanding officer shall be issued and placed in both the individuals NATOPS & APR jacket.

Aircrew may conduct night systems aerial gunnery events during either HLL or LLL conditions. If events are conducted during LLL conditions aircrew shall be NSQ HLL prior to conducting events.

An AGI on the GAU-21 MWPC is required for all day aerial gunnery flight events until aircrew are Aerial Gunnery Qualified.

An AGI on the GAU-21 MWPC who is also a NSI is required for all Night Systems (NS) aerial gunnery flight events until aircrew are Aerial Gunnery Qualified.

Aircrew do not lose their aerial gunnery “Qualification” status due to loss of proficiency (re-fly interval) in an individual event. Aircrew must re-fly that individual event with another qualified aircrew member in order to regain proficiency in that event.

Aircrew who lose proficiency inflight events (AG 2813 and AG-2843) automatically lose their “Qualification” status and must complete the Refresher (R) POI with the appropriately designated instructors.

A designated AGI on the GAU-21 MWPC shall only act in the capacity of an AGI when “Qualified” and proficient in aerial gunnery.

Approved laser aiming devices are required and “SHALL” be utilized during all night systems (NS) aerial gunnery flight events.

Aerial Gunnery Qualified Crew Chiefs and Aerial Observers/Gunners on the CH-53E that are undergoing Series Conversion (S) training may be assigned to the Series Conversion (S) POI if they are designated AGQ in the CH-53E.

**Crew Requirement.** P/P/CC/AG/O

**Ground/Academic Training.** All self-paced readings, lectures, and ground training events (STATIC/SIMULATED etc…) shall either be conducted or supervised by an AGI on the GAU-21 MWPC and shall be completed prior to beginning flight events. Self-paced readings and lectures are outlined in the MAWTS-1 CH-53 Course Catalog.

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<td><strong>Goal.</strong> Completion of EA Fundamentals of AG academic requirements.</td>
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<tr>
<td><strong>Requirement.</strong> Complete all EA Fundamentals of AG training modules.</td>
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<td><strong>Performance Standard.</strong> Per current evaluation criteria for EA Fundamentals of AG training.</td>
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<td><strong>Requirement.</strong> Complete all EA GAU-21 training modules.</td>
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<td><strong>Performance Standard.</strong> Per current evaluation criteria for EA GAU-21 training.</td>
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NAVMC 3500.129
6 Jul 21

**ACAD-2056**

**1.0**  *  B  

Goal.  Completion of Laser Aiming Devices academic requirements.

**Requirement.**  Complete all Laser Aiming Devices training modules.

**Performance Standard.**  Per current evaluation criteria for Laser Aiming Devices training.

**AG-2800**

**3.0**  *  B  

Goal.  Introduce and practice GAU-21 .50 caliber machine gun field stripping, cleaning, lubrication, and principles of operation IAW NAVAIR 11-95GAU21-1.

**Requirement**

**Discuss**

- NAVAIR 11-95GAU21-1
- NA 11-600-GAU21-1
- NA 11-600-GAU21-2
- A1-H53BE-NFM-900 Pre-Fire procedure
- Conventional Ordnance Deficiency Report (CODR)

**Introduce**

- Field stripping
- Cleaning and inspection
- Cleaning tools for the bore, chamber, and firing pin hole
- Nomenclature
- Principles of operation
- Changing feed direction
- Lubrication criteria and application
- Re-assembly

**Performance Standards.**  Conduct field striping, cleaning, inspection, lubrication, and re-assembly of the weapon ensuring correct feed orientation IAW all applicable manuals.

**Ordinance Requirements.**  1 GAU-21 .50 caliber machine gun per student

**Instructor.**  AGI on the GAU-21 MWPC required for all personnel in the Basic (B) POI.

**Prerequisites.**  ACAD-2055

**AG-2801**

**2.0**  *  B,S  


**Requirement**

**Discuss:**

- NAVAIR 11-53DA-2
- A1-H53BE-NFM-900
- NA 11-95IZLID-1
- Conventional Ordnance Deficiency Report (CODR)

**Introduce**

- Installation IAW A1-H53BE-NFM-900
- LASER installation IAW NA 11-95IZLID-1
- Pre-flight IAW A1-H53BE-NFM-900
- In-flight removal and re-installation

**Performance Standards.**  Conduct pre-flight inspection, installation, removal, and in-flight removal and re-installation procedures for the GAU-21 MWPC and IZLID-200P LASER IAW A1-H53BE-NFM-900.

**Ordinance Requirements.**  2 GAU-21 MWPC .50 caliber machine guns, 1 left hand GAU-21 MWPC, 1 right hand GAU-21 MWPC, 2 IZLID-200P

**Instructor.**  AGI on the GAU-21 MWPC required for all personnel in the Basic (B) and Series Conversion (S) POI.
Prerequisites. ACAD-2056, ACAD-2057, AG-2800

AG-2802 2.0 * B D G 1 STATIC CH-53K/MCAT


Requirements

Introduce/Discuss
- A1-H53BE-NFM-900
- Local hung ordnance procedures (SOP per STA/MAG/UNIT)
- Egress considerations
- Conventional Ordnance Deficiency Report (CODR)
- Perform headspace and timing adjustments
- GAU-21 function check
- Ammunition inspection/preparation
- Ammunition uploading
- Principles of operation with dummy rounds
- Pre-takeoff (post-arming)
- Weapon status during in-flight voice commands
- Hand signals
- Lock and Load procedure
- Open fire procedure
- Cease fire procedure
- Clear and safe procedure
- Reload procedure
- Final landing procedure
- Post-flight inspection
- Weapon stoppage procedure
- Gun jam clearing procedure
- Runaway gun procedure
- Firing limitations
- Troubleshooting techniques

Practice
- Installation IAW A1-H53BE-NFM-900
- LASER installation IAW NA 11-95IZLID-1
- Pre-flight IAW A1-H53BE-NFM-900
- Simulated In-flight removal and re-installation


Ordnance Requirements. 2 GAU-21 MWPC .50 caliber machine guns, 1 left hand MWPC, 1 right hand MWPC, 2 IZLID-200P and 10 dummy rounds.

External Syllabus Support. MCAT as required.

Instructor. AGI on the GAU-21 MWPC required for all personnel in the Basic (B) POI.

Prerequisites. AG-2801

AG-2812 1.5 * B D A 1 CH-53K

Goal. Introduce and practice day aerial gunnery training with the GAU-21 MWPC during single ship operations.

Requirement

Introduce/Discuss
- Fire control voice commands
- Non-verbal fire control signals
- Weapon capabilities
- Fields of fire versus sectors of fire
Aiming techniques 
Ballistic considerations 
Normal firing operations 
Fire discipline 
Firing Limitations 
Weapon emergency procedures 
Troubleshooting techniques 
Egress considerations with weapons installed 
All flight procedures IAW A1-H53BE-NFM-900 
Positive control of weapon 
Muzzle awareness 
Suggested Line numbers in the NTTP series

Practice
CC vs. AG/O responsibilities during aerial gunnery 
CRM and crew coordination during aerial gunnery 
Cabin configuration/security 
Use and application of A1-H53BE-NFM-900 weapons checklist 
Pre-fire of GAU-21 machine gun 
Pre-flight of MWPC 
Standard Terminology

Performance Standards. Conduct aerial gunnery techniques while employing the GAU-21 MWPC IAW the NTTP 3-22.3-CH-53 and the A1-H53BE-NFM-900. Demonstrate positive weapons control, normal firing operations, weapon emergencies, troubleshooting technique, and ICS procedures. Demonstrate the ability to engage multiple targets during single ship aircraft operations. Aerial Gunner Under Instruction SHALL maintain situational awareness both inside and outside of the aircraft while safely performing ammunition can change. Point of aim, point of impact shall be within the following parameters: Majority of rounds impacting the target area by second burst.

Ordnance. 600 rounds per aerial gunner, 2 GAU-21 MWPC .50 caliber machine guns, 1 left hand GAU-21 MWPC, 1 right hand GAU-21 MWPC

Range Requirements. IAW Training Resource Requirements in Chapter 1 of this document.

Instructor. AGI on the GAU-21 MWPC required for all personnel in the Basic (B) POI.

Prerequisites. ACAD-2053, TERF-2310, AG-2802

AG-2813 1.5 365 B,R,M,S D A 2+ CH-53K

Goal. Introduce and practice day aerial gunnery with the GAU-21 MWPC during multi-ship operations.

Requirement
Introduce/Discuss
Wingman no fire areas (NFA) 
Limited sectors of fire 
Fire discipline within a section 
Target hand-off

Practice
CC vs. AG/O responsibilities during section aerial gunnery 
CRM and crew coordination during section aerial gunnery 
Pre-fire of GAU-21 machine gun 
Pre-flight of MWPC 
Cabin configuration/security 
Use and application of A1-H53BE-NFM-900 
Standard Terminology 
Normal firing operations 
Fire control voice commands 
Non-verbal fire control signals
Fields of fire versus sectors of fire
Aiming techniques
Ballistic considerations
Firing Limitations
All flight procedures IAW A1-H53BE-NFM-900
Positive control of weapon
Suggested Line numbers in the NTTP series

Performance Standards. Conduct aerial gunnery techniques while employing the GAU-21 MWPC during multi-ship operations IAW the NTTP 3-22.3-CH-53 and the A1-H53BE-NFM-900. Demonstrate positive weapons control, normal firing operations, weapon emergencies, troubleshooting technique, and ICS procedures. Demonstrate the ability to engage multiple targets during multi-ship operations from both the lead and wingman positions. Aerial Gunner Under Instruction SHALL maintain situational awareness both inside and outside of the aircraft while safely performing ammunition can change. Point of aim, point of impact shall be within the following parameters: Majority of rounds impacting the target area by second burst.

Ordnance. 600 rounds per aerial gunner, 2 GAU-21 MWPC .50 caliber machine guns, 1 left hand GAU-21 MWPC, 1 right hand GAU-21 MWPC

Range Requirements. IAW Training Resource Requirements in Chapter 1 of this document.

Instructor. AGI on the GAU-21 MWPC required for all personnel in the Basic (B), Refresher (R), and Series Conversion (S) POL

Prerequisites. TERF-2311, AG-2812

AG-2842 1.5 * B NS  A 1 CH-53K

Goal. Introduce and practice aerial gunnery with the GAU-21 MWPC while utilizing Night Systems during single ship operations.

Requirement
Introduce/ Discuss
Aiming techniques on NS
LASER safety/employment
Nominal Ocular Hazard Distance (NOHD)
NVG considerations (specifically tracer burnout and muzzle flash)

Practice
CC vs. AG/O responsibilities during NS aerial gunnery
CRM and crew coordination during NS aerial gunnery
Pre-fire of GAU-21 machine gun
Pre-flight of MWPC
Cabin configuration/ security
Use and application of A1-H53BE-NFM-900
Standard Terminology
Normal firing operations
Fire control voice commands
Non-verbal fire control signals
Ballistic considerations
All flight procedures IAW A1-H53BE-NFM-900
Positive control of weapon
Suggested Line numbers in the NTTP series

Performance Standards. Conduct aerial gunnery techniques while employing the GAU-21 MWPC while utilizing night systems during single ship operations IAW the NTTP 3-22.3-CH-53 and the A1-H53BE-NFM-900. Demonstrate positive weapons control, normal firing operations, weapon emergencies, troubleshooting technique, and ICS procedures. Demonstrate the ability to engage multiple targets during single ship aircraft operations or while in the lead position during multi ship aircraft operations. Aerial Gunner Under Instruction SHALL maintain situational awareness both inside and outside of the aircraft while safely performing ammunition can change. Point of aim, point of impact shall be within the following parameters: Majority of rounds impacting the target area by
second burst.

**Ordnance.** 600 rounds per aerial gunner, 2 GAU-21 MWPC .50 caliber machine guns, 1 left hand GAU-21 MWPC, 1 right hand GAU-21 MWPC, 2 IZLID-200P

**Range Requirements.** IAW Training Resource Requirements in Chapter 1 of this document.

**Instructor.** AGI on the GAU-21 MWPC who is also a NSI required for all personnel in the Basic (B) POI.

**Prerequisite.** TERF-2320 if HLL, TERF-2330 if LLL, AG-2812

**AG-2843**

**Goal.** Introduce and practice aerial gunnery with the GAU-21 MWPC while utilizing Night Systems during multi-ship operations.

**Requirement**

- **Introduce/Discuss:**
  - Target identification utilizing LASER aiming devices
  - Target hand-off utilizing LASER aiming devices

- **Practice**
  - CC vs. AG/O responsibilities during NS section aerial gunnery
  - CRM and crew coordination during NS section aerial gunnery
  - Pre-fire of GAU-21 machine gun
  - Pre-flight of MWPC
  - Cabin configuration
  - Use and application of A1-H53BE-NFM-900
  - Standard Terminology
  - Normal firing operations
  - Wingman no fire areas (NFA)
  - Fire discipline within a section
  - Target hand-off
  - NVG considerations (specifically tracer burnout and muzzle flash)
  - LASER safety/employment
  - Fire control voice commands
  - Non-verbal fire control signals
  - Fields of fire versus sectors of fire
  - Aiming techniques
  - Ballistic considerations
  - All flight procedures IAW A1-H53BE-NFM-900
  - Positive control of weapon
  - Suggested Line numbers in the NTTP series

**Performance Standards.** Conduct aerial gunnery techniques while employing the GAU-21 MWPC while utilizing night systems during multi-ship operations IAW the NTTP 3-22.3-CH-53 and the A1-H53BE-NFM-900. Demonstrate positive weapons control, normal firing operations, LASER employment, weapon emergencies, troubleshooting technique, and ICS procedures. Demonstrate the ability to engage multiple targets during multi-ship aircraft operations from both the lead and wingman positions. Aerial Gunner Under Instruction SHALL maintain situational awareness both inside and outside of the aircraft while safely performing ammunition can change. Point of aim, point of impact shall be within the following parameters: Majority of rounds impacting the target area by second burst.

**Ordnance.** 600 rounds per aerial gunner, 2 GAU-21 MWPC .50 caliber machine guns, 1 left hand GAU-21 MWPC, 1 right hand GAU-21 MWPC, 2 IZLID-200P

**Range Requirements.** IAW Training Resource Requirements in Chapter 1 of this document.

**Instructor.** AGI on the GAU-21 MWPC who is also a NSI required for all personnel in the Basic (B), Refresher (R), and Series Conversion (S) POI.

**Prerequisite.** TERF-2321-HLL, TERF-2331-LLL, AG-2813, AG-2842
3.9.8  **Tactics (TAC)**

**Purpose.** To introduce aircrew responsibilities for tactical missions.

**Crew Requirement.** P/P/CC/AG/O. If rounds are utilized and aircrews are not AGQ an AGI is required.

**Ground/Academic Training.** All self-paced readings and lectures shall be completed prior to stage initiation. Utilize academic courseware as outlined in the CH-53 chapter of the MAWTS-1 Course Catalog.

**ACAD-2058**  1.0  *  B  G

**Goal.** Completion of EA Basic Principals of Escort Operations academic requirements.

**Requirement.** Complete all required EA Basic Principals of Escort Operations Training modules.

**Performance Standard.** Per current evaluation criteria for EA Basic Principals of Escort Operations Training.

**TAC-2910**  2.0  *  B  D  A  2 CH-53K

**Goal.** Introduce and practice aircrew responsibilities during a low threat section tactical operation.

**Requirement**

**Introduce/Discuss**
- METT-TC
- Low threat environment criteria
- Flight leadership and Roles
- TACP, TAD, COMMS
- Serial leader
- Pick up Zone (PZ)/Marshaling Area Control Officer (MACO)
- Mission planning products
- Go criteria/No-go criteria
- Abort
- Bump Plan/Late-join/straggle plan
- Rules of engagement
- FENCE procedures
- Test fire area (TFA)
- Threat anticipation
- Objective area considerations
- “Cherry vs. Ice” criteria
- Sectors of fire/Field of Fire
- No Fire Areas (NFA)
- Wave-off effects during insert
- Contingencies
- Hostile area (Threat Environment)
- Battle Damage Assessment (BDA)
- Passengers and Cargo (if applicable)
- External operations (if applicable)
- Downed aircraft immediate actions
- Downed aircrew’s wingman responsibilities

**Practice**
- CC vs. AG/O responsibilities during tactical operations
- CRM and crew coordination during tactical operations
- Mission analysis and Execution Checklist Usage
- Cabin configuration
- Lookout doctrine
- Weapons control procedures
- Navigational assistance
- Tactical formation maneuvering

**Performance Standards.** Conduct tactical operations in a low threat environment as stated in NTTP 3-22.3-53.
Demonstrate knowledge/usage of mission planning products. If rounds are utilized refer to AG-codes for weapons performance standards.

**Range Requirements.** IAW Training Resource Requirements in Chapter 1 of this document.

**External Syllabus Support.** Ordnance request for weapons

**Instructor.** TERFI required for all personnel in the Basic (B) POI. WTI’s should be utilized to the max extent possible.

**Prerequisite.** ACAD-2058, CAL-2211 and TERFQ

**Ordnance.** 2 GAU-21 MWPC .50 caliber machine guns, 1 left hand GAU-21 MWPC, 1 right hand GAU-21 MWPC installed. Rounds and firing of machine guns are optional thought highly encouraged.

**Goal:** Introduce and practice aircrew responsibilities during day medium threat tactical operations with multiple aircraft.

**Requirement**

**Introduce/Discuss**
- Low to Medium threat environment criteria
- Escort No Fire Area’s (NFA’s) in the objective area
- Escort Battle Positions
- Escort flight techniques
- Escort Flight Lead (EFL)
- Forward Air Controller (FAC)
- Forward Air Controller Airborne (FAC(A))
- Joint Tactical Air Controller (JTAC)
- Air Mission Commander (AMC)
- Fire support Coordinator (FSC)
- Control of Fires

**Practice**
- CC vs. AG/O responsibilities during tactical operations
- CRM and crew coordination during tactical operations
- METT-TC
- Pick up Zone (PZ)/Marshaling Area Control Officer (MACO)
- Use of Mission planning products
- Go criteria/No-go criteria and Mission Abort Criteria
- Bump Plan/Late-join/straggle plan
- Rules of engagement
- FENCE procedures
- Test fire area (TFA)
- Threat anticipation
- ASE utilization
- Weapons control procedures
- Tactical formation maneuvering
- Objective area considerations
- “Cherry” vs. “Ice” criteria
- Sectors of fire
- No Fire Areas (NFA)
- Wave-off effects
- Contingencies
- Hostile area
- Passenger embark/debark (if applicable)
- Cargo and vehicle on-load/securing/off-load (if applicable)
- External operations (if applicable)

**Performance Standard.** Conduct tactical operations in low to medium threat environment as stated in NTTP 3-22.3-
53. Demonstrate knowledge/usage of mission planning products. If rounds are utilized refer to AG-codes for weapons performance standards.

**Instructor**. TERFI required for all personnel in the Basic (B) and Refresher (R) POI. WTI’s should be utilized to the max extent possible.

**Prerequisites**. TAC-2910

**Ordnance**. 2 GAU-21 MWPC .50 caliber machine guns, 1 left hand GAU-21 MWPC, 1 right hand GAU-21 MWPC installed. Rounds and firing of machine guns are optional though highly encouraged.

**Range Requirements**. IAW Training Resource Requirements in Chapter 1 of this document.

**External Syllabus Support**. Ordnance request for weapons. Range/Ordnance/Escort request if utilized.

3.9.9 **NS High Light Level (HLL)**

**Purpose**. To develop skill in the use of NS under light levels greater than or equal to .0022 lux (HLL) as predicted by the Solar Lunar Almanac Prediction (SLAP) and to qualify aircrew in NS HLL operations.

**General**

Night systems lectures and initial instructional flights and refresher flights shall be conducted by a WTI or NSI.

Aircrew not NSQ HLL requires supervision of an NSI for all events flown with NS.

The aircrew under instruction is considered NSQ HLL (able to transport troops under HLL conditions) when the following 6 events have been completed: HLL-2120, HLL-2220, HLL-2221, HLL-2320, HLL-2321, and HLL-2920. Aircrew shall fly all NS events in the NSQ HLL syllabus under ambient light conditions of .0022 LUX or greater.

Successful completion of HLL-2920 constitutes Night Systems Qualified (NSQ) HLL. A qualification letter signed by the commanding officer is required stating the aircrew is NSQ HLL to carry troops under HLL conditions. The original shall be placed in the aircrew’s NATOPS jacket and a copy in the APR with a corresponding logbook entry.

**Crew requirement**. P/P/CC/AG/O

**Ground/Academic Training**. All self-paced readings and lectures shall be completed prior to stage initiation. Utilize academic courseware as outlined in the CH-53 MAWTS-1 Course Catalog.

**Prerequisites**. The following events/designations are prerequisites prior to the commencement of the High Light Level stage.

- **Academic**. ACAD-2052
- **Flight**. CAL-2211, TERFQ

**ACAD-2052** 1.0 * B G

**Goal**. Completion of EA Night Vision Training academic requirements.

**Requirement**. Complete all required EA Night Vision Training modules.

**Performance Standard**. Per current evaluation criteria for EA Night Vision Training.

**HLL-2120** 1.5 365 B,R,M HLL A 2 CH-53K

**Goal**. Introduce and practice aircrew duties during basic NS formation flight and introduce NS tactical formation flight.

**Requirement**

- **Introduce/Discuss**
  - Aircraft lighting conditions (overt/covert/formation)
  - Scan pattern utilizing NVG
  - Depth perception/Distance Estimation
  - Closure rate
  - Identifying closure rate utilizing NVG
  - Lead change utilizing NVG
Tactical formation maneuvers while utilizing NVG

**Practice**
- CC vs. AG/O responsibilities during HLL FORM
- CRM and crew coordination during HLL FORM
- Cabin configuration/Security
- Basic tactical formations utilizing night systems
- Inadvertent Instrument Meteorological Conditions (IIMC)
- Standard terminology
- Wingman Considerations

**Performance Standards.** Conduct aircrew duties and demonstrate proficient knowledge of aircrew considerations during tactical formation flight utilizing NS IAW NATOPS and NTTP 3-22.3-CH53.

**Instructor.** NSI required for all personnel in the Basic (B) and Refresher (R) POI.

**Prerequisite.** ACAD-2052, FORM-2110

**HLL-2220**

* 1.5 * B

**Goal.** Introduce and practice single ship CALs/MALs operations using NS under HLL conditions.

**Requirement**

**Introduce/Discuss**
- CALs while utilizing NS in HLL
- NVG considerations/failures
- Field of View vs. Field of Regard
- Identifying closure rate while utilizing NVGs
- Effects of terrain shadows during CALs
- Brown out/white out procedures while utilizing NVGs

**Practice**
- CC vs. AG/O responsibilities during HLL CALs
- CRM and crew coordination during HLL CALs
- Cabin configuration/Security
- Aircraft lighting conditions (overt/covert/formation)
- Lookout doctrine
- Aircraft/Obstacle clearance
- Identifying terrain suitability
- Standard Terminology
- Drift correction/Heading control
- Wave off procedures
- Pattern terminology, upwind, downwind, abeam, final
- Airspeed/altitude during landing approach
- Desert/NVG landing profile
- Tactical approaches
- A/C landing gear brake limitations
- Rotor-wash effects

**Performance Standards.** Conduct aircrew duties during CAL/MAL operations and considerations while utilizing NVGs IAW above listed discuss items and the CH-53 NATOPS and NTTP 3-22.3-53. Perform aircrew duties during tactical CAL/MAL operations while utilizing NVGs IAW the above listed discuss and practice items and IAW CH-53 NATOPS and NTTP 3-22.3-53. Conduct a minimum 5 confined area landings.

**Range Requirements.** IAW Training Resource Requirements in Chapter 1 of this document.

**Instructor.** NSI required for all personnel in the Basic (B) POI.

**Prerequisite.** ACAD-2052, CAL-2210

**HLL-2221**

* 1.5 180 B,R,M,S

**Goal.** Introduce and practice CALs/MALs operations within a section while utilizing NS under HLL conditions.
Requirement

Introduce/Discuss
- Wingman situational awareness while utilizing NS
- Wingman terminology while utilizing NS
- Section takeoffs while utilizing NS
- Section approaches while utilizing NS
- Section landings to a CAL/MAL site while utilizing NS

Practice
- CC vs. AG/O responsibilities during section HLL CALs
- CRM and crew coordination during section HLL CALs
- Aircraft lighting conditions (overt/covert)
- Identifying closure rate to ground during landing
- Drift correction/Heading control
- Standard Terminology
- Pattern terminology, upwind, downwind, abeam, final
- Airspeed/altitude during landing approach
- Desert/NVG landing profile
- Aircraft/Obstacle clearance
- NVG considerations/failures
- Field of View vs. Field of Regard
- Identifying closure rate while utilizing NVGs
- Effects of shadows on terrain suitability for CAL
- Brown out/white out procedures while utilizing NVGs
- Cabin configuration/Security
- Lookout doctrine
- Identifying terrain suitability
- Wave off procedures
- Tactical approaches
- A/C landing gear brake limitations
- Rotor-wash effects

Performance Standards. Conduct CAL/MAL operations and considerations within a section while utilizing NS IAW above listed items and the CH-53 NATOPS and NTTP 3-22.3-53. Perform aircrew duties during tactical CAL/MAL operations within a section while utilizing NS IAW the above listed items and IAW CH-53 NATOPS and NTTP 3-22.3-53. Conduct a minimum of 5 confined area landings in lead position and 5 confined area landings in the wingman position.

Instructor. NSI required for all personnel in the Basic (B), Refresher (R), and Series Conversion (S) POI.

Prerequisite. HLL-2120, HLL-2220, CAL-2211

Range Requirements. IAW Training Resource Requirements in Chapter 1 of this document.

HLL-2320 1.5 * B HLL A 1 CH-53K

Goal. Introduce and practice maneuvers and clearance while flying in a TERF regime using NS in HLL conditions.

Requirement

Introduce/Discuss
- TERF while utilizing NS in HLL
- NVG considerations/failures
- Field of View vs. Field of Regard
- Effects of shadows on terrain suitability for TERF

Practice
- CC vs. AG/O responsibilities during HLL TERF
- CRM and crew coordination during HLL TERF
- Low level flight/Contour flight considerations during HLL TERF
- Cockpit Scan during TERF w/ NVGs
- Standard terminology
Operational Power Checks
Terrain Flight Maneuvers
Aircraft lighting conditions
Navigational assistance while utilizing NS
Cabin configuration/security
Blade tip walk around W/ NVGs
Lookout doctrine
Obstacle clearance
Identifying closure rate to terrain

Performance Standards. Conduct aircrew duties in the TERF regime while utilizing NS in a HLL condition IAW above listed items, NATOPS and NTTP 3-22.3-CH53.

Instructor. NSI required for all personnel in the Basic (B) POI.

Prerequisite. ACAD-2052, TERF-2310, HLL-2120

Range Requirements. IAW Training Resource Requirements in Chapter 1 of this document.

**HLL-2321**

1.5 180 B,R,M,S

HLL A 2 CH-53K

Goal. Introduce and practice maneuvers and clearance while flying within a section in the TERF regime using NS in HLL conditions.

Requirements

**Introduction/Discuss**
Section TERF while utilizing NS in HLL

**Practice**

CC vs. AG/O responsibilities during HLL Section TERF
CRM and crew coordination during HLL Section TERF
Wingman Considerations
NVG considerations/failures
Field of View vs. Field of Regard
Effects of shadows on terrain suitability for TERF
Low level flight/Contour flight considerations during HLL TERF
Cockpit Scan during TERF w/ NVGs
Standard terminology
Operational Power Checks
Terrain Flight Maneuvers
Aircraft lighting conditions
Navigational assistance while utilizing NS
Cabin configuration/security
Blade tip walk around W/ NVGs
Lookout doctrine
Obstacle clearance
Identifying closure rate to terrain

Performance Standards. Conduct aircrew duties in the TERF regime while utilizing NS in a HLL condition IAW above listed items, NATOPS and NTTP 3-22.3-CH53.

Range Requirements. IAW Training Resource Requirements in Chapter 1 of this document.

Instructor. NSI required for all personnel in the Basic (B), Refresher (R), and Series Conversion (S) POI.

Prerequisite. HLL-2120, TERF-2311, HLL-2320

**HLL-2920**

2.0 365 B,R,M

HLL A 2+ CH-53K

Goal. Introduce and practice aircrew responsibilities during tactical operations with multiple aircraft during HLL using NS.
Requirement

Introduce/Discuss
Aircraft lighting conditions
Battlefield Illumination (BI)
NS ITG (IR Pointers, IR buzz saw, IR Strobe)
Light Discipline
Emissions Control (EMCON)
MACO Markings during HLL

Practice
CC vs. AG/O responsibilities during section HLL tactical operations
CRM and crew coordination during section HLL tactical operations
Cabin configuration
Low to Medium threat environment criteria
Escort No Fire Area’s (NFA’s) in the objective area
Escort Considerations
Control of Fires
METT-TC
Flight leadership roles
Serial leader
Pick up Zone (PZ)/Marshaling Area Control Officer (MACO)
Mission planning products
Go criteria/No-go criteria and Mission Abort Criteria
Bump Plan/Late-join straggle plan
Rules of engagement
FENCE procedures
Test fire area (TFA)
Threat anticipation
ASE utilization
Weapons control procedures
Tactical formation maneuvering
Objective area considerations
Initial Terminal Guidance (ITG) Mirror Flash/Smoke
Initial Point (IP)/Landing zone (LZ)
“Cherry vs. Ice” criteria
Sectors of fire
No Fire Areas (NFA)
Wave-off effects
Contingencies
Hostile area
Lookout doctrine
Navigational assistance
Wingman considerations

Performance Standards. Conduct operations in a low threat environment on NS in a HLL as stated in NTTP 3-22.3-CH53. Demonstrate knowledge/usage of mission planning products. If rounds are utilized refer to AG-2843 per respective weapon system for weapons performance standards.

Ordnance. Two .50 caliber machine guns are required. Rounds and firing of machine guns are optional though highly encouraged.

Range Requirements. IAW Training Resource Requirements in Chapter 1 of this document.

External Syllabus Support. Ordnance request for weapons

Instructor: NSI required for all personnel in the Basic (B) and Refresher (R) POI. WTI’s should be utilized to the max extent possible.

Prerequisite. HLL 2221, HLL 2321, TAC 2910
3.9.10 NS Low Light Level (LLL)

**Purpose.** To develop skill in the use of NS under light levels less than .0022 lux (LLL) as predicted by the Solar Lunar Almanac Prediction (SLAP) and to qualify aircrew in NS LLL operations.

**General**

Aircrew not NSQ LLL requires supervision of an NSI for all events flown with NS under .0022 lux (LLL).

Aircrew will not begin the NSQ LLL syllabus until NSQ HLL.

The aircrew under instruction is considered NSQ LLL (able to transport troops under LLL conditions) when the following events have been completed: LLL-2230, LLL-2231, LLL-2330, LLL-2331, and LLL-2930. Aircrew shall fly all NS events in the NSQ LLL syllabus under ambient light conditions of below .0022 LUX.

Successful completion of LLL-2930 constitutes Night Systems Qualified (NSQ) LLL. A qualification letter signed by the commanding officer is required stating the aircrew is NSQ LLL to carry troops under LLL conditions. The original shall be placed in the aircrew’s NATOPS jacket and a copy in the APR with a corresponding logbook entry.

**Crew requirement.** P/P/CC/AG/O

**Ground/Academic Training.** All self-paced readings and lectures shall be completed prior to stage initiation. Utilize academic courseware as outlined in the CH-53 MAWTS-1 Course Catalog.

**Prerequisites.** The following events/designations are prerequisites prior to the commencement of the Low Light Level stage.

- **Designation.** Crew Chief / Aerial Gunner/Observer
- **Flight.** NSQ-HLL

**LLL-2230**

| 1.5 | * B | LLL | A | 1 CH-53K |

**Goal.** Introduce and practice single ship CALs/MALs operations using NS under LLL conditions.

**Requirement**

- **Introduce/Discuss**
  - CALs/MALs during LLL conditions
  - LLL NS considerations
  - Visual acuity degradation
  - Depth perception degradation
  - Distance estimation degradation
  - Contrast degradation
  - Effects of reduced or no shadows during CALs
  - Optical flow degradation
  - Scintillation

- **Practice**
  - CC vs. AG/O responsibilities during LLL CALs
  - CRM and crew coordination during LLL CALs
  - CALs/MALs during LLL conditions
  - Terrain suitability
  - Effects of wind
  - Wave off procedures
  - NVG considerations/failures
  - Field of View vs. Field of Regard
  - Identifying closure rate while utilizing NVGs
  - Effects of shadows on terrain suitability for CAL
  - Brown out/white out procedures while utilizing NVGs
  - Cabin configuration/Security
  - Aircraft lighting conditions (overt/covert/formation)
  - Lookout doctrine
  - Aircraft/Obstacle clearance
  - Identifying terrain suitability
Standard Terminology  
Drift correction/Heading control  
Wave off procedures  
Pattern terminology, upwind, downwind, abeam, final  
Airspeed/altitude during landing approach  
Desert/NVG landing profile  
Tactical approaches  
A/C landing gear brake limitations  
Rotor-wash effects

**Performance Standards.** Conduct aircrew duties during CAL/MAL operations and considerations while utilizing NVGs IAW above listed discuss items and the CH-53 NATOPS and NTTP 3-22.3-53. Perform aircrew duties during tactical CAL/MAL operations while utilizing NVGs IAW the above listed discuss and practice items and IAW CH-53 NATOPS and NTTP 3-22.3-53. Conduct a minimum 5 confined area landings.

**Range Requirements.** IAW Training Resource Requirements in Chapter 1 of this document.

**Instructor.** NSI required for all personnel in the Basic (B) POI.

**Prerequisite.** NSQ HLL

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**Goal.** Introduce and practice CALs/MALs operations within a section while utilizing NS under LLL conditions.

### Requirement

**Introduce Discuss**

- Section CALs/MALS operations during LLL conditions
- Wingman situational awareness during LLL conditions
- Wingman terminology during LLL conditions
- Wingman crossover during LLL conditions
- Section takeoffs during LLL conditions
- Section approaches during LLL conditions
- Section landings to a CAL/MAL site during LLL conditions

**Practice**

- CC vs. AG/O responsibilities during section LLL CALs
- CRM and crew coordination during section LLL CALs
- Terrain suitability
- Effects of wind
- Wave off procedures
- NVG considerations/failures
- Field of View vs. Field of Regard
- Identifying closure rate while utilizing NVGs
- Effects of shadows on terrain suitability for CAL
- Brown out/white out procedures while utilizing NVGs
- Cabin configuration/Security
- Aircraft lighting conditions (overt/covert/formation)
- Lookout doctrine
- Aircraft/Obstacle clearance
- Identifying terrain suitability
- Standard Terminology
- Drift correction/Heading control
- Wave off procedures
- Pattern terminology, upwind, downwind, abeam, final
- Airspeed/altitude during landing approach
- Desert/NVG landing profile
- Tactical approaches
- A/C landing gear brake limitations
- Rotor-wash effects
Performance Standards. Conduct CAL/MAL operations and considerations within a section while utilizing NS IAW above listed items and the CH-53 NATOPS and NTTP 3-22.3-53. Perform aircrew duties during tactical CAL/MAL operations within a section while utilizing NS IAW the above listed items and IAW CH-53 NATOPS and NTTP 3-22.3-53. Conduct a minimum of 5 confined area landings in lead position and 5 confined area landings in the wingman position.

Range Requirements. IAW Training Resource Requirements in Chapter 1 of this document.

Instructor. NSI required for all personnel in the Basic (B), Refresher (R), and Series Conversion (S) POI.

Prerequisite. LLL-2230

**LLL-2330** 1.5 * B LLL A 1 CH-53K

Goal. Introduce and practice maneuvers and clearance while flying in a TERF regime using NS in LLL conditions.

Requirement

**Introduce/Discuss**

TERF while utilizing NS in LLL

**Practice**

LLL NS considerations CC vs. AG/O responsibilities during LLL TERF
CRM and crew coordination during LLL TERF
Rules of Conduct for TERF (Program Manual)
Visual acuity degradation
Depth perception degradation
Distance estimation degradation
Contrast degradation
Effects of reduced or no shadows during TERF
Optical flow degradation
Scintillation
Cockpit Scan during TERF w/ NVGs
Standard terminology
Operational Power Checks
Terrain Flight Maneuvers
Aircraft lighting conditions
Navigational assistance while utilizing NS
Cabin configuration/security
Blade tip walk around W/ NVGs
Lookout doctrine
Obstacle clearance
Identifying closure rate to terrain

Performance Standards. Conduct aircrew duties in the TERF regime while utilizing NS in a LLL condition IAW above listed items, NATOPS and NTTP 3-22.3-CH53.

Range Requirements. IAW Training Resource Requirements in Chapter 1 of this document.

Instructor. NSI required for all personnel in the Basic (B) POI.

Prerequisite. NSQ HLL

**LLL-2331** 1.5 180 B,R,M,S LLL A 2 CH-53K

Goal. Introduce and practice maneuvers and clearance while flying in a TERF regime using NS in LLL conditions.

Requirement

**Introduce/Discuss**

Multiple aircraft operations in the section TERF regime while utilizing NS in LLL.

**Practice**

CC vs. AG/O responsibilities during section LLL TERF
CRM and crew coordination during section LLL TERF

3-80
LLL NS considerations
Field of View vs. Field of Regard
Identifying closure rate while utilizing NVGs
Visual acuity degradation
Depth perception degradation
Distance estimation degradation
Contrast degradation
Effects of reduced or no shadows during TERF
Optical flow degradation
Scintillation
Wingman Considerations
Effects of shadows on terrain suitability for TERF
Low level flight/Contour flight considerations during LLL TERF
Cockpit Scan during TERF w/ NVGs
Standard terminology
Operational Power Checks
Terrain Flight Maneuvers
Aircraft lighting conditions
Navigational assistance while utilizing NS
Cabin configuration/security
Blade tip walk around W/ NVGs
Lookout doctrine
Obstacle clearance

Performance Standards. Conduct aircrew duties in the TERF regime while utilizing NS in a LLL condition IAW above listed items, NATOPS and NTTP 3-22.3-CH53.

Range Requirements. IAW Training Resource Requirements in Chapter 1 of this document.

Instructor. NSI required for all personnel in the Basic (B), Refresher (R), and Series Conversion (S) POI.

Prerequisite. LLL-2330

LLL-2930 2.0 365 B,R,M,S LLL A 2+ CH-53K

Goal. Introduce and practice aircrew responsibilities during medium threat tactical operations with multiple aircraft utilizing NS in the LLL environment.

Requirement

Introduce/Discuss
CC vs. AG/O responsibilities during section LLL tactical operations
CRM and crew coordination during section LLL tactical operations

Practice
Aircraft lighting conditions
Battlefield Illumination (BI)
NS ITG (IR Pointers, IR buzz saw, IR Strobe)
Light Discipline
Emissions Control (EMCON)
MACO Markings during LLL
Cabin configuration/security
Medium threat environment criteria
Escort No Fire Area’s (NFA’s) in the objective area
Escort Considerations
Control of Fires
METT-TC
Flight leadership roles
Serial leader
Pick up Zone (PZ)/Marshaling Area Control Officer (MACO)
Mission planning products
Go criteria/No-go criteria and Mission Abort Criteria
Bump Plan/Late-join straggle plan
Rules of engagement
FENCE procedures
Test fire area (TFA)
Threat anticipation
ASE utilization
Weapons control procedures
Tactical formation maneuvering
Objective area considerations
Initial Terminal Guidance (ITG) Mirror Flash/Smoke
Initial Point (IP)/Landing zone (LZ)
“Cherry vs. Ice” criteria
Sectors of fire
No Fire Areas (NFA)
Wave-off effects
Contingencies
Hostile area
Lookout doctrine
Navigational assistance
Wingman considerations

Performance Standards. Conduct operations in a medium threat environment on NS in a LLL environment as stated in NTTP 3-22.3-CH53. Demonstrate knowledge/usage of mission planning products. If rounds are utilized refer to AG-2843 per respective weapon system for weapons performance standards.

Ordnance. Two .50 Caliber machine guns are required. Rounds and firing of machine guns are optional though highly encouraged.

Range Requirements. IAW Training Resource Requirements in Chapter 1 of this document.

External Syllabus Support. Ordnance request for weapons

Instructor. NSI required for all personnel in the Basic (B), Refresher (R), and Series Conversion (S) POI. WTIs should be utilized to the max extent possible.

Prerequisite. LLL-2231, LLL-2331

3.10 MISSION PHASE (3000)

Purpose. To introduce and develop proficiency in tactical planning, briefing and execution of a Marine Heavy Helicopter squadron’s assigned Marine Corps Tasks. Mission Skills have been developed to ensure that squadrons are capable of performing the Marine Corps Tasks (MCTs) assigned to a Marine Heavy Helicopter Squadron. Core Skills are the enablers that allow crews to perform Mission Skills.

General

For initial, refresher, or when the aircrew under instruction are not proficient in a particular Mission Skill, training codes shall be given by any flight lead, (SL, DL, AFL, AMC) that is proficient in that Mission Skill can give the Mission Skill code to all aircrew within the flight that meet the prerequisite. Additionally any Crew Chief instructor who is proficient in the Mission skill can give the Mission Skill Code to all enlisted Crew members who meet the prerequisites.

It is the intent that all TACEX scenarios in the Core Skill and Core Plus Skill Phase be based on a minimum of one of the Mission Skills. If aircrew under instruction does not meet the prerequisite for the Mission Skill event, they will not log the Mission Skill event. However, the instructor of the Core Skill or Core Plus Skill TACEX will log both the Core Skill or Core Plus Skill event and the Mission Skill event (i.e. NSI logs a LLL-2930 and CAT-3240. CC/AG/O in the LLL syllabus logs a LLL-2930). Once aircrew have been designated NSQ LLL, all subsequent TACEXs should be coded with the appropriate Core Skill or Core Plus Skill and Mission Skill event provided aircrew under instruction meet all core skill prerequisites. Aircrew that are not proficient in a Core Skill or Core Plus Skill event may update both the Core Skill or Core Plus Skill and the Mission Skill event on the same sortie.
Prior to the commencement of this phase, aircrew under instruction shall be NSQ-LLL and Aerial Gunnery Stage Complete (AGQ).

The aircrew under instruction will assist in the mission analysis, planning, briefing, execution and debriefing of each flight. Aircrew shall use the NTTP series and NATOPS as source documents for planning, briefing, execution and debriefing.

Multiple Mission Skill training events may be logged per sortie (e.g. CAT-3240, AD-3340) as long as the requirement(s) is (are) met for each code. Mission Skill phase training events are intended to be flown and logged in conjunction with other T&R syllabus events.

The CC/AG/O not eligible for the Mission Skill code will log the TAC code and the instructor will log both the TAC code and the Mission Skill event(s) that applies. Initial TAC events shall be accomplished as a section; subsequent evolutions (when logged in conjunction with a Mission Skill) may be done single ship, based on the tactical scenario.

Mission Skill events SHALL be flown with operational ASE, installed .50 calibers (as required for the tactical scenario), (rounds and expendables optional), whenever practical.

Initial attempts to complete Mission Skills should be made in the aircraft; subsequent attempts may be accomplished in the simulator.

Academic Training

Purpose. Prior to commencement of each event within the Mission Skill Phase the required academic syllabus shall be completed in accordance with this Manual and the MAWTS-1 CH-53 Course Catalog.

Upon completion, the CC/AG/O shall report to the designated representative(s), who will then manully update the training code in M-SHARP and log the academic/ground training event in section 3 (Aircrew Ground School Training) of the APR, using the Enlisted Aircrew Performance Record/Qualification Jacket Academic Tracker in Paragraph 3.17.2 of this document.

NIPR 2000-6000 classes are located at the MAWTS-1 NIPR website under ASD, CH-53: https://mceits.usmc.mil/sites/mawts1/SitePages/CH-53.aspx

SIPR 2000-6000 classes are located at the MAWTS-1 SIPR website under ASD, CH-53: https://intelshare.intelink.sgov.gov/sites/mawts1.aspx

As of the signing of this manual, the current HMH Core MCTs are as follows:

- Combat Assault Transport (MCT 1.3.4.1) (CAT)
- Air Delivery (MCT 4.3.4) (AD)
- Aviation Support of Tactical Recovery of Aircraft and Personnel (MCT 6.2.2.1) (TRAP)
- Air Evacuation (MCT 6.2.2) (AE)

Phase Prerequisites. The following events/designations are prerequisites prior to the commencement of the Core Mission Skill Phase.

- Flight. LLL-2930, AG-2843, GTR-2540, GTR-2541
- Designation: NSQ-LLL, AGQ

Crew Requirements: P/P/CC/AG/O

Phase Overview

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3.11 MISSION STAGES

3.11.1 Combat Assault Transport (CAT)

**ACAD-3082**  0.8   * B  G

**Goal.** Completion of NEO Execution academic requirements.

**Requirement.** Complete all NEO Execution training modules.

**Performance Standard.** Per current evaluation criteria for NEO Execution training.

**CAT-3240**  2.0  365  B,R,M  (NS)  A/S  2+ CH-53K

**Goal.** Demonstrate the capability to conduct combat assault transport operations in a low to medium threat environment. Aviation combat assault transport operations provide mobility to the MAGTF. It is used to deploy forces (air-landed or air-delivered) efficiently in offensive maneuver warfare, bypass obstacles, or quickly redeploy forces. Combat assault support transport allows the MAGTF Commander to build up his forces rapidly at a specific time and location, and allows him to apply and sustain combat power and strike the enemy where he is unprepared. This function comprises those actions required for the airlift of personnel, supplies and equipment into or within the battle area by helicopter, tilts rotor or fixed-wing aircraft; (JP 3-0, 4-0, MCWP 3-20, MAWTS-1).

**Requirement**

**Review**

TAC-2911 (as applicable)
HLL-2920 (as applicable)
LLL-2930 (as applicable)

**Performance Standard.** Plan, brief and execute a tactical assault support mission (MARLOG, general support, NEO, resupply, insert, extract). If an L-Hour is utilized arrive in the LZ +/- 30 seconds in the best position to support the ground combat element. Demonstrate a thorough understanding of objective area mechanics, command and control procedures, and fire support control measures. Demonstrate a thorough understanding of proper procedures to secure cargo and personal gear.

**Ordnance.** Two .50 caliber machine guns are required (Tail gun is optional), rounds and firing of the machine guns are optional.

**Range Requirement.** IAW Training Resource Requirements in Chapter 1 of this document.

**External Syllabus Support.** Escort and/or Command and Control aircraft are preferred if available. Ground combat element preferred if available.

**Instructor.** Any flight lead, (SL, DL, AFL, AMC) that is proficient in that Mission Skill can give the Mission Skill code to all aircrew within the flight that meet the prerequisite. Additionally any Crew Chief instructor who is proficient in the Mission skill can give the Mission Skill Code to all enlisted Crew members who meet the prerequisites.

**Prerequisite.** NSQ LLL, AGQ, ACAD-3082, GTR-2540, GTR-2541

3.11.2 Aerial Delivery (AD)

**AD-3340**  2.0  365  B,R,M  (NS)  A/S  2+ CH-53K

**Goal.** Demonstrate the ability to conduct air delivery in a low to medium threat environment. Air delivery is in-flight transportation of equipment and supplies to remote areas or expeditionary sites [tactical landing zones, austere forward operating sites, Naval shipping, Forward Operating Bases (FOBs), Expeditionary Airfields (EAFs), Forward Arming and Refueling Points (FARPs), etc.]. Air delivery operations are performed by fixed-wing, tilt rotor or rotary-wing aircraft. Delivery can be accomplished with aircraft internal/external loads, or loads can be air dropped using specially rigged aerial delivery equipment and systems. Air drops are normally used when surface of helicopter transports cannot be used because of range, closed lines of communications, a lack of adequate airfields, a prohibitive ground tactical situation, high tonnage, or reduced response time. The Helicopter Support Team (HST)
may be used during air delivery operations. Air delivery operations require detailed planning and integration at all
levels and must support units in a rapidly changing environment. (JP 1, 3-0, 4-0, MCWP 3-20, MCTP 3-01B,MCTP
3-20A, 4-1, 4-11, 4-11.3, NDP-4, NWP 4-01, NAVSUP PUB Series)

Requirement

Review
EXT-2410, EXT-2411, TEXT-4440 (as required)
EXT-2420, EXT-2421, EXT-2430, TEXT-4440 (as required)
HIE-4141 or HIE-4110 (as required)
TAC-2910
TAC-2911
HLL-2920 (as applicable)
LLL-2930 (as applicable)

Performance Standard. Plan, brief and execute a tactical aerial delivery mission (External operations, internal cargo
operations, or air drop) in a low to medium threat environment. If an L-Hour is utilized arrive in the LZ +/- 30
seconds.

Ordnance. Two .50 caliber machine guns are required (Tail gun is optional). Rounds and firing of the machine guns
are optional.

Range Requirement. IAW Training Resource Requirements in Chapter 1 of this document.

External Syllabus Support. HST. Jump master and ground safety personnel as required.

Instructor. Any flight lead, (SL, DL, AFL, AMC) that is proficient in that Mission Skill can give the Mission Skill
code to all aircrew within the flight that meet the prerequisite. Additionally any Crew Chief instructor who is
proficient in the Mission skill can give the Mission Skill Code to all enlisted Crew members who meet the
prerequisites.

Prerequisite. Aircrew must be proficient in the appropriate aerial delivery method being executed, EXT-2430, NSQ
LLL, AGQ, GTR-2540, GTR-2541.

3.11.3 Tactical Recovery of Aircraft and Personnel (TRAP)

ACAD-3084 1.0 * B G
Goal. Completion of Personnel Recovery academic requirements.

Requirement. Complete all Personnel Recovery training modules.


ACAD-3085 0.8 * B G
Goal. Completion of TRAP TTP’s academic requirements.

Requirement. Complete all TRAP TTP’s training modules.

Performance Standard. Per current evaluation criteria for TRAP TTP’s training.

TRAP-3440 2.0 365 B,R,M (NS) A/S 2+ CH-53K
Goal. Demonstrate the ability to conduct Tactical Recovery of Aircraft and Personnel (TRAP) in a low to medium
threat environment. Tactical Recovery of Aircraft and Personnel (TRAP) is performed for the specific purpose of
the recovery of personnel, equipment, and/or aircraft. TRAP is conducted to locate and extract distressed personnel
and sensitive equipment from enemy controlled area during wartime or contingency operations to prevent capture.
TRAP is performed by an assigned and briefed aircrew and is a subcomponent of combat search and rescue (CSAR)
and/or joint combat search and rescue (JCSAR) missions, but is only executed once the location of survivors is
confirmed. A TRAP mission may include personnel to conduct the search portion of CSAR or the over water
portion of search and rescue missions. The composition of a tactical recovery mission may vary from a single
aircraft and aircrew to an assault support mission package that consists of multiple fixed-wing and rotary-wing
NAVMC 3500.129
6 Jul 21

Aircraft with an onboard compliment of security, ground search, and medical personnel. (JP 1, JP 3-0, JP 3-50.2, MCWP 2-10A.2, MCWP 3-20, MCTP 3-01B, MCTP 3-20E, MCRP 3-20F.2, NDP 1, NWP 3-05)

Requirement

Introduce
- TRAP template from ASTAC SOP
- ISR employment
- RESCORT considerations
- Rescue vehicle responsibilities
- ISOPREP verification considerations
- RMC command and control considerations
- Survival Radio operation
- ACEOI


Ordnance. Two .50 caliber machine guns are required (Tail gun is optional). Rounds and firing of the machine guns are optional.

Range Requirement. IAW Training Resource Requirements in Chapter 1 of this document.

External Syllabus Support. Escort and/or Command and Control aircraft are preferred if available. Isolated personnel in the objective area are preferred. Use of survival radios is preferred. Ground combat element is preferred if available.

Instructor. Any flight lead, (SL, DL, AFL, AMC) that is proficient in that Mission Skill can give the Mission Skill code to all aircrew within the flight that meet the prerequisite. Additionally any Crew Chief instructor who is proficient in the Mission skill can give the Mission Skill Code to all enlisted Crew members who meet the prerequisites.

Prerequisite. NSQ LLL, AGQ, ACAD-3084, ACAD-3085, GTR-2540, GTR-2541

3.11.4 Air Evacuation (AE)

ACAD-3086 0.5 * B G

Goal. Completion of CASEVAC academic requirements.

Requirement. Complete all CASEEVAC training modules.

Performance Standard. Per current evaluation criteria for CASEVAC training.

AE-3540 2.0 365 B.R.M (NS) A/S 2+ CH-53K

Goal. Demonstrate the ability to conduct an air evacuation operation in a low to medium threat environment. Air evacuation is the transportation of personnel and equipment from areas of operations to secure rear areas, to include casualty evacuations (CASEVAC), extraction of forces, or civilians. Transport helicopters, tilt rotor, and fixed-wing transport aircraft perform air evacuations. (JP 3-10.1, MCDP 1-0, MCWP 3-20, MCTP 3-01B, MCTP 3-10F, MCTP 3-20E, MCWP 3-25, 3-27, 3-36)

Requirement

Review
- INT-2106

Introduce
- Casualty priorities
- Medical facility levels
- Aircraft configuration considerations
- Mass Casualty aircraft configuration

Performance Standard. Plan, brief and execute a tactical air evacuation mission. If an L-Hour is utilized arrive in the LZ +/- 30 sec in a position to best support the ground combat element.
Ordinance. Two .50 caliber machine guns are required (Tail gun is Optional); Rounds and firing of the machine guns are optional.

Range Requirement. IAW Training Resource Requirements in Chapter 1 of this document.

Instructor. Any flight lead, (SL, DL, AFL, AMC) that is proficient in that Mission Skill can give the Mission Skill code to all aircrew within the flight that meet the prerequisite. Additionally any Crew Chief instructor who is proficient in the Mission skill can give the Mission Skill Code to all enlisted Crew members who meet the prerequisites.

Prerequisite. NSQ LLL, AGQ, ACAD-3086, GTR-2540, GTR-2541

3.12 CORE PLUS PHASE (4000)

Purpose. To introduce and develop proficiency in the execution of the Core Plus Skills and Missions required as a crew chief/aerial observer within a Marine Heavy Helicopter Squadron (HMH). Core Plus skills have a low probability of execution or are theater specific and are not included in the unit readiness evaluation.

General. Within the Core Plus Phase the required academic syllabus shall be completed in accordance with this Manual and the MAWTS-1 CH-53 Course Catalog.

Upon completion, the CC/AG/O shall report to the designated representative(s), who will then manually update the training code in M-SHARP and log the academic/ground training event in section 3 (Aircrew Ground School Training) of the APR, using the Enlisted Aircrew Performance Record/Qualification Jacket Academic Tracker in Paragraph 3.17.2 of this document.

2000-6000 classes are located at the MAWTS-1 NIPR website under ASD, CH-53K T&R:
https://mceits.usmc.mil/sites/mawts1/SitePages/CH-53.aspx

SIPR 2000-6000 classes are located at the MAWTS-1 SIPR website under ASD, CH-53K T&R:
https://intelshare.intelink.sgov.gov/sites/mawts1.aspx

Phase Overview

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3.13 CORE PLUS STAGES

3.13.1 Helicopter Insertion/Extraction Techniques (HIE)

Purpose. To introduce HIE methods required in executing special operations.

General. The CC shall conduct a brief with the specific team leader, then the entire team prior to take off to discuss mission requirements and aircraft safety procedures.

Crew Requirement. P/P/CC/AG/O

Ground/Academic Training. All self-paced readings and lectures shall be completed prior to stage initiation. Utilize academic courseware as outlined in the CH-53 MAWTS-1 Course Catalog.
Prerequisites. The following events/designations are prerequisites prior to the commencement of the Helicopter Insertion & Extraction Techniques:

Academic: See event
Flight: see event
Designation: CC/AG/O

**Goal.** Introduce and practice procedures for tactical insertion helocast.

**Requirement**

**Introduce/Discuss**

- CC vs. AG/O responsibilities during helocast operations (NTTP)
- CRM and crew coordination during helocast operations
- Cabin configuration/security
- Safety considerations with ramp open and passengers onboard
- Crew coordination/CRM with jump master
- Hand and arm signals with jump master
- Altitude for helocast boat release
- Time to disconnect the boat from its A/C attachment point
- Tail rotor clearance
- Airspeed for helocast
- Responsibilities and duties of Helocast Master
- Responsibilities and duties of the HAC
- Responsibilities and duties of the Crew Chief
- Standard terminology
- Vertigo and visual illusions while hovering over water
- Emergency procedures during helocast operations

**Practice**

- CC vs. AG/O responsibilities during helocast operations
- CRM and crew coordination during helocast operations
- Safety procedures
- Communication with serial leader/Helo-cast Master
- Intraplane communication

**Performance Standards.** Conduct procedures for a tactical insertion via helocast IAW applicable NTTP 3-22.3-53.

**External Syllabus Support.** Helocast Master, safety boat and safety personnel

**Instructor.** TERFI required for all personnel in the Basic (B) and Refresher (R) POI.

**Prerequisite.** TERFQ, INT-2106

**Goal.** Introduce and practice tactical insertion and/or extraction of a ground force via fast rope, rappelling, or SPIE.

**Requirement**

**Introduce/Discuss**

- CC vs. AG/O responsibilities during HRST operations
- CRM and crew coordination during HRST operations
- Cabin configuration/security
- Safety considerations with door/ramp open and passengers onboard
- Aircraft/Obstacle clearance
- DZ/PZ Selection
- Wooded and mountain HRST operations
- Night operations
- Tactical insertions
- Effects of rotor downwash
- Static electricity build-up
Associated equipment
Mandatory commands
Advisory commands
Hand and arm signals
Lost communications/ICS failure
Responsibilities and duties of HRST Master
Responsibilities and duties of the HAC
Responsibilities and duties of the Crew Chief
Helicopter rappel operations
Special Patrol Insertion/Extraction (SPIE) System
Night SPIE
SPIE from water
Sequence of events
Emergency procedures for HIE operations

Practice
CC vs. AG/O responsibilities during HRST operations
CRM and crew coordination during HRST operations
Cabin configuration during HIE Operations
Hand and arm signals
Intraplane communication

Performance Standards. Conduct tactical insertion and/or extraction of a ground force via rappelling, fast-rope or SPIE IAW applicable NATOPS and NTTP 3-22.3-53.

External Syllabus Support. HRST Master and ground safety personnel

Instructor. TERFI required for all personnel in the Basic (B) POI. NSI required if conducted at night.

Prerequisite. CAL-2210, (HLL-2920~NS or LLL-2930~LLL)

**HIE-4141** 1.5 *B (NS) A 1 CH-53K

Goal. Introduce and practice procedures for tactical insertion of personnel via para/Ops.

Requirement

**Introduce /Discuss**
CC vs. AG/O responsibilities during Para-Ops
CRM and crew coordination during Para-Ops
Safety considerations with door/ramp open/tail skid and passengers onboard
Sequence of events
Para/Ops Terminology
Container delivery system
Fouled/hung jumper
Responsibilities and duties of Jumpmaster
Responsibilities and duties of the HAC
Responsibilities and duties of the Crew Chief

Practice
Cabin configuration/security
Safety procedures
Emergency procedures
Hand and arm signals
Intraplane communication
Cabin control


External Syllabus Support. Jump master and ground safety personnel

Instructor. TERFI required for all personnel in the Basic (B) POI. NSI required if conducted at night.
Prerequisite. HLL-2920–NS or LLL-2930–LLL

**HIE-4142** 1.5 * B (NS) A 1 CH-53K

Goal. Introduce and practice procedures for tactical insertion of cargo via para/Ops.

**Requirement**

- Introduce /Discuss
  - CC vs. AG/O responsibilities during Para-Ops
  - CRM and crew coordination during Para-Ops
  - Safety considerations with door/ramp open/tail skid and passengers onboard
  - Sequence of events
  - Para/Ops Terminology
  - Container delivery system
  - Fouled/hung container
  - Responsibilities and duties of Jumpmaster
  - Responsibilities and duties of the HAC
  - Responsibilities and duties of the Crew Chief

**Practice**

- Cabin configuration/security
- Safety procedures
- Emergency procedures
- Hand and arm signals
- Inter-plane communication
- Cabin control

**Performance Standards.** Conduct procedures for tactical insertion via Para/Ops IAW applicable NTTP 3-22.3-53.

**External Syllabus Support.** Jump master and ground safety personnel

**Instructor.** TERFI required for all personnel in the Basic (B) POI. NSI required if conducted at night.

Prerequisite. HLL-2920–NS or LLL-2930–LLL

3.13.2 **Aviation Delivered Ground Refueling (ADGR)**

**Purpose.** To introduce aircrew duties in loading, securing, unloading, internal procedures and use of the Tactical Bulk Fuel Delivery System (TBFDS) for the CH-53K.

**Crew Requirement.** P/P/CC/AG/O

**Ground/Academic Training.** All self-paced readings and lectures shall be completed prior to stage initiation. Utilize academic courseware as outlined in the CH-53 MAWTS-1 Course Catalog.

**Prerequisites.** The following events/designations are prerequisites prior to the commencement of the ADGR Stage.

- **Academic:** See MAWTS-1 Course Catalog.
- **Flight:** see event
- **Designation:** CC/AG/O

**ACAD-4011** 1.0 * B G

Goal. Completion of EA Aviation Delivered Ground Refueling (ADGR) academic requirements.

**Requirement.** Complete all EA ADGR training modules.

**Performance Standard.** Per current evaluation criteria for EA ADGR training.

**ADGR-4240** 1.5 365 B,R,M (NS) G 1 STATIC CH-53K

Goal. Introduce and practice installation and setup of TBFDS system and become familiar with FARP operations.

**Requirement**

- Introduce/Discuss
  - CC vs. AG/O responsibilities during Static or FARP ADGR operations
CRM and crew coordination during static or FARP ADGR operations
Receiver Assets
Ingress/Egress
Hydraulic system temperatures for extended use of systems
TBFDS refueling methods (gravity/pressure/refueling)
TBFDS offload methods
Types of FARPs
Crew member/MMT responsibilities
FARP setup/preflight
FARP day/night operations
A/C lighting considerations/configurations
Chemical light utilization (TBFDS components/personnel/ITG)
Pressurize hoses before customer arrives
Fuel connection ports for various type aircraft/vehicles
Danger zones for various types of aircraft/vehicles

Practice
Crew member responsibilities
Cabin configuration of ADGR equipment
TBFDS Checklist (NTRP App H)
Installation considerations for TBFDS
Various TBFDS loading and unloading methods
Various TBFDS tank configurations and considerations
TBFDS loading
TBFDS restraint system
TBFDS offload methods
Switchology for fuel delivery/range extension/refuel
Refueling procedures
FARP post flight and clean up
Firefighting equipment/procedures
Safety procedures (Hazmat)
Hand and arm signals

Performance Standards. Conduct TBFDS setup and aviation ground delivered refueling operations IAW above listed items, NTTP 3-22.3-53, NTRP 3-22.4 CH53 Appendix H

External Syllabus Support. TBFDS, ground assets to refuel, aviation assets to refuel

Instructor. TERFI required for all personnel in the Basic (B) and Refresher (R) POI. NSI required if conducted at night.

Prerequisite. INT-2105, HLL-2210, HLL-2920-HLL, LLL-2930-LLL, ACAD-4011

3.13.3 Battlefield Illumination (BI)

Purpose. To develop skills necessary to conduct Battlefield Illumination operations.

General. Review and be familiar with planning considerations, acceptance inspection, cabin set up, emergency procedures, crew responsibilities, and BI checklist utilization IAW NTTP series manuals.

Crew Requirement. P/P/CC and AG/O. If conducted from the ramp, consideration should be given to a third crew member in the back for lookout coverage and safety considerations.

Note
There are two methods of delivering BI, one from the External Hatch and the other from the cargo ramp. It is recommended to conduct all initial training from the ramp, in the event the external hatch is covered by cargo/Troops.

Academic Training. All self-paced readings and lectures shall be completed prior to stage initiation. Utilize academic courseware as outlined in the CH-53 MAWTS-1 Course Catalog.

ACAD-4054 1.0 * B G
Goal. Completion of EA Battlefield Illumination (BI) academic requirements.

Requirement. Complete all EA BI training modules.

Performance Standard. Per current evaluation criteria for EA BI training.

BI-4340  1.5  1095  B,R,M  NS  A  1 CH-53K

Goal. Conduct Aviation-Delivered Battlefield Illumination in support of night tactical operations.

Requirement

Introduce/Discuss
Planning products and execution of BI
Required equipment to conduct BI missions
APF acceptance
Cabin configuration/security
Emergency procedures (Hot flare & timer separation)
NVD utilization/considerations
Pilot & Safety Observer ICS procedures
Checklist utilization

Practice
Planning products and execution of BI
Required equipment to conduct BI missions
CC vs. AG/O responsibilities during BI operations
CRM and crew coordination during BI operations

Range Requirements. IAW Training Resource Requirements in Chapter 1 of this document.

Ordinance Requirements. 6x LUU-2 or 6x LUU-19

Performance Standards. Plan, conduct, and execute a BI mission, IAW NTTP series publications.

Instructor. APFI required for all personnel in the Basic (B) and Refresher (R) POI.

Prerequisite. NSQ-LLL, AGQ, ACAD-4054

3.13.4 Terrain Flight External Loads (TERF EXT)

Purpose. To develop skills necessary to conduct external operations in the terrain flight regime under all ambient conditions.


Crew Requirement. P/P/CC/ AG/O

Prerequisites. NSQ for appropriate light level.

NOTE
It is recommended that consideration should be given to adding a third crewmember in the cabin in order to maintain a full 360 degree lookout capability while conducting external operations in a TERF environment.

Academic Training. All self-paced readings and lectures shall be completed prior to stage initiation. Utilize academic courseware as outlined in the CH-53 MAWTS-1 Course Catalog.

Prerequisites
Academic. See event
Flight: 2411, 2421, 2430
Designation: CC and AG/O

EXT-4440  1.5  365  B,R,M  (NS)  A  1+ CH-53K

Goal. Introduce and practice external operations while in the TERF regime.
Requirement

Review
TERF-2310 or 2330 as applicable
EXT-2410 thru EXT-2430 as applicable

Introduce/Discuss
External operations while in the TERF environment

Practice
CC vs. AG/O responsibilities during TERF EXT operations
CRM and crew coordination during TERF EXT operations
Cabin configuration/security
Standard terminology
ICS procedures/failure
External load clearance during TERF
External load clearance while conducting TERF maneuvers
Radar altimeter utilization
External load stability in flight while in the TERF regime
Cargo pendant release procedures
Aircraft emergency with external load during TERF
Emergency external jettison procedure
External Procedures as applicable (HLL/LLL/DP/SP)

Performance Standards. Conduct single or dual point external operations while in the TERF regime and utilizing Night Systems as outlined in the NATOPS and NTTP 3-22.3-CH53. Perform all above listed items. Execute a minimum of 1 pickup and 1 drop off within 5 meters of intended point of delivery.

Range Requirements. IAW Training Resource Requirements in Chapter 1 of this document.

External Syllabus Support. HST, certified external load

Instructor. TERFI required for all personnel in the Basic (B) and Refresher (R) POI. NSI required if conducted at night.

Prerequisite. TERF-2320~NS, EXT-2420~NS, TERF-2330~LLL and EXT-2430~LLL. EXT-2421 if dual points are utilized.

3.13.5 Independent Hook External Loads (IND EXT)

Purpose. To develop skills necessary to conduct independent external operations under all ambient conditions.


Crew Requirement. P/P/CC/ AG/O

Prerequisites. NSQ for appropriate light level.

NOTE
It is recommended that consideration should be given to adding a third crewmember in the cabin in order to maintain a full 360 degree lookout capability while conducting independent external operations.

Academic Training. All self-paced readings and lectures shall be completed prior to stage initiation. Utilize academic courseware as outlined in the CH-53 MAWTS-1 Course Catalog.

Prerequisites
Academic: See event
Flight: 2411, 2421, 2430
Designation: CC and AG/O

EXT-4441 1.5 * B D A 1 CH-53K

Goal. Introduce and practice independent hook external operations.
Requirement

Introduce
Independent cargo hook system
Pre-flight/hook checks
Cargo hook control panel/switches
Aircrew portable pendant control
Cargo hook emergency release methods
Aircraft emergency with external load
AG/O duties during Externals

Discuss/Practice
CC vs. AG/O responsibilities
CRM and crew coordination
Cabin configuration/inspection prior to 1st external lift
Gunner’s belt attachment location
Operational Power Checks
Weight limitation for external load (min & max)
HST brief per NTTP 3-22.5
Hand and arm signals
Static discharge precautions
Obstacle clearance on ingress/departure
Blowing debris in zone
Standard terminology
Hook placement in relation to HST personnel
Drift identification/correction over the external load
Safe pick up/drop off vs. perfect pick up/drop off
Hazards/damage of dragging of external load
Sling considerations during external load drop off
Wave off procedure before, during, & after hook is loaded
Terrain suitability for external drop off
ICS failure while in the single point external hatch
Cabin configuration/security
Lookout doctrine

Performance Standards. Conduct independent external operations as outlined in the NATOPS and NTTP 3-22.3-CH53. Perform all above listed items. Execute 5 pickups and 5 drop offs within 5 meters of intended point of delivery.

Range Requirements. IAW Training Resource Requirements in Chapter 1 of this document.

External syllabus support. HST, Independent loads.

Instructor. TERFI required for all personnel in the Basic (B) POI.

Prerequisite. CAL-2210, EXT-2411

EXT-4442 1.5 365 B,R,M NS A 1 CH-53K

Goal. Introduce and practice independent external operations using NS in HLL or LLL conditions.

Requirement

Introduce/Discuss
NS considerations as applicable to independent external operations
Field of View (FOV) vs. Field of Regard (FOR)
Use of chemical lights

Practice
CC vs. AG/O responsibilities during NS Independent EXT operations
CRM and crew coordination during NS Independent EXT operations
Aircrew portable pendant control
Pre-flight/hook checks
Cabin configuration/inspection prior to 1st external lift
Gunner’s belt attachment location
Operational Power Checks
Brown out/white out procedures
Movement in the cabin with external hatch open
Multiservice Helicopter Sling Load Manual
Weight limitation for external load (min & max)
HST considerations
Hand and arm signals
Static discharge precautions
Obstacle clearance on ingress/depature
Standard terminology
Drift identification/correction over the external load
Safe pick up/drop off vs. perfect pick up/drop off
Sling considerations during external load drop off
Wave off procedure before, during, & after hook is loaded
Terrain suitability for external drop off
ICS failure while in the external hatch
Aircraft emergency with external load
Standard external load vs. heavy lift load
AG/O duties during Externals
Cabin configuration/security
Lookout doctrine

Performance Standards. Conduct independent external operations while utilizing Night Systems in HLL conditions as outlined in the NATOPS and NTTP 3-22.3-CH53. Perform all above listed items. Execute 5 pickups and 5 drop offs within 5 meters of intended point of delivery.

Range Requirements. IAW Training Resource Requirements in Chapter 1 of this document.

External Syllabus Support. HST, independent loads.

Instructor. NSI required for all personnel in the Basic (B) and Refresher (R) POI.

Prerequisite. CAL-2220 and EXT-2421 or EXT-2430 depending on light level conducted

3.13.6 Defensive Measures (DM)

Purpose. To introduce aircrew responsibilities during section DM against helicopter and fixed-wing aggressor aircraft. Upon completion of this stage the aircrew should have an understanding of the maneuvers and employment techniques necessary to counter an air-to-air threat. Aircrew may be designated DMQ by the Commanding Officer after completing DM-4510 and DM-4511.

Crew Requirement. P/P/CC/AG/O

Ground Academic Training. All self-paced readings and lectures shall be completed prior to stage initiation. Utilize academic courseware as outlined in the CH-53 MAWTS-1 Course Catalog.

Prerequisites
Academic. See event
Flight. TERF-2311
Designation. CC/AG/O
Qualification. TERFQ, AGQ

ACAD-4051 1.0 * B

Goal. Completion of DM/GTR 1 academic requirements.

Requirement. Complete all DM/GTR 1 training modules.

Performance Standard. Per current evaluation criteria for DM/GTR 1 training.
Goal. Completion of DM/GTR 2 academic requirements.

Requirement. Complete all DM/GTR 2 training modules.

Performance Standard. Per current evaluation criteria for DM/GTR 2 training.

Goal. Introduce and practice aircrew responsibilities as a section against a rotary wing adversary.

Requirement

Introduce/Discuss/Practice

CC vs. AG/O responsibilities during RW DM
CRM and crew coordination during RW DM
Cabin configuration/security
Section DM against a rotary wing adversary
Rotary wing attack profiles
DM training syllabus 3-22.3-CH53 Appendix A
Five axioms of survival
Rules of engagement
Standard terminology
DM walk through
DM line numbers
Section tactical maneuvers
Mutual support/wingman position
Free and engaged roles and responsibilities
Aircraft limitations
Weapons handling
Weapons lead techniques
1/2 Time of flight for .50 caliber ordnance
ASE utilization
Aircraft performance categories
Adversary weapons envelope
ACM in comparison to DM training
Aircraft emergency procedures


Ordnance. 60 flares or 30 chaff/30 flares and 2 .50 Caliber machine guns (tail gun optional)

Range Requirements. IAW Training Resource Requirements in Chapter 1 of this document.

External Syllabus Support. Rotary wing aggressor

Instructor. DMI required for all personnel in the Basic (B) and Refresher (R) POI.

Prerequisite. TERFQ, AGQ, ACAD-2581, ACAD-2580, ACAD-2582, ACAD-4051, ACAD-4052 Review ACAD-2050.

Goal. Introduce and practice aircrew responsibilities as a section against a fixed wing adversary.

Requirement

Introduce/Discuss/Practice

CC vs. AG/O responsibilities during FW DM
CRM and crew coordination during FW DM
Cabin configuration/security
Section DM against a fixed wing adversary
Fixed wing attack profiles
DM training syllabus 3-22.3-CH53 Appendix A
Five axioms of survival
Rules of engagement
Standard terminology
DM walk through
DM line numbers
Mutual support/wingman position
Free and engaged roles and responsibilities
Aircraft limitations
Weapons handling
Weapons lead techniques
1/2 Time of flight for .50 caliber ordnance
ASE utilization
Aircraft performance categories
Adversary weapons envelope
ACM in comparison to DM training
Aircraft emergency procedures
ICS procedures/failure

Performance Standards. Conduct helicopter section Defensive Measures against a fixed wing adversary threat IAW the NTTP 3-22.3-53 Appendix A Defensive Measures Syllabus. Explain/Demonstrate utilization of the appropriate ASE and on board weapons in relation to the threat. Display situational awareness during all DM training line numbers. Demonstrate attack warning and suggested maneuver against fixed wing threats. Utilize standard terminology in intra-aircraft communications.

Ordnance. 60 flares or 30 chaff/30 flares and 2 .50 caliber machine guns (tail gun optional)

Range Requirements. IAW Training Resource Requirements in Chapter 1 of this document.

External Syllabus Support. Fixed wing aggressor

Instructor. DMI required for all personnel in the Basic (B) and Refresher (R) POI.

Prerequisite. TERFQ, AGQ, ACAD-2581, ACAD-2580, ACAD-2582, ACAD-4051, ACAD-4052 Review ACAD-2050, ACAD-2580.

3.13.7 Chemical, Biological, Radiological and Nuclear (CBRN)

Purpose. To conduct flight operations while wearing NBC protective equipment.

General. For the safe execution of initial CBRN flights, one pilot and one air crewman shall remain unmasked.

Crew Requirement. P/P/CC/AG/O if done in the aircraft

Academic Training. The MAWTS-1 CH-53 Course Catalog contains the required readings, lectures and chalk talks which shall be completed IAW the Chemical, Biological, Radiological and Nuclear stage event descriptions.

Prerequisites. The following events/designations are prerequisites prior to the commencement of the Chemical, Biological, Radiological and Nuclear stage:

Academic. See MAWTS-1 Course Catalog
Flight. CAL-2210
Designation/Qualification. CC/AG/O

CBRN-4600 1.5 1095 B.R.M (NS) G 1 STATIC CH-53K

Goal. Conduct flight in a simulated CBRN environment
NAVMC 3500.129
6 Jul 21

Requirement

Introduce/Discuss
- CC vs. AG/O responsibilities during CBRN Operations
- CRM and crew coordination during CBRN Operations
- Wearing of CBRN equipment in the aircraft
- Distortion of vision
- Distorted Communications
- Proper use of CBRN defensive equipment
- NS concerns with CBRN equipment

Practice
- Taxi, low work, pattern work
- Confined area landings
- Communications

Performance Standards
Conduct Aircrew responsibilities while wearing CBRN gear. Communicate effectively while wearing CBRN gear.

Prerequisite
CAL-2210, CAL-2220-NS, CAL-2230-LLL

Range Requirements
IAW Training Resource Requirements in Chapter 1 of this document.

Instructor
TERFI that is CBRN-4600 complete required for all personnel in the Basic (B) and Refresher (R) POI
NSI that is CBRN-4600 required if conducted at night.

3.13.8 Field Carrier Landing Practice (FCLP)

Purpose
To develop skills and CRM required for shipboard operations.

General
Discuss and become familiar with all aspects of shipboard operations and CRM applicable to the carrier qualification stage as described in the CH-53 NATOPS Flight Manual, NWP-42, the LHA/LPH/LHD NATOPS, and CNAF M-3710.7.

Crew Requirement
FCLP-4710: P/P/CC and FCLP-4742: P/P/CC/AG/O. NS flights require 2 qualified crewmembers unless it is an instructional flight.

Ground/Academic Training
All self-paced readings and lectures shall be completed prior to stage initiation. Utilize academic courseware as outlined in the CH-53 chapter of the MAWTS-1 Course Catalog.

SFCLP-4700 1.0 * B D S MCAT

Goal
Introduce and practice day FCLPs.

Requirement

Introduce/Discuss:
- Aircraft Lighting
- Shipboard operations
- Air space de-confliction
- Hand and arm signals
- Parking brake procedures
- Heading and drift corrections
- Standard Terminology
- Deck Markings
- LSE Signals
- Air Space Control in the Shipboard Environment

Practice
- CC vs. AG/O responsibilities during shipboard operations
- CRM and crew coordination during shipboard operations
- Identifying closure rate to ground (deck) during landing
- Cabin security

Performance Standards
Perform a minimum of 5 FCLPs IAW appropriate shipboard NATOPS.
External Syllabus Support. Aircraft/Simulator

Instructor. TERFI required for all personnel in the Basic (B) POI.

Prerequisite. CAL-2210

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Goal. Introduce and practice day FCLPs.

Requirement

Introduce/ Discuss
- Aircraft Lighting
- Shipboard operations
- Air space de-confliction
- Hand and arm signals
- Parking brake procedures
- Heading and drift corrections
- Standard Terminology
- Deck Markings
- LSE Signals
- Air Space Control in the Shipboard Environment

Practice
- CC vs. AG/O responsibilities during shipboard operations
- CRM and crew coordination during shipboard operations
- Identifying closure rate to ground (deck) during landing
- Cabin security

Performance Standards. Perform a minimum of 5 day FCLPs IAW appropriate shipboard NATOPS.

External Syllabus Support. FCLP pad

Instructor. TERFI required for all personnel in the Basic (B) and Refresher (R) POI.

Prerequisite. SFCLP-4700

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Goal. Introduce and practice NS FCLPs.

Requirement

Introduce/ Discuss:
- NS considerations for appropriate light level
- Shipboard lighting
- Aircraft Lighting

Practice
- CC vs. AG/O responsibilities during NS shipboard operations
- CRM and crew coordination during NS shipboard operations
- Identifying closure rate to ground (deck) during landing
- Parking brake procedures
- Heading and drift corrections
- Standard Terminology
- Cabin configuration/security

Performance Standards. Conduct a minimum of 5 NS FCLPs IAW appropriate shipboard NATOPS.

External Syllabus Support. FCLP pad

Instructor. NSI required for all personnel in the Basic (B) and Refresher (R) POI.

Prerequisite. HLL-2220-NS, LLL-2230-LLL, and FCLP-4710
3.13.9 Day Carrier Qualification (Day CQ)

Purpose. To qualify aircrew for day shipboard operations. The term “Day Carrier Qualification” encompasses all day shipboard landing operations.

General
Discuss and become familiar with all aspects of shipboard operations and CRM applicable to the Day Carrier Qualification stage as described in the appropriate NATOPS Flight Manual, NAVMC 3500.14, NWP-42, LHA/LHD NATOPS, and CNAF M-3710.7. Briefing should include patterns, altitudes, airspeeds and Helicopter director signals.

5 day FCLPs shall be accomplished within 30 days prior to shipboard qualifications. Refer to CH-53K NATOPS, Chapter 8, Shipboard Procedures.

Initial day carrier qualification shall be made under ideal weather conditions to include a visible horizon.

Each initial or refresher instructional flight requires a minimum of 5 carrier landings; additional carrier landings can be conducted to demonstrate proficiency.

Crew Requirement. DCQ-4711: P/P/CC. For passenger operations during Day CQs crew requirements are P/P/CC and AG/O.

Ground Academic Training. Aircrew should read and be familiar with topics contained in the CH-53 NATOPS, LHA/LHD NATOPS, and CNAF M-3710.7 regarding shipboard operations.

Prerequisites. FCLP-4710

DCQ-4711 1.5 365 B,R,M D A 1 CH-53K

Goal. Introduce and practice day CQs.

Requirement

Introduce/ Discuss
CC vs. AG/O responsibilities during day CQ
CRM and crew coordination during day CQ

Practice
Cabin configuration/security
Day Carrier Qualifications
Feet wet/landing checklist
Wind envelopes
Aircraft lighting procedures
Deck markings
LSE signals
Voice procedures/Lost communication procedures
Shipboard landing patterns
Shipboard holding patterns
Shipboard instrument patterns
Shipboard emergencies
Air space control in the shipboard environment
Parking brake procedures
Heading and drift corrections
Standard Terminology
Aircraft clearance
Identifying closure rate
Hand and arm signals

Performance Standards. Conduct 5 day CQs IAW above listed items, CH-53 NATOPS and appropriate shipboard NATOPS.

External Syllabus Support. Helicopter capable ship

Instructor. TERFI required for all personnel in the Basic (B) and Refresher (R) POI.

Prerequisite. FCLP-4710 and proficient
3.13.10 Night Unaided Carrier Qualification (Unaided CQ)

**Purpose.** To qualify Aircrew for unaided shipboard operations. The term “night unaided carrier qualification” encompasses all night unaided shipboard landing operations.

**General.** Discuss and become familiar with all aspects of unaided shipboard operations and CRM applicable to the Carrier Qualification stage as described in the appropriate NATOPS Flight Manual, NAVMC 3500.14, NWP-42, LHA/LHD NATOPS, and CNAF M-3710.7. Briefing should include patterns, altitudes, airspeeds and Helicopter director signals.

5 day FCLPs shall be accomplished within 30 days prior to shipboard qualifications. Refer to CH-53K NATOPS, Chapter 8, Shipboard Procedures. Each initial or refresher instructional flight requires a minimum of 5 CQs; additional CQs as required to demonstrate proficiency.

At least 2 day shipboard landings must be made on the day of the night unaided qualification. Initial Night Unaided Carrier Qualification training shall be accomplished under High Light Level conditions. IAW the NAVMC 3500.14D T&R Program Manual, any requalification and proficiency training may be accomplished under any light level condition. UACQ-4741 requires an NSI. Initial night unaided carrier qualification shall be made under ideal weather conditions to include a visible horizon.

**Crew Requirement.** UACQ-4741: P/P/CC/AO

**Academic Training.** Aircrew should read and be familiar with topics contained in the CH-53 NATOPS, LHA/LHD NATOPS, and CNAF M-3710.7 regarding shipboard operations.

**Prerequisites.** The following events/designations are prerequisites prior to the commencement of the Carrier Qualification stage:

- **Academic:** See MAWTS-1 Course Catalog Academic Support Package
- **Flight:** 5 day FCLPs within 30 days prior to shipboard qualification. For night qualification, at least 2 day shipboard landings must be made on the day of the night qualification.
- **Designation/Qualification:** CC/AG/O or AG/OUI (with an appropriate Instructor)

**Goal.** Conduct night unaided CQs.

**Requirements.** Initial UACQ-4741 shall be conducted under HLL conditions.

- **Introduce/Discuss**
  - Standard CH-53 LHA/LHD landing pattern
  - Shipboard operations brief
  - TACAN and CCA approaches in IMC or night conditions
  - Scan techniques for unaided shipboard operations
  - Aircraft/deck lighting
  - Unaided landing techniques
  - Closure rate/scan techniques
  - Night unaided emergencies
  - Spatial disorientation
  - Night unaided CQs.

**Performance Standards.** Conduct 5 Night CQs IAW above listed items, CH-53 NATOPS and appropriate shipboard NATOPS.

**External Syllabus Support.** NS compatible helicopter capable ship or WST/APT.

**Instructor.** NSI required for the Basic (B) and Refresher (R) POI.

**Prerequisites.** NSQ HLL, NSQ LLL–LLL, FCLP-4740, and DCQ-4711

3.13.11 NS Carrier Qualification (Night Systems CQ)

**Purpose.** To qualify aircrew for NS shipboard operations, the term “Night Carrier Qualification” encompasses all night shipboard landing operations.
General

Discuss and become familiar with all aspects of shipboard operations and CRM applicable to the Carrier Qualification stage as described in the appropriate NATOPS Flight Manual, NAVMC 3500.14, NWP-42, LHA/LHD NATOPS, and CNAF M-3710.7. Briefing should include patterns, altitudes, airspeeds and Helicopter director signals.

5 night FCLPs shall be accomplished within 30 days prior to shipboard qualifications. Refer to CH-53K NATOPS, Chapter 8, Shipboard Procedures.

Initial night carrier qualification shall be made under ideal weather conditions to include a visible horizon.

Each initial or refresher instructional flight requires a minimum of 5 CQs; additional CQs as required to demonstrate proficiency.

At least 2 day shipboard landings must be made on the day of the night qualification. Initial Night Systems Carrier Qualification training shall be accomplished under High Light Level conditions. IAW the Aviation Program Manual, any requalification and proficiency training may be accomplished under any light level condition. NSCQ-4742 requires an NSI when not NS qualified in the light level event is conducted.

Crew Requirement. NSCQ-4742: P/P/CC/AG/O

Ground Academic Training. Aircrew should read and be familiar with topics contained in the CH-53 NATOPS, LHA/LHD NATOPS, and CNAF M-3710.7 regarding shipboard operations, and MAWTS-1 Course Catalog, ASP.

Prerequisites. NSQ HLL, NSQ LLL→LLL, FCLP-4740, and DCQ-4711

NSCQ-4742 1.5 365 B,R,M NS A 1 CH-53K

Goal. Introduce and practice NS CQs.

Requirement

Introduce/ Discuss
NS considerations for appropriate light level
Shipboard lighting considerations
CC/ AG/O responsibilities during NS CQs

Practice
Cabin configuration/security
NS Carrier Qualifications
Feet wet/landing checklist
Wind envelopes
Aircraft lighting procedures
Deck markings
LSE signals
Voice procedures/Lost communication procedures
Shipboard landing patterns
Shipboard holding patterns
Shipboard instrument patterns
Shipboard emergencies
Air space control in the shipboard environment
Hand and arm signals
Parking brake procedures
Heading and drift corrections
Standard Terminology
Aircraft clearance
Identifying closure rate

Performance Standards: Conduct 5 Night CQs IAW above listed items, CH-53 NATOPS and appropriate shipboard NATOPS.

External Syllabus Support: NS compatible helicopter capable ship

Instructor: NSI required for all personnel in the Basic (B) and Refresher (R) POI.
Prerequisite: NSQ HLL, NSQ LLL~LLL, FCLP-4740, and DCQ-4711.

3.13.12 Tail Gunnery (TG)

Purpose. To demonstrate proficiency in delivering fire on targets of opportunity using the GAU-21 Ramp Mounted Weapon System (RMWS) .50 caliber machine gun.

General

Aircrew shall be AGQ on the GAU-21 MWPC prior to beginning the tail gunnery stage of training.

No portion of the GAU-21 AG stage shall be waived or deferred.

All aircrew employing weapons shall have the current A1-H53BE-NFM-900 with all of the interim changes incorporated, on their person.

TG-4840 certifies the aircrew as a tail gunner with the GAU-21 RMWS. Aircrew may be qualified as a tail gunner at the discretion of the Commanding Officer after completing TG-4840. If the Commanding Officer chooses to qualify the aircrew as tail gunner a qualification letter signed by the Commanding Officer shall be issued and placed in both the individuals NATOPS & APR jacket.

Aircrew may conduct night systems tail gunnery events during either HLL or LLL conditions. If events are conducted during LLL conditions aircrew shall be NSQ HLL prior to conducting events.

An AGI able to conduct training on both the GAU-21 MWPC and RMWS is required for all day tail gunnery flight events until aircrew are Tail Gunnery Qualified.

An AGI able to conduct training on both the GAU-21 MWPC and RMWS who is also a NSI is required for all night systems (NS) tail gunnery flight events until aircrew are Aerial Gunnery Qualified.

Aircrew does not lose their tail gunnery “Qualification” status due to loss of proficiency (re-fly interval) in an individual event. Aircrew must re-fly that individual event with another qualified aircrew member in order to regain proficiency in that event.

Aircrew who lose proficiency in (TG-4811 and TG-4840) automatically lose their “Qualification” status and must complete the Refresher (R) POI with the appropriately designated instructors.

A designated AGI shall only act in the capacity of an AGI when “Qualified” and proficient in tail gunnery.

Approved laser aiming devices are required to be utilized during all night systems (NS) tail gunnery flight events.

Tail Gun Qualified Crew Chiefs and Aerial Observers/Gunners on the CH-53E that are undergoing Series Conversion (S) training may be assigned to the Series Conversion (S) POI if they are designated TGQ in the CH-53E.

Crew Requirements. P/P/CC/AG/O/ AG/O

Ground/Academic Training. All self-paced readings and lectures shall be completed prior to stage initiation. Utilize academic courseware as outlined in the CH-53 MAWTS-1 Course Catalog.

ACAD-4053 1.0 * B G

Goal. Completion of EA Training the Tail Gunner academic requirements.

Requirement. Complete all EA Training the Tail Gunner training modules.

Performance Standard. Per current evaluation criteria for EA Training the Tail Gunner training.

ACAD-2055 1.0 * B G

Goal. Completion of EA GAU-21 academic requirements.

Requirement. Complete all EA GAU-21 training modules.


ACAD-2056 1.0 * B G
Goal. Completion of Laser Aiming Devices academic requirements.

Requirement. Complete all Laser Aiming Devices training modules.

Performance Standard. Per current evaluation criteria for Laser Aiming Devices training

TG-4800 1.5 * B (N) S/A 1 STATIC CH-53K/MCAT

Goal. Introduce and practice pre-flight inspection, installation, removal procedures, and operating procedures for the RMWS IAW A1-H53BE-NFM-900. All procedures shall be performed with dummy rounds and no batteries installed in the LASER aiming device.

Requirement

Introduce/Discuss/Practice

NAVAIR 11-53DA-1
Weapon/LASER installation IAW A1-H53BE-NFM-900
Pre-flight IAW A1-H53BE-NFM-900
Cargo loading and unloading techniques
Passenger loading and unloading techniques
Aircrew restraint system/endurance vest
Cabin Configuration/security
Ramp level considerations
ICS cord discipline
Ammunition re-loading/ cans retention
Aerial Refueling Checklist
Aircraft mounts inspection
RMWS inspection (Pintle, yoke, ammo cans etc.)
Floor interface plate inspection (RMWS)
Ramp Cables taught and serviceable

Performance Standards. Conduct pre-flight, installation, removal and re-installation of the RMWS for cargo loading IAW all applicable manuals. Demonstrate the ability to conduct normal firing operations, weapon emergencies, troubleshooting, and reloading utilizing dummy rounds.

Ordnance Requirements. 1 GAU-21 RMWS .50 caliber machine guns, approved LASER aiming device, 10 dummy rounds

External Syllabus Support. MCAT as required.

Instructor. AGI able to conduct training on the GAU-21 RMWS required for all personnel in the Basic (B) POI.

Prerequisites. ACAD-4053, AGQ

TG-4810 1.5 * B D A 1 CH-53K

Goal. Introduce and practice RMWS operational considerations, safety precautions, and crew coordination for conducting crew served weapons operations during the day.

Requirement

Introduce

CC vs. AG/O responsibilities during single ship tail gunnery operations
CRM and crew coordination during single ship tail gunnery operations
Aiming techniques firing from the rear hemisphere
Range considerations firing from the rear hemisphere
Cargo loading and unloading techniques
Passenger loading and unloading techniques
Weapon employment from the rear hemisphere
Associated line numbers/suggested training (NTTP)
Sectors of fire/Fields of fire
Reloading procedures
Different sight picture
Target handoff from MWPC to RMWS

**Practice**
- Cabin configuration/security
- Adherence to cooling limits
- Normal firing operations
- Weapon stoppage procedures
- Gun jam clearing procedures
- Troubleshooting
- Positive weapons control
- Muzzle awareness
- Aiming techniques
- Target hand-off
- Post flight

Conventional Ordnance Deficiency Report (CODR)

**Performance Standards.** Conduct aerial gunnery operations while employing the GAU-21 RMWS IAW the NTTP 3-22.3-CH-53 and the A1-H53BE-NFM-900. Demonstrate positive weapons control, normal firing operations, weapon emergencies, troubleshooting technique, and ICS procedures. Demonstrate the ability to engage multiple targets during single ship aircraft operations or while in the wingman position during multi ship aircraft operations. Aerial Gunner Under Instruction SHALL maintain situational awareness both inside and outside of the aircraft while safely performing ammunition can change. Point of aim, point of impact shall be within the following parameters: Majority of rounds impacting the target area by second burst.

**Ordinance.** 1 GAU-21 RMWS .50 caliber machine gun, 600 rounds .50 caliber ordnance for the RMWS, 2 GAU-21 MWPC .50 caliber machine guns, and 600 rounds .50 caliber ordnance per MWPC

**Range Requirements.** IAW Training Resource Requirements in Chapter 1 of this document.

**Instructor.** AGI able to conduct training on the GAU-21 RMWS required for all personnel in the Basic (B) POI.

**Prerequisites.** AGQ, TG-4800

**TG-4811 1.5 365 B,R,M,S D A 2 CH-53K**

**Goal.** Introduce and practice day aerial gunnery with the GAU-21 RMWS during multi-ship operations.

**Requirement**
- **Introduce/Discuss**
  - Wingman NFAs
  - Section responsibilities
  - Sectors of fire
  - Target hand-off within a section
- **Practice**
  - Aiming techniques firing from the rear hemisphere
  - Range considerations firing from the rear hemisphere
  - Associated line numbers/suggested training (NTTP)
  - Weapon employment from the rear hemisphere
  - Passenger loading and unloading techniques
  - Aerial ballistics firing in the rear hemisphere
  - Cargo loading and unloading techniques
  - Sectors of fire/Fields of fire
  - Reloading procedures
  - Different sight picture
  - Cabin configuration/security
  - Adherence to cooling limits
  - Normal firing operations
  - Weapon stoppage procedures
  - Gun Jam clearing procedures
  - Troubleshooting
Positive weapons control
Muzzle awareness
Aiming techniques
Target hand-off
Post flight
Conventional Ordnance Deficiency Report (CODR)

**Performance Standards.** Conduct aerial gunnery while employing the GAU-21 RMWS IAW the NTTP 3-22.3-CH-53 and the A1-H53BE-NFM-900. Demonstrate positive weapons control, normal firing operations, weapon emergencies, troubleshooting technique, and ICS procedures. Demonstrate the ability to engage multiple targets from the lead position during multi-ship aircraft operations. Aerial Gunner Under Instruction SHALL maintain situational awareness both inside and outside of the aircraft while safely performing ammunition can change. Point of aim, point of impact shall be within the following parameters: Majority of rounds impacting target area by second burst.

**Ordnance.** 1 GAU-21 RMWS .50 caliber machine gun, 600 rounds .50 caliber ordnance for the RMWS, 2 GAU-21 MWPC .50 caliber machine guns, and 600 rounds .50 caliber ordnance per MWPC.

**Range Requirements.** IAW Training Resource Requirements in Chapter 1 of this document.

**Instructor.** AGI able to conduct training on the GAU-21 RMWS required for all personnel in the Basic (B), Refresher (R), and Series Conversion (S) POI.

**Prerequisites.** TG-4810

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<th>NS</th>
<th>A</th>
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**Goal.** Introduce and practice aerial gunnery with the GAU-21 RMWS while utilizing Night Systems during multi-ship operations.

**Requirement**

**Introduce/ Discuss**
- CC vs. AG/O responsibilities during NS section tail gunnery operations
- CRM and crew coordination during NS section tail gunnery operations
- Aiming techniques in a section while utilizing NS rear hemisphere
- Target identification utilizing LASER aiming device
- Effects of chaff and flares while utilizing NS
- Laser safety/employment/setup while on ramp
- RMWS scan pattern while utilizing NS
- Effects of muzzle flash utilizing NS
- Cargo loading and unloading techniques utilizing NS
- Passenger loading and unloading techniques utilizing NS
- Light discipline
- Wingman NFAs while utilizing NS
- Section responsibilities utilizing NS
- Sectors of fire utilizing NS
- Target hand-off within a section utilizing NS

**Practice**
- Range considerations firing from the rear hemisphere
- Associated line numbers/suggested training (NTTP)
- Weapon employment from the rear hemisphere
- Aerial ballistics firing in the rear hemisphere
- Reloading procedures
- Different sight picture
- Cabin configuration/security
- Adherence to cooling limits
- Normal firing operations
- Weapon stoppage procedures
- Gun Jam clearing procedures
Troubleshooting
Positive weapons control
Muzzle awareness
Aiming techniques
Post flight
Conventional Ordnance Deficiency Report (CODR)

Performance Standards. Conduct aerial gunnery while employing the GAU-21 RMWS while utilizing night systems during multi-ship operations IAW the NTTP 3-22.3-CH-53 and the A1-H53BE-NFM-900. Demonstrate positive weapons control, normal firing operations, weapon emergencies, troubleshooting technique, and ICS procedures. Demonstrate the ability to engage multiple targets from the lead position during multi-ship aircraft operations. Aerial Gunner Under Instruction SHALL maintain situational awareness both inside and outside of the aircraft while safely performing ammunition can change. Point of aim, point of impact shall be within the following parameters: Majority of rounds impacting the target area by second burst.

Ordinance. 1 GAU-21 RMWS .50 caliber machine gun, 600 rounds .50 caliber ordnance for the RMWS, 2 GAU-21 MWPC .50 caliber machine guns, and 600 rounds .50 caliber ordnance per MWPC.

Range Requirements. IAW Training Resource Requirements in Chapter 1 of this document.

Instructor. AGI able to conduct training on the GAU-21 RMWS who is also a NSI required for all personnel in the Basic (B), Refresher (R), and Series Conversion (S) POI.

Prerequisites. TG-4811

MTG-4841 1.5 *(NS) A/S 1+ CH-53/MCAT

Goal. Introduce and practice moving target gunnery.

Requirement
Review
TG-4810-4840

Introduce/Discuss
CC vs. AG/O responsibilities during moving target gunnery any light level
CRM and crew coordination during moving target gunnery any light level
Different moving target profiles
Moving land target
Shadow gunnery
Towed banner
Moving water target
IR spotlight
LASER aiming device as moving target
Lead compensation

Practice
Aiming techniques in a section if applicable
Target identification utilizing LASER aiming device
Laser safety/employment/setup while on ramp
RMWS/ MWPC scan pattern
Wingman NFAs
Section responsibilities
Sectors of fire
Target hand-off within a section
Range considerations
Associated line numbers/suggested training (NTTP)
Aerial ballistics
Reloading procedures
Cabin configuration/security
Adherence to cooling limits
Normal firing operations
Gun Jam clearing
Stoppage procedures
Troubleshooting
Positive weapons control
Muzzle awareness
Aiming techniques
Post flight
CODRs
Different moving target profiles

Performance Standards. Conduct aerial gunnery vs. a moving target while employing the GAU-21 RMWS during single or multi-ship operations IAW the NTTP 3-22.3-CH-53 and the A1-H53BE-NFM-900. Demonstrate positive weapons control, normal firing operations, LASER employment, weapon emergencies, troubleshooting technique, and ICS procedures. Tail Gunner Under Instruction SHALL maintain situational awareness both inside and outside of the aircraft while safely performing ammunition can change. Demonstrate the ability to engage moving targets with point of aim, point of impact within the following parameters: Majority of rounds impacting the target area by second burst.

Ordnance. 600 rds. of .50 caliber per crew member. 2 GAU-21 MWPC; 1 GAU-21 RMWS; Approved LASER aiming devices if flown at night

Range Requirements. IAW Training Resource Requirements in Chapter 1 of this document.

External Syllabus Support. Aerial gunnery laser safe range with SDZ approved for .50 caliber day and night shooting. Targets should range in size from personnel targets to APC size targets. MCAT as required.

Instructor. AGI able to conduct training on the GAU-21 MWPC and on the GAU-21 RMWS as appropriate required for all personnel in the Basic (B) syllabus. NSI who is also an AGI is required if conducted at night.

Prerequisite. TG-4810~DAY, TG-4840~NS.

3.13.13 Tactics (TAC)

Purpose. To conduct practical application exercises using skills developed through the syllabus. These exercises will include planning, briefing, and execution of an assault support mission in a low to medium threat environment.

General. Aircrew may conduct these flights in high or low light level conditions if flown at night.

Crew Requirement. P/P/CC/AG/O

Ground/Academic Training. All self-paced readings and lectures shall be completed prior to stage initiation. Utilize academic courseware as outlined in the CH-53 MAWTS-1 Course Catalog.

TAC-4940 2.0 365 B,R,M (NS) A 3+ CH-53K

Goal. Develop integrated tactical flight proficiency in a low to medium threat environment within a division.

Requirement

Review
TAC-2911
HLL-2920 (if applicable)
LLL-2930 (if applicable)

Introduce/ Discuss
Division Tactics

Practice
CC vs. AG/O responsibilities during multi-ship tactical operations
CRM and crew coordination
Cabin configuration/security
Escort integration, i.e. Battle Positions
Sectors of fire consideration for entire flight
Section Responsibilities, i.e. free/engaged aircraft
Operations in LZ
Performance Standards. Conduct multi-aircraft flight in a low to medium threat environment as stated in the NTTP 3-22.3-53. Demonstrate knowledge/usage of mission planning products.

Ordnance. Two .50 Caliber machine guns are required; Rounds and firing of machine guns are optional though highly encouraged.

External Syllabus Support. Escort aircraft if available; Live fire range as required

Instructor. TERFI required for all personnel in the Basic (B) and Refresher (R) POI. NSI required if conducted at night. WTI’s should be utilized to the max extent possible.

Prerequisite. TAC-2911, HLL-2920–NS, LLL-2930–LLL.

TAC-4941 2.0 * B (NS) A 2 CH-53K

Goal. Develop tactical flight proficiency in urban terrain operations at night.

Requirement

Review
TAC-2911
HLL-2920 (if applicable)
LLL-2930 (if applicable)

Introduce /Discuss
Effects of ambient lighting on night systems in an urban area
Obstacle clearance in urban area
Scan techniques in urban area

Practice
Cabin configuration/security
Escort integration, i.e. Battle Positions, attached, detached or combination
Sectors of fire consideration for entire flight
Section Responsibilities, i.e. free/engaged aircraft
Operations in LZ
Wave off lanes
Standard terminology
Military Operations Urban Terrain (MOUT)

Performance Standards. Demonstrate understanding of CH-53 operations in urban areas as stated in the MAWTS-1 MOUT Manual. Demonstrate knowledge/usage of mission planning products.

Ordnance. Two .50 Cal machine guns are required. Rounds and firing of machine guns are optional though highly encouraged.

Syllabus Support. Escort aircraft if available

Instructor. TERFI required for all personnel in the Basic (B) POI. NSI required if conducted at night. WTI’s should be utilized to the max extent possible.

Prerequisite. HLL-2920–HLL or LLL-2930–LLL

3.14 MISSION PLUS PHASE (4000)

Purpose. To plan, brief, and execute Mission Plus events in a low to medium threat environment.

General
For initial, refresher, or when the aircrew under instruction are not proficient in a particular Mission Plus Skill, training codes shall be given by an instructor pilot or qualified crew chief instructor that is proficient in that Mission Plus Skill. Mission Plus Skill events should be given to all those aircrew (Pilots, Crew Chief, AG/O) within the aircraft that meet the prerequisite. Additionally, for larger flights, any flight lead, (SL, DL, AFL, AMC) that is proficient in that Mission Plus Skill can give the Mission Plus Skill code to all aircrew within the flight that meet the prerequisite.

It is the intent that all TACEX scenarios in the Mission Skill and Mission Plus Skill Phase be based on a minimum of one of the Mission Skills. If aircrew under instruction does not meet the prerequisite for the
Mission Skill event, they will not log the Mission Skill event. However, the instructor of the Core Skill or Core Plus Skill TACEX will log both the Core Skill or Core Plus Skill event and the Mission Skill event (EX: NSI logs a LLL-2930, CAT-3240, and RIE-4980). The PUI in the LLL syllabus logs a LLL-2930). Once aircrew have been designated NSQ-LLL, all subsequent TACEXs should be coded with the appropriate Core Skill or Core Plus Skill and Mission Skill code or Mission Plus Skill. Aircrew that are not proficient in a Core Skill or Core Plus Skill event may update both the Core Skill or Core Plus Skill and the Mission Skill or Mission Plus Skill event on the same sortie.

Prior to the commencement of this phase, aircrew under instruction shall be NSQ-LLL and AGQ.

The aircrew under instruction will assist in the mission analysis, planning, briefing, execution and debriefing of each flight. Aircrew shall use the NTTP series and NATOPS as source documents for planning, briefing, execution and debriefing.

Multiple Mission Skill and Mission Plus Skill training events may be logged per sortie (e.g. CAT-3240, AD-3340, RIE-4980, SEA-4982) as long as the requirement(s) is met for each event. Mission and Mission Plus training events are intended to be flown and logged in conjunction with other T&R syllabus events.

The aircrew not eligible to receive the TAC code and the instructor will log both the TAC code and the Mission Skill and/or Mission Plus Skill event(s) that applies. Initial TAC codes shall be accomplished as a section; subsequent evolutions (when logged in conjunction with a Mission Skill or Mission Plus Skill) may be done single ship, based on the tactical scenario.

Mission Plus Skill events shall be flown with operational ASE, .50 calibers (as required for the tactical scenario) installed at a minimum (rounds and expendables optional), whenever practical.

Initial attempts to complete Mission Skills and Mission Plus Skills should be made in the aircraft, subsequent attempts may be accomplished in the simulator.

As of the signing of this manual, the current HMH Core MCTs are as follows:

MCT 1.3.4.1.1 Conduct Airborne Rapid Insertion/Extraction (RIE)
MCT 1.3.4.2.1 Provide Aviation-Delivered Ground Refueling (ADGR)
MCT 1.3.3.3.1 Aviation Operations from Expeditionary Sea-Based Sites (SEA)

Crew Requirements: P/P/CC/AG/O

Academic Training

Prior to commencement of each event within the Mission Plus Phase, the required academic syllabus shall be completed in accordance with this Manual and the MAWTS-1 CH-53 Course Catalog.

The Mission Plus Skill academic/ground training shall be completed IAW the POI requirements and prerequisites. Upon completion, the CC and AG/O to receive training shall report to the PTO or designated representative(s), who will then manually update the training code in M-SHARP and log the academic/ground training event in section 3, Aircrew Ground School Training of the APR, using the format listed in Enclosure 1 of this document.

Prerequisites: The following events/designations are prerequisites prior to the commencement of the Core Plus Tactics stage:

Academic: See event description
Flight: LLL-2930, GAUAG-2843, GTR-2540, GTR-2541
Designation: CC/AG/O
Qualification: NSQ LLL, AGQ

Phase Overview: The following stages are included in the Mission Plus Phase.

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3.15 MISSION PLUS STAGES

3.15.1 Rapid Insertion/Extraction (RIE)

RIE-4980 2.0 365 B.R.M (NS) A 1+ CH-53K

Goal. Demonstrate the ability to conduct tactical airborne rapid insertion/extraction operations in a low to medium threat environment. Helicopter Rope Suspension Techniques (HRST) provides Marines with the ability to conduct insertions and extractions where landings are impractical. Airborne rapid insertion/extraction includes methods such as rappelling, fast rope, special patrol insertion and extractions, etc. (MCWP 3-20, MCTP 3-01B, MCTP 3-20E, MCRP MCTP 3-01BA)

Requirement: Conduct a rapid insertion/extraction operation utilizing fast rope, rappelling, para ops, helocast, or special insertion and extraction techniques.

Review
- TAC-2930, INT-2106, CAT-3240, Applicable HIE Code
- Introduce /Discuss
  - Tactical airborne rapid insert/extract operations in a low to medium threat environment

Practice
- CC vs. AG/O responsibilities during RIE operations
- CRM and crew coordination during RIE operations
- Cabin configuration/security
- Look out doctrine

Performance Standard. Plan, brief and execute a tactical airborne rapid insertion/extraction mission. If an L-Hour is utilized, arrive in the LZ +/- 30 sec in the best position to support the ground combat element. Execute an approach and hover within +/- 5’ of intended altitude and within 10’ of intended spot and/or fly with +/- 50’ of designated altitude and +/- 5 knots of designated airspeed.

Ordnance. Two .50 caliber machine guns are required (Tail gun is optional); Rounds and firing of the machine guns are Optional though highly encouraged.

Range Requirement. IAW Training Resource Requirements in Chapter 1 of this document

External Syllabus Support. HRST Master and ground safety personnel if applicable.

Instructor. TERFI required for all personnel in the Basic (B) and Refresher (R) POI. NSI required if conducted at night. WTI’s should be utilized to the max extent possible.

Prerequisite. NSQ LLL, AGQ, GTR-2540, GTR-2541; Proficiency in HIE-4110 if helocast is utilized, HIE-4140 if SPIE, fast rope or rappelling is utilized, or HIE-4141 if para ops are utilized.

3.15.2 Aviation Delivered Ground Refueling (ADG)

ACAD-4011 1.0 * B G

Goal. Completion of EA Aviation Delivered Ground Refueling (ADGR) academic requirements.

Requirement. Complete all EA ADGR training modules.

Performance Standard. Per current evaluation criteria for EA ADGR training.

ADGR-4981 2.0 365 B,R,M (NS) A 1+ CH-53K

Goal. Demonstrate the ability to provide aviation-delivered ground refueling to combat aircraft or tactical vehicles in a low to medium threat environment. Aviation-delivered ground refueling is a method of providing fuel to aircraft and tactical ground vehicles (TGV) utilizing CH-53 aircraft in austere locations, where no other source of fuel is readily available. This method of refueling permits operation of fixed-wing and rotary-wing aircraft and TGV without the requirement to commit the significant logistical assets necessary to operate helicopter expeditionary refueling systems (HERS), or tactical airfield fuel dispensing systems (TAFDS). ADGR can also quickly resupply established forward-arming and refueling point (FARP) sites and forward-operating bases (FOB).
The capability of the CH-53 to operate as a tactical ground refueling asset enhances MAGTF operations. (NTTP 3-22.3-CH-53)

Requirement
Review
ADGR-4240

Introduce/Discuss
ADGR in a low to medium threat environment
Urban vs. open terrain areas
Site/zone selection
Security personnel/considerations/look out
Small arms/ADA recognition
Enemy contact
Emergency break away (fire or enemy)

Practice
Aircrew responsibilities in a FARP
CRM and crew coordination
Cabin configuration
Installation of TBDFS
FARP operations

Performance Standard. Plan, brief and execute a TBDFS refueling evolution. Calculate accurate fuel requirements, ensure aircraft integration and FARP site security.

Ordnance. Two .50 caliber machine guns are required (Tail gun is optional). Rounds and firing of the machine guns are optional.

Range Requirement. IAW Training Resource Requirements in Chapter 1 of this document

External Syllabus Support. TBDFS system, escort, MMT and/or Command and Control aircraft are optional

Instructor. TERFI required for all personnel in the Basic (B) and Refresher (R) POI. NSI required if conducted at night. WTI’s should be utilized to the max extent possible.

Prerequisite. NSQ LLL, AGQ, ADGR-4240, GTR-2540, GTR-2541

3.15.3 Expeditionary Sea-Based Operations

SEA-4982 2.0 365 B,R,M (NS) A 1+ CH-53K

Goal. Demonstrate the capability to operate from Expeditionary Sea based sites. Marine aviation units maintain the capability to operate from Naval shipping (amphibious platforms, carriers, etc.) in line with platform and unit capabilities. (JP 3-0, MCWP 3-20)

Requirement
Review: Applicable light level CQs
Discuss/Practice:
Deck cycles
Cargo/troop loading considerations while in shipboard environments
Airspace considerations

Performance Standard. Plan, brief and execute a tactical mission to or from sea based site or FCLP pad. Ensure aircrew properly plans for and demonstrate knowledge of the particulars of operating in the shipboard environment.

Ordnance. Two .50 caliber machine guns are required (Tail gun is optional). Rounds and firing of the machine guns are optional.

Range Requirement. IAW Training Resource Requirements in Chapter 1 of this document.

External Syllabus Support. Ship or FCLP pad as required.

Instructor. TERFI required for all personnel in the Basic (B) and Refresher (R) POI. NSI required if conducted at night. WTI’s should be utilized to the max extent possible.
Prerequisite. NSQ-LLL, AGQ, GTR-2540, GTR-2541 and appropriate CQ/FCLP event.

3.16 INSTRUCTOR TRAINING PHASE (5000)

Purpose. This phase contains instructor workup and evaluations certification syllabus events.

General. Upon the successful completion of the check flight, the instructor will be designated in writing by the squadron commanding officer. Copies of the designation or qualification shall be placed in the APR and NATOPS.

Academic/Ground Training

Within the Instructor Training Phase the required academic syllabus shall be completed in accordance with this Manual and the MAWTS-1 CH-53 Course Catalog.

The Instructor Training Phase academic/ground training shall be complete IAW the POI requirements and prerequisites for the stage and IAW this manual. Upon completion, the Instructor Under Training (IUT) shall report to the EATM or designated representative(s), who will then manually update the training code in MSHARP and log the academic/ground training event in section 3, Aircrew Ground School Training of the APR, using the form found in Paragraph 3.17.2 of this document.

2000-6000 classes are located at the MAWTS-1 NIPR website under ASD, CH-53K T&R:
https://mceits.usmc.mil/sites/mawts1/SitePages/CH-53.aspx

SIPR 2000-6000 classes are located at the MAWTS-1 SIPR website under ASD, CH-53K T&R:
https://intelshare.intelink.sgov.gov/sites/mawts1.aspx

3.17 INSTRUCTOR TRAINING STAGES

3.17.1 Fleet Replacement Squadron Instructor CH-53K

Purpose: To develop proficiency in instructional procedures and techniques to support CC training.

General:

All instructors under training flights emphasize standardization of CC procedures and techniques. The CCIUT should be capable of demonstrating all training objectives associated with Core Skill Introduction flight instruction. All flights shall be conducted with another FRSI and crew chiefs under instruction on board.

IUT events 5100 through 5107 shall be complete prior to being designated a FRSI. Upon completion of FRSI-5107 and designation by the commanding officer, the FRSI is capable of instructing all Core Skill Introduction phase events to include TERF events.

FRSI-5107 can be flown in conjunction with any Core Skill Introduction phase event.

Crew Requirement: P/P/FRSI/CCIUT.

FRSI-5100 1.5 * B,S D A 2 CH-53K

Goal. Demonstrate CC responsibilities and instructional techniques during day formation flight.

Requirement

Discuss:

Parade position
Formations
Closure rate
Hand and arm signals
In-flight emergency procedures
Standard terminology

Performance Standards. Demonstrate proper FRSI responsibilities and instructional techniques during day formation flights IAW requirements outlined in this Chapter.

FRSI-5101 1.5 * B,S NS A 2 CH-53K

Goal. Demonstrate CC responsibilities and instructional techniques during night formation flight.
NAVMC 3500.129
6 Jul 21

Requirement

Discuss

Closure rate
Aircraft lighting
Light signals
Lookout responsibilities
Target fixation
Standard terminology
NS considerations

Performance Standards. Demonstrate proper FRSI responsibilities and instructional techniques during NS formation flights IAW requirements outlined in this Chapter.

FRSI-5102 1.5 * B,S D A 1 CH-53K

Goal: Demonstrate CC responsibilities and instructional techniques during CALs.

Requirement

Discuss

CALs
CRM
Instructional Techniques

Performance Standards. Demonstrate proper FRSI techniques and responsibilities for day CALs IAW requirements outlined in this Chapter.

Range Requirements. CAL/MAL site

FRSI-5103 1.5 * B,S NS A 1 CH-53K

Goal. Demonstrate FRSI responsibilities and instructional techniques during HLL NS CALs.

Requirement

Discuss

Instructional Techniques
NS considerations
Lighting
CALs
CRM

Performance Standards. Demonstrate proper FRSI techniques and responsibilities for HLL NS CALS IAW requirements outlined in this Chapter.

Range Requirements. CAL/MAL site

FRSI-5104 1.5 * B,S D A 1 CH-53K

Goal. Demonstrate FRSI responsibilities and instructional techniques during day maneuvers and navigation while flying in the TERF environment.

Requirement

Discuss

TERF maneuvers
Aircraft clearances
Standard terminology
CALs
CRM
Instructional Techniques

Performance Standards. Demonstrate proper FRSI techniques and responsibilities during maneuvers and navigation while flying in the TERF environment IAW requirements outlined in this Chapter.

Range Requirements. TERF maneuver area/route
### FRSI-5105 1.5 * B,S  D A 1 CH-53K

**Goal.** Demonstrate FRSI responsibilities and instructional techniques used during day single or dual point external operations.

**Requirement**

**Discuss**
- CC duties
- Standard terminology
- External operations
- CALs
- CRM
- Instructional Techniques
- Emergencies

**Performance Standards.** Demonstrate proper FRSI techniques and responsibilities used during external operations IAW requirements outlined in this Chapter.

**Range Requirements.** CAL/MAL site

**External Syllabus Support.** HST, certified load

### FRSI-5106 1.5 * B,S  NS A 1 CH-53K

**Goal.** Demonstrate FRSI responsibilities and instructional techniques used during HLL NS external operations.

**Requirement**

**Discuss**
- NS considerations
- Lighting
- CC duties
- Standard terminology
- External operations
- CALs
- CRM
- Instructional Techniques

**Performance Standards.** Demonstrate proper FRSI techniques and responsibilities used during HLL NS external operations IAW requirements outlined in this Chapter.

**Range Requirements.** Approved CAL/MAL site

**External Syllabus Support.** HST, certified load

### FRSI-5107 1.5 * B,S  (NS) A 1 CH-53K

**Goal.** CC standardization check

**Requirement**

**Review**
- Applicable 1000 series codes
- CCUI duties/responsibilities
- Standard terminology
- External operations
- CALs
- CRM
- Emergency procedures
- Instructional techniques

**Performance Standards.** Demonstrate standard FRSI procedures, techniques and responsibilities IAW requirements outlined in this Chapter.

**Prerequisite.** FRSI-5100, FRSI-5101, FRSI-5102, FRSI-5103, FRSI-5104, FRSI-5105, FRSI-5106
External Syllabus Support. As required

3.17.2 CH-53K Instructor Designations: See Paragraph 3.14

3.18 REQUIREMENTS, QUALIFICATIONS, AND DESIGNATIONS (RQD) PHASE (6000)

3.19 REQUIREMENTS, QUALIFICATIONS, AND DESIGNATIONS (RQD) STAGES (6000)

3.19.1 CH-53 NATOPS POI

Purpose. To evaluate aircrew knowledge of aircraft systems, performance limitations, emergency procedures, flight and ground operations IAW CNAF M-3710.7 and CH-53 NATOPS.

General
The evaluating CC shall be a NATOPS Evaluator, NATOPS Instructor, or Assistant NATOPS Instructor. The CC evaluator shall conduct the NATOPS evaluation in accordance with CNAF M-3710.7 series and other applicable directives, instructions, and orders.

The NATOPS Evaluator shall utilize the NATOPS Model Manager generated NATOPS Aviation Training Form (ATF) and the evaluation metrics required for the accomplishment and performance of the standardized criteria to determine whether the aircrew completed the sortie.

6100 is an annual flight requirement per CNAF M-3710.7 and the CH-53 NATOPS Manual. 6100 is the initial check ride for an AG/O to be designated.

Aircrew shall complete and have a graded open book, closed book, and oral evaluation prior to the commencement of the flight event. If a crew chief completes the NTPS 6100 in the simulator, use of both the crew chief flight simulator and CFTD are required to fully complete the check ride.

Crew Requirements: P/P/CC/AG/O (as required)
Ground Academic Training: Open, closed book and oral evaluation IAW OPNAV 3710.7 and the CH-53 NATOPS.

NTPS-6000 3.0 365 B,R,M,S G Open Book Examination
Goal. Open book written examination to evaluate the airman’s NATOPS knowledge IAW CNAF M-3710.7.
Requirement. Complete the NATOPS Open Book Examination in the allotted time per current requirements.
Performance Standard. IAW CNAF 3710.7

NTPS-6001 1.0 365 B,R,M,S G Closed Book Examination
Goal. Closed book written examination to evaluate the airman’s NATOPS knowledge IAW CNAF M-3710.7 and CH-53 NATOPS.
Requirement. Complete the NATOPS Closed Book Examination in the allotted time per current requirements.
Performance Standard. IAW CNAF M-3710.7 and CH-53 NATOPS
Prerequisites. NTPS-6000.

NTPS-6002 2.0 365 B,R,M,S G Oral Examination
Goal. Oral examination to evaluate the airman’s NATOPS knowledge IAW CNAF M-3710.7 and CH-53 NATOPS.
Requirement. Complete the NATOPS Oral Examination.
Instructor. NATOPS Instructor or Assistant NATOPS Instructor required
Performance Standard. IAW CNAF M-3710.7 and CH-53 NATOPS
Prerequisites. NTPS-6001
Goal. Monthly NATOPS Emergency Procedure Examination to evaluate the airman’s knowledge of Emergency Procedures.

Requirement. Complete the NATOPS Monthly EP Exam in the allotted time per current requirements.

Performance Standard. CNAF M-3710.7 and CH-53 NATOPS

Prerequisites. Shall be completed after designation as CH-53 Crew Chief or Aerial Observer.

Goal. Review Normal and Emergency Procedures. This event fulfills the NAVMC 3500.14 Aviation T&R Program Manual Chapter 2 NATOPS quarterly emergency procedure event.

Requirements

Discuss
Normal procedures
Emergency procedures
Operating limitations

Review
Normal procedures
Emergency procedures
Operating limitations

Performance Standards. Per CH-53 NATOPS

External Syllabus Support. MCAT as required

Prerequisites. Shall be completed after designation as CH-53 Crew Chief or Aerial Observer.

Goal. Completion of the annual NATOPS evaluation

Requirement

Discuss
Crew Brief
Aerial Gunner Observer responsibilities
Cabin configuration
Weapons configuration

Demonstrate
Aircraft systems knowledge
Preflight/Prestart/Post flight procedures
In-flight procedures
Emergency procedures
CRM

Performance Standards. Demonstrate proficiency and knowledge of all flight skills and systems of the CH-53 as a CC or AG/O as applicable.

External Syllabus Support. MCAT as required for Maintain POI only.

Instructor. NATOPS Instructor or Assistant NATOPS Instructor required. NSI is required if not NS qualified in the light level event is conducted.

Prerequisites. NTPS-6002

3.19.2 CRM Training

Purpose. To conduct annual CRM training

General
(a) CRM Flight may be flown concurrent with any operational or training flight or simulator, including NTPS-6100.

(b) The CRM Flight Evaluator must be designated a CRM Facilitator or CRM Instructor.

Crew Requirements,  P/P/CC/AG/O (as required)

Ground Academic Training. Annual CH-53 CRM Ground Training IAW CH-53 NATOPS, CNAF M-3710.7 and OPNAVINST 1542.7.

<table>
<thead>
<tr>
<th>CRM-6003</th>
<th>1.5</th>
<th>365</th>
<th>B,R,M,S</th>
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<th>G</th>
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<td>Discuss</td>
<td>Situational awareness</td>
<td>Assertiveness</td>
<td>Decision making</td>
<td>Communication</td>
<td>Leadership</td>
<td>Adaptability/Flexibility</td>
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Performance Standards. Per CH-53 NATOPS, CNAF M-3710.7 and OPNAVINST 1542.7

Instructor. CRMI or CRMF required

<table>
<thead>
<tr>
<th>CRM-6101</th>
<th>1.5</th>
<th>365</th>
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<td>Adaptability/Flexibility</td>
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Performance Standards. Demonstrate effective use of the 7 CRM critical skills and IAW CH-53 NATOPS, CNAF M-3710.7, OPNAVINST 1542.7.

External Syllabus Support. MCAT as required for Maintain POI only.

Instructor. CRMI or CRMF required

Prerequisite. CRM-6003
3.19.3 FUNCTIONAL CHECK FLIGHT

Purpose. To evaluate aircrew knowledge of aircraft systems, performance limitations, emergency procedures, flight, and ground operations IAW CNAF M-3710.7 and CH-53 NATOPS CH-53 FCF procedures.

General

The evaluating CC shall be a NATOPS Evaluator, NATOPS Instructor, or Assistant NATOPS Instructor. The CC evaluator shall conduct the NATOPS evaluation in accordance with CNAF M-3710.7 series and other applicable directives, instructions, and orders.

The NATOPS Evaluator shall utilize the NATOPS Model Manager generated NATOPS Aviation Training Form (ATF) and the evaluation metrics required for the accomplishment and performance of the standardized criteria to determine whether the aircrew completed the sortie.

6610 is a one-time flight requirement. At the completion of the 6610 the CC is consider qualified to conduct FCF procedures.

Crew Requirements. P/P/CC (NI/ANI as required for initial Flight codes)

FCF-6601 1.5 * B D G 1 STATIC CH-53K

Goal. Introduce Aircrew to the Crew Chief responsibilities during Functional Check Flight Procedures, as well as evaluate their ability to safely and efficiently conduct Functional Check Flights.

Requirements

Introduction/Discuss

Standardized FCF/QA Matrix
Functional Ground Turn
Pre-flight Maintenance Requirements
In-flight FCF/Maintenance Adjustments
Between “FCF Run” Adjustments
Post Flight Maintenance
FCF Preparation/Time Management
FCF Weight & Balance Kits (MRH/TRH)
FCF Tool/GSE Preparation
QA Brief Prior to FCF Brief
ADB Screening
Maintenance Control & Work Center Coordination
FCF Brief
Post FCF Brief

Performance Standards. Demonstrate thorough working knowledge of above listed discussion items.

Instructor. NI/ANI


FCF-6602 0.1 * B G ASM

Goal. Verify maintenance qualification and functional items have been met in ASM.

Performance Standards. Verify completion and qualification of FCF/Vibration Analysis qualification and required CBT’s.

Instructor. NI/ANI

Prerequisite. ACAD-6601

FCF-6610 1.5 * B D A 1 CH-53K

Goal. To conduct Functional Check Flight Crew Chief evaluation.

Requirements. FCF-6610 shall be conducted with a full profile, mechanical flight control, or engine related FCF Card.
Discuss

Standardized FCF/QA Matrix
Functional Ground Turn
Pre-flight Maintenance Requirements
In-flight FCF/Maintenance Adjustments
Between “FCF Run” Adjustments
Post Flight Maintenance
FCF Preparation/Time Management
FCF Weight & Balance Kits (MRH/TRH)
FCF Tool/GSE Preparation
QA Brief Prior to FCF Brief
ADB Screening
Maintenance Control & Work Center Coordination
FCF Brief
Post FCF Brief

Demonstrate

Overall systems knowledge
Use of IVHMS
FCF procedures
Time management
Aircrew management

Performance Standard. FCFCC will be evaluated on the ability to conduct a full-systems functional check flight. The FCFCC shall be evaluated on all stages of the evolution from QA briefing through QA debriefing and MAF initiation. FCFCC will be evaluated on overall systems knowledge, FCF procedures, time management, and aircrew management. Aircraft does not have to be in 2K2/FCF status to perform evaluation.

Ground Academic Training. IAW Maintenance Ground ASM training

Instructor. NI/ANI

Prerequisite. ACAD-6601, ACAD-6602, CAL-2210

3.19.4 GRADUATE LEVEL COURSES

There are 5 graduate level courses that certify CCIs for tactical portions of the T&R syllabus. These courses are as follows:

Aircraft Parachute Flare Instructor (APFI) See MAWTS-1 Course Catalog
Aerial Gunnery Instructor (AGI) See MAWTS-1 Course Catalog
Terrain Flight Instructor (TERFI) See MAWTS-1 Course Catalog
Defensive Measures Instructor (DMI) See MAWTS-1 Course Catalog
Night Systems Instructor (NSI) See MAWTS-1 Course Catalog
Weapons and Tactics Instructor (WTI Secondary MOS 6177) See WTI Course Catalog

The above courses and applicable training syllabi are listed in the current MAWTS-1 Course Catalog or WTI Course Catalog. There will be no re-fly requirement for these instructor flights unless SNM is outside the flying community for longer than 366 days. T&R syllabus proficiency in stages is considered sufficient to maintain proficiency as an instructor. WTIIs are only certified at the Weapons and Tactics Instructor course provided at MAWTS-1.

3.20 MISSION ESSENTIAL TASK (MET) PHASE

3.21 MISSION ESSENTIAL TASK (MET) STAGE

3.22 AVIATION CAREER PROGRESSION MODEL (ACPM) PHASE

3.23 AVIATION CAREER PROGRESSION MODEL (ACPM) STAGE
### ELECTRONIC AIRCREW TRAINING FORM (EATF) REASON CODES

<table>
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<td><strong>Reason Code</strong></td>
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### 3.25.1 FRS CH-53K CREW CHIEF T&R MATRIX (0000, 1000, & 5000 PHASE)

#### CH-53K CREW CHIEF T&R MATRIX (0000, 1000 AND 5000 PHASE) [CORE INTRODUCTION]

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### CH-53K CREW CHIEF T&R MATRIX (0000, 1000 AND 5000 PHASE) [CORE INTRODUCTION]

| SKILL | STAGE | TRNG CODE | DESCRIPTION | BASIC POI | POI CON | ACAD | SDM | # FIT | FLT | CON | PREREQUISITE | NOTES | EVENT | 
|-------|-------|-----------|-------------|-----------|---------|------|-----|-------|-----|-----|--------------|-------|-------|       |
| LAB   | 0300  | U        | GROUND HANDLING PROCEDURES | X         | X       | 2.5  | G   | *     | 0201,0202 | 0300 |
| LAB   | 0301  | U        | DAILY INSPECTION (INTERIOR) | X         | X       | 2.5  | G   | *     | 0203   | 0301 |
| LAB   | 0302  | U        | DAILY INSPECTION (E-BAYS)   | X         | X       | 1.5  | G   | *     | 0204   | 0302 |
| LAB   | 0303  | U        | DAILY INSPECTION (LANDING GEAR) | X         | X       | 1.5  | G   | *     | 0205   | 0303 |
| LAB   | 0304  | U        | DAILY INSPECTION (REFUEL PANEL, FUSELAGE & SPONSON) | X         | X       | 1.0  | G   | *     | 0206   | 0304 |
| LAB   | 0305  | U        | DAILY INSPECTION (ENGINEB. AND EAPPS) | X         | X       | 2.0  | G   | *     | 0207   | 0305 |
| LAB   | 0306  | U        | DAILY INSPECTION (AFT MAIN ROTOR PYLON/ROOGS) | X         | X       | 1.5  | G   | *     | 0208   | 0306 |
| LAB   | 0307  | U        | DAILY INSPECTION (TDS & DISCONNECT) | X         | X       | 1.0  | G   | *     | 0209   | 0307 |
| LAB   | 0308  | U        | DAILY INSPECTION (TL SKID/GR/PYLON/STABILIZER/ROOPO/ACTUATOR) | X         | X       | 1.5  | G   | *     | 0210   | 0308 |
| LAB   | 0309  | U        | DAILY INSPECTION (TRB/TRB/FRB) | X         | X       | 1.5  | G   | *     | 0211   | 0309 |
| LAB   | 0310  | U        | DAILY INSPECTION (MBB & PRIMARY SERVOS) | X         | X       | 1.5  | G   | *     | 0212   | 0310 |
| LAB   | 0311  | U        | DAILY INSPECTION (1ST., 2ND. & UTILITY HYD) | X         | X       | 1.5  | G   | *     | 0213   | 0311 |
| LAB   | 0312  | U        | DAILY INSPECTION (APU & ECS COMPARTMENTS) | X         | X       | 1.5  | G   | *     | 0214   | 0312 |
| LAB   | 0313  | U        | DAILY INSPECTION (MRB & MRH) | X         | X       | 1.5  | G   | *     | 0215   | 0313 |
| LAB   | 0314  | U        | DAILY INSPECTION (MISSION SYSTEMS) | X         | X       | 1.5  | G   | *     | 0216   | 0314 |
| LAB   | 0315  | U        | TURNAROUND INSPECTION | X         | X       | 1.5  | G   | *     | 0217   | 0315 |
| LAB   | 0316  | U        | PASSENGER EMBARKATION/DEBARKATION | X         | 1.5     | G    | *   | 0107  | 0316 |
| LAB   | 0317  | U        | INTERNAL CARGO LOADING: WAREHOUSE PALLETS | X         | 4.0     | G    | *   | 0107,0108,0109 | 0317 |
| LAB   | 0318  | U        | INTERNAL CARGO LOADING: 463L PALLETS | X         | 4.0     | G    | *   | 0107,0108,0109 | 0318 |
| LAB   | 0319  | U        | INTERNAL CARGO LOADING: NON-PALLETIZED CARGO & ROLLING STOCK | X         | 4.0     | G    | *   | 0107,0108,0109 | 0319 |
| LAB   | 0320  | U        | BLADE & Pylon FOLD/SPREAD | X         | 4.0     | G    | *   | 0104,0300 | 0320 |
| LAB   | 0321  | U        | PREFLIGHT/POSTFLIGHT | X         | 4.0     | G    | *   | 0201,0221 | 0321 |
| LAB   | 0322  | U        | APU START | X         | 1.0     | G    | *   | 0218   | 0322 |
| LAB   | 0323  | U        | PRE-START | X         | 1.5     | G    | *   | 0201,0221,0321,0322 | 0323 |
| LAB   | 0324  | U        | EGRESS PROCEDURES | X         | 1.5     | G    | *   | 0220   | 0324 |
| FRSI  | 0500  | U        | COMPUTER AIDED INST | X         | 2.0     | G    | *   | 0500   | 0500 |
| FRSI  | 0501  | U        | LAB PERIOD OF INST | X         | 2.0     | G    | *   | 0500   | 0501 |
| FRSI  | 0502  | U        | INSTRUCTIONAL SKILLS | X         | 2.0     | G    | *   | 0501   | 0502 |
| FRSI  | 0503  | U        | PERIOD OF INSTRUCTION | X         | 2.0     | G    | *   | 0502   | 0503 |

**ACAD TOTAL**

- **68**
- **109.0**
- **0.0**
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3-124
**CH-53K CREW CHIEF T&R MATRIX (0000, 1000 AND 5000 PHASE) [CORE INTRODUCTION]**

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**PREREQUISITE**

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### CORE INTRODUCTION CHECK (CSIX)

| CSIX | CSIX | 1902     | STAN CHECK | X         | X          | 1.5  | (NS)  | A     | 1   | *    | 1.5  | 1900         | 1901  |

**CSIX TOTAL**

|       |       |         |            | 0         | 0          | 0    | 0     | 1     | 1.5 |        |        |             |       |

|       |       |         |            | 68        | 109.0      | 9    | 13.5  | 22    | 33  |        |        |             |       |

**CORE INTRODUCTION TOTAL**

### FLEET REPLACEMENT SQUADRON INSTRUCTOR (FRSI)

| FRSI | 5100 | DAY FORM | X         | X          | 1.5  | D     | A     | 2   | *    | 5100  |
| FRSI | 5101 | NIGHT FORM | X         | X          | 1.5  | NS    | A     | 2   | *    | 5101  |
| FRSI | 5102 | DAY CAL   | X         | X          | 1.5  | D     | A     | 1   | *    | 5102  |
| FRSI | 5103 | NIGHT CAL | X         | X          | 1.5  | NS    | A     | 1   | *    | 5103  |
| FRSI | 5104 | DAY TERF  | X         | X          | 1.5  | D     | A     | 1   | *    | 5104  |
| FRSI | 5105 | DAY EXT   | X         | X          | 1.5  | D     | A     | 1   | *    | 5105  |
| FRSI | 5106 | NIGHT EXT | X         | X          | 1.5  | NS    | A     | 1   | *    | 5106  |
| FRSI | 5107 | STANDARDIZATION CHECK | X | X | 1.5  | (NS)  | A     | 1   | *    | 5107  |

**FRSI TOTAL**

|       |       |         |            | 0         | 0          | 0    | 0     | 8     | 12.0|        |        |             |       |

### NIGHT SYSTEMS FAM INSTRUCTOR (NSFI)

| NSFI | 5600 | HLL FAM | X         | 1.5  | NS    | A     | 1   | *    | 5600  |
| NSFI | 5601 | HLL FORM/SECTION CALS | X | 1.5  | NS    | A     | 2   | *    | 5601  |
| NSFI | 5602 | HLL EXT | X         | 1.5  | NS    | A     | 1   | *    | 5602  |

**NSFI TOTAL**

|       |       |         |            | 0         | 0          | 0    | 0     | 3     | 4.5 |        |        |             |       |
### 3.25.2 CH-53K CREW CHIEF ATTAIN AND MAINTAIN MATRIX (2000-8000 PHASE)

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## CH-53K CREW CHIEF ATTAIN AND MAINTAIN TABLE (2000, 3000, 4000, & 6000 PHASE)

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### CH-53K CREW CHIEF ATTAIN AND MAINTAIN TABLE (2000, 3000, 4000, & 6000 PHASE)

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### NIGHT SYSTEMS LOW LIGHT LEVEL (LLL)

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| **LLL** | **LLL SEC CALS** | 2231 2231 2321 2231 180 2230 | | | 2110,2120,2210,2211,2220,2221,2230 |
| **LLL** | **LLL TERF** | 2330 | * | NSQ HLL | 2310,2320 |
| **LLL** | **LLL SEC TERF** | 2331 2331 2331 2331 180 2330 | | | 2110,2120,2310,2311,2320,2321,2330 |
| **LLL** | **LLL MED THREAT** | 2930 2930 2930 2930 365 2231,2331 | | | 2105,2106,2110,2120,2210,2211,2220,2221,2230,2230,2231,2910,2911,2920 |

### MISSION PHASE (3000)

#### COMBAT ASSAULT TRANSPORT (CAT)

| **CAT** | **ACAD NEO EXECUTION** | 3082 | * | NSQ HLL,AGQ,2540,2541,ACAD-3082 |
| **GTR** | **NON RADAR GTR** | 2540 2540 | 2540 365 | 2581,2582,4051,4052,TERFQ,2321~NS,2331~LLL | 2110,2310,2311,HLL~2320,HLL~2321,LLL~2330,LLL~2331 |
| **GTR** | **RADAR GTR** | 2541 2541 | 2541 365 | 2581,2582,4051,4052,TERFQ,2321~NS,2331~LLL | 2110,2310,2311,HLL~2320,HLL~2321,LLL~2330,LLL~2331 |
| **AG**  | **NIGHT SEC AG** | 2843 2843 2843 2843 180 2232~NS,2331~LLL,2813,2842 | 2812,2813,2842 |
| **LLL** | **LLL SEC CALS** | 2231 2231 2231 2231 180 2230 | | | 2110,2120,2210,2311,2220,2221,2230 |
| **LLL** | **LLL SEC TERF** | 2331 2331 2331 2331 180 2330 | | | 2110,2120,2310,2311,2320,2321,2330 |
| **ACAD** | **NEO EXECUTION** | 3082 | | | |
| **CAT** | **CBT ASLT TRNSPT** | 3240 3240 | 3240 365 | NSQ HLL,AGQ,2540,2541,ACAD-3082 |

### AERIAL DELIVERY (AD)

<p>| <strong>AD</strong> | <strong>EXT LLL EXTERNALS</strong> | 2430 2430 2430 2430 180 2230,2420,2421,NSQ-HLL | 2210,2220,2230,2410,2411,2420,2421 |
| <strong>GTR</strong> | <strong>NON RADAR GTR</strong> | 2540 2540 | 2540 365 | 2581,2582,4051,4052,TERFQ,2321<del>NS,2331</del>LLL | 2110,2310,2311,HLL<del>2320,HLL</del>2321,LLL<del>2330,LLL</del>2331 |
| <strong>GTR</strong> | <strong>RADAR GTR</strong> | 2541 2541 | 2541 365 | 2581,2582,4051,4052,TERFQ,2321<del>NS,2331</del>LLL | 2110,2310,2311,HLL<del>2320,HLL</del>2321,LLL<del>2330,LLL</del>2331 |
| <strong>AG</strong>  | <strong>NIGHT SEC AG</strong> | 2843 2843 2843 2843 180 2321<del>NS,2331</del>LLL,2813,2842 | 2812,2813,2842 |
| <strong>LLL</strong> | <strong>LLL SEC CALS</strong> | 2231 2231 2231 2231 180 2230 | | | 2110,2120,2210,2311,2220,2221,2230 |
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3-131
# CH-53K Crew Chief Attain and Maintain Table (2000, 3000, 4000, & 6000 Phase)

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## Requirements, Certifications, Qualifications, and Designations (RCQD) Phase [6000]

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### 3.25.3 CH-53K CREW CHIEF T&R MATRIX (2000-6000 Phase)

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- **B:** B-Box
- **R:** R-Box
- **S:** S-Box
- **M:** M-Box
- **POI:** Point Of Interest
- **# ACAD:** Number of ACAD
- **# SIM:** Number of SIM
- **# FLT:** Number of FLT
- **# NC:** Number of NC
- **REFY:** Reference
- **EOM:** End Of Mission
- **EVENT CON:** Event Code
## CH-53K CREW CHIEF T&R MATRIX (2000-6000 PHASE)

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NAVMC 3500.129
6 Jul 21

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**AIR-TO-GROUND INSTRUCTOR**

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- **AGI 5404**
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- **AGI 5405**
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SECTION IIIB-AIRCREW ACADEMIC/GROUND SCHOOL TRAINING

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ENLISTED AIRCREW PERFORMANCE RECORD/QUALIFICATION JACKET ACADEMIC TRACKER

SECTION IIIB-AIRCREW ACADEMIC/GROUND SCHOOL TRAINING

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<tr>
<th>T&amp;R CODE</th>
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<th>INSTRUCTOR</th>
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<td>LAB-0300</td>
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### 3.26.2 FRS ADDITIONAL ACADEMICS TRACKER

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NAME (Last, first, middle initial) | Last 4 SSN
### ACADEMICS TRACKER FOR 2000 THROUGH 4000 PHASE

#### AIRCREW PERFORMANCE RECORD/QUALIFICATION JACKET ACADEMIC TRACKER

SECTION IIIB-AIRCREW ACADEMIC/GROUND SCHOOL TRAINING

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<td>ACAD-2581</td>
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<td>ACAD-2580</td>
<td>(S) APR-39</td>
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<td>ACAD-2582</td>
<td>(S) AAQ-24</td>
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<td>ACAD-2051</td>
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**CORE PLUS SKILL PHASE (4000)**

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**MISSION SKILL PHASE (3000)**

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<td>(S) Personnel Recovery</td>
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<td>ACAD-3085</td>
<td>(S) CH53 Specific TRAP TTPS</td>
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<td>ACAD-3086</td>
<td>(U) CASEVAC</td>
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### ADDITIONAL ACADEMICS TRACKER FOR 2000 PHASE THOUGH 8000 PHASE.

**ENLISTED AIRCREW PERFORMANCE RECORD/QUALIFICATION JACKET ACADEMIC TRACKER**

**SECTION IIIB-AIRCREW ACADEMIC/GROUND SCHOOL TRAINING**

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<th>NAME (Last, first, middle initial)</th>
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<th>INSTRUCTOR</th>
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CHAPTER 4
CH-53K AERIAL GUNNER/ OBSERVER
(MOS 6199)

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4.0 **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 Skills, and Mission Skills, and Core Plus Skills. The goal of this chapter is to develop individual and unit war fighting capabilities.

4.1 **AERIAL GUNNER/OBSERVER (6199) TRAINING PROGRESSION MODEL.** This model represents the recommended training progression for the average Aerial Gunner/Observer (6199) crewmember. Units should use the model as a point of departure to generate individual training plans.

### CH-53K AERIAL OBSERVER TRAINING PROGRESSION MODEL

<table>
<thead>
<tr>
<th>NATOPS / CRM</th>
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<td>HIE, BI, TERF EXT, IND EXT, DM, CBRN, FCLP, DCQ, UACQ, NSCQ, TG, TAC, RIE, ADGR, SEA</td>
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<tr>
<td>Mission Skills (3000 Phase)</td>
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<tr>
<td>CAT, AD, TRAP, AE</td>
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<td>Core Skills (2000 Phase)</td>
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<tr>
<td>INT, FORM, CAL, TERF, EXT, GTR, AG, TAC, HLL, LLL</td>
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<tr>
<td>Months to Train</td>
<td>2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48</td>
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</table>

4.2 **AG/O PROGRAMS OF INSTRUCTION (POI).** These tables reflect the average time-to-train versus the minimum to maximum time-to-train parameters in the Training Progression Model.

#### Program of Instruction (POI) Assignment

4.2.1 **Basic, Conversion, and Transition POI:** AG/Os assigned to Basic (B), Conversion (C), and Transition (T) POIs shall fly the entire Basic (B) POI.

4.2.2 **Basic POI**

<table>
<thead>
<tr>
<th>CH-53K AG/O Basic POI</th>
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<tbody>
<tr>
<td>Weeks</td>
<td>Phase of Instruction</td>
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<td>88</td>
<td>Core Skill Training</td>
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<tr>
<td>88</td>
<td>Mission Skill Training</td>
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</table>

4.2.3 **Refresher POI**

<table>
<thead>
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<th>CH-53K AG/O Refresher POI</th>
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<td>Weeks</td>
<td>Phase of Instruction</td>
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<td>12</td>
<td>Core Skill Training</td>
</tr>
<tr>
<td>26</td>
<td>Mission Skill Training</td>
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</tbody>
</table>

4.2.4 **Refresher POI.** The Refresher (R) POI is predicated on the experience of the Refresher AG/O. Previously designated AG/Os returning to a flying status after being in a non-flying status for a period of 366 days or longer shall be assigned to the Refresher (R) POI and fly all (R) coded events. The squadron Commanding Officer my
tailor the individual’s Refresher POI per the squadron standardization board recommendations and IAW NAVMC 3500.14 Chapter 2. When the (R) coded events within a stage of training are complete, the AG/O may be credited with the entire stage of training. This assumes the AG/O has previous proficiency in a stage of training. If the AG/O has no previous proficiency in a stage or particular event (i.e. event Never Been Attempted (NBA)), then the Refresher AG/O shall fly the entire stage or all events not previously attempted.

All Refresher (R) events shall require an ATF filled out and signed by the Crew Chief instructor for that event. All ATFs shall be annotated with an (R) after the event code to annotate a refresher event.

4.2.5 Series Conversion POI

<p>| CH-53K AG/O Series Conversion POI |</p>
<table>
<thead>
<tr>
<th>Weeks</th>
<th>Phase of Instruction</th>
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<tbody>
<tr>
<td>12</td>
<td>Core Skill Training</td>
<td>Tactical Squadron</td>
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</table>

4.2.6 Series Conversion POI The series conversion POI is prescribed for personnel converting from CH-53E to CH-53K. All current CH-53E AG/Os are required to fly the annotated core skill series conversion events at a tactical squadron with a qualified CH-53K instructor. AG/Os assigned to the series conversion syllabus may complete a NATOPS evaluation and be designated a CH-53K AG/O at the completion of the following event stages: INT, FORM, CAL, TERF, EXT, TAC, HLL, Taxi-Turn Up, and APU. Upon completion of the NATOPS evaluation, AG/Os will continue the series conversion syllabus with the remaining 2000-4000 level events annotated with (S).

4.2.7 Program of Instruction (POI) Assignment

**PROGRAM ON INSTRUCTION MATRIX**

<table>
<thead>
<tr>
<th>Program of Instruction (POI)</th>
<th>Symbol</th>
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<tr>
<td>Basic</td>
<td>B</td>
<td>Initial MOS/Skill Training</td>
</tr>
<tr>
<td>Transition*</td>
<td>T</td>
<td>Moving from one Type to another (Tilt-Rotor to Rotary-Wing) e.g. MV-22 to CH-53</td>
</tr>
<tr>
<td>Conversion*</td>
<td>C</td>
<td>Moving from one Model to another (CH-46 to CH-53)</td>
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<tr>
<td>Refresher</td>
<td>R</td>
<td>Non-flying status for 366 days or longer</td>
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<tr>
<td>Maintain</td>
<td>M</td>
<td>All individual who have attained CSP/MSP/CPP by initial POI assignment are re-assigned to the M POI to maintain proficiency.</td>
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</table>

*Transition and Conversion Aerial Observers shall be assigned to the Basic POI.

4.3 PROFICIENCY & CURRENCY

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

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

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

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

Loss of Unit Skill Proficiency. If an entire unit loses proficiency in an Event, unit instructors shall regain proficiency by completing the Event with an instructor from a like unit. If not feasible, the instructor shall regain proficiency by completing the Event with another instructor. For flying communities, if a unit has only one instructor and cannot complete the Event with an instructor from another unit, the instructor shall regain proficiency with another aircraft commander or as designated by the commanding officer.
**Proficiency Status.** Proficiency is a “Yes/No” status by skill assigned to an individual. When an individual attains and maintains Core Skill Proficiency (CSP), Mission Skill Proficiency (MSP), Core Plus Skill Proficiency (CPSP), or Mission Plus Skill Proficiency (MPSP), the individual may count towards CMMR or CMTS.

4.3.3 **Skill Currency.** Currency is a control measure used to provide an additional margin of safety based on exposure frequency to a particular skill and applies to all MOS’s that must comply with NATOPS and OPNAV requirements. It is a measure of time since the last event demanding that specific skill. For example, currency determines minimum altitudes in rules of conduct based upon the most recent low altitude fly date. Specific currency requirements for aircrew individual type mission profiles can be found in NAVMC 3500.14D Chapter 3.

4.4 **QUALIFICATION, AND DESIGNATION TABLES:** The tables below delineate T&R events required to be proficient or waived to attain Requirements, Certifications, Qualifications and Designations. In addition to event requirements, all required stage lectures, briefs; squadron training, prerequisites, and other criteria shall be completed prior to completing final events. Certifications, qualification and designation letters signed by the Squadron Commanding Officer shall be placed in section 4 of the Aircrew Performance Records and NATOPS. Loss of proficiency in any qualification event causes the associated qualification to be lost. Regaining a qualification requires completing delinquent R-coded events associated with that qualification. Waiving of all Required Events leading to a Requirement, Certification, Qualification, or Designation, is not allowed.

<table>
<thead>
<tr>
<th>CH-53K CREW CHIEF/AG/O REQUIREMENTS, CERTIFICATIONS, QUALIFICATIONS, AND DESIGNATIONS (RCQD)</th>
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<td>TG</td>
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<tr>
<td>NATOPS</td>
</tr>
<tr>
<td>CRM</td>
</tr>
<tr>
<td>*AG/Os are not required to conduct CQs before being designated, however if attached to a MEU squadrons may include FCLPs and CQs in order to train new AG/Os</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>INDIVIDUAL DESIGNATION REQUIREMENTS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Designation</strong></td>
</tr>
<tr>
<td>AG/O CH-53K</td>
</tr>
</tbody>
</table>

4.5 **SYLLABUS NOTES**

4.5.1 **AIRCREW TRAINING REFERENCES.** Aircrew shall use the following references to ensure safe and standardized training procedures, grading criteria, and aircraft operation.

<table>
<thead>
<tr>
<th>AIRCREW TRAINING REFERENCES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Designator</strong></td>
</tr>
<tr>
<td>CNAF M-3710.7</td>
</tr>
<tr>
<td>A1-H53XX-NFM-000</td>
</tr>
<tr>
<td>NAVMC 3500.14</td>
</tr>
<tr>
<td>MCO 4790.20</td>
</tr>
<tr>
<td>MCRP 4-11.3E</td>
</tr>
<tr>
<td>NTPP 3-22.3-53</td>
</tr>
<tr>
<td>NTPP 3-22.5-ASTACSOP</td>
</tr>
<tr>
<td>NTPP 3-22.5-CH-53</td>
</tr>
</tbody>
</table>
4.5.2 **General.** This Manual is written to allow for local conditions and yet remain unclassified. DC AVN and CG MCCDC encourage squadrons to use the full range of tactics in the tactical manuals and adopt the latest developed and proven tactics. All events shall terminate with a comprehensive debrief with emphasis on aircrew performance using all evaluation techniques. Aircrew shall fly events annotated with an N at least 30 minutes after official sunset. Aircrew shall fly night events in accordance with the table of acronyms for environmental conditions.

4.5.3 **Acronyms for crew requirements**

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
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</thead>
<tbody>
<tr>
<td>AG/O</td>
<td>Aerial Gunner / Observer</td>
</tr>
<tr>
<td>AG/OU1</td>
<td>Aerial Gunner Observer Under Instruction</td>
</tr>
</tbody>
</table>

4.5.4 **Environmental Conditions Matrix**

<table>
<thead>
<tr>
<th>Code</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>Shall be flown daytime</td>
</tr>
<tr>
<td>N</td>
<td>Shall be flown at night, may be aided or unaided.</td>
</tr>
<tr>
<td>N*</td>
<td>Shall be flown at night, must be flown unaided.</td>
</tr>
<tr>
<td>(N*)</td>
<td>May be flown at night – If flown at night, must be flown unaided.</td>
</tr>
<tr>
<td>(N)</td>
<td>May be flown at night – If flown at night; may be flown aided or unaided.</td>
</tr>
<tr>
<td>NS</td>
<td>Shall be flown at night – Mandatory use of Night Vision Devices.</td>
</tr>
<tr>
<td>(NS)</td>
<td>May be flown at night – If flown at night; must be flown with Night Vision Devices.</td>
</tr>
</tbody>
</table>

Note – Aircrew shall fly all night time events at least 30 minutes after official sunset.

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

4.5.5 **Event Terms**

<table>
<thead>
<tr>
<th>TERM</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discuss</td>
<td>An explanation of systems, procedures, or maneuvers during the brief, in flight, or post flight. Student is responsible for knowledge or procedures.</td>
</tr>
<tr>
<td>Demonstrate</td>
<td>The description and performance of a particular maneuver/event by the instructor, observed by the student. The student is responsible for knowledge of the procedures prior to the demonstration of a required maneuver.</td>
</tr>
<tr>
<td>Introduce</td>
<td>The instructor may demonstrate a procedure or maneuver to a student, or may coach the student through the maneuver without demonstration. The student performs the procedures or maneuver with coaching as necessary. The student is responsible for knowledge of the procedures.</td>
</tr>
<tr>
<td>Practice</td>
<td>The performance of a maneuver or procedure by the student that may have been previously introduced in order to attain a specified level of performance.</td>
</tr>
<tr>
<td>Review</td>
<td>Demonstrated proficiency of a maneuver by the student.</td>
</tr>
<tr>
<td>Evaluate</td>
<td>Any flight designed to evaluate aircrew standardization that does not fit another category.</td>
</tr>
</tbody>
</table>
4.5.6 **Programs of Instruction Matrix**

<table>
<thead>
<tr>
<th>Program of Instruction (POI)</th>
<th>Symbol</th>
<th>Aviation Flying</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic</td>
<td>B</td>
<td>Initial MOS/Skill Training</td>
</tr>
<tr>
<td>Refresher</td>
<td>R</td>
<td>Non-flying status for 366 days or longer</td>
</tr>
<tr>
<td>Maintain</td>
<td>M</td>
<td>All individual who have attained CSP/MSP/CPP by initial POI assignment are re-assigned to the M POI to maintain proficiency.</td>
</tr>
</tbody>
</table>

Note - Transition and Conversion Aerial Observers/Gunners shall be assigned to the Basic POI.

4.5.7 **Re-Qualification (TERFQ, AGQ, DCQ, NSCQ, UACQ, NSQ HLL, NSQ LLL, TGQ, DMQ, BIQ)**. Upon demonstration of proficiency, by flying those (R) coded events, IAW the Program Manual NAVMC 3500.14D, within the applicable stage in a specific core skill, aircrew may be re-qualified at the discretion of the Squadron Commanding Officer.

4.5.8 **Aviation Training Forms (ATF)**

All initial Basic (B), Conversion (C), and Transition (T) POI events shall require an ATF. The ATF shall be filled out and signed by the Crew Chief Instructor as outlined by the instructor requirement per the individual T&R event. All ATFs shall have the NAVFLIR number logged and be marked either “SATISFACTORY” or “UNSATISFACTORY”.

All initial Refresher (R) POI events shall require an ATF. The ATF shall be filled out and signed by the Crew Chief Instructor as outlined by the instructor requirement per the individual T&R event. All Refresher ATFs shall be annotated with a (R) after the T&R event code to annotate that the event was a refresher. All ATFs shall have the NAVFLIR number logged and be marked either “SATISFACTORY” or “UNSATISFACTORY”.

All POI events deemed to be “UNSATISFACTORY” shall require an ATF. The ATF shall be filled out and signed by the Crew Chief Instructor as outlined by the instructor requirement per the individual T&R event. These events shall not be logged on the NAVFLIR for the individual nor shall they receive credit for conducting these events.

All individual instructors shall report to the Enlisted Aircrew Training Manager (EATM) within a 24 hour period and provide them with the completed ATFs for the event. The EATM shall ensure that all ATFs are properly logged in the individual’s APR within 48 hours after the event has been completed.

All ATFs shall be logged in section 3 of the individual’s APR jacket under the T&R Evaluated Flights tab. The standardized ATF’s are logged via MSHARP and may be printed and placed in the APR.

The ATFs shall be logged in order according to the “T&R Syllabus Matrix” with the highest numbered T&R code place on top. All Refresher ATFs shall be logged in the same manner except that they shall all be grouped together and placed on the top of the other ATFs and have the refresher syllabus letter signed by the Squadron Commanding Officer placed on top. All “UNSATISFACTORY” ATFs shall be logged in the same order and shall remain the individuals APR jacket. The T&R Syllabus Matrix shall be placed in section 3 of the APR and placed on top of the T&R Evaluated Flights Tab. The syllabus matrix is located in the same folder as the standardized ATF.

4.5.9 **Designation as an Aerial Gunner/Observer**

The Aerial Observer/Aerial Observer Under Instruction (AO/AOUI) is an assistant to the AG/O. Their crew position is associated with the left window in the A/C cabin. It is highly encouraged to train the AO/AOUI to the same standards as an AG/O but at no time will their training take precedence over that of a AG/O. The following is a list of the general responsibilities that the AO shall assist the AG/O in. This list is not all inclusive.

a. Pre-flight inspections/maintenance of A/C.
c. Cabin setup/configuration for mission.
d. Cabin security.
e. A/C startup/shutdown.
f. On/Off load of passenger/cargo.
g. Security of passengers/cargo.
h. Obstacle clearance of left side and tail rotor of A/C.
i. Post-flight inspections/maintenance of A/C.
An individual desiring to become an Aerial Observer (AG/O) shall be nominated by the squadron's Enlisted Aircrew Training Manager (EATM) to the squadron's Standardization (STAN) board. If the STAN board concurs with the nomination their recommendation will be forwarded to the squadron's Commanding Officer for approval. If approved by the Commanding Officer the individual shall be annotated on the authorized to fly list and begin the AG/O syllabus.

Once approved by the Commanding Officer the individual will become an Aerial Gunner/Observer Under Instruction (AG/OUI) until they are designated as an Aerial Gunner/Observer (AG/O). The AG/OUI will not conduct any of the Core Skill Introduction phase and will begin training in the Core Skill phase. The AG/OUI shall complete all academic and flight training as appropriate per the T&R Program of Instruction (POI).

Prior to the first flight the individual shall complete the aviation physical examination, Naval Aviation Survival Training (NTSP), and NITE lab indoctrination training per OPNAVIST 3710.7 Ch.8.

The AG/OUI shall complete the following T&R events per the Individual Designation table prior to beginning any other stage or phase of training: 2100, 2101, 2102, 2105, 2106, 2107, 2110, 2120, 2210, 2211, 2220, 2221, 2310, 2311, 2320, 2321, 2400, 2411, 2421, 2812, 2813, 2842, 2843, 2910, 6000, 6001, 6002, 6003, 6100, 6101. AG/OUI are not required to conduct FCLPs or CQs prior to being Designated by the Commanding Officer as an AG/O, however if a squadron intends to make a new AG/O while attached to a MEU, FCLPs an CQs may be added to the syllabus in order to train AG/Os.

The AG/OUI shall conduct all above T&R events under the supervision of the appropriate level Crew Chief Instructor per the T&R event. In addition to the Crew Chief Instructor and the AG/OUI there shall be another designated aircrew member on board the aircraft in order to fulfill the crew requirement. The additional crew member maybe another designated Crew Chief or a designated AG/O. The designated crew member does not need to be qualified for the specific event but shall meet all prerequisites and be eligible to conduct training in the event.

The AG/OUI shall conduct all events in the AG/OUI syllabus in the appropriate order per the required prerequisites of the individual T&R events. All events shall be logged appropriately in M-SHARP. All events shall require an ATF filled out and signed by the Crew Chief Instructor for that event and logged in the AG/OUIs APR jacket.

The AG/OUI shall conduct all events in the AG/OUI syllabus in the appropriate order per the required prerequisites of the individual T&R events. All events shall be instructed and evaluated by a NATOPS Instructor or Assistant NATOPS Instructor and a Crew Resource Management Instructor or Facilitator as appropriate per the event.

The AG/OUI shall complete the 6000 phase events until all other events in the AG/OUI syllabus have been completed. The 6000 phase of training shall be instructed and evaluated by a NATOPS Instructor or Assistant NATOPS Instructor and a Crew Resource Management Instructor or Facilitator as appropriate per the event.

The AG/OUI shall not fly any event outside of the AG/OUI syllabus and act in the capacity of an AG/O nor fulfill the crew requirement for that event. If the AG/OUI is scheduled in addition to a qualified crew for any event outside the AG/OUI syllabus the AG/OUI shall not act in the capacity of a Crew Member for that portion of the event and shall not log that event.

The AG/OUI will complete the TERF and AG syllabi prior to the initial NTPS-6100. However, the AG/OUI shall not be issued qualification letters or utilized as a qualified crewmember (not under the supervision of the appropriate level Crew Chief Instructor for that event, and not able to carry passengers) until after the completion of NTPS-6100 and CRM-6101.

After successful completion of NTPS-6100, and CRM-6101 the AG/OUI may be designated an Aerial Gunner/Observer at the discretion of the commanding officer. At this time a designation letter as an Aerial Gunner/Observer along with a qualification letter for TERF and AG shall be routed to the commanding officer for signature. The original designation/qualification letters, signed by the commanding officer shall be placed in the AG/O’s NATOPS jacket along with a copy in their APR jacket with a corresponding logbook entry. An AMOS code of 6199 shall be run on the AG/O thru the unit S-1/IPAC. All paperwork shall be properly logged prior to utilizing the newly designated AG/O as a qualified crewmember (to carry passengers, or without the supervision of the appropriated level Crew Chief Instructor).

The designated AG/O may continue and conduct all training in Core Skill/Mission Skill/Core
Plus/Mission Plus Skill phases of training, attaining any and all qualifications associated with these phases of training. The AG/O shall not conduct any of the Instructor Phase of training and shall hold no instructor qualifications unless otherwise specified in the MAWTS-1 Course Catalog.

4.6 CORE INTRODUCTION PHASE. N/A for CH-53K Aerial Observer / Gunner Chapter.

4.7 CORE INTRODUCTION STAGES. N/A for CH-53K Aerial Observer / Gunner Chapter.

4.8 CORE PHASE

4.9 CORE STAGES. For Individual T&R events refer to Chapter 3 of this manual.

4.9.1 ACADEMIC TRAINING

The Academic syllabus is designed to ensure aircrew receive the proper academic training prior to starting a new phase and stage of training. Within each phase of training (0000-6000) there are corresponding stages, each stage has an academic syllabus. The required academic syllabus for each stage of training is further delineated in the beginning paragraphs of each phase. Each phase and stage contain specific academic requirements which must be completed either prior to phase and/or stage initiation or prior to phase and/or stage completion.

Academic/ground training events can either be accomplished by an individual utilizing self-paced courseware or presented by a qualified instructor. The Enlisted Aircrew Training Manager (EATM, shall ensure that the appropriate academic/ground training event is manually updated in MSHARP and logged in the APR.

The purpose of the academic syllabus is to ensure that required academic courses for each phase/stage of training are completed and logged in M-SHARP for each Crew Member. A summary of academic classes required for all of the phases of training (2000-6000) are listed below with their corresponding T&R code. Where indicated, standardized academic training materials exist and may be obtained from the sponsoring activity.

The academic/ground training shall be complete IAW the phase and/or stage requirements and prerequisites. Upon completion, the AG/OUI / AG/O shall report to the Enlisted Aircrew Training Manager (EATM) in the Operations Department. The EATM shall manually update the training code in MSHARP.

The EATM shall log the academic/ground training event on the Academic Tracker located at the end of Chapter 3 of this manual.

The EATM shall ensure that the Academic Tracker is properly located in the individuals APR jacket in section 3 under the ground school tab. Additional academic/ground training classes not listed as requirements in the T&R shall be logged on the Additional Academic Tracker located at the end of Chapter 3 of this document and logged in section 3 of the individuals APR jacket under the ground school tab.

ACADEMIC OVERVIEW

<table>
<thead>
<tr>
<th>EVENT</th>
<th>TIME</th>
<th>REPLY</th>
<th>FM</th>
<th>COND</th>
<th>DEVICE</th>
<th>NAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACAD-2003</td>
<td>1.0</td>
<td>*</td>
<td>B</td>
<td>G</td>
<td>(U) Internal Cargo Operations</td>
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<td>ACAD-2004</td>
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<td>B</td>
<td>G</td>
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<td>ACAD-2012</td>
<td>1.0</td>
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<td>B</td>
<td>G</td>
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<td>*</td>
<td>B</td>
<td>G</td>
<td>(U) EA Tactical aircrew considerations and responsibility (TACR)</td>
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<tr>
<td>ACAD-2051</td>
<td>1.0</td>
<td>*</td>
<td>B</td>
<td>G</td>
<td>(U) EA Terrain flight</td>
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<tr>
<td>ACAD-2052</td>
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<td>*</td>
<td>B</td>
<td>G</td>
<td>(U) EA Night vision training</td>
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<tr>
<td>ACAD-2053</td>
<td>1.0</td>
<td>*</td>
<td>B</td>
<td>G</td>
<td>(U) EA Fundamentals of aerial gunnery</td>
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<td>ACAD-2055</td>
<td>1.0</td>
<td>*</td>
<td>B</td>
<td>G</td>
<td>(U) EA GAU-21 .50 caliber machine gun</td>
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<tr>
<td>ACAD-2056</td>
<td>1.0</td>
<td>*</td>
<td>B</td>
<td>G</td>
<td>(U) EA Laser aiming devices</td>
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<tr>
<td>ACAD-2058</td>
<td>1.0</td>
<td>*</td>
<td>B</td>
<td>G</td>
<td>(U) EA Basic principles of escort operations</td>
<td></td>
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<tr>
<td>ACAD-3002</td>
<td>1.0</td>
<td>*</td>
<td>B</td>
<td>G</td>
<td>(U) NEO Execution</td>
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<td>ACAD-3004</td>
<td>1.0</td>
<td>*</td>
<td>B</td>
<td>G</td>
<td>(S) PERSONNEL RECOVERY</td>
<td></td>
</tr>
</tbody>
</table>
4.10 MISSION PHASE. For Individual T&R events refer to Chapter 3 of this manual.

4.11 MISSION STAGES. For Individual T&R events refer to Chapter 3 of this manual.

4.12 CORE PLUS PHASE. For Individual T&R events refer to Chapter 3 of this manual.

4.13 CORE PLUS STAGES. For Individual T&R events refer to Chapter 3 of this manual.

4.14 MISSION PLUS PHASE. For Individual T&R events refer to Chapter 3 of this manual.

4.15 MISSION PLUS STAGES. For Individual T&R events refer to Chapter 3 of this manual.

4.16 INSTRUCTOR TRAINING PHASE. Not applicable to AG/Os unless otherwise stated in the MAWTS-1 Course Catalog.

4.17 INSTRUCTOR TRAINING STAGES. Not applicable to AG/Os unless otherwise stated in the MAWTS-1 Course Catalog.

4.18 REQUIREMENTS, QUALIFICATIONS, CERTIFICATIONS AND DESIGNATIONS (RQCD) PHASE. For Individual T&R events refer to Chapter 3 of this manual.

4.19 REQUIREMENTS, QUALIFICATIONS, CERTIFICATIONS AND DESIGNATIONS (RQCD) PHASE. For Individual T&R events refer to Chapter 3 of this manual.

4.20 MISSION ESSENTIAL TASK (MET) PHASE. N/A for CH-53K Aerial Observer / Gunner.

4.21 MISSION ESSENTIAL TASK (MET) STAGES. N/A for CH-53K Aerial Observer / Gunner.

4.22 AVIATION CAREER PROGRESSION MODEL (ACPM) PHASE. N/A for CH-53K Aerial Observer / Gunner.

4.23 AVIATION CAREER PROGRESSION MODEL (ACPM) STAGES. N/A for CH-53K Aerial Observer / Gunner.
## ELECTRONIC AIRCREW TRAINING FORM (EATF) REASON CODES

<table>
<thead>
<tr>
<th>Reason Code Category Description</th>
<th>Syllabus Name</th>
<th>Reason</th>
<th>Change</th>
<th>Update Reason Code Category Description</th>
<th>Update Syllabus Name</th>
<th>Update Reason</th>
<th>Po Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRM</td>
<td>CH-53K Pilot</td>
<td>Decision Making</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>CRM</td>
<td>CH-53K Pilot</td>
<td>Adaptability / Flexibility</td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>CRM</td>
<td>CH-53K Pilot</td>
<td>Assertiveness</td>
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<tr>
<td>CRM</td>
<td>CH-53K Pilot</td>
<td>Communication</td>
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<tr>
<td>CRM</td>
<td>CH-53K Pilot</td>
<td>Leadership</td>
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<td>CRM</td>
<td>CH-53K Pilot</td>
<td>Mission Analysis</td>
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<td>CRM</td>
<td>CH-53K Pilot</td>
<td>Situational Awareness</td>
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<tr>
<td>DND</td>
<td>CH-53K Pilot</td>
<td>Aircraft</td>
<td></td>
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</tr>
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<td>CH-53K Pilot</td>
<td>Instructor</td>
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<td>CH-53K Pilot</td>
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<td>DND</td>
<td>CH-53K Pilot</td>
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<td>CH-53K Pilot</td>
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<td>CH-53K Pilot</td>
<td>Other Resource</td>
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<tr>
<td>Briefing/Knowledge</td>
<td>CH-53K Pilot</td>
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<tr>
<td>Briefing/Knowledge</td>
<td>CH-53K Pilot</td>
<td>Limitations</td>
<td></td>
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<tr>
<td>Briefing/Knowledge</td>
<td>CH-53K Pilot</td>
<td>NATOPS Brief</td>
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<td>Briefing/Knowledge</td>
<td>CH-53K Pilot</td>
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<td>Briefing/Knowledge</td>
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<td>Instructor Skill/Technique</td>
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<td>Flight Skills (PAC)</td>
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**CH-53K AERIAL OBSERVER / GUNNER ATTAIN AND MAINTAIN TABLE (2000, 3000, 4000, & 6000 PHASE)**

4-14
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4-18
### AERIAL OBSERVER / GUNNER T&R MATRIX

#### CH-53 AERIAL OBSERVER T&R MATRIX (2000-6000 PHASE)

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FORM TOTAL

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#### CORE PHASE TOTAL

- TACTICS: 14
- NIGHT SYSTEM HIGH LEVEL: 18.0
- NIGHT SYSTEM LOW LEVEL: 2
- MISSION PHASE: 50.0

---

**Note:** The table includes various categories such as T&R, ACAD, SIM, FLIGHT, etc., each with specific entries and calculations for training and evaluation.
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| SEA   |        |           | NON RADAR GTR   | X   | X    | X    | 1.5   | (NS)  | A/S  | 2    | 365  | 2540 |
| GTR   | 2540   |           |                 |     |      |       |       |       |       |       |       |
|       |        |           | RADAR GTR      | X   | X    | X    | 1.5   | (NS)  | A    | 2    | 365  | 2541 |
| GTR   | 2541   |           |                 |     |      |       |       |       |       |       |       |
| AG    | 2843   |           | NIGHT SEC AG   | X   | X    | X    | 1.5   | NS    | A    | 2+   | 180  | 2843 |
| SEA   | 4982   |           | SEA BASED      | X   | X    | X    | 2.0   | (NS)  | A    | 1+   | 365  | 4982 |
| SEA TOTAL |       |           |                 | 0   | 0.0  | 0    | 0.0   | 4     | 6.5  |       |      |

|       |        |           |                 |     |      |       |       |       |       |       |       |

| NATOPS (NTPS) |     |           | OPEN BOOK EXAM | X   | X    | X    | 3.0   | G     | 365  | X    | 6000 |
| NTPS    | 6000  |           |                 |     |      |       |       |       |       |       |       |
| NTPS    | 6001  |           | CLOSED BOOK EXAM| X   | X    | X    | 1.0   | G     | 365  | X    | 6001 |
| NTPS    | 6002  |           | ORAL EXAM       | X   | X    | X    | 2.0   | G     | 365  | X    | 6002 |
| NTPS    | 6004  |           | MONTHLY EP QUIZ | X   | X    | X    | 1.0   | G     | 30   | X    | 6004 |
| NTPS    | 6005  |           | QUARTERLY EP EVALUATION | X   | X    | X    | 1.0   | A/S   | 90   | X    | 6005 |
| NTPS    | 6100  |           | NATOPS EVALUATION FLIGHT | X   | X    | X    | 1.5   | (NS)  | A/S  | 1    | 365  | 6100 |
| NTPS TOTAL |     |           |                 | 5   | 8.0  | 0    | 0.0   | 1     | 1.5  |       |      |

| CRM    |        |           | CRM GRND CLASS | X   | X    | X    | 1.5   | G     | 365  | X    | 6003 |
| CRM    | 6003   |           |                 |     |      |       |       |       |       |       |       |
| CRM    |        |           | CRM FLT        | X   | X    | X    | 1.5   | (NS)  | A/S  | 1    | 365  | 6101 |
| CRM TOTAL |     |           |                 | 1   | 1.5  | 0    | 0.0   | 1     | 1.5  |       |      |
### ACADEMICS TRACKER FOR 2000 THROUGH 4000 PHASE

#### AIRCREW PERFORMANCE RECORD/QUALIFICATION JACKET ACADEMIC TRACKER

#### SECTION III-B AIRCREW ACADEMIC/GROUND SCHOOL TRAINING

**NAME (Last, first, middle initial)**

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### ADDITIONAL ACADEMICS TRACKER FOR 2000 PHASE THOUGH 8000 PHASE

**ENLISTED AIRCREW PERFORMANCE RECORD/QUALIFICATION JACKET ACADEMIC TRACKER**  
**SECTION III-B AIRCREW ACADEMIC/GROUND SCHOOL TRAINING**

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