

## CHAPTER 2

CH-53 CREW CHIEF/AERIAL GUNNER/OBSERVER  
(INTERIM APPROVED 3 Aug 04)

	<u>PARAGRAPH</u>	<u>PAGE</u>
MARINE HEAVY HELICOPTER SQUADRON (CH-53E) UNIT CORE COMPETENCY . . . . .	200	2-3
MARINE HEAVY HELICOPTER SQUADRON (CH-53D) UNIT CORE COMPETENCY . . . . .	201	2-9
PROGRAM OF INSTRUCTION (POI) FOR BASIC AND TRANSITION CREW CHIEF . . . . .	202	2-13
POI FOR CONVERSION CREW CHIEF . . . . .	203	2-13
POI FOR REFRESHER AND SERIES CONVERSION CREW CHIEF . . . .	204	2-13
POI FOR BASIC, TRANSITION, CONVERSION, REFRESHER AND SERIES CONVERSION AERIAL GUNNER/OBSERVER . . . . .	205	2-13
GROUND TRAINING COURSES OF INSTRUCTION . . . . .	210	2-13
AIRCREW TRAINING REFERENCES . . . . .	211	2-14
SQUADRON LEVEL TRAINING . . . . .	212	2-14
FLIGHT TRAINING FOR BASIC AND TRANSITION CREW CHIEF . . . .	220	2-16
FLIGHT TRAINING FOR CONVERSION CREW CHIEF . . . . .	221	2-17
FLIGHT TRAINING FOR REFRESHER CREW CHIEF . . . . .	222	2-18
FLIGHT TRAINING FOR SERIES CONVERSION CREW CHIEF. . . . .	223	2-19
FLIGHT TRAINING FOR CREW CHIEF INSTRUCTOR TRAINING. . . .	224	2-19
FLIGHT TRAINING FOR AERIAL OBSERVER CONVERSION TO CREW CHIEF. . . . .	225	2-20
FLIGHT TRAINING FOR BASIC AND TRANSITION AERIAL GUNNER/OBSERVER. . . . .	226	2-21
FLIGHT TRAINING FOR CONVERSION AERIAL GUNNER/OBSERVER . .	227	2-22
FLIGHT TRAINING FOR REFRESHER AERIAL GUNNER/OBSERVER. . .	228	2-23
FLIGHT TRAINING FOR SERIES CONVERSION AERIAL GUNNER/OBSERVER. . . . .	229	2-24
EVALUATION FLIGHT . . . . .	229.1	2-24
FLIGHT PERFORMANCE REQUIREMENTS . . . . .	230	2-25
CORE SKILL INTRODUCTION PHASE . . . . .	231	2-26

	<u>PARAGRAPH</u>	<u>PAGE</u>
CORE SKILL BASIC PHASE. . . . .	232	2-39
CORE SKILL ADVANCED PHASE . . . . .	233	2-53
CORE SKILL PLUS PHASE . . . . .	234	2-63
INSTRUCTOR TRAINING . . . . .	240	2-77
REQUIREMENTS, QUALIFICATIONS, AND DESIGNATIONS . . . . .	250	2-81
GRADUATE LEVEL COURSES . . . . .	251	2-82
ORDNANCE REQUIREMENTS . . . . .	260	2-82

FIGURES

2-1	CREW CHIEF REFLY INTERVAL, CRP . . . . .	2-83
2-2	AERIAL GUNNER/OBSERVER REFLY INTERVAL, CRP . . . . .	2-86
2-3	CREW CHIEF/AERIAL GUNNER/OBSERVER FLIGHT UPDATE CHAINING . . . . .	2-88

**\* \* N O T E \* \***

*Aircrews shall include Crew Resource Management (CRM) techniques as part of their brief.*

CHAPTER 2

CH-53 CREW CHIEF/AERIAL GUNNER/OBSERVER

200. MARINE HEAVY HELICOPTER SQUADRON (CH-53E) UNIT CORE COMPETENCY

1. HMH Mission. Support the MAGTF Commander by providing assault support transport of heavy weapons, equipment and supplies, day or night under all weather conditions during expeditionary, joint or combined operations.

2. Mission Essential Task List (METL)

a. (UJTL TA 1.1.2) Conduct Shipboard Deck Helicopter Landing Qualifications

b. (UJTL TA 1.1.4) Conduct Sea and Air Deployment Operations  
- Maintain the capability to deploy and operate from advanced bases, expeditionary airfields, Forward Operating Bases (FOBs), and naval shipping.  
- Maintain the capability to conduct extended range operations employing aerial refueling.  
- Perform organizational maintenance on assigned aircraft.

c. (UJTL TA 1.2.1) Conduct Air Assault Operations and Air Assault  
- Provided assault support transport of heavy weapons, equipment, supplies, and combat troops using internal and/or external means.  
- Provide support for casualty evacuation operations.  
- Maintain self-defense capability from ground-to-air and air-to-air threats.

d. (UJTL TA 1.2.3) Conduct Amphibious Assault and Raid Operations  
- Conduct assault support for maritime special operations.

e. (UJTL TA 4.2) Distribute Supplies and Provide Transport Service  
- Conduct Aerial Re-supply.  
- Provide support for mobile Forward Arming and Refueling Points (FARPS).

f. (UJTL TA 4.4) Conduct Joint Logistics Over-The-Shore Operations (JLOTS)

g. (UJTL TA 6.2) Conduct Joint Personnel Recovery  
- Conduct Tactical Recovery of Aircraft and Personnel (TRAP) operations.  
- Augment local Search and Rescue (SAR) assets.

h. (UJTL TA 6.4) Conduct Noncombatant Evacuation  
- Provide support for evacuation operations.

3. Table of Organization. Refer to Table of Organization 8960 managed by Total Force Structure, MCCDC, for current authorized organizational structure and personnel strength for CH-53E units. As of this publication date, CH-53E units are authorized:

SQUADRON

16 Aircraft  
 38 Pilots  
 26 Crew Chiefs  
 26 Aerial Observers/Aerial Gunners

RESERVE SQUADRON

8 Aircraft  
 18 Pilots  
 13 Crew Chiefs  
 13 Aerial Observers/Aerial Gunners

DETACHMENT

4 Aircraft  
 8 Pilots  
 6 Crew Chiefs  
 6 Aerial Observers/Aerial Gunners

4. Core Capability. A core capable CH-53 unit is able to sustain the number of sorties listed below on a daily basis during contingency/combat operations. The sortie rates are based on 1.8 hour average sortie duration and assumes  $\geq$  70 percent FMC aircraft and  $\geq$  90 percent T/O aircrew on hand. If unit FMC aircraft  $<$  70 percent or T/O aircrew  $<$  90 percent, core capability will be degraded by a like percentage. A core capable unit is able to accomplish all tasks designated in the unit METL from a main base, expeditionary base, or amphibious platform.

a. Core Capable Squadron. A core capable CH-53E squadron is able to sustain 27 sorties.

b. Core Capable Reserve Squadron. A core capable Reserve squadron is able to sustain 14 sorties.

c. Core Capable Squadron (-). A core capable squadron (-) is able to sustain 21 sorties.

d. Core Capable Detachment. A core capable detachment is able to sustain 7 sorties.

5. METL/Core Skill Matrix. CH-53E core skills directly support the METL as follows:

METL	CH-53E CORE SKILL											CORE PLUS CQ
	FORM	CAL	TERF	EXT	DM	AR	TAC	AG	HLL	LLL		
a. Conduct Shipboard Deck Landing Qualifications	X	X								X	X	X
b. Conduct Sea and Air Deployment Operations	X	X	X	X	X	X	X	X	X	X	X	X
c. Conduct Air Assault Operations and Air Assault	X	X	X	X	X	X	X	X	X	X	X	X
d. Conduct Amphibious Assault and Raid Operations	X	X	X	X	X	X	X	X	X	X	X	X
e. Distribute Supplies and Provide Transport Service	X	X	X	X	X	X	X	X	X	X	X	X
f. Conduct Joint Logistics Over-The-Shore Operations (JLOTS)	X	X	X	X	X	X	X	X	X	X	X	X

g. Conduct Joint Personnel Recovery	X	X	X		X	X	X	X	X	X	X
h. Conduct Noncombatant Evacuation	X	X	X		X	X	X	X	X	X	X

6. CH-53E Core Model Minimum Requirements (CMMR). Squadron core competency reflects the minimum level of competency a squadron must achieve to perform its core capability. Squadron Core Skill Proficiency (CSP) is measured per below:

a. Minimum Unit CSP Requirements. As a minimum, in order to be considered Core Competent, a unit must possess the following numbers of crews who are proficient in each core skill (Unit CSP). In order to be considered proficient in a core skill (individual CSP), a crewmember must attain and maintain proficiency in core skill events, as delineated in paragraphs (1) and (2) below. The standard CH-53E crew consists of 2 Pilots, a Crew Chief, and an AO/AG. Crew Chief surpluses may be used to satisfy AO requirements. \* NOTE: CQ is a core plus skill. Proficiency in CQ is not required to obtain unit CSP. Below are CH-53E community recommended unit/individual CSP standards for CQ.

CH-53E Unit CSP Requirements Squadron				
CORE SKILL *CORE PLUS	Pilots	Crew Chiefs	AO/AGs	Crews
FORM	24	12	12	12
CAL	24	12	12	12
TERF	24	12	12	12
EXT	24	12	12	12
DM	16	8	8	8
AR	12	-	-	6
TAC	16	8	8	8
AG	16	8	8	8
HLL	24	12	12	12
LLL	16	8	8	8
*CQ	18	9	9	9

CH-53E Unit CSP Requirements Squadron (-) (less 4 plane detachment)				
CORE SKILL *CORE PLUS	Pilots	Crew Chiefs	AO/AGs	Crews
FORM	16	8	8	8
CAL	16	8	8	8
TERF	16	8	8	8
EXT	16	8	8	8
DM	8	4	4	4
AR	8	-	-	4
TAC	8	4	4	4
AG	8	4	4	4
HLL	16	8	8	8
LLL	12	6	6	6
*CQ	10	5	5	5

CH-53E Unit CSP Requirements Reserve Squadron				
CORE SKILL *CORE PLUS	Pilots	Crew Chiefs	AO/AGs	Crews
FORM	12	6	6	6
CAL	12	6	6	6
TERF	12	6	6	6
EXT	12	6	6	6
DM	12	6	6	6
AR	6	-	-	3
TAC	6	3	3	3
AG	6	3	3	3
HLL	12	6	6	6
LLL	6	3	3	3
*CQ	12	6	6	6
CH-53E Unit CSP Requirements 4 Plane Detachment				
CORE SKILL *CORE PLUS	Pilots	Crew Chiefs	AO/AGs	Crews
FORM	8	4	4	4
CAL	8	4	4	4
TERF	8	4	4	4
EXT	8	4	4	4
DM	8	4	4	4
AR	4	-	-	2
TAC	4	4	4	2
AG	4	4	4	2
HLL	8	4	4	4
LLL	4	2	2	2
*CQ	8	4	4	4

(1) Events Required to Attain Individual CSP. To initially attain CSP, a crewmember must successfully complete all of the T&R events listed in the chart below for that core skill.

CH-53E Crew Chief	INT	FORM	CAL	TERF	EXT	DM	TAC	AG	HLL	LLL	CQ
T&R event requirements to attain competency	200	210	220	230	240	350	290	280	211	320	471
	201	211	221	231	241		291	281	222	321	472
			222	232	242		390	380	223	330	473
			223	233	243		391	381	232	331	474
					341				233	342	475
					343				291		476

CH-53E AO/AG	INT	FORM	CAL	TERF	EXT	DM	TAC	AG	HLL	LLL	CQ
T&R event requirements to attain competency	200	210	220	230	240	350	290	280	211	320	471
	201	211	221	231	241		291	281	222	321	472
			222	232	242		390	380	223	330	473
			223	233	243		391	381	232	331	474
					341				233	342	475
					343				291		476

(2) Events Required to Maintain Individual CSP. To maintain CSP, a crewmember must maintain proficiency in all of the T&R events listed in the chart below for that core skill.

T&R MANUAL, CH-53

CH-53E Crew Chief	INT	FORM	CAL	TERF	EXT	DM	TAC	AG	HLL	LLL	CQ
T&R event requirements to maintain competency	200 201	210 211	221 223	231 233	241 243 341 343	350	390 391	281 381	223 291	321 342 391	476

CH-53E AO/AG	INT	FORM	CAL	TERF	EXT	DM	TAC	AG	HLL	LLL	CQ
T&R event requirements to maintain competency	200 201	210 211	221 223	231 233	241 243 341 343	350	390 391	281 381	223 291	321 342 391	476

7. Qualifications And Designations Tables. The tables below delineate T&R events required to be completed to attain initial qualifications and designations. All stage lectures, briefs, squadron training and prerequisites shall be complete prior to completing final events. Qualification and designation letters signed by the commanding officer shall be placed in individual NATOPS and APR/MPR jackets. Loss of proficiency in all qualification events of a core skill causes the associated qualification to be lost. Regaining a qualification requires completing all R coded syllabus events associated with that qualification. Re-designation criteria shall be in accordance with T&R Program Manual and paragraph 130.4 of this Manual.

Qualification (TRACKING CODE)	Initial Event Qualification Requirements
TERF (615)	230, 231
DM (616)	250, 350, 450, 451
NSQ-HLL (617)	211, 222, 223, 232, 233, 291
NSQ-LLL (618)	320, 321, 330, 331, 391
AG	280, 281, 380, 381
TG	481, 482, 483

Designation (TRACKING CODE)	Designation Requirements
TERFI	IAW MAWTS-1 Course Catalog
DMI	IAW MAWTS-1 Course Catalog
NSI	IAW MAWTS-1 Course Catalog
ARI	520, 521
WTI	IAW MAWTS-1 Course Catalog
AGI (CC/AO)	IAW MAWTS-1 Course Catalog
TGI (CC)	IAW MAWTS-1 Course Catalog
NSFI	IAW MAWTS-1 Course Catalog

a. Instructor Requirements. A squadron should possess the following numbers of aircrew with the listed instructor designations IAW the CH-53 T&R and MCO 3500.12C (WTTP).

Squadron		
INSTRUCTOR DESIGNATION	Crew Chiefs	AO/AGs
TERFI	5	
DMI	3	
NSI	5	
WTI	3	
AGI		4*
TGI		2
ARI		-
*AO/AG designated as AGI's may be used to fulfill this requirement.		

Reserve Squadron		
INSTRUCTOR DESIGNATION	Crew Chiefs	AO/AGs
TERFI	3	
DMI	2	
NSI	3	
WTI	2	
AGI		3*
TGI		1
ARI		-

Squadron (-)		
INSTRUCTOR DESIGNATION	Crew Chiefs	AO/AGs
TERFI	3	
DMI	2	
NSI	4	
WTI	2	
AGI		3*
TGI		1
ARI		-
*AO/AG designated as AGI's may be used to fulfill this requirement.		

Detachment		
INSTRUCTOR DESIGNATION	Crew Chiefs	AO/AGs
TERFI	2	
DMI	1	
NSI	1	
WTI	1	
AGI		1*
TGI		1
ARI		-
*AO/AG designated as AGI's may be used to fulfill this requirement.		

201. MARINE HEAVY HELICOPTER SQUADRON (CH-53D) UNIT CORE COMPETENCY

1. HMH Mission. Support the MAGTF Commander by providing assault support transport of combat troops, supplies, and equipment, day or night under all weather conditions during expeditionary, joint or combined operations

2. Mission Essential Task List (METL)

- a. (UJTL TA 1.1.2) Conduct Shipboard Deck Helicopter Landing Qualifications
- b. (UJTL TA 1.1.4) Conduct Sea and Air Deployment Operations
  - Maintain the capability to deploy and operate from advanced bases, expeditionary airfields, Forward Operating Bases (FOBs), and naval shipping.
  - Maintain the capability to conduct extended range operations employing aerial refueling.
  - Perform organizational maintenance on assigned aircraft.
- c. (UJTL TA 1.2.1) Conduct Air Assault Operations and Air Assault
  - Provided assault support transport of heavy weapons, equipment, supplies, and combat troops using internal and/or external means.
  - Provide support for casualty evacuation operations.
  - Maintain self-defense capability from ground-to-air and air-to-air threats.
- d. (UJTL TA 1.2.3) Conduct Amphibious Assault and Raid Operations
  - Conduct assault support for maritime special operations.
- e. (UJTL TA 4.2) Distribute Supplies and Provide Transport Service
  - Conduct Aerial Re-supply.
  - Provide support for mobile Forward Arming and Refueling Points (FARPS).
- f. (UJTL TA 4.4) Conduct Joint Logistics Over-The-Shore Operations (JLOTS)
- g. (UJTL TA 6.2) Conduct Joint Personnel Recovery
  - Conduct Tactical Recovery of Aircraft and Personnel (TRAP) operations.
  - Augment local Search and Rescue (SAR) assets.
- h. (UJTL TA 6.4) Conduct Noncombatant Evacuation
  - Provide support for evacuation operations.

3. Table of Organization. Refer to Table of Organization 8950X managed by Total Force Structure, MCCDC, for current authorized organizational structure and personnel strength for CH-53D units. As of this publication date, CH-53D units are authorized:

SQUADRON  
10 Aircraft  
20 Pilots  
16 Crewchiefs  
16 Aerial Observers/Aerial Gunners

4. Core Capability. A core capable CH-53D unit is able to sustain 17 sorties listed below on a daily basis during contingency/combat operations.

The sortie rates are based on 1.5 hour average sortie duration and assumes  $\geq$  70 percent FMC aircraft and  $\geq$  90 percent T/O aircrew on hand. If unit FMC aircraft < 70 percent or T/O aircrew < 90 percent, core capability will be degraded by a like percentage. A core capable unit is able to accomplish all tasks designated in the unit METL from a main base, expeditionary base, or amphibious platform.

5. METL/Core Skill Matrix. CH-53D core skills directly support the METL as follows:

METL	CH-53D CORE SKILL										CORE PLUS
	FORM	CAL	TERF	EXT	DM	AR	TAC	AG	HLL	LLL	CQ
a. Conduct Shipboard Deck helicopter Landing Qualifications	X	X							X	X	X
b. Conduct Sea and Air Deployment Operations	X	X	X	X	X	X	X	X	X	X	X
c. Conduct Air Assault Operations and Air Assault	X	X	X	X	X	X	X	X	X	X	X
d. Conduct Amphibious Assault and Raid Operations	X	X	X	X	X	X	X	X	X	X	X
e. Distribute Supplies and Provide Transport Service	X	X	X	X	X	X	X	X	X	X	X
f. Conduct Joint Logistics Over-The-Shore Operations (JLOTS)	X	X	X	X	X	X	X	X	X	X	X
g. Conduct Joint Personnel Recovery	X	X	X	X	X	X	X	X	X	X	X
h. Conduct Noncombatant Evacuation	X	X	X		X	X	X	X	X	X	X

6. CH-53D Core Model Minimum Requirements. Squadron core competency reflects the minimum level of competency a squadron must achieve to perform its core capability. Squadron Core Skill Proficiency (CSP) is measured per below:

a. Minimum Unit CSP Requirements. As a minimum, in order to be considered Core Competent, a unit must possess the following numbers of crews who are proficient in each core skill (Unit CSP). In order to be considered proficient in a core skill (individual CSP), a crewmember must attain and maintain proficiency in core skill events, as delineated in paragraphs (1) and (2) below. The standard CH-53D crew consists of 2 Pilots, a Crew Chief, and an AO/AG.

\* NOTE: CQ is a core plus skill. Proficiency in CQ is not required to obtain unit CSP. Below are CH-53D community recommended unit/individual CSP standards for CQ.

CH-53D Unit CSP Requirements Squadron				
CORE SKILL *CORE PLUS	Pilots	Crew Chiefs	AO/AGs	Crews
FORM	8	4	4	4
CAL	8	4	4	4
TERF	8	4	4	4
EXT	8	4	4	4
DM	4	2	2	2
AG	8	4	4	4
TAC	4	2	2	2
HLL	8	4	4	4
LLL	4	2	2	2
*CQ	4	2	2	2

(1) Events Required to Attain Individual CSP. To initially attain CSP, a crewmember must successfully complete all of the T&R events listed in the chart below for that core skill.

CH-53D Crew Chief	INT	FORM	CAL	TERF	EXT	DM	TAC	AG	HLL	LLL	CQ
T&R event requirements to attain competency	200	210	220	230	240	350	290	280	211	320	471
	201	211	221	231	241		291	281	222	321	472
			222	232	242		390	380	223	330	473
			223	233	243		391	381	232	331	474
					341				233	342	475
					343				291		476

CH-53D AO/AG	INT	FORM	CAL	TERF	EXT	DM	TAC	AG	HLL	LLL	CQ
T&R event requirements to attain competency	200	210	220	230	240	350	290	280	211	320	471
	201	211	221	231	241		291	281	222	321	472
			222	232	242		390	380	223	330	473
			223	233	243		391	381	232	331	474
					341				233	342	475
					343				291		476

(2) Events Required to Maintain Individual CSP. To maintain CSP, a crewmember must maintain proficiency in all of the T&R events listed in the chart below for that core skill.

CH-53D Crew Chief	INT	FORM	CAL	TERF	EXT	DM	TAC	AG	HLL	LLL	
T&R event requirements to maintain competency	200	210	221	231	241	350	390	281	223	321	
	201	211	223	233	243		391	381	291	342	
					341						391
					343						

CH-53D AO/AG	INT	FORM	CAL	TERF	EXT	DM	TAC	AG	HLL	LLL	
T&R event requirements to maintain competency	200	210	221	231	241	350	390	281	223	321	
	201	211	223	233	243		391	381	291	342	
					341						391
					343						

7. Qualifications And Designations Tables. The tables below delineate T&R events required to be completed to attain initial qualifications and designations. All stage lectures, briefs, squadron training and prerequisites shall be complete prior to completing final events. Qualification and designation letters signed by the commanding officer shall be placed in individual NATOPS and APR/MPR jackets. Loss of proficiency in

all qualification events of a core skill causes the associated qualification to be lost. Regaining a qualification requires completing all R coded syllabus events associated with that qualification. Re-designation criteria shall be in accordance with MCO P3500.14 and paragraph 130.4 of this Manual.

Qualification (TRACKING CODE)	Initial Event Qualification Requirements
TERF (615)	230,331
DM (616)	250,350,450,451
NSQ-HLL (617)	211,222,223,232,233,291
NSQ-LLL (618)	320,321,330,331,391
AG	280,281,380,381

Designation (TRACKING CODE)	Designation Requirements
TERFI	IAW MAWTS-1 Course Catalog
DMI	IAW MAWTS-1 Course Catalog
NSI	IAW MAWTS-1 Course Catalog
WTI	IAW MAWTS-1 Course Catalog
AGI (CC/AO)	IAW MAWTS-1 Course Catalog

a. Instructor Requirements. A squadron should possess the following numbers of aircrew with the listed instructor designations IAW the CH-53 T&R and MCO 3500.12C (WTTP).

Squadron		
INSTRUCTOR DESIGNATION	Crew Chiefs	AO/AGs
TERFI	3	
DMI	1	
NSI	3	
WTI	1	
AGI		1*
TGI		1

202. PROGRAM OF INSTRUCTION (POI) FOR BASIC AND TRANSITION CREW CHIEF

<u>WEEKS</u>	<u>COURSE/PHASE</u>	<u>ACTIVITY</u>
1	CH-53D or CH-53E Familiarization	FRS
2-5	Ground Schools	Training Squadron
6-17	Core Skill Introduction Phase	Training Squadron
	Core Skill Basic Phase	Tactical Squadron
	Core Skill Advanced Phase	Tactical Squadron
	Core Skill Plus Phase	Tactical Squadron

203. POI FOR CONVERSION CREW CHIEF

<u>WEEKS</u>	<u>COURSE/PHASE</u>	<u>ACTIVITY</u>
1	CH-53D or CH-53E Familiarization	FRS
2-4	Ground Schools/OJT	Training Squadron
5-15	Core Skill Introduction Phase	Training Squadron
	Core Skill Basic Phase	Tactical Squadron
	Core Skill Advanced Phase	Tactical Squadron
	Core Skill Plus Phase	Tactical Squadron

204. POI FOR REFRESHER AND SERIES CONVERSION CREW CHIEF

<u>WEEKS</u>	<u>COURSE/PHASE</u>	<u>ACTIVITY</u>
1	CH-53D or CH-53E Familiarization	Tactical Squadron
2-4	Ground Schools/OJT	Tactical Squadron
5-12	Core Skill Introduction Phase	Training Squadron
	Core Skill Basic Phase	Tactical Squadron
	Core Skill Advanced Phase	Tactical Squadron
	Core Skill Plus Phase	Tactical Squadron

205. POI FOR BASIC, TRANSITION, CONVERSION, REFRESHER AND SERIES CONVERSION AERIAL GUNNER/OBSERVER

<u>WEEKS</u>	<u>COURSE/PHASE</u>	<u>ACTIVITY</u>
1-2	Ground School	Tactical Squadron
3-15	Core Skill Introduction Phase	Training Squadron
	Core Skill Basic Phase	Tactical Squadron
	Core Skill Advanced Phase	Tactical Squadron
	Core Skill Plus Phase	Tactical Squadron

210. GROUND TRAINING COURSES OF INSTRUCTION

<u>COURSE</u>	<u>ACTIVITY</u>
SERE School	Jt Training Course
CH-53D/E Power Plants and Related/Rotors	NAMTRA MARU
Appropriate Aerial Gunnery School	Group/Squadron
Aviation Physiology/Aviation Water Survival	Aviation Physiology Unit

211. AIRCREW TRAINING REFERENCES. Aircrews shall use the following references to ensure safe and standardized training and maintenance procedures, grading criteria, and aircraft operation:

<u>Designator</u>	<u>Title</u>
OPNAVINST 3710.7	NATOPS General Flight and Operations
NAVAIR 01-230-HMA-1	CH-53A/D NATOPS Flight Manual
NAVAIR A1-H53BE-NFM-000	CH-53E NATOPS Flight Manual
MCO P3500.14	T&R Program Manual
MCO P4790.12	Individual Training Standards System (MATMEP)
MCO 3501.4	Marine Corps Combat Readiness and Evaluation System
OPNAVINST 4790.2	Naval Aviation Maintenance Program
Support Package	MAWTS-1 Course Catalog
Support Package	MAWTS-1 Enlisted Aircrew Academic
NAVAIR 00-80T-106	LHA/LPH/LHD NATOPS Manual
NWP-42	Shipboard Helicopter Operations Manual
NWP 55-9-CH53	CH-53 Tactical Manual

212. SQUADRON LEVEL TRAINING. The following references/lectures are covered on an as required basis during the various levels of air/ground training:

NATOPS Manual  
 CH-53 TAC Manual  
 Publications and Related Directives  
 Communications Procedures  
 Fueling and Servicing  
 Ground Handling  
 Helicopter Loading/Equipment Storage  
 Maintenance Procedures and Troubleshooting  
 Safety  
 Survival and First Aid  
 Aerial Gunnery Training  
 Aerial Delivery  
 CH-53 FARP  
 External Operations  
 Helicopter Insertion/Extraction Operations  
 MAGTF Organization/Equipment  
 MAGTF: The Amphibious Assault  
 Map Reading  
 Night Vision Systems  
 Night Vision Techniques  
 Rappel Operations  
 Rope Suspension Training

Search and Rescue  
Shipboard Operations and Procedures  
Terrain Flight Introduction  
Terrain Flight External  
TRAP  
Tactical Briefing/Debriefing  
AN/ALE-39 Programming (S)  
APR-39 Trainer (15E36) (S)  
Helo ESM/ECM Equipment (S)  
Countering the FW Threat  
Counter Surface-to-Air Threats (S)  
Countering the RW Threat (S)  
Helicopter Defensive Measures  
NBC Threat(S)  
Recognition Training  
Soviet model IADS  
Tactical Formation Maneuvering  
Tactical Crew Resource Management Responsibilities

220. FLIGHT TRAINING FOR BASIC AND TRANSITION CREW CHIEF1. Core Skill Introduction Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>	<u>CRP PERCENT</u>
Familiarization	8	12.0	26.0
Internal Loads	3	4.5	6.0
Formation	2	3.0	4.0
Confined Area Landings	3	4.5	6.0
External Loads	4	5.0	12.0
Terrain Flight	1	1.5	4.0
Core Skill Introduction Check	<u>1</u>	<u>1.5</u>	<u>2.0</u>
TOTAL FOR PHASE	22	32.0	60.0
ACCUMULATION FOR BASIC/TRANSITION POI	22	32.0	60.0

2. Core Skill Basic Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>	<u>CRP PERCENT</u>
Internal Loads	2	2.0	1.0
Formation	2	3.5	1.0
Confined Area Landings	4	6.5	3.0
Terrain Flight	4	7.0	3.0
External Loads	4	6.0	4.0
Air-to-Ground	2	3.0	1.0
Tactics	<u>2</u>	<u>4.0</u>	<u>2.0</u>
TOTAL FOR PHASE	20	32.0	15.0
ACCUMULATION FOR BASIC/TRANSITION POI	42	64.0	75.0

3. Core Skill Advanced Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>	<u>CRP PERCENT</u>
Confined Area Landings	2	3.5	3.0
Terrain Flight	2	4.0	3.0
External Loads	3	4.5	5.5
Defensive Measures	1	2.0	1.0
Air-to-Ground Gunnery and Qualification	2	2.0	3.5
Tactics	<u>2</u>	<u>4.0</u>	<u>4.0</u>
TOTAL FOR PHASE	12	20.0	20.0
ACCUMULATION FOR BASIC/TRANSITION POI	54	84.0	95.0

4. Core Plus Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>	<u>CRP PERCENT 53E/53D</u>
Helicopter Insert/Extract Techniques	3	4.5	0.75/0.75
Internal Loads	1	2.0	0.25/0.0
Defensive Measures	2	1.0	0.50/0.50
Nuclear, Biological, and Chemical	1	1.0	0.25/0.25
Field Carrier Landing Practice	3	3.0	0.75/0.75
Carrier Qualification	3	4.5	0.75/0.75
Moving Target Gunnery	1	1.5	0.5/0.5
Tail Gunnery	3	3.0	0.75/0.75
Tactics	<u>2</u>	<u>4.0</u>	<u>0.5/0.75</u>
TOTAL FOR PHASE	19	24.5	5.0/5.0
TOTAL FOR BASIC/TRANSITION POI	73	108.5	100.0

221. FLIGHT TRAINING FOR CONVERSION CREW CHIEF1. Core Skill Introduction Phase

<u>STAGE</u>	No. <u>FLIGHTS</u>	No. <u>HOURS</u>
Familiarization	3	4.5
Internal Loads	1	1.5
Confined Area Landings	2	3.0
External Loads	4	5.0
Core Skill Introduction Check	<u>1</u>	<u>1.5</u>
TOTAL FOR PHASE	11	15.5
ACCUMULATION FOR CONVERSION POI	11	15.5

2. Core Skill Basic Phase

<u>STAGE</u>	No. <u>FLIGHTS</u>	No. <u>HOURS</u>
Internal Loads	2	2.0
Formation	2	3.5
Confined Area Landings	2	3.5
Terrain Flight	2	3.5
External Loads	4	6.0
Air-to-Ground	2	3.0
Tactics	<u>1</u>	<u>2.0</u>
TOTAL FOR PHASE	15	23.5
ACCUMULATION FOR CONVERSION POI	26	39.0

3. Core Skill Advanced Phase

<u>STAGE</u>	No. <u>FLIGHTS</u>	No. <u>HOURS</u>
Confined Area Landings	2	3.5
Terrain Flight	2	4.0
External Loads	3	4.5
Defensive Measures	1	2.0
Air-to-Ground Gunnery and Qualification	2	4.0
Tactics	<u>2</u>	<u>4.0</u>
TOTAL FOR PHASE	12	22.0
ACCUMULATION FOR CONVERSION POI	38	61.0

4. Core Plus Phase

<u>STAGE</u>	No. <u>FLIGHTS</u>	No. <u>HOURS</u>
Helicopter Insertion/Extraction Techniques	3	4.5
Internal Loads	1	2.0
Defensive Measures	2	1.0
Field Carrier Landing Practice	1	1.0
Carrier Qualification	3	4.5
Moving Target Gunnery	1	1.5
Tail Gunnery	3	3.0
Tactics	<u>1</u>	<u>2.0</u>
TOTAL FOR PHASE	15	19.5
TOTAL FOR CONVERSION POI	53	80.5

222. FLIGHT TRAINING FOR REFRESHER CREW CHIEF1. Core Skill Introduction Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Familiarization	2	3.0
Confined Area Landings	2	3.0
External Loads	2	3.0
Core Skill Introduction Check	<u>1</u>	<u>1.5</u>
TOTAL FOR PHASE	7	10.5
ACCUMULATION FOR REFRESHER POI	7	10.5

2. Core Skill Basic Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Formation	1	2.0
Confined Area Landings	2	3.5
Terrain Flight	2	3.5
External Loads	4	6.0
Air-to-Ground	2	3.0
Tactics	<u>1</u>	<u>2.0</u>
TOTAL FOR PHASE	12	20.0
ACCUMULATION FOR REFRESHER POI	19	30.5

3. Core Skill Advanced Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Confined Area Landings	1	2.0
Terrain Flight	1	2.0
External Loads	3	4.5
Defensive Measures	1	2.0
Air-to-Ground Gunnery and Qualification	2	2.0
Tactics	<u>2</u>	<u>4.0</u>
TOTAL FOR PHASE	10	16.5
ACCUMULATION FOR REFRESHER POI	29	47.0

4. Core Plus Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Helicopter Insert/Extract Techniques	3	4.5
Internal Loads	1	2.0
Defensive Measures	2	1.0
Nuclear, Biological, and Chemical	1	1.0
Field Carrier Landing Practice	3	3.0
Carrier Qualification	3	4.5
Moving Target Gunnery	1	1.5
Tail Gunnery	3	3.0
Tactics	<u>2</u>	<u>4.0</u>
TOTAL FOR PHASE	19	24.5
TOTAL FOR REFRESHER POI	48	71.5

223. FLIGHT TRAINING FOR SERIES CONVERSION CREW CHIEF1. Core Skill Introduction Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Familiarization	1	1.5
Confined Area Landings	2	3.0
External Loads	2	3.0
Core Skill Introduction Check	<u>1</u>	<u>1.5</u>
TOTAL FOR PHASE	<u>6</u>	<u>9.0</u>
ACCUMULATION FOR SERIES CONVERSION POI	6	9.0

2. Core Skill Basic Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Confined Area Landings	2	3.5
Terrain Flight	2	3.5
External Loads	<u>4</u>	<u>6.0</u>
TOTAL FOR PHASE	<u>8</u>	<u>13.0</u>
ACCUMULATION FOR SERIES CONVERSION POI	14	22.0

3. Core Skill Advanced Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Confined Area Landings	1	2.0
Terrain Flight	1	2.0
External Loads	<u>3</u>	<u>4.5</u>
TOTAL FOR PHASE	<u>5</u>	<u>8.5</u>
ACCUMULATION FOR SERIES CONVERSION POI	19	30.5

4. Core Plus Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Helicopter Insert/Extract Techniques	3	4.5
Internal Loads	1	2.0
Tactics	<u>1</u>	<u>2.0</u>
TOTAL FOR PHASE	<u>5</u>	<u>8.5</u>
TOTAL FOR SERIES CONVERSION POI	24	39.0

224. FLIGHT TRAINING FOR CREW CHIEF INSTRUCTOR TRAINING

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Formation	2	2.0
Confined Area Landings	2	2.0
Terrain Flight	1	1.0
Externals	2	2.0
IUT STANDARDIZATION CHECKRIDE	<u>1</u>	<u>1.0</u>
TOTAL	<u>8</u>	<u>8.0</u>

225. FLIGHT TRAINING FOR AERIAL OBSERVER CONVERSION TO CREW CHIEF1. Core Skill Introduction Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Familiarization	3	4.5
Internal Loads	3	4.5
Confined Area Landings	2	3.0
External Loads	4	5.0
Terrain Flight	1	2.0
Core Skill Introduction Check	1	1.5
TOTAL FOR PHASE	14	20.5
ACCUMULATION FOR OBSERVER CONVERSION POI	14	20.5

2. Core Skill Basic Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Internal Loads	2	2.0
Confined Area Landings	1	1.5
Terrain Flight	2	3.5
External Loads	4	6.0
Tactics	1	2.0
TOTAL FOR PHASE	10	15.0
ACCUMULATION FOR OBSERVER CONVERSION POI	24	35.5

3. Core Skill Advanced Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Confined Area Landings	1	2.0
Terrain Flight	1	2.0
External Loads	3	4.5
Defensive Measures	1	2.0
Tactics	1	2.0
TOTAL FOR PHASE	7	12.5
ACCUMULATION FOR OBSERVER CONVERSION POI	31	48.0

4. Core Plus Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Helicopter Insert/Extract Techniques	3	4.5
Internal Loads	1	2.0
Field Carrier Landing Practice	2	2.0
Carrier Qualification	3	4.5
Tactics	1	2.0
TOTAL FOR PHASE	10	15.0
TOTAL FOR OBSERVER CONVERSION POI	41	63.0

226. FLIGHT TRAINING FOR BASIC AND TRANSITION AERIAL GUNNER/OBSERVER1. Core Skill Introduction Phase

<u>STAGE</u>	<u>No.</u> <u>FLIGHTS</u>	<u>No.</u> <u>HOURS</u>	<u>CRP</u> <u>PERCENT</u>
Familiarization	3	4.5	15.0
Formation	2	3.0	10.0
Confined Area Landings	2	3.0	10.0
External Loads	4	5.0	18.0
Terrain Flight	1	1.5	5.0
Core Skill Introduction Check	<u>1</u>	<u>1.5</u>	<u>2.0</u>
TOTAL FOR PHASE	13	18.5	60.0
ACCUMULATION FOR BASIC/TRANSITION POI	13	18.5	60.0

2. Core Skill Basic Phase

<u>STAGE</u>	<u>No.</u> <u>FLIGHTS</u>	<u>No.</u> <u>HOURS</u>	<u>CRP</u> <u>PERCENT</u>
Internal Loads	2	2.0	1.0
Formation	2	3.5	1.0
Confined Area Landings	4	6.5	3.0
Terrain Flight	4	7.0	3.0
External Loads	4	6.0	4.0
Air-to-Ground	2	3.0	1.0
Tactics	<u>2</u>	<u>4.0</u>	<u>2.0</u>
TOTAL FOR PHASE	20	32.0	15.0
ACCUMULATION FOR BASIC/TRANSITION POI	33	50.5	75.0

3. Core Skill Advanced Phase

<u>STAGE</u>	<u>No.</u> <u>FLIGHTS</u>	<u>No.</u> <u>HOURS</u>	<u>CRP</u> <u>PERCENT</u>
Confined Area Landings	2	3.5	3.0
Terrain Flight	2	4.0	3.0
External Loads	3	4.5	5.6
Defensive Measures	1	2.0	1.0
Air-to-Ground Gunnery and Qualification	2	2.0	3.5
Tactics	<u>2</u>	<u>4.0</u>	<u>4.0</u>
TOTAL FOR PHASE	12	20.0	20.0
ACCUMULATION FOR BASIC/TRANSITION POI	45	70.5	95.0

4. Core Plus Phase

<u>STAGE</u>	<u>No.</u> <u>FLIGHTS</u>	<u>No.</u> <u>HOURS</u>	<u>CRP</u> <u>PERCENT</u> 53E/53D
Helicopter Insert/Extract Techniques	3	4.5	0.75/0.75
Internal Loads	1	2.0	0.25/0.0
Defensive Measures	2	1.0	0.50/0.50
Nuclear, Biological, and Chemical	1	1.0	0.25/0.25
Field Carrier Landing Practice	3	3.0	0.75/0.75
Carrier Qualification	3	4.5	.75/.75
Moving Target Gunnery	1	1.5	0.5/0.5
Tail Gunnery	3	3.0	.75/.75
Tactics	<u>2</u>	<u>4.0</u>	<u>0.5/0.75</u>
TOTAL FOR PHASE	19	24.5	5.0/5.0
TOTAL FOR BASIC/TRANSITION POI	64	95.0	100.0

227. FLIGHT TRAINING FOR CONVERSION AERIAL GUNNER/OBSERVER1. Core Skill Introduction Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Familiarization	2	3.0
Confined Area Landings	1	1.5
External Loads	4	5.0
Core Skill Introduction Check	<u>1</u>	<u>1.5</u>
TOTAL FOR PHASE	8	11.0
ACCUMULATION FOR CONVERSION POI	8	11.0

2. Core Skill Basic Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Internal	2	2.0
Formation	2	3.5
Confined Area Landings	2	3.5
Terrain Flight	2	3.5
External Loads	4	6.0
Air-to-Ground	2	3.0
Tactics	<u>1</u>	<u>2.0</u>
TOTAL FOR PHASE	15	23.5
ACCUMULATION FOR CONVERSION POI	23	34.5

3. Core Skill Advanced Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Confined Area Landings	2	3.5
Terrain Flight	2	4.0
External Loads	3	4.5
Defensive Measures	1	2.0
Air-to-Ground Gunnery and Qualification	2	2.0
Tactics	<u>2</u>	<u>4.0</u>
TOTAL FOR PHASE	12	20.0
ACCUMULATION FOR CONVERSION POI	35	54.5

4. Core Plus Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Helicopter Insert/Extract Techniques	3	4.5
Internal Load (TBFDS)	1	2.0
Defensive Measures	2	1.0
Field Carrier Landing Practice	2	2.0
Carrier Qualification	2	3.0
Moving Target Gunnery	1	1.5
Tail Gunnery	3	3.0
Tactics	<u>1</u>	<u>2.0</u>
TOTAL FOR PHASE	15	19
TOTAL FOR CONVERSION POI	50	73.5

228. FLIGHT TRAINING FOR REFRESHER AERIAL GUNNER/OBSERVER1. Core Skill Introduction Phase

<u>STAGE</u>	No. <u>FLIGHTS</u>	No. <u>HOURS</u>
Familiarization	2	3.0
Confined Area Landings	1	1.5
External Loads	2	3.0
Core Skill Introduction Check	<u>1</u>	<u>1.5</u>
TOTAL FOR PHASE	6	8.0
ACCUMULATION FOR REFRESHER POI	6	8.0

2. Core Skill Basic Phase

<u>STAGE</u>	No. <u>FLIGHTS</u>	No. <u>HOURS</u>
Formation	1	1.5
Confined Area Landings	2	3.5
Terrain Flight	2	3.5
External Loads	4	6.0
Air-to-Ground	2	3.0
Tactics	<u>1</u>	<u>2.0</u>
TOTAL FOR PHASE	12	19.5
ACCUMULATION FOR REFRESHER POI	18	27.5

3. Core Skill Advanced Phase

<u>STAGE</u>	No. <u>FLIGHTS</u>	No. <u>HOURS</u>
Confined Area Landings	1	2.0
Terrain Flight	1	2.0
External Loads	3	4.5
Defensive Measures	1	2.0
Air-to-Ground Gunnery and Qualification	2	2.0
Tactics	<u>2</u>	<u>4.0</u>
TOTAL FOR PHASE	10	16.5
ACCUMULATION FOR REFRESHER POI	28	44.0

4. Core Plus Phase

<u>STAGE</u>	No. <u>FLIGHTS</u>	No. <u>HOURS</u>
Helicopter Insert/Extract Techniques	3	4.5
Internal Load (TBFDs)	1	2.0
Defensive Measures	2	1.0
Field Carrier Landing Practice	2	2.0
Carrier Qualification	2	3.0
Moving Target Gunnery	1	1.5
Tail Gunnery	3	3.0
Tactics	<u>2</u>	<u>4.0</u>
TOTAL FOR PHASE	13	21.0
TOTAL FOR REFRESHER POI	41	65.0

229. FLIGHT TRAINING FOR SERIES CONVERSION AERIAL GUNNER/OBSERVER

1. Core Skill Introduction Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Familiarization	1	1.5
Confined Area Landings	2	3.0
External Loads	2	3.0
Core Skill Introduction Check	<u>1</u>	<u>1.5</u>
TOTAL FOR PHASE	<u>6</u>	<u>9.0</u>
ACCUMULATION FOR SERIES CONVERSION POI	6	9.0

2. Core Skill Basic Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Confined Area Landings	2	3.5
Terrain Flight	2	3.5
External Loads	<u>4</u>	<u>6.0</u>
TOTAL FOR PHASE	<u>8</u>	<u>13.0</u>
ACCUMULATION FOR SERIES CONVERSION POI	14	22.0

3. Core Skill Advanced Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Confined Area Landings	1	2.0
Terrain Flight	1	2.0
External Loads	<u>3</u>	<u>4.5</u>
TOTAL FOR PHASE	<u>5</u>	<u>8.5</u>
ACCUMULATION FOR SERIES CONVERSION POI	19	30.5

4. Core Plus Phase

<u>STAGE</u>	<u>No. FLIGHTS</u>	<u>No. HOURS</u>
Helicopter Insert/Extract Techniques	3	4.5
Internal Loads (TBFDS)	1	2.0
Tactics	<u>1</u>	<u>2.0</u>
TOTAL FOR PHASE	<u>5</u>	<u>8.5</u>
TOTAL FOR SERIES CONVERSION POI	24	39.0

229.1. EVALUATION FLIGHT

<u>STAGE</u>	<u>FLIGHTS</u>	<u>HOURS</u>
Annual NATOPS Evaluation	<u>1</u>	<u>1.5</u>
TOTAL	<u>1</u>	<u>1.5</u>

230. FLIGHT PERFORMANCE REQUIREMENTS

1. Purpose. To become familiar with aircraft limitations, operating and emergency procedures; demonstrate a knowledge of the NATOPS Manual, the ability to use all maintenance publications and safety regulations pertinent to flight operations and maintenance procedures.

2. General

a. This Manual generalizes mission guidance to allow for varying local conditions and allows this Manual to 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.

b. This Manual designs the Core Skill Introduction training phase for an instructor and trainee to maximize training and to minimize syllabus support hours.

c. All events shall terminate with a comprehensive debrief with emphasis on aircrew performance using all evaluation techniques.

d. Aircrew shall fly events annotated with an N at least 30 minutes after official sunset. Aircrew may fly events annotated with (N) at night.

e. Aircrew shall fly events annotated with an NS with Night Vision Goggles for the entire flight. Aircrew may fly events annotated with (NS) using NVDs.

f. A Crew Chief Under Instruction (CCUI) shall complete the appropriate Fleet Replacement Enlisted Skills Training (FREST) ground school instruction prior to commencement of flight training.

3. Syllabus Assignment. Basic and Transition crew chiefs (CC) and aerial gunner/observers (AG/O) will be assigned to fly the entire syllabus. Conversion, Refresher, and Series Conversion (i.e. 53E to 53D) CCs and AGOs will fly those events designated by a C, R or S respectively in the flight description (CC center of page and AG/O to the right). AGOs converting to secondary MOS CC shall complete those events designated by an O. AG/Os that are NATOPS designated and are converting to secondary MOS CCs will fly all prescribed 100 series flights with an appropriate squadron level Crew Chief Instructor (CCI). A CCI is considered qualified upon completion of appropriate 500 level series training IAW this Chapter and/or the MAWTS-1 Course Catalog. Previous AG/O designations (TERF, NSQ, DM) do not convert to CC qualifications. The squadron training officer shall enter all Aircrew Training Forms (ATF) in section 3 of the APR for all flights designated by C, R or O in the flight description. These ATFs will replace ATFs previously entered in section 3. Figures 2-1/2-2 show reflly interval and combat readiness percentages.

4. Prior Qualification. Previously qualified CH-53 CCs and AGOs returning from a non-flying tour will fly the appropriate Refresher POI.

5. Aircrew Training Events

a. All CCs and AGOs shall have an evaluation form filled out upon completion of the following:

(1) Core Skill Introduction Check (CSIX-191). A designated FRS CCI shall evaluate the CSIX-191. This event is considered the initial NATOPS evaluation.

(2) Annual NATOPS Check (EVAL-600). A designated NATOPS instructor/assistant or evaluator shall evaluate the EVAL-600.

(3) Any initial flight not requiring an instructor. A CC who is proficient in that sortie shall evaluate and complete an ATF.

(4) Any sortie that requires an NSI, AGI, TERFI or DMI.

b. If the commanding officer has waived or deferred a syllabus sortie, the squadron training officer shall place a waiver or deferment letter in section 3 of the APR.

c. All ATFs shall annotate the appropriate crew position under instruction.

6. Crew Resource Management (CRM). Aircrew shall brief techniques and aspects of CRM for all flights and/or events. The CC will always be alert for other aircraft or obstacles to flight. He will supervise internal loading at the direction of the pilot, verbally direct the pilot during external hookups and releases, and supervise the embarkation and debarkation of passengers. The CC may detect system failures before the pilot and must inform him of potential malfunctions. He can effect minor airborne repairs and supervise any additional crew members that the mission may require.

### 231. CORE SKILL INTRODUCTION PHASE

#### 1. Familiarization (FAM)

a. Purpose. To familiarize the aircrew with CH-53 operations and procedures.

#### b. General

(1) Aircrew may fly these flights in conjunction with the pilot syllabus. All NS flights must be flown under ambient light conditions of .0022 LUX or greater. The aircrew should complete all appropriate familiarization stage flights prior to flying any subsequent flights.

(2) Instructors shall be a CCI or CCNSI for FAM-121 if flown with NVDs, FAM-122, FORM-153, CAL-163 EXT-171, and EXT-173.

c. Crew Requirement. CCI/CCUI or CCI/AOUI. AOUI flies FAM-110, FAM-120, and FAM-122.

d. Training Prerequisite. Aircrew must complete their physical, Naval Aviation Water Survival Training Program (NAWSTP), Naval Aviation Physiology Training Program (NAPTP) prior to FAM-110.

#### e. Ground Training

(1) Publications and related directives.

(2) Safety.

(3) Ground handling.

(4) CRM.

(5) Night Imaging and Threat Evaluation (NITE) Lab Instruction.

(6) Fueling and servicing.

(7) Helicopter loading and equipment storage.

(8) Maintenance procedures and troubleshooting.

f. Flight Training. (8 Flights, 12.0 Hours).

FAM-110

1.5

C,R,S 1 CH-53

Goal. Introduce CH-53 aircrew duties.

Requirement

Discuss:

Engine compartment fire on the ground.  
APP fire.  
Fuselage fire.  
Electrical fire.  
Engine post shutdown fire.  
Fire fighting equipment operation.  
Hand and arm signals for fires.

Demonstrate:

System troubleshooting.  
Proper use of aircrew pocket checklist.

Introduce:

Preflight.  
Starting.  
Taxi directions.  
Lookout doctrine.  
Servicing.  
Post flight.  
Turnaround inspection.  
Emergency egress procedures.

Performance standards. Exhibit basic understanding of CH-53 aircrew duties.

Prerequisite. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

FAM-111

1.5

1 CH-53

Goal. Practice CH-53 CC duties.

Requirement

Discuss:

Ramp operation.  
Single, dual, and total engine failures on takeoff and landing.  
Emergency water operation.  
Flotation equipment and inflation procedures.  
Ditching/abandoning aircraft.  
Search and rescue scanning and sighting techniques.  
Vibrations.  
Landing gear system failure.

Introduce:

Blade and pylon fold procedures.

Systems troubleshooting.  
Utility hoist operation, if equipped.  
System function checks.

Practice:  
Preflight and servicing.  
Turn-up.  
Taxi directions.  
Lookout doctrine.  
Shut down.  
Post flight.

Performance Standards. Demonstrate practice of CH-53 CC duties.

Prerequisite. N/A.

Ordnance. N/A.

External Syllabus Support. N/A.

FAM-112                    1.5                    0 1 CH-53

Goal. CCUI practices CH-53 CC duties.

Requirement

Review:

Aircrew Pocket Checklist Emergency Procedures.  
Preflight and servicing.  
Turn-up.  
Taxi directions.  
Lookout doctrine.  
Shut down.  
Post flight.

Performance Standards. Demonstrate practice of CH-53 CC duties IAW applicable NATOPS.

Prerequisite. N/A.

Ordnance. N/A.

External Syllabus Support. N/A.

FAM-113                    1.5                    0 1 CH-53

Goal. CCUI reviews CH-53 CC duties.

Requirement

Review:

Emergency procedures.  
Duties of the CC.

Performance Standards. Demonstrate basic CRM skills.

Prerequisite. N/A.

Ordnance. N/A.

External Syllabus Support. N/A.

FAM-119

1.5                      1 CH-53 (N)

Goal. Progress review of basic CC skills.

Requirement

Discuss:

Aircraft refueling procedures.  
Aircraft tiedown.  
Turn-up and shutdown procedures.  
Emergency procedures.  
Systems troubleshooting.

Performance Standards. Demonstrate basic CC skills.

Prerequisite. FAM-113.

Ordinance. N/A.

External Syllabus Support. N/A.

FAM-120

1.5                      1 CH-53 N

Goal. Introduce aircrew duties during night operations in the CH-53.

Requirement

Discuss:

CH-53 lighting systems.  
Night vision techniques as contained in CH-53 TAC Manual.  
Airfield lighting.

Demonstrate:

Use of cargo tie down lights.  
Cargo loading lights.  
Emergency exit lights.  
Cabin lighting.

Introduce:

Night preflight.  
Turn-up.  
Taxi.  
Lookout doctrine.  
Shutdown.  
Post flight procedures.

Performance Standards. Demonstrate a basic knowledge of night operations in the CH-53.

Prerequisite. FAM-110, FAM-111, FAM-112 and FAM-113.

Ordinance. N/A.

External Syllabus Support. N/A.

FAM-121

1.5                      C      1   CH-53 N (NS)

Goal.   CCUI review CC duties at night.

Requirement

Discuss:

    Cabin heater function.

    Chill factor.

Review:

    Night preflight.

    Turn-up.

    Taxi.

    Lookout doctrine.

    Shutdown.

    Post flight procedures.

Performance Standards.   Upon completion of event CCUI shall demonstrate proficiency of above listed items.

Prerequisite.   FAM 113.

Ordnance.   N/A.

External Syllabus Support.   N/A.

FAM-122

1.5                      O,C,R   1   CH-53   NS

Goal.   Introduce the aircrew to NVD operations.

Requirement

Discuss:

    NVDs and CRM as contained in CH-53 TAC Manual.

Demonstrate:

    Use of NVD compatible cockpits.

    Effects of cultural/artificial lighting on NVDs.

Introduce:

    NVDs.

    Ground relationship.

    Obstacle clearance.

    Distance estimation.

    Depth perception.

    Shadowing effects.

Performance Standards.   Apply basic NVD operational skills as demonstrated in the NITE LAB.

Prerequisite.   FAM-113 and aircrew shall complete the NITE Lab.

Ordnance.   N/A.

External Syllabus Support.   N/A.

2. Internal Loads (INT)

a. Purpose. To introduce CC duties in loading, securing and unloading passengers, cargo and vehicles.

b. General

(1) Aircrew may fly these flights in conjunction with any stage of the pilot syllabus.

(2) Instructor shall be a CCI or CCNSI if NVDs are used.

c. Crew Requirement. CCI/CCUI. AOUI does not fly these events.

d. Ground Training. Appropriate sections of the A1-H53BE-GLG-000 (Cargo Loading Manual), NATOPS Flight Manual, and helicopter loading and equipment storage.

e. Flight Training. (3 Flights, 4.5 Hours).

INT-135                    1.5                    O,C,R,S                    1                    CH-53

Goal. Introduce CC duties during flights carrying internal cargo and/or vehicles.

Requirement

Discuss:

Safety regulations for loading and unloading cargo and vehicles.

Introduce:

Use of the cargo winch.  
Cargo and vehicle loading.  
Cargo Tiedown.  
Cargo unloading procedures.

Review:

Ramp operation.

Performance Standards. Demonstrate basic knowledge of cargo winch and loading systems IAW the applicable Cargo Loading Manual.

Prerequisite. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

INT-136                    1.5                    O                    1                    CH-53

Goal. Review CC duties during flights carrying internal cargo and/or vehicles.

Requirement

Demonstrate:

Use of the cargo winch.  
Cargo and/or vehicle loading.  
Cargo and/or vehicle unloading.

Performance Standards. Demonstrate proficiency using the cargo winch and loading systems IAW applicable NATOPS and Cargo Loading Manual.

Prerequisite. INT-135.

Ordinance. N/A.

External Syllabus Support. N/A.

INT-137

1.5                      O 1 CH-53 (N)(NS)

Goal. Introduce CC duties during passenger operations.

Requirement

Discuss:

Safety regulations.  
Required flight/safety equipment for passengers.  
Troops and litter patients over land and water.  
MEDEVAC mission categories.

Demonstrate:

Visual Aural Debark System (CH-53D only).

Introduce:

Passenger briefing.  
Embarking and debarking procedures.  
Proper litter attachment and securing.

Review:

Emergency passenger egress.  
Abandon and ditching aircraft procedures.

Performance standard. Conduct basic crew and passenger brief IAW the Aircrew Pocket Checklist.

Prerequisite. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

3. Formation (FORM)

a. Purpose. To familiarize the aircrew with responsibilities during formation flight with emphasis on CRM.

b. General

(1) Aircrew may fly this stage in conjunction with the formation stage of the pilot syllabus.

(2) Instructor shall be a CCI or CCNSI for FORM-153.

c. Crew Requirement. CCI/CCUI or CCI/AOUI. AOUI flies FORM-152 and FORM-153.

d. Flight Training. (2 Flights, 3.0 Hours).

FORM-152

1.5

2 CH-53

Goal. Introduce aircrew responsibilities during formation flight.

Requirement

Discuss:

Parade position.  
Formations.  
Closure rate.  
Hand and arm signals.  
In-flight emergency procedures.  
Standard terminology.

Performance Standards. Demonstrate a basic understanding and skill of formation flying IAW applicable NATOPS.

Prerequisite. FAM-113.

Ordinance. N/A.

External Syllabus Support. N/A.

FORM-153

1.5

2 CH-53 NS

Goal. Introduce aircrew responsibilities during NVD formation flight.

Requirement

Discuss:

Closure rate.  
Aircraft lighting.  
Light signals.  
Lookout responsibilities.  
Target fixation.  
Standard terminology.  
NVD considerations.

Performance Standards. Demonstrate basic understanding and skill of NVD formation flying IAW applicable NATOPS.

Prerequisite. FAM-122, FORM-152

Ordinance. N/A.

External Syllabus Support. N/A.

4. Confined Area Landings (CAL)

a. Purpose. To introduce the aircrew to duties when landing in confined areas.

b. General

(1) Aircrew may fly this stage in conjunction with the CAL stage in the pilot syllabus.

(2) Instructor shall be a CCI or CCNSI for CAL-163.

- c. Crew Requirement. CCI/CCUI or CCI/AOUI. AOUI flies CAL-161 and CAL-163.
- d. Ground Training
  - (1) Survival and First Aid.
  - (2) Communications Procedures.
- e. Flight Training. (3 Flights, 4.5 Hours).

CAL-161

1.5

1 CH-53

Goal. Introduce aircrew responsibilities during CALs.

Requirement

Discuss:

CALs.  
CRM.

Introduce:

Lookout doctrine.  
CRM.  
Main rotor, tail rotor, and aircraft fuselage clearances.  
Obstacle clearance during the approach, landing, and takeoff.  
Suitability of LZ terrain.  
Drift correction calls to the pilot prior to aircraft touchdown.

Performance Standards. Demonstrate basic knowledge of CALs IAW applicable NATOPS.

Prerequisite. FAM-113.

Ordinance. N/A.

External Syllabus Support. N/A.

CAL-162

1.5

O,C,R,S 1 CH-53

Goal. Practice CC responsibilities during CALs.

Requirement

Review:

CAL-161.

Discuss:

Landing gear system failures.  
Vibrations.  
Engine failures in flight.

Performance Standards. Demonstrate the ability to perform CALs IAW applicable NATOPS.

Prerequisite. CAL-161.

Ordinance. N/A.

External Syllabus Support. N/A.

CAL-163

1.5

O,C,R,S 1 CH-53 NS

Goal. Introduce aircrew responsibilities during CALs at night utilizing NVDs.

Requirement

Discuss:

NVDs.  
Helicopter preparation.  
LZ lighting.  
Terrain.  
Ground relationship.  
Obstacle clearance.  
Distance estimation.  
Depth perception.  
Shadowing effects.  
Drift calls.  
Effects of snow, dust and rain.

Performance Standards. Demonstrate basic aircrew responsibilities during CALs utilizing NVDs IAW applicable NATOPS and TAC Manual.

Prerequisite. FAM-122 and CAL-161.

Ordinance. N/A.

External Syllabus Support. N/A.

5. External Loads (EXT)

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

b. General

(1) Aircrew may fly this stage in conjunction with the external stage of the pilot syllabus.

(2) Instructor shall be a CCI or CCNSI for EXT-171 and 173.

c. Crew Requirement. CCI/CCUI or CCI/AOUI. AOUI flies all four EXT flights.

d. Ground Training. Consult MCRP 4-23E Multiservice Helicopter Sling Load Manual for Basic Operations and Equipment (Vol.1), Single Point Load Rigging Procedures (Vol.2) and Dual Point Load Rigging Procedures (Vol. 3).

e. Flight Training. (4 Flights, 5.0 Hours).

EXT-170

1.0

O,C,R,S 1 CH-53

Goal. Introduce aircrew duties and terminology used during single point external cargo operations.

Requirement

Discuss:

Crew Coordination.

External procedures.  
HST considerations.  
Standardized terminology.  
Single point cargo hook system.  
Cargo hook control panel.  
Aircrew's portable pendant control.  
Cargo hook emergency release handle(53D).  
Static discharge precautions.  
Load rigging.  
Emergency cargo release.

Demonstrate:  
Standardized terminology.  
Cargo hook setup.  
Hand and arm signals.

Introduce:  
Standardized voice commands.  
Loss of communication procedures.  
Hookup and drop procedures.

Performance Standards. Perform three basic single point external hookups and releases IAW applicable NATOPS.

Prerequisite. FAM-113 and CAL-161.

Ordnance. N/A.

External syllabus support. HST, certified load.

EXT-171

1.0                      O,C,R,S    1    CH-53 NS

Goal. Introduce aircrew duties and terminology used during single point external cargo operations utilizing NVDS.

Requirement

Review:  
EXT-170.  
FAM-122.

Discuss:  
NVD considerations.  
Safety precautions.  
Use of hover light.  
External cargo lighting patterns.

Introduce:  
Use of the hover light.  
Use of Chem lights to mark cargo hook and load.  
Hookup and drop procedures with NVDS.

Performance Standards. Perform three basic single point external hookups and releases while utilizing NVDS IAW applicable NATOPS.

Prerequisite. FAM-122 and EXT-170.

Ordnance. N/A.

External Syllabus Support. HST, certified load and LZ illumination (Chem lights).

EXT-172

1.5 O,C,R,S 1 CH-53

Goal. Review aircrew duties during external cargo operations in the CH-53D. Introduce aircrew duties and terminology used during dual point external operations in the CH-53E.

Requirement

Review:

EXT-170 (53D).

Discuss:

Proper preflight of dual point system.  
Types of slings.  
Crew coordination.  
External procedures.  
HST considerations.  
Standardized terminology.  
Dual point cargo hook system.  
Cargo hook control panel.  
Aircrew portable pendant control.  
Cargo hook emergency release handle.  
Static discharge precautions.  
Load rigging.  
Emergency cargo release.

Introduce:

Dual point external load hookup and release procedures.

Performance Standards. Perform three basic dual point hookups and releases IAW applicable NATOPS. For CH-53D review performance standards for the EXT-170.

Prerequisite. FAM-113 and CAL-161.

Ordinance. N/A.

External syllabus support. HST, certified load.

EXT-173

1.5 O,C,R,S 1 CH-53 NS

Goal. Review aircrew duties during external cargo operations at night in the CH-53D. Introduce aircrew duties and terminology used during night dual point external operations in the CH-53E.

Requirement

Review:

EXT-172.

Discuss:

NVD considerations.  
Safety precautions.  
Use of hover light.  
External cargo lighting patterns.

Introduce:

Use of the hover light.

Use of Chem lights to mark cargo hook and load.  
Hookup and drop procedures with NVDs.

Performance Standards. Perform three basic dual point external hookups and releases utilizing NVDs IAW applicable NATOPS. For CH-53D review performance standards for EXT-171.

Prerequisite. FAM-122 and EXT-172.

Ordnance. N/A.

External Syllabus Support. HST, certified load.

6. Terrain Flight (TERF)

a. Purpose. To introduce skills necessary to perform TERF maneuvers safely; emphasize the importance of crew coordination, comfort level, and common terminology.

b. General

(1) Rules of conduct per T&R Program Manual.

(2) Instructor shall be CCI or TERFI.

c. Crew Requirement. CCI/CCUI or CCI/AOUI. AOUI flies TERF-180.

d. Ground Training. MAWTS-1 Terrain Flight Introduction lecture prior to this stage of training.

e. Flight Training. (1 Flight, 1.5 Hours).

TERF-180            1.5                    0 1 CH-53

Goal. Introduce the aircrew to maneuvers, clearances, and navigation while flying in the TERF environment.

Requirement

Discuss:

- Crew comfort levels.
- CRM.
- Lookout doctrine.
- Terminology.
- ICS procedures.
- Aircraft clearances.
- Emergency procedures.
- TERF maneuvers.
- Navigation.

Introduce:

Low level and contour flight.

Performance Standards. Perform basic TERF maneuvers and navigation while in the TERF environment IAW applicable NATOPS and TAC Manual.

Prerequisite. FAM-113.

Ordnance. N/A.

External Syllabus Support. N/A.

7. Core Skill Introduction Evaluation Flight

a. Purpose. To demonstrate proficiency in performing duties as a Core Skill Introduction complete CC or AO per criteria contained in the appropriate CH-53 NATOPS Flight Manual and OPNAVINST 3710.7.

b. General

(1) A qualified CCNI shall evaluate this flight.

(2) The CCUI or AOUI shall complete a H-53 NATOPS Flight Manual Open and Closed book examination prior to the Core Skill Introduction check. Upon completion of this flight, the student will be NATOPS qualified as a CC or AO.

c. Crew Requirement. FRSCCI/CCUI or CCNI/AOUI. AOUI flies CCX-191.

d. Ground/Academic Training. Review of NATOPS and Aircrew Pocket Checklist.

e. Flight Training. (1 Flight, 1.5 Hours).

CSIX-191            1.5                    O,C,R,S E 1 CH-53 (N)(NS)

Goal. Evaluate systems knowledge of the CH-53 and the capability to perform duties as a Core Skill Introduction CC or AO.

Requirement

Discuss:

Crew brief.

Demonstrate:

- Aircraft system knowledge.
- Pre/post flight procedures.
- In-flight procedures.
- Emergency procedures.
- CRM.

Performance Standards. Demonstrate proficiency for the applicable crew position as stated in the applicable NATOPS and the OPNAVINST 3710.7.

Prerequisite. All prior applicable 100 level flights.

Ordnance. N/A.

External Syllabus Support. As required.

232. CORE SKILL BASIC PHASE. Aircrew undergoing instruction in this phase must have completed the MAWTS-1 Course Catalog Academic Support Package lectures applicable to this phase of training prior to conducting NS events. NS rules of conduct will be per T&R Program Manual. Aircrew will fly all NS

events in this phase under ambient light conditions of .0022 LUX or greater. The aircrew under instruction is considered NSQ HLL (able to transport troops) when the following six events have been completed: FORM-211, CAL-222, CAL-223, TERF-232, TERF-233, and TAC-291. These events require a CCNSI for all initial qualifications. Initial FCLP-273 may be flown under LLL conditions provided aircrew under instruction is NSQ HLL.

1. Internal Loads (INT)

- a. Purpose. To refine CC duties in loading, securing, unloading passengers, cargo and vehicles.
- b. Crew Requirement. CC or CC/CCUI. INT-200/201 is not required for AOUI.
- c. Ground/Academic Training. Review of NATOPS procedures for internal loads and Cargo Loading Manual.
- d. Flight Training. (2 Flights, 2.0 Hours).

INT-200                    1.0                    O,C,R 1 CH-53 (N)(NS)

Goal. Practice CC duties when carrying internal cargo and/or vehicles.

Requirement

Review:

- INT-135.
- INT-136.
- Cargo and/or vehicle loading, securing, and unloading procedures.

Discuss:

Safety precautions and procedures used when transporting dangerous cargo petroleum, oxygen, lubricants (POL), liquid oxygen (LOX), pyrotechnics, and class V cargo (ammunition), etc.

Performance Standards. Demonstrate cargo and/or vehicle loading procedures IAW the Cargo Loading Manual and applicable NATOPS.

Prerequisite. N/A.

Ordinance. N/A.

External Syllabus Support. Applicable cargo and/or vehicle(s).

INT-201                    1.0                    O,C,R 1 CH-53 (N)(NS)

Goal. Practice passenger briefing, embarking, securing, and debarking procedures.

Requirement

Review:

- INT-137.
- Procedures for embarking, securing, and debarking of passengers.

Discuss:

Problems encountered while embarking, securing and debarking passengers.  
Emergency passenger egress.  
Abandon/ditching aircraft.

Performance Standards. Demonstrate passenger briefing, embarking, securing, and debarking procedures IAW applicable NATOPS.

Prerequisite. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

2. Formation (FORM)

a. Purpose. To review aircrew responsibilities during formation flight and introduce responsibilities of tactical formation flight, day and night.

b. General

(1) A CCNSI is required on initial FORM-211.

c. Crew Requirement. CC/AO, CC/CCUI or CC/AOUI. AOUI flies FORM-210 and 211.

d. Ground/Academic Training. Review of NATOPS procedures for FORM and TAC Manual techniques.

e. Flight Training. (2 Flights, 3.5 Hours).

FORM-210            1.5                    C,R 2 CH-53

Goal. Demonstrate aircrew duties during basic formation flight and introduce tactical formation flight.

Requirement

Review:

Formation.  
Closure rate.  
Lead changes (to include form lead/tactical lead).  
CRM.  
Loss of visual contact with wingman.  
Comfort levels.  
Emergency procedures.  
Section takeoffs, landings, approaches and waveoff's.

Introduce:

Section tactical formation.

Performance Standards. Demonstrate proficient knowledge of aircrew considerations during formation flight IAW applicable NATOPS. Practice aircrew duties during tactical formation flight IAW the applicable NATOPS and TAC Manual.

Prerequisite. N/A.

Ordnance. N/A

External Syllabus Support. N/A

FORM-211

2.0

C,R 2 CH-53 NS

Goal. Demonstrate aircrew duties during basic NVD formation flight and introduce NVD tactical formation flight.

Requirement

Review:

Formations.  
Closure rate.  
Lead changes(to include form lead/tactical lead).  
CRM.  
Loss of visual contact with wingman.  
Comfort level.  
Emergency procedures.

Introduce:

Section NVD Tactical Formation.

Performance standards. Demonstrate proficient knowledge of aircrew considerations during basic NVD formation flight IAW the applicable NATOPS. Practice aircrew duties during NVD tactical formation flight IAW the applicable NATOPS and TAC Manual.

Prerequisite. N/A.

Ordnance. N/A.

External Syllabus Support. N/A.

### 3. Confined Area Landings (CAL)

a. Purpose. To review aircrew responsibilities during CALs and introduce CALs with multiple aircraft during day and night.

#### b. General

(1) A CCNSI is required on initial CAL-222/223.

c. Crew Requirement. CC, CC/CCUI or CC/AOUI. AG/AO flies all events. AO required for CAL-222 and CAL-223 if not an instructional flight.

d. Ground/Academic Training. Review of NATOPS procedures for CALs.

e. Flight Training. (4 Flights, 6.5 Hours).

CAL-220

1.5

O,R 1 CH-53

Goal. Introduce and practice CALs using tactical approaches.

Requirement

Discuss:

CALs.  
CRM.

Lookout doctrine.  
Aircraft clearances.  
Terrain suitability.  
Drift correction.

Introduce:  
Tactical Approaches.

Performance Standards. Perform CALs doing tactical approaches IAW the applicable NATOPS and TAC Manual.

Prerequisite. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

CAL-221

1.5 C,R,S 2 CH-53

Goal. Introduce and practice tactical section CALs.

Requirement

Discuss:

CALs.  
CRM.  
Lookout doctrine.  
Aircraft clearances.  
Terrain suitability.  
Drift correction.  
Tactical approaches.

Introduce:  
Section takeoffs, approaches, and landings to a CAL site.

Performance Standards. Demonstrate performance of aircrew duties during tactical section CALs IAW the applicable NATOPS and TAC Manual.

Prerequisite. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

CAL-222

1.5 R 1 CH-53 NS

Goal. Introduce and practice CALs using NVDs.

Requirement

Review:

CALs.  
CRM.  
Lookout doctrine.  
Aircraft clearances.  
Terrain suitability.  
Drift correction.  
Dark adaptation.  
NVD failures.

Aircraft lighting.

Discuss:

Depth perception.  
Possible reduced visibility.  
Obstacle clearance.

Performance Standards. Practice aircrew responsibilities during night CALs while using NVDs IAW with applicable NATOPS.

Prerequisite. N/A.

Ordnance. N/A.

External Syllabus Support. N/A.

CAL-223

2.0

C,R,S 2 CH-53 NS

Goal. Introduce and practice section CALs using NVDs.

Requirement

Review:

NVD CALs.  
CRM.  
Lookout doctrine.  
Aircraft clearances.  
Terrain suitability.  
Drift correction.  
Dark adaptation.  
NVD failures.  
Aircraft lighting.  
Depth perception.  
Possible reduced visibility.  
Obstacle clearance.

Introduce:

NVD Section CALs.

Performance Standards. Practice aircrew responsibilities during NVD section CALs IAW applicable NATOPS.

Prerequisite. N/A.

Ordnance. N/A.

External Syllabus Support. N/A.

#### 4. Terrain Flight (TERF)

a. Purpose. To enhance aircrew responsibilities and lookout doctrine with TERF maneuvers/navigation and introduce section maneuvering in the day and night TERF environment.

##### b. General

(1) Currency restrictions per T&R Program Manual. Aircrew is considered TERF qualified at the completion TERF-233.

(2) A CCTERFI is required for initial TERF-230/231 and a CCNSI is required for initial TERF-232/233.

c. Crew Requirement. CC/AO, CC/CCUI or CC/AOUI.

d. Ground/Academic Training. Consult the MAWTS-1 Course Catalog for the recommended lecture in the Academic Support Package applicable to this stage of training.

e. Flight Training. (4 Flights, 7.0 Hours). AOUI flies TERF-230/231/232/233.

TERF-230            1.5                            R 1 CH-53

Goal. Review maneuvers and clearance while flying in a TERF environment.

Requirement

Review:

Low level and contour flight.

Discuss:

- Crew comfort levels.
- CRM.
- Lookout doctrine.
- Terminology.
- ICS procedures.
- Obstacle clearance.
- Emergency procedures.
- TERF maneuvers.
- Navigation.

Performance Standards. Perform TERF maneuvers and maintain aircraft clearance IAW the applicable NATOPS and TAC Manual.

Prerequisite. CAL-220.

Ordinance. N/A.

External Syllabus Support. N/A.

TERF-231            1.5                            O,C,R,S 2 CH-53

Goal. Introduce maneuvers and clearance for a section of aircraft in the TERF environment.

Requirement

Review:

- FORM-210.
- TERF-230.

Discuss:

- Crew comfort levels.
- CRM.
- Lookout doctrine.
- Terminology.
- ICS procedures.
- Aircraft clearance.

Multiple aircraft operations.

Performance Standards. Perform TERF maneuvers in a section while in the TERF environment IAW the applicable NATOPS and TAC Manual.

Prerequisite. CAL-221, TERF-230.

Ordinance. N/A.

External Syllabus Support. N/A.

TERF-232

2.0

R 1 CH-53 NS

Goal. Introduce maneuvers and clearance while flying in a TERF environment using NVDs.

Requirement

Review:

CAL-222.

TERF-230.

Discuss:

HLL NVD considerations.

Aircraft lighting.

Crew comfort levels.

CRM.

Lookout doctrine.

Terminology.

ICS procedures.

Obstacle clearance.

Emergency procedures.

Performance Standards. Perform TERF maneuvers while in the TERF environment using NVDs in a HLL condition IAW applicable NATOPS and TAC Manual.

Prerequisite. CAL-222 and TERF-230.

Ordinance. N/A.

External Syllabus Support. N/A.

TERF-233

2.0

O,C,R,S 2 CH-53 NS

Goal. Review maneuvers and clearance for a section of aircraft in the TERF environment using NVDs.

Requirement

Review:

CAL-223.

TERF-232.

Discuss:

HLL NVD considerations.

Aircraft lighting.

Crew comfort levels.

CRM.

Lookout doctrine.  
Terminology.  
ICS procedures.  
Aircraft clearance.  
Emergency procedures.  
Multiple aircraft operations.

Performance Standards. Perform TERF maneuvers for a section while in the TERF environment using NVDs in a HLL condition IAW the applicable NATOPS and TAC Manual.

Prerequisite. CAL-223, TERF-231 and TERF-232.

Ordinance. N/A.

External Syllabus Support. N/A.

5. External Loads (EXT)

a. Purpose. To develop skills necessary for external loads in confined areas.

b. General

(1) Aircrew may fly these flights in conjunction with the pilot syllabus.

(2) A CCNSI is required for initial EXT-242/243.

c. Crew Requirement. CC/AO, CC/CCUI or CC/AOUI. AOUI flies all four EXT events.

d. Ground/Academic Training. CC should review MCRP 4-23E Multiservice Helicopter Sling Load Manual for Basic Operations and Equipment.

e. Flight Training. (4 Flights, 6.0 Hours).

EXT-240            1.5                    O,C,R,S 1 CH-53

Goal. Practice single point externals.

Requirement

Review:

EXT-170.

Discuss:

Crew coordination.  
External procedures.  
HST considerations.  
Standardized terminology.  
Single point cargo hook system.  
Cargo hook control panel.  
Aircrew portable pendant control.  
Cargo hook emergency release handle(CH-53D).  
Static discharge precautions.  
Load rigging.  
Emergency cargo release.

Demonstrate:

Standardized terminology.  
Cargo hook setup.  
Hand and arm signals.

Performance Standards. Perform single point external hookups and releases with proficiency IAW applicable NATOPS.

Prerequisite. CAL-220.

Ordinance. N/A.

External syllabus support. HST, certified load.

EXT-241

1.5 O,C,R,S 1 CH-53

Goal. Practice dual point external operations (53E).  
Practice single point external operations (53D).

Requirement

Review:

EXT-172 (53E).  
EXT-240.

Discuss:

Proper preflight of dual point system.  
Types of slings.  
Crew Coordination.  
External procedures.  
HST considerations.  
Standardized terminology.  
Dual point cargo hook system.  
Cargo hook control panel.  
Aircrew portable pendant control.  
Cargo hook emergency release handle.  
Static discharge precautions.  
Load rigging.  
Emergency cargo release.

Performance Standards. Perform dual point hookups and releases with proficiency IAW the applicable NATOPS. For CH-53D review performance standards for the EXT-240.

Prerequisite. CAL-220.

Ordinance. N/A.

External syllabus support. HST, certified load.

EXT-242

1.5 O,C,R,S 1 CH-53 NS

Goal. Practice single point external operations utilizing NVDS.

Requirement

Review:

HLL NVD considerations.  
Safety precautions.

External cargo lighting patterns.  
Use of Chem lights on external pendant and the external load.  
Blowing debris.  
Load rigging.  
Obstacle clearance on approach to and departure from the drop zone.

Discuss:

CRM.  
Flight with single point external loads.  
Load stability.  
Standardized terminology.  
HLL NVD considerations.  
Load rigging.

Performance Standards. Demonstrate proficiency of single point external operations using NVDs in a HLL condition as outlined in the applicable NATOPS.

Prerequisite. CAL-222 and EXT-240.

Ordinance. N/A.

External Syllabus Support. HST, certified load.

EXT-243

1.5 O,C,R,S 1 CH-53 NS

Goal. Practice dual point external operations utilizing NVDs (53E). Practice single point external operations utilizing NVDs (53D).

Requirement

Review:

Safety precautions.  
External cargo lighting patterns.  
Use of Chem lights on external pendant and the external load.  
Blowing debris, rotor wash.  
Load rigging.  
Obstacle clearance on approach to and departure from the drop zone.

Discuss:

HLL NVD considerations.  
CRM.  
Flight with dual point external loads.  
Load stability.  
Standardized terminology.  
Load rigging.

Performance Standards. Demonstrate proficiency of dual point external operations using NVDs in a HLL condition IAW applicable NATOPS.

Prerequisite. CAL-222, EXT-241.

Ordinance. N/A.

External Syllabus Support. HST, certified load.

6. Air-to-Ground (AG)

a. Purpose. To develop procedures required to provide fire on targets of opportunity.

b. General

(1) Aerial gunnery qualification lectures and initial instructional flights must be conducted by a WTCCI or AGI.

(2) At least one aircrew shall possess a crew served weapons checklist.

(3) An AGI is required for initial flight or when aircrew are not designated aerial gunners.

(4) At the completion of this stage, aircrew will demonstrate knowledge of weapons systems and ordnance delivery with crew served weapons.

c. Crew Requirement. CC/AGO, AGI/CCUI, AGI/AOUI. AOUI flies AG-280/281.

d. Ground Training. Review all applicable manuals, consult the MAWTS-1 Course Catalog for the appropriate Academic Support Package lectures to be given, and appropriate ground schools.

e. Flight Training. (2 Flights, 3.0 Hours).

AG-280                      1.5                      C,R 1 CH-53

Goal. Introduce gunnery training with the XM-218 (.50 Cal Machine Gun).

Requirement

Discuss:

- Use and application of crew served weapons checklist.
- Fire discipline.
- Aiming techniques.
- Crew coordination.
- Fire control voice commands/hand and arm signals.
- Range considerations.
- Weapon capabilities.
- Firing in landing profile.
- Weapon malfunctions.
- Burst rates.

Introduce:

- Preflight.
- Safety procedures associated with ordnance evolutions.
- Ordnance loading.
- Burst Rates.
- Flight profiles (running, diving, hovering).
- Post-flight.

Performance Standards. Operate XM-218 safely IAW crew served weapons checklist and CH-53 TAC Manual. Aircrew shall demonstrate positive weapons control and effective fire on pre-briefed targets as stated in the CH-53 TAC Manual.

Prerequisites. TERF-230.

Ordnance. 500 rds .50 cal. and 2 XM-218 guns.

External Syllabus Support. Range/Ordnance request.

AG-281

1.5 C,R 2 CH-53

Goal. Introduce day AG with the XM-218 within a section.

Requirement

Review:

AG-280.

Discuss:

Crew responsibilities.  
Section responsibilities.  
Sectors of fire.  
Target hand-off.

Introduce:

Limited sectors of fire.  
Fire discipline within a section.  
Weapons Conditions (Weapons Free, Tight, Hold).

Practice:

Firing on prebriefed targets.  
Crew coordination.  
Firing in different flight profiles, (i.e. diving,  
hovering, etc.).  
Burst rates.

Performance Standards. Operate XM-218 safely IAW crew served weapons checklist and CH-53 TAC Manual within a section. Aircrew shall demonstrate positive weapons control in a section and effective fire on pre-briefed targets as stated in the CH-53 TAC Manual.

Prerequisites. FORM-210 and AG-280.

Ordnance. 500 rds .50 cal. and 2 XM-218 guns.

External Syllabus Support. Range/Ordnance request.

7. Tactics (TAC)

a. Purpose. To introduce aircrew responsibilities for tactical missions.

b. General

(1) Read Paragraph 232.

(2) Completion of TAC-291 satisfies the requirement for NSQ HLL.

(3) A CCNSI is required on initial TAC-291.

c. Crew Requirement. CC/AG, CC/CCUI or CC/AOUI. AOUI flies TAC-290/291.

d. Ground Training. Consult the MAWTS-1 course catalog for the recommended lectures in the Academic support Package applicable to this stage of flight. Review CH-53 TAC Manual applicable chapters.

e. Flight Training. (2 Flights, 4.0 Hours).

TAC-290            2.0                    C,R    2    CH-53

Goal. Introduce aircrew responsibilities during a section tactical operation.

Requirement

Review:

INT-200 and INT 201.  
FORM-210.  
CAL-221.  
TERF-231.

Discuss:

Weather considerations.  
Scanning techniques (open terrain, dense vegetation).  
Navigation.  
No comm. lead changes.  
Procedures for downed aircrew escorts.

Introduce:

Lookout Doctrine.  
Scanning techniques.  
Egress considerations with XM-218s mounted.

Performance Standards. Demonstrate basic knowledge in low threat environment as stated in CH-53 TAC Manual. Demonstrate effective scan techniques as stated in CH-53 TAC Manual.

Prerequisite. FORM 210 and TERF-231.

Ordnance. 2 XM-218 guns and notional .50 cal rounds.

External Syllabus Support. Ordnance request for weapons.

TAC-291            2.0                    O,R    2    CH-53    NS

Goal. Introduce aircrew responsibilities during tactical operations with multiple aircraft using NVDs.

Requirement

Review:

TAC-290.

Discuss:

Taxi drop of internal cargo.  
Paradrop operations.  
Embarking/debarking of troops using NVDs.  
Comfort level.

Introduce:

Lookout doctrine.  
Scanning techniques.

Egress considerations with XM-218s mounted.

Performance Standards. Demonstrate basic knowledge in low threat environment on NVDs as stated in CH-53 TAC Manual. Demonstrate effective scan techniques on NVDs as stated in CH-53 TAC Manual.

Prerequisite. FORM 211, TERF-233, and TAC-290.

Ordnance. 2 XM-218 guns and notional .50 cal rounds.

External Syllabus Support. N/A.

233. CORE SKILL ADVANCED PHASE. Aircrew undergoing instruction in this phase must have completed the MAWTS-1 Course Catalog Academic Support Package lectures applicable to this phase of training prior to conducting NS events. NS rules of conduct will be per T&R Program Manual. Aircrew shall fly all NS events listed below under ambient light conditions of below .0022 LUX. An aircrew under instruction is NSQ LLL (able to transport troops) when the following four events have been completed: CAL-320, CAL-321, TERF-330 and TERF-331. EXT-342 and TAC-391 must be flown under LLL conditions. These flights require a CCNSI for initial qualification. Aircrew may fly all other NS events in this phase under HLL or LLL conditions.

1. Confined Area Landings (CAL)

- a. Purpose. To conduct CALs in LLL conditions (below .0022 LUX).
- b. General
  - (1) A CCNSI is required on initial flights.
- c. Crew Requirement. CC/AO, CC/CCUI or CC/AOUI. AOUI flies CAL-320/321.
- d. Prerequisite. Crew member under instruction must be NSQ HLL.
- e. Flight Training. (2 Flights, 3.5 Hours).

CAL-320                      1.5                      C,R      1      CH-53      NS

Goal. Perform NVD low work and CALs during LLL conditions.

Requirement

Review:

- CALs.
- CRM.
- Lookout doctrine.
- Aircraft clearances.
- Terrain suitability.
- Drift correction.
- Dark adaptation.
- NVD failures.
- Aircraft lighting.

Discuss:

- LLL NVD considerations.
- Comfort levels.
- CRM.

Performance Standards. Practice aircrew responsibilities during CALs using NVDs in a LLL condition IAW applicable NATOPS.

Prerequisite. CAL-223.

Ordnance. N/A.

External Syllabus Support. N/A.

CAL-321

2.0

O,C,R,S 2 CH-53 NS

Goal. Develop proficiency in section CAL operations using NVDs during LLL conditions.

Requirement

Review:

CALs.  
CRM.  
Lookout doctrine.  
Aircraft clearances.  
Terrain suitability.  
Drift correction.  
Dark adaptation.  
NVD Failures.  
Aircraft lighting.

Discuss:

LLL NVD considerations.  
Comfort levels.  
CRM.

Performance Standards. Demonstrate proficiency of aircrew responsibilities doing CALs using NVDs in a LLL condition IAW the applicable NATOPS.

Prerequisite. CAL-320.

Ordnance. N/A.

External Syllabus Support. N/A.

2. Terrain Flight (TERF)

a. Purpose. To develop TERF crew coordination skills in the night environment. Develop proficiency in TERF using NVDs in LLL conditions.

b. General

(1) Currency requirements per T&R Program Manual.

(2) A CCNSI is required on initial flights.

c. Crew Requirement. CC/AO, CC/CCUI or CC/AOUI. AOUI flies TERF-330 and 331.

d. Ground Training. Be familiar with the TERF classes in the Academic Support Package applicable to this stage of flight.

e. Flight Training. (2 Flights, 4.0 Hours).

TERF-330            2.0                    C,R     1   CH-53   N NS

Goal. Review maneuvers and clearance while flying in a TERF environment using NVDS in LLL conditions.

Requirement

Review:

TERF-232.  
CAL-320.

Discuss:

LLL NVD considerations.  
Aircraft lighting.  
Crew comfort levels.  
CRM.  
Lookout doctrine.  
Terminology.  
ICS procedures.  
Obstacle clearance.  
Emergency procedures.

Performance Standards. Perform TERF maneuvers while in the TERF environment using NVDS in a LLL condition IAW applicable NATOPS and TAC Manual.

Prerequisite. CAL-320.

Ordinance. N/A.

External Syllabus Support. N/A.

TERF-331            2.0                    O,C,R,S   2   CH-53   NS

Goal. Review maneuvers and clearance for an aircraft section in the TERF environment using NVDS in LLL conditions.

Requirement

Review:

CAL-321.  
TERF-330.

Discuss:

LLL NVD considerations.  
Aircraft lighting.  
Crew comfort levels.  
CRM.  
Lookout doctrine.  
Terminology.  
ICS procedures.  
Aircraft clearance.  
Emergency procedures.  
Multiple aircraft operations.

Performance Standards. Perform TERF maneuvers for a section while in the TERF environment using NVDs in a LLL condition IAW applicable NATOPS and TAC Manual.

Prerequisite. CAL-223, TERF-231 and TERF-232.

Ordinance. N/A.

External Syllabus Support. N/A.

3. External Loads (EXT)

a. Purpose. To develop proficiency with heavy lift external loads from confined areas in the TERF environment.

b. General

(1) Aircrew may fly these flights in conjunction with the pilot syllabus. When practical, flights should practice externals with heavy lift FMF equipment.

(2) EXT-341 requires a CCTERFI for initial qualification.

(3) EXT-342 and 343 require a CCNSI for initial qualification. EXT-342 must be flown under LLL conditions.

(4) Transport loads either single or dual point, as appropriate.

c. Crew Requirement. CC/AO, CC/CCUI or CC/AGOUI. AOUI flies EXT-341/342.

d. Ground Training. Consult FMFRP 5-31 VOL. I-III (Basic Operation/ Equipment and Single Dual Point Hook Procedures), FMFRP 5-31, Vol. 1, Multi-Service Helicopter External Air Transport Manual and applicable series NATOPS.

e. External Syllabus Support. HST, certified load.

f. Flight Training. (3 Flights, 4.5 Hours).

EXT-341            1.5            O,C,R,S 1 CH-53

Goal. Introduce and practice external operations in the TERF environment.

Requirement

Review:

TERF-230.  
EXT-240 and 241 as appropriate.

Discuss:

Emergency procedures.  
Aircrew responsibilities during TERF flight.  
Cargo pendant release procedures.  
Varying hookup options.  
Load length considerations for TERF flight.  
Safety considerations.

Introduce:

Practice single or dual point external cargo carrying operations in a TERF environment.

Performance Standards. Perform external operations in the TERF environment IAW applicable NATOPS and TAC Manual.

Prerequisite. CAL-220, TERF-230, EXT-240, and 241.

Ordnance. N/A.

External Syllabus Support. HST, certified load.

EXT-342

1.5

O,C,R,S 1 CH-53 N NS

Goal. Introduce external operations in LLL conditions, dual point preferred for CH-53E.

Requirement

Review:

TERF-320.

EXT-242 and 243 as appropriate.

Safety precautions.

External cargo lighting patterns.

Use of Chem lights on external pendant and the external load.

Blowing debris.

Load rigging.

Obstacle clearance on approach to and departure from the drop zone.

Discuss:

LLL NVD considerations.

CRM.

Flight with dual point external loads (if required).

Load stability.

Standardized terminology.

Load rigging.

Introduce:

External operations using NVDs in LLL conditions.

Performance Standards. Demonstrate proficiency of external operations using NVDs in a LLL condition IAW applicable NATOPS.

Prerequisite. CAL-320 and EXT-341.

Ordnance. N/A.

External Syllabus Support. HST, certified load.

EXT-343

1.5

O,C,R,S 1 CH-53 NS

Goal. Introduce external operations in the TERF profiles using NVDs.

Requirement

Review:

TERF-320.  
EXT-341 and EXT-342.  
Safety precautions.  
External cargo lighting patterns.  
Use of Chem lights on external pendant and the external load.  
Blowing debris.  
Load rigging.  
Obstacle clearance on approach to and departure from the drop zone.

Discuss:

HLL or LLL NVD considerations as applicable.  
CRM.  
Flight with dual point external loads (if required).  
Load stability.  
Standardized terminology.  
Load rigging.  
Aircraft clearances.  
Load clearances.

Introduce:

External operations using NVDs in the TERF environment.  
External operations while operating in the TERF environment.

Performance Standards. Demonstrate proficiency of external operations using NVDs while operating in the TERF environment as outlined in the applicable NATOPS and TAC Manual.

Prerequisite. EXT-341 and 342.

Ordinance. N/A.

External Syllabus Support. HST, certified load.

4. Defensive Measures (DM)

a. Purpose. To introduce aircrew responsibilities during DM and EW tactics in a medium threat environment. Upon completion of this stage aircrew should have an understanding of the maneuvers and employment techniques necessary to counter a low altitude surface-to-air threat.

b. General

(1) The utilization of an EW range with threat systems that include electromagnetic and ground based threat simulation; e.g. smokey SAMs, hand-held pyrotechnics etc. will greatly enhance aircrew training. The use of an APR-39 trainer or WST simulator will aid in preparing aircrew prior to flight.

(2) A CCDMI is required on initial flights.

c. Crew Requirement. CC/AO, CC/CCUI or CC/AOUI. AOUI flies DM-350.

d. Ground/Academic Training. Aircrew under instruction will be familiar with procedures outlined in the helicopter DM Guide and should have completed academic instruction on the use of DECM equipment. Consult the MAWTS-1

course catalog for the recommended lectures in the Academic Support Package applicable to this stage of flight.

e. Flight Training. (1 Flight, 2.0 Hours).

DM-350                    2.0                    O,C,R 2 CH-53

Goal. Introduce and practice aircrew responsibilities.  
Practice basic operations and procedures for DECM equipment.

Requirement

Discuss:

- DECM equipment.
- CRM.
- Section tactics.
- Low altitude emergencies.
- Use of RADAR horizons and RADAR masking techniques as they relate to specific air defense systems.

Introduce:

- Section maneuvering against IR missiles on low altitude RADAR guided threats on EW range if available.
- DM while dispersing chaff and flares.

Performance Standards. Demonstrate basic knowledge of Attack Warning and helicopter tactics against a low altitude surface-to-air threat IAW the CH-53 TAC Manual.

Prerequisite. TERF-231.

Ordinance. 30 chaff and 30 flares.

External Syllabus Support. Ground Emitter.

5. Air-to-Ground Gunnery and Qualification (AG)

a. Purpose. To demonstrate proficiency in delivering fire on targets of opportunity at night while using NVDs.

b. General

(1) Completion of this stage is the minimum requirement for aerial gunnery training. AGUI must complete the aerial gunnery evaluation event, AG-381 and be designated by the commanding officer prior to firing without an AGI.

(2) AG-381 certifies the AGUI as an aerial gunner with the respective weapon. Aircrew may be designated an aerial gunner by the commanding officer after completing AG-381.

(3) Aircrew may conduct these events in either HLL or LLL conditions and should be NSQ in the appropriate light level condition. If aircrew are not NSQ for appropriate light level a CCNSI is required.

(4) Aerial gunnery lectures and initial instructional flights must be conducted by a WTCCI or AGI.

(5) A AGI CCNSI is required for initial flights.

c. Crew Requirement. CC/AGO. AOUI flies AG-280 and 281.

d. Ground Training. Review appropriate chapters of the CH-53 TAC Manual. Consult the MAWTS-1 Course Catalog for the appropriate Academic Support Package lectures to be presented.

e. Flight Training. (2 Flights, 2.0 Hours).

AG-380                    1.0                    C,R 1 CH-53 NS

Goal. Introduce XM-218 gunnery while using NVDs.

Requirement

Review:

AG-280.

Discuss:

Muzzle Flash.  
Sighting techniques.  
LASER safety/employment.  
Cabin configuration.  
Burst rates.

Introduce:

Aiming techniques on NVDs.  
Weapons control on NVDs.  
Lighting used with weapon operation.

Performance Standards. Operate XM-218 safely IAW crew served weapons checklist and CH-53 TAC Manual while utilizing NVDs. Aircrew shall demonstrate positive weapons control during night environment and demonstrate effective fire on pre-briefed targets as stated in the CH-53 TAC Manual.

Prerequisite. AG-280.

Ordinance. 500 rds .50 cal. and 2 XM-218 guns.

External Syllabus Support. Range/Ordinance request.

AG-381                    1.0                    C,R 2 CH-53 NS

Goal. Introduce NVD AG with the XM-218 within a section. Qualify aircrew as an aerial gunner.

Requirement

Review:

AG-380.

Discuss:

Crew responsibilities.  
Section responsibilities.  
Sectors of fire.  
Target hand-off.  
Weapons Conditions (Weapons Free, Tight, Hold).

Introduce:

Aiming techniques in section on NVDs.  
Weapons control in section on NVDs.

Practice:

Aiming techniques on NVDs.  
Weapons control on NVDs.  
Lighting used with weapon operation.  
Weapons employment/delivery.

Performance Standards. Aircrew will demonstrate proficiency implementing all aspects of the crew served weapons checklist. Aircrew will demonstrate effective and safe usage of the XM-218 IAW the CH-53 TAC Manual.

Prerequisite. AG-280, AG-281 and AG-380.

Ordnance. 500 rds .50 cal. and 2 XM-218 guns.

External Syllabus Support. Range/ordnance request.

6. Tactics (TAC)

a. Purpose. To develop aircrew responsibilities during tactical operations in a low to medium threat environment.

b. General

(1) All mission briefs require an intelligence brief. To the greatest extent possible incorporate the employment of escort aircraft (fixed or rotary wing), the employment of the ALE-39 and the APR-39, the .50 caliber machine gun, and use of the AR-5/M-24 gas masks. Aircrew shall conduct these flights under the standards required in MCO 3501.4, MCCRES, Volume III, Marine Heavy Helicopter Squadrons and/or MCO 3501.8 MCCRES, Volume IX, Special Operations.

(2) A CCNSI is required for initial TAC-391. TAC-391 must be flown under LLL conditions.

(3) NBC-460 required if AR-5/M-24 used.

c. Crew Requirements. CC/AG, AGI/CCUI.

d. Ground Training Requirements. Aircrew must have received the ALE-39 class from the MAWTS-1 Enlisted Academic Support Package before flying TAC-390/391.

e. Flight Training. (2 Flights, 4.0 Hours).

TAC-390

2.0

C,R 2 CH-53

Goal. Introduce and practice aircrew responsibilities during tactical operations with multiple aircraft.

Requirement

Review:

Loading/securing/unloading of cargo/vehicles/troops.

Discuss:

Taxi drop of internal cargo.  
Paradrop operations.  
Embarking/debarking of troops.

External Operations.

Practice:

Responsibilities during a tactical operation.

Performance Standard. Demonstrate proficiency in low to medium threat environment as stated in CH-53 TAC Manual.

Prerequisites. TAC-290. All aircrew should be aerial gunner qualified. An AGI is required if aircrew are not aerial gunners.

Ordinance. 500 rounds of .50 cal, 30 chaff, 30 flares and 2 XM-218 guns.

External Syllabus Support. Range/Ordinance/Escort request if utilized.

TAC-391

2.0

O,C,R 2 CH-53 NS

Goal. Practice aircrew responsibilities during tactical operations at night with multiple aircraft in LLL conditions utilizing NVDs.

Requirement

Review:

TAC-291.

Discuss:

Taxi drop of internal cargo.  
Paradrop operations.  
Differences between day and night operations.  
Embarking and debarking of troops at night.  
External operations.  
Crew comfort.  
Crew coordination.

Practice:

Aircrew responsibilities during a tactical operation at night in LLL conditions on NVDs.

Performance Standard. Demonstrate proficiency in low to medium threat environment in LLL conditions on NVDs as stated in CH-53 TAC Manual.

Prerequisite. TAC-291. All aircrew should be aerial gunners. An AGI CCNSI is required if aircrew are not aerial gunner qualified.

Ordinance. 500 rounds of .50 cal., 30 chaff, 30 flares and 2 XM-218 guns.

External Syllabus Support. Range/Ordinance/Escort request if utilized.

234. CORE SKILL PLUS PHASE

1. Helicopter Insertion/Extraction Techniques (HIE)

a. Purpose. To develop proficiency with insertion/extraction methods required in executing special missions by emphasizing rappelling, fast-rope, Special Insertion/Extraction (SPIE), helo casting, and aerial delivery.

b. 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. A NSI is required for NVD initial flights.

c. Crew Requirement. CC/AO, CC/CCUI or CC/AOUI. AOUI flies HIE-400, 401 and 402.

d. Ground Training Requirements

(1) Refer to the MAWTS-1 Course Catalog for the appropriate stage of training.

(2) Aircrew shall be NSQ for appropriate light level conditions and qualified to carry troops per T&R Program Manual in order to conduct HIE-400.

e. Flight Training. (3 Flights, 4.5 Hours).

HIE-400

1.5

O,C,R,S 1 CH-53 (N)(NS)

Goal. Introduce procedures for tactical insertion and/or extraction of a ground force via rappelling, fast-rope or SPIE.

Requirement

Discuss:

- NVD considerations if applicable.
- CRM.
- Safety procedures.
- Hand and arm signals.
- Obstacle clearance.
- Associated equipment.
- Emergency procedures.

Introduce:

- Tactical insertions.
- Techniques for inserting personnel by fast-rope.
- Rappelling.
- SPIE rig.

Performance Standards. Perform tactical insertion and/or extraction of a ground force via rappelling, fast-rope or SPIE IAW applicable NATOPS and TAC Manual.

Prerequisite. N/A.

Ordinance. N/A.

External Syllabus Support. Fast-rope bar.

HIE-401                    1.5                    O,C,R,S 1 CH-53

Goal. Introduce procedures for tactical insertion helocast.

Requirement

Discuss:

CRM.  
Safety procedures.  
Hand and arm signals.  
Obstacle clearance.  
Associated equipment.  
Emergency procedures.

Introduce:

Techniques for inserting personnel by helocast.

Performance Standards. Demonstrate procedures for a tactical insertion via helocast IAW applicable TAC Manual.

Prerequisite. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

HIE-402                    1.5                    O,C,R,S 1 CH-53 (N)(NS)

Goal. Introduce procedures for tactical insertion via paraops.

Requirement

Discuss:

NVD considerations if applicable.  
CRM.  
Safety procedures.  
Hand and arm signals.  
Ground signals.  
Obstacle clearance.  
Associated equipment.  
Emergency procedures.

Introduce:

Techniques for inserting personnel by paraops.

Performance Standards. Perform procedures for tactical insertion via paraops IAW applicable TAC Manual.

Prerequisite. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

2. Internal Loads (INT) (CH-53E)

a. Purpose. To introduce CC duties in loading, securing, unloading, internal procedures and use of the Tactical Bulk Fuel Dispensing System (TBFDS).

b. General

(1) Aircrew may fly these flights in conjunction with any stage of the pilot syllabus.

(2) Instructor shall be a CCNSI for initial or refresher if NVDs are used.

c. Crew Requirement. CC/CCUI.

d. Ground/Academic Training. Study the A1-H53BE-GLG-000 (Cargo Loading Manual), NATOPS Flight Manual, and helicopter loading and equipment storage. Aircrew shall receive the TBFDS class from the MAWTS-1 Enlisted Academic Support Package.

e. Flight Training. (1 Flight, 2.0 Hours).

INT-410                      2.0                      O,C,R,S 1 CH-53 (N)(NS)

Goal. Review internal procedures and introduce use of the TBFDS.

Requirement

Review:

INT-200 and INT-201.

Discuss:

Installation considerations for TBFDS.

Procedures for refueling other types of aircraft and/or vehicles.

Rapid Ground Refueling/FARP procedures to include preflight, taxiing aircraft, mechanical configuration, lighting configurations, post flight and clean up.

Fire fighting equipment and procedures for particular TBFDS evolution.

Introduce:

Proper restraint system and loading scenarios for different tank setups and fuel line configuration.

Performance Standards. Demonstrate knowledge of TBFDS setup and refueling operations as outlined in the CH-53 TAC Manual.

Prerequisite. INT-200.

Ordinance. N/A.

External Syllabus Support. Ground or RW assets to refuel.

3. Defensive Measures (DM)

a. Purpose. To introduce aircrew responsibilities during section DM against helicopter and fixed-wing aggressor aircraft. Upon completion of this stage the aircrew should have an understanding of the maneuvers and employment techniques necessary to counter air-to-air threat.

b. General. A designated CCDMI is required on initial events. If NVDs are used then the CCDMI will also be a CCNSI.

c. Crew Requirement. CC/AO, CC/CCUI or CC/AOUI. AOUI flies DM-450 and 451.

d. Ground/Academic Training. Aircrew should be familiar with procedures outlined in the helicopter DM Guide and should have completed academic instruction on the use of DECM equipment. Consult the MAWTS-1 Course Catalog for the recommended lectures in the Academic Support Package applicable to this stage of flight.

e. Flight Training. (2 Flights, 1.0 Hour).

DM-450

0.5

C,R 2 CH-53

Goal. Introduce and practice aircrew responsibilities as a section against an adversary helicopter.

Requirement

Review:

DM-350.

Discuss:

Lookout doctrine.

Attack Warning.

Standard terminology.

Section maneuvering.

CRM.

Aircraft limitations.

Introduce:

Section helicopter DM against an adversary helicopter attacking from prebriefed and unknown locations.

Performance Standards. Demonstrate knowledge of Attack Warning and tactical maneuvers as stated in the MAWTS-1 DM Manual.

Prerequisite. TERF-231.

Ordinance. 30 flares.

External Syllabus Support. Rotary wing aggressor.

DM-451

0.5

C,R 2 CH-53

Goal. Introduce and practice aircrew responsibilities in a section against a fixed wing adversary.

Requirement

Review:

DM-450.

Discuss:

Fixed wing attack.

Tactical maneuvers.

Practice:

Section helicopter DM against a fixed wing adversary attacking from prebriefed and unknown locations.

Performance Standards. Demonstrate proficiency of Attack Warning and tactical maneuvers as stated in the MAWTS-1 DM Manual.

Prerequisite. TERF-231.

Ordinance. 30 flares.

External Syllabus Support. Fixed wing aggressor.

4. Nuclear, Biological, and Chemical (NBC)

a. Purpose. To conduct flight operations while wearing NBC protective equipment.

b. General

(1) Aircrew may fly this event during the FAM, CAL, TAC, or NBC stage of the pilot syllabus. For the safe execution of initial NBC flights, one pilot and one aircrew shall remain unmasked.

(2) The M-24 aircrew protective mask is authorized for squadrons that do not have the AR-5.

c. Crew Requirement. CC/AO, CC/CCUI or CC/AOUI.

d. Ground Training

(1) Discuss wearing of the NBC defense suit, mask, hood, gloves and boots. Introduce proper maintenance and serviceability checks on equipment, emphasizing donning of equipment.

(2) Discuss physiological factors associated with flying while wearing NBC protective equipment.

(3) Consult the MAWTS-1 Course Catalog.

e. Flight Training. (1 Flight, 1.0 Hour).

NBC-460

1.0

R 1 CH-53 (N)(NS)

Goal. Introduce flight in a simulated NBC environment with either the AR-5 or M-24 masks.

Requirement

Discuss:

Chemical agents.

Biological agents.

Fatigue.

Distortion of vision while using the M-24 or AR-5 gas mask.

Demonstrate:

A portion of preflight wearing full NBC equipment.

Introduce:

Donning of the Chemical suit and M-24 or AR-5 gas mask.

Wearing of mask during taxi, low work takeoff and landings.

Performance Standards. Perform flight in a simulated NBC environment wearing either the AR-5 or M-24 masks IAW Applicable NATOPS and TAC Manual.

Prerequisite. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

5. Field Carrier Landing Practice (FCLP)

a. Purpose. To develop procedures and CRM required for shipboard operations.

b. General. Discuss and become familiar with all aspects of shipboard operations and CRM applicable to the carrier qualification stage as described in the appropriate CH-53 NATOPS Flight Manual, NWP-42, the LHA/LPH/LHD NATOPS, and OPNAVINST 3710.7. Each event requires five FCLPs. FCLP-473 requires a designated CCNSI unless aircrew is designated NSQ for the appropriate light level.

c. Crew Requirement. CC, CC/CCUI or CC/AOUI. CC/AO shall fly FCLP-473.

d. Flight Training. (3 Flights, 3.0 Hours).

FCLP-471            1.0                    C,R 1 CH-53

Goal. Introduce day FCLPs.

Requirement

Discuss:

- Shipboard operations.
- Aircraft clearance.
- CRM.
- Hand and arm signals.
- Safety procedures.
- Ditching procedures.
- Emergency procedures.

Introduce:

Procedures required for shipboard operations.

Performance Standards. Perform day FCLPs IAW appropriate shipboard NATOPS.

Prerequisite. CAL-220.

Ordinance. N/A.

External Syllabus Support. FCLP pad.

FCLP-472            1.0                    O,R 1 CH-53 N

Goal. Introduce night, unaided FCLPs.

Requirement

Discuss:

Nighttime procedures.  
Shipboard lighting.  
Shipboard operations.  
Aircraft clearance.  
CRM.  
Hand and arm signals.  
Safety procedures.  
Ditching procedures at night.  
Emergency procedures.

Introduce:

Procedures required for shipboard operations at night.

Performance Standards. Perform night unaided FCLPs IAW appropriate shipboard NATOPS.

Prerequisite. FCLP-471.

Ordinance. N/A.

External Syllabus Support. FCLP pad.

FCLP-473

1.0                      O,R 1 CH-53 NS

Goal. Introduce NVD FCLPs.

Requirement

Discuss:

NVD considerations for appropriate light level.  
Shipboard operations.  
Shipboard lighting.  
Aircraft clearance.  
CRM.  
Hand and arm signals.  
Safety procedures.  
Ditching procedures.  
Emergency procedures.

Introduce:

Procedures required for shipboard operations in the NVD environment.

Performance Standards. Perform NVD FCLPs IAW appropriate shipboard NATOPS.

Prerequisite. CAL-222 and 320 as appropriate for ambient light level.

Ordinance. N/A.

External Syllabus Support. FCLP pad.

6. Carrier Qualification (CQ)

- a. Purpose. To qualify aircrew in day and night shipboard operations.

b. 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, NWP-42, the LHA/LPH/LHD NATOPS, and OPNAVINST 3710.7. Each flight requires five CQs. CQ-372 requires CCNSI for initial flight unless aircrewmembers are NSQ for the appropriate light level.

c. Crew Requirement. CQ-474 and 475, CC. CQ-476, CC/CCUI or CC/AOUI. AOUI flies CQ-474 and 476.

d. Flight Training. (3 Flights, 4.5 Hours).

CQ-474                    1.5                    O,C,R 1 CH-53

Goal. Introduce day CQs.

Requirement

Review:

FCLP-471.

Discuss:

Shipboard operations.

Aircraft clearance.

CRM.

Hand and arm signals.

Safety procedures.

Ditching procedures.

Emergency procedures.

Performance Standards. Perform day CQs IAW appropriate shipboard NATOPS.

Prerequisite. FCLP-471.

Ordinance. N/A.

External Syllabus Support. Helicopter capable ship.

CQ-475                    1.5                    O,C,R 1 CH-53 N

Goal. Introduce night, unaided CQs.

Requirement

Review:

FCLP-472.

CQ-474.

Discuss:

Night procedures.

Shipboard lighting.

Shipboard operations.

Aircraft clearance.

CRM.

Hand and arm signals.

Safety procedures.

Ditching procedures at night.

Emergency procedures.

Night fixation.

Performance Standards. Perform night unaided CQs IAW appropriate shipboard NATOPS.

Prerequisite. FCLP-472 and CQ-474.

Ordinance. N/A.

External Syllabus Support. Lighted helicopter capable ship.

CQ-476

1.5 O,C,R 1 CH-53 N NS

Goal. Introduce NVD CQs.

Requirement

Review:

FCLP-473.

CQ-475.

Discuss:

NVD considerations for appropriate light level.

Shipboard operations.

Shipboard lighting.

Aircraft clearance.

CRM.

Hand and arm signals.

Safety procedures.

Ditching procedures.

Emergency procedures.

Performance Standards. Perform NVD CQs IAW appropriate shipboard NATOPS.

Prerequisite. FCLP-473 and CQ-474.

Ordinance. N/A.

External Syllabus Support. NVD compatible helicopter capable ship.

7. Moving Target Gunnery (MTG)

a. Purpose. To introduce techniques and profiles in conducting MTG.

b. General. Aircrews shall fly this stage IAW CH-53 TAC Manual.

c. Crew Requirements. CC/AG, AGI/CCUI. AOUI flies MTG-480.

d. Ground/Academic Training. Review applicable chapters of CH-53 TAC Manual.

e. Flight Training. (1 Flight, 1.5 Hours).

MTG-480

1.5 C,R 1 CH-53

Goal. Introduce MTG.

Requirement

Review:

AG-281.

Discuss:

Aiming techniques.  
Lead compensation.  
Safety procedures.

Introduce:

Applicable MTG.  
Shadow gunnery.  
Towed banner.  
Dart.  
Moving land target.

Performance Standards. Demonstrate understanding of MTG as stated in the CH-53 TAC Manual.

Prerequisite

Aircrew should be aerial gunner qualified.  
An AGI is required if aircrew are not aerial gunners.

Ordnance. 500 rds .50 cal. and 2 XM-218 guns.

External Syllabus Support. Range/ordnance request.

8. Ramp Mounted Weapons System (RMWS)

a. Purpose. To conduct aerial gunnery training for the Tail Gunner Observer (TG) from a rear hemisphere aspect allowing enhanced defensive fires.

b. General

(1) Completion of this stage is the minimum requirement for tail gunnery training. The TGUI must complete the tail gunner evaluation event, AG-483 and be designated by the commanding officer prior to firing without a TGI.

(2) AG-483 certifies the TGUI as a tail gunner with the respective weapon. Aircrew may be designated a tail gunner by the Commanding Officer after completing AG-483.

(3) Aircrew may conduct AG-483 in either HLL or LLL conditions and should be NSQ in the appropriate light level condition.

(4) Tail gunnery introductory lectures and initial instructional flights shall be conducted by a TGI prior to AG-481.

(5) At least one aircrew shall possess a RMWS checklist and a conventional weapons checklist for the GAU-21 (M3M).

c. Crew Requirements: CC/AGO/TG or CC/AGO/TGUI/TGI.

d. Ground/Academic Instruction: Consult the MAWTS-1 course catalog for the recommended lecture in the academic support package applicable to this stage of training.

e. Flight Training: (3 Flights, 3.0 Hours).

AG-481

1.0

C, R 1 CH-53

Goal. Introduce RMWS operational considerations, safety precautions, and crew coordination for conducting multi-crew served weapons operations.

Requirement

Review:

AG-280.

Discuss:

RMWS configuration.  
Use and configuration of aircrew restraint system.  
RMWS checklist.  
Sectors of fire.  
Aiming techniques.  
Target hand-off.  
Crew coordination.  
Range considerations.  
Weapon capabilities.  
Firing in landing profile.  
Weapon malfunctions.  
Burst rates.

Introduce:

Preflight.  
Safety procedures associated with ordnance evolutions.  
Interlocking fields of fire.  
Ordnance loading.  
Burst rates.  
Flight profiles (running, hovering, landing).  
Post flight.

Performance Standards. Operate .50 cal RMWS safely IAW crew served weapons checklist and CH-53 TAC-MAN. Aircrew shall demonstrate positive weapons control and effective fire on pre-briefed targets as stated in the CH-53 TAC-MAN.

Prerequisites. Aerial gun qualified IAW MCO P3500.51.

Ordnance. 1500 rounds .50 cal. and 3 .50 cal machine guns.  
500 rounds per weapon.

External Syllabus Support. Range/Ordnance requests.

AG-482

1.0

C, R 2 CH-53

Goal. Introduce RMWS operational considerations, safety precautions, and crew coordination for conducting multi-crew served weapons operations during a day section aerial gunnery flight.

Requirement

Review:

AG-481.

Discuss:

Crew coordination.  
Section responsibilities.  
Sectors of fire.  
Target hand-off.

Introduce:

Aiming techniques in a section.  
Weapons control in a section.

Practice:

Aiming techniques in a section.  
Weapons control in a section.  
Weapons employment/delivery from the rear hemisphere in a section.

Performance Standards. Operate .50 cal RMWS safely IAW crew served weapons checklist and CH-53 TAC-MAN. Aircrew shall demonstrate positive weapons control in a section and effective fire on pre-briefed targets as stated in the CH-53 TAC-MAN.

Prerequisites. AG-481.

Ordinance. 1500 rounds .50 cal and 3 .50 cal machine guns. 500 rounds per weapon.

External Syllabus Support. Range/Ordinance requests.

AG-483

1.0                      C, R 2 CH-53 NS

Goal. Introduce NVD RMWS operational considerations, safety precautions, and crew coordination for conducting multi-crew served weapons operations during a section night aerial gunnery flight. Qualify aircrew as a Tail Gunner Observer.

Requirement

Review:

AG-481  
AG-482

Discuss:

Crew coordination while utilizing NVDs.  
Section responsibilities while utilizing NVDs.  
Sectors of fire while utilizing NVDs.  
Target hand-off while utilizing NVDs.  
Effects of chaff and flares on target.  
Acquisition/engagement while utilizing NVDs.  
Laser safety/employment.

Introduce:

Aiming techniques in a section while utilizing NVDs.  
Weapons control in a section while utilizing NVDs.

Effects of chaff and flares on target.  
Acquisition/engagement while utilizing NVDs.

Practice:

Aiming techniques in a section while utilizing NVDs.  
Weapons control in a section while utilizing NVDs.  
Interlocking fields of fire while utilizing NVDs.  
Weapons employment/delivery from the rear hemisphere in a section night shoot.

Performance Standards. Operate .50 cal RMWS safely IAW crew served weapons checklist and CH-53 TAC-MAN. Aircrew shall demonstrate positive weapons control in a section at night and effective fire on pre-briefed targets as stated in the CH-53 TAC-MAN.

Prerequisites. AG-481, AG-482.

Ordnance. 1500 rounds .50 cal. and 3 .50 cal machine guns. 500 rounds per weapon. Chaff and flare mix (overt and covert).

External Syllabus Support. Range/Ordnance requests.

9. Tactics (TAC)

a. 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 medium to high threat environment.

b. General. Aircrew shall conduct these flights under the standards required in MCO 3501.4A, MCCRES, Volume III, Marine Heavy Helicopter Squadrons and/or MCO 3501.8A MCCRES, Volume VII, MAGTF Elements. Aircrew may conduct these flights in high or low light level conditions and must be NSQ for appropriate light level.

c. Crew Requirement. CC/AGO, CC/CCUI or CC/AGOU. AOUI flies TAC-490 and 492.

d. Ground Training. Consult the MAWTS-1 Course Catalog.

e. Flight Training. (2 Flights, 4.0 Hours).

TAC-490                      2.0                      R 3+ ACFT (N)(NS)

Goal. Develop integrated tactical flight proficiency in a high threat environment.

Requirement

Review:

TAC-390 and TAC-391.

Discuss:

Escort integration, i.e. Battle Positions.  
Sectors of fire consideration for entire flight.  
Section responsibilities, i.e. free/engaged aircraft.  
Operations in LZ.

Introduce:

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. Demonstrate proficiency in multi-aircraft flight in a high threat environment as stated in the CH-53 TAC Manual.

Prerequisite

TAC-390 if day. TAC-391 if NVDs are used.  
Aircrew should be aerial gunners.  
An AGI is required if aircrew are not aerial gunners.

Ordinance. 1000 rds of .50 cal ammo, 30 chaff, and XM-218's.

External Syllabus Support. Range/ordnance/escort requests.

TAC-492

2.0

O,C,R,S 2+ ACFT NS

Goal. Develop tactical flight proficiency in urban terrain operations at night.

Requirement

Review:  
TAC-391.

Discuss:

Effects of ambient lighting on night systems in an urban area.  
Obstacle clearance in urban area.  
Scan techniques in urban area, i.e. dense vegetation scan.

Introduce:

Effects of ambient lighting on night systems in an urban area.  
Obstacle clearance in urban area.  
Scan techniques in urban area, i.e. dense vegetation scan.

Performance Standards. Demonstrate understanding of CH-53 operations in urban areas as stated in the MAWTS-1 MOUT Manual.

Prerequisite

TAC-390.  
Aircrew should be aerial gunner qualified.  
An AGI is required if aircrew are not aerial gunners.

Ordinance. N/A.

External Syllabus Support. N/A.

240. INSTRUCTOR TRAINING

1. Crew Chief Instructor Under Training (CCIUT)

a. Purpose. To develop proficiency in instructional procedures and techniques to support CC training.

b. General

(1) Fleet Replacement Squadron

(a) All instructor under training flights emphasize standardization of CC procedures and techniques. The CCIUT should be capable of demonstrating all training objectives associated with Core Skill Introduction flight instruction.

(b) IUT events 500 through 507 shall be complete prior to being designated a Crew Chief Instructor (CCI). Upon completion of STANX-507 and designation by the commanding officer, the CCI is capable of instructing all Core Skill Introduction phase events to include TERF and NS events.

(c) STANX-507 can be flown in conjunction with any Core Skill Introduction phase event.

(2) Fleet Operating Squadrons. For criteria concerning all instructor certifications and designations refer to T&R Program Manual. MAWTS-1 Course Catalog contains the academic and syllabus requirements for all instructor certifications.

c. Crew Requirement. CCI/CCIUT.

d. Flight Training. (8 Flights, 8.0 Hours).

FORM-500

1.0

2 CH-53

Goal. Demonstrate CC responsibilities and instructional techniques during formation flight.

Requirement

Review:

Form-152.

Discuss:

Parade position.

Formations.

Closure rate.

Hand and arm signals.

In-flight emergency procedures.

Standard terminology.

Performance Standards. Demonstrate proper CCI responsibilities and instructional techniques during day formation flights IAW requirements outlined in this Chapter.

Prerequisite. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

FORM-501

1.0

2 CH-53 NS

Goal. Demonstrate CC responsibilities and instructional techniques during night formation flight.

Requirement

Review:

Form-153.

Discuss:

Closure rate.  
Aircraft lighting.  
Light signals.  
Lookout responsibilities.  
Target fixation.  
Standard terminology.  
NVD considerations.

Performance Standards. Demonstrate proper CCI responsibilities and instructional techniques during NVD formation flights IAW requirements outlined in this Chapter.

Prerequisite. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

CAL-502

1.0

1 CH-53

Goal. Demonstrate crew chief responsibilities and instructional techniques during CALs.

Requirement

Review:

CAL-161.  
CAL-162.

Discuss:

CALs.  
CRM.  
Landing gear system failures.  
Vibrations.  
Engine failures in flight.

Performance Standards. Demonstrate proper CCI techniques and responsibilities for day CALs IAW requirements outlined in this Chapter.

Prerequisite. N/A.

Ordinance. N/A.

External Syllabus Support. N/A.

CAL-503

1.0

1 CH-53 NS

Goal. Demonstrate CCI responsibilities and instructional techniques during HLL NVD CALs.

Requirement

Review:

FAM-122.  
CAL-163.

Discuss:

NVDs.  
NVD considerations.  
Lighting.  
CALs.  
CRM.  
Landing gear system failures.  
Vibrations.  
Engine failures in flight.

Performance Standards. Demonstrate proper CCI techniques and responsibilities for HLL NVD CALS IAW requirements outlined in this Chapter.

Prerequisite. N/A.

Ordnance. N/A.

External Syllabus Support. N/A.

TERF-504

1.0

1 CH-53

Goal. Demonstrate CCI responsibilities and instructional techniques during maneuvers and navigation while flying in the TERF environment.

Requirement

Review:

CAL-161 and CAL-162.  
TERF-180.

Discuss:

TERF maneuvers.  
Aircraft clearances.  
Standard terminology.  
CALs.  
CRM.  
Landing gear system failures.  
Vibrations.  
Engine failures in flight.

Performance Standards. Demonstrate proper CCI techniques and responsibilities during maneuvers and navigation while flying in the TERF environment IAW requirements outlined in this Chapter.

Prerequisite. N/A.

Ordnance. N/A.

External Syllabus Support. N/A.

EXT-505

1.0

1 CH-53

Goal. Demonstrate CCI responsibilities and instructional techniques used during single (53D) and dual point (53E) external operations.

Requirement

Review:

CAL-161 and 162.  
EXT-170 and 172.

Discuss:

CC duties.  
Standard terminology.  
External operations.  
CALs.  
CRM.  
Landing gear system failures.  
Emergencies.

Performance Standards. Demonstrate proper CCI techniques and responsibilities used during external operations IAW requirements outlined in this Chapter.

Prerequisite. N/A.

Ordinance. N/A.

External Syllabus Support. HST, certified load.

EXT-506

1.0

1 CH-53 NS

Goal. Demonstrate CCI responsibilities and instructional techniques used during HLL NVD external operations.

Requirement

Review:

CAL-163.  
EXT-171 and 173.

Discuss:

NVD considerations.  
Lighting.  
CC duties.  
Standard terminology.  
External operations.  
CALs.  
CRM.  
Landing gear system failures.  
Emergencies.

Performance Standards. Demonstrate proper CCI techniques and responsibilities used during HLL NVD external operations IAW requirements outlined in this Chapter.

Prerequisite. N/A.

Ordnance. N/A.

External Syllabus Support. HST, certified load.

STANX-507            1.0                            1 CH-53 (N) (NS)

Goal. CC standardization check.

Requirement

Review:

Applicable 100 series codes.

Discuss:

CCUI duties/responsibilities.

Standard terminology.

External operations.

CALs.

CRM.

Emergency procedures.

Instructional techniques.

Performance Standards. Demonstrate standard CCI procedures, techniques and responsibilities IAW requirements outlined in this Chapter.

Prerequisite. N/A.

Ordnance. N/A.

External Syllabus Support. As required.

250. REQUIREMENTS, QUALIFICATIONS, AND DESIGNATIONS

1. Purpose. To determine qualification for designation in specific flight skills and systems knowledge.

2. General

a. This is an annual flight requirement per OPNAVINST 3710.7 and the CH-53 NATOPS Manual.

b. The evaluating CC shall be a CC NATOPS Assistant Instructor, NATOPS Instructor, or Evaluator.

3. Crew Requirement. CC/CC or CC/AO.

4. Flight Training. (1 Flight, 1.5 Hours).

EVAL-600            1.5                            E 1 CH-53 (N)(NS)

Goal. Completion of the annual NATOPS evaluation.

Requirement

Discuss:

Crew Brief.

Demonstrate:

Aircraft systems knowledge.

Pre/post flight procedures.  
 In-flight procedures.  
 Emergency procedures.  
 CRM.

Performance Standards. Demonstrate proficiency and knowledge of all flight skills and systems of the CH-53 as a CC or AG/O as applicable.

Prerequisites. Annual NATOPS Open and Closed book examinations must be complete prior to flight.

Ordnance. N/A.

External Syllabus Support. As required.

251. GRADUATE LEVEL COURSES

1. There are five graduate level courses that certify CCIs for tactical portions of the T&R syllabus. These courses are as follows:

- a. Weapons and Tactics Crew Chief Instructor (WTCCI Sec MOS 6177).
- b. Crew Chief Terrain Flight Instructor (CCTERFI).
- c. Crew Chief Night Systems Instructor (CCNSI).
- d. Crew Chief Defensive Measures Instructor (CCDMI).
- e. Crew Chief Aerial Gunner Instructor (CCAGI).
- f. Crew Chief Tail Gunner Instructor (CCTGI).

2. The above courses and applicable training syllabi are listed in the current MAWTS-1 Course Catalog. There will be no re-fly requirement for these instructor flights. T&R syllabus proficiency in stages is considered sufficient to maintain proficiency as an instructor. WTCCIs are only certified at the Weapons and Tactics Instructor course provided at MAWTS-1.

3. There is one graduate level course to qualify CCIs for the Fleet Replacement Squadron. This program of instruction is contained in paragraph 240, Instructor Under Training.

260. ORDNANCE REQUIREMENTS. Annual ordnance requirements are developed on a "per crew" basis per OPNAVNOTE 8010.

ORDNANCE	100 SERIES	200 SERIES	300 SERIES	400 SERIES	REFRESHER	IUT	ANNUAL*
.50 Cal	0	1,000	2,000	3,000	6,000	0	2,000
Chaff(1)	0	0	90	30	120	0	90
Flares(1)	0	0	90	90	180	0	90
Note (1) Chaff and Flare requirements are determined by the pilot's syllabus, Chapter 1.							

\* Annual Ordnance requirements maintain aircrew proficiency.

T&R MANUAL, CH-53

AIRCRAFT: CH-53                      MOS: 6173                      CREW POSITION: CREW CHIEF

STAGE	FLT		REFLY		O	C	R	S	E	REMARKS	
	TRNG	CODE	HRS	INTERVAL							CRP
<b>CORE SKILL INTRODUCTION PHASE</b>											
FAM	110		1.5	*	3.0		X	X	X		
	111		1.5	*	3.0						
	112		1.5	*	3.0	X					
	113		1.5	*	3.0	X					
	119		1.5	*	3.0					(N)	
	120		1.5	*	3.0					N	
	121		1.5	*	4.0		X	X		N (NS)	
	122		1.5	*	4.0	X	X	X		NS	
INT	135		1.5	*	2.0	X	X	X	X		
	136		1.5	*	2.0	X					
	137		1.5	*	2.0	X				(N) (NS)	
FORM	152		1.5	*	2.0					2 A/C	
	153		1.5	*	2.0					2 A/C NS	
CAL	161		1.5	*	2.0						
	162		1.5	*	2.0	X	X	X	X		
	163		1.5	*	2.0	X	X	X	X	NS	
EXT	170		1.0	*	3.0	X	X	X	X		
	171		1.0	*	3.0	X	X	X	X	NS	
	172		1.5	*	3.0	X	X	X	X		
	173		1.5	*	3.0	X	X	X	X	NS	
TERF	180		1.5	*	2.0	X					
CSIX	191		1.5	*	4.0	X	X	X	X	X	(N) (NS)
<b>CORE SKILL BASIC PHASE</b>											
INT	200		1.0	12	0.5	X	X	X			(N) (NS)
	201		1.0	12	0.5	X	X	X			(N) (NS)
FORM	210		1.5	12	0.5		X	X			2 A/C
	211		2.0	6	0.5		X	X			2 A/C NS
CAL	220		1.5	12	0.5	X		X			
	221		1.5	12	0.5		X	X	X		2 A/C
	222		1.5	6	1.0			X			NS
	223		2.0	6	1.0		X	X	X		2 A/C NS
TERF	230		1.5	12	0.5			X			
	231		1.5	12	0.5	X	X	X	X		2 A/C
	232		2.0	6	1.0			X			NS
	233		2.0	6	1.0	X	X	X	X		2 A/C NS
EXT	240		1.5	12	1.0	X	X	X	X		
	241		1.5	12	1.0	X	X	X	X		
	242		1.5	6	1.0	X	X	X	X		NS
	243		1.5	6	1.0	X	X	X	X		NS

Figure 2-1.--Crew Chief Refly Interval, CRP.

T&R MANUAL, CH-53

AIRCRAFT: CH-53                      MOS: 6173                      CREW POSITION: CREW CHIEF

STAGE	FLT TRNG CODE	HRS	REFLY INTERVAL	CRP	O	C	R	S	E	REMARKS
<b>CORE SKILL BASIC PHASE</b>										
AG	280	1.5	12	0.5		X	X			
	281	1.5	12	0.5		X	X			2 A/C
TAC	290	2.0	12	1.0		X	X			2 A/C
	291	2.0	6	1.0	X		X			2 A/C NS
<b>CORE SKILL ADVANCED PHASE</b>										
CAL	320	1.5	6	1.0		X	X			NS
	321	2.0	6	2.0	X	X	X	X		2 A/C NS
TERF	330	2.0	6	1.0		X	X			NS
	331	2.0	6	2.0	X	X	X	X		2 A/C NS
EXT	341	1.5	12	1.5	X	X	X	X		
	342	1.5	6	2.0	X	X	X	X		NS
	343	1.5	6	2.0	X	X	X	X		NS
DM	350	2.0	12	1.0	X	X	X			2 A/C
AG	380	1.0	12	1.5		X	X			NS
	381	1.0	12	2.0		X	X			2 A/C NS
TAC	390	2.0	12	2.0		X	X			2 A/C
	391	2.0	12	2.0	X	X	X			2 A/C NS
<b>CORE PLUS PHASE</b>										
<u>53E/53D</u>										
HIE	400	1.5	12	.25/.25	X	X	X	X		(N)(NS)
	401	1.5	12	.25/.25	X	X	X	X		
	402	1.5	12	.25/.25	X	X	X	X		(N)(NS)
INT	410	2.0	12	.25/0.0	X	X	X	X		(N)(NS) (53E ONLY)
DM	450	0.5	12	.25/.25		X	X			2V1 R/W
	451	0.5	12	.25/.25		X	X			2V1 F/W
NBC	460	1.0	12	.25/.25			X			(N)(NS)
FCLP	471	1.0	12	.25/.25		X	X			
	472	1.0	12	.25/.25	X		X			N
	473	1.0	12	.25/.25	X		X			NS
CQ	474	1.5	12	.25/.25	X	X	X			
	475	1.5	12	.25/.25	X	X	X			N
	476	1.5	12	.25/.25	X	X	X			NS
MTG	480	1.5	12	0.5/0.5		X	X			
AG	481	1.0	12	.25/.25		X	X			
AG	482	1.0	12	.25/.25		X	X			2 A/C
AG	483	1.0	12	.25/.25		X	X			2 A/C NS

T&R MANUAL, CH-53

TAC	490	2.0	12	0.25/0.50				X		3+A/C(N)(NS)
	492	2.0	12	0.25/0.25	X	X	X	X		2+A/C NS

AIRCRAFT: CH-53                      MOS: 6173                      CREW POSITION: CREW CHIEF

STAGE	FLT TRNG CODE	HRS	REFLY INTERVAL	CRP	O	C	R	S	E	REMARKS
-------	---------------	-----	----------------	-----	---	---	---	---	---	---------

**INSTRUCTOR AND SPECIAL FLIGHT PERFORMANCE REQUIREMENTS**

FORM	500	1.0	*	N/A						2 A/C
	501	1.0	*	N/A						2 A/C N NS
CAL	502	1.0	*	N/A						
	503	1.0	*	N/A						NS
TERF	504	1.0	*	N/A						
EXT	505	1.0	*	N/A						
	506	1.0	*	N/A						NS
STANX	507	1.0	*	N/A					X	(N)(NS)

**REQUIREMENTS, QUALIFICATIONS, AND DESIGNATIONS**

EVAL	600	1.5	12	N/A					X	(N)(NS)
------	-----	-----	----	-----	--	--	--	--	---	---------

Figure 2-1.--Crew Chief Refly Interval, CRP, Continued.

T&R MANUAL, CH-53

AIRCRAFT: CH-53      MOS: 61XX      CREW POSITION: AERIAL GUNNER/OBSERVER

STAGE	FLT TRNG CODE	HRS	REFLY INTERVAL	CRP	C	R	S	E	REMARKS
<b>CORE SKILL INTRODUCTION PHASE</b>									
FAM	110	1.5	*	5.0	X	X	X		
	120	1.5	*	5.0					N
	122	1.5	*	5.0	X	X			N NS
FORM	152	1.5	*	5.0					2 A/C
	153	1.5	*	5.0					2 A/C N NS
CAL	161	1.5	*	5.0					
	163	1.5	*	5.0	X	X	X		N NS
EXT	170	1.0	*	4.5	X	X	X		
	171	1.0	*	4.5	X	X	X		N NS
	172	1.5	*	4.5	X	X	X		
	173	1.5	*	4.5	X	X	X		N NS
TERF	180	1.5	*	5.0					
CSIX	191	1.5	*	2.0	X	X	X	X	(N) (NS)
<b>CORE SKILL BASIC TRAINING</b>									
INT	200	1.0	12	0.5	X				(N) (NS)
	201	1.0	12	0.5	X				(N) (NS)
FORM	210	1.5	12	0.5	X	X			2 A/C
	211	2.0	6	0.5	X	X			2 A/C N NS
CAL	220	1.5	12	0.5		X			
	221	1.5	12	0.5	X	X	X		2 A/C
	222	1.5	6	1.0		X			N NS
	223	2.0	6	1.0	X	X	X		2 A/C N NS
TERF	230	1.5	12	0.5		X			
	231	1.5	12	0.5	X	X	X		2 A/C
	232	2.0	6	1.0		X			N NS
	233	2.0	6	1.0	X	X	X		2 A/C N NS
EXT	240	1.5	12	0.5	X	X	X		
	241	1.5	12	0.5	X	X	X		
	242	1.5	6	1.0	X	X	X		N NS
	243	1.5	6	1.0	X	X	X		N NS
AG	280	1.5	12	0.5	X	X			
	281	1.5	12	0.5	X	X			2 A/C
TAC	290	2.0	12	0.5	X	X			2 A/C
	291	2.0	6	1.0		X			2 A/C N NS

Figure 2-2.--Aerial Gunner/Observer Refly Interval.

T&R MANUAL, CH-53

AIRCRAFT: CH-53      MOS: 61XX      CREW POSITION: AERIAL GUNNER/OBSERVER

STAGE	FLT TRNG CODE	HRS	REFLY INTERVAL	CRP	C	R	S	E	REMARKS
<b>CORE SKILL ADVANCED PHASE</b>									
CAL	320	1.5	6	1.0	X	X			N NS
	321	2.0	6	1.5	X	X	X		2 A/C N NS
TERF	330	2.0	6	1.0	X	X			N NS
	331	2.0	6	1.5	X	X	X		2 A/C N NS
EXT	341	1.5	12	1.0	X	X	X		
	342	1.5	6	1.5	X	X	X		N NS
	343	1.5	6	2.0	X	X	X		N NS
DM	350	2.0	12	1.0	X	X			2 A/CAG
	380	1.0	12	1.0		X	X		N NS
	381	1.0	12	2.0	X	X			2 A/C N NS
TAC	390	2.0	12	1.5	X	X			2 A/C
	391	2.0	12	2.0	X	X			2 A/C N NS
<b>CORE PLUS PHASE</b>									
HIE	400	1.5	12	0.25/0.25	X	X	X		(N)(NS)
	401	1.5	12	0.25/0.25	X	X	X		
	402	1.5	12	0.25/0.25	X	X	X		(N)(NS)
INT	410	2.0	12	0.25/0.0	X	X	X		(N)(NS) (53E ONLY)
DM	450	0.5	12	0.25/0.25	X	X			2V1 R/W
	451	0.5	12	0.25/0.25	X	X			2V1 F/W
NBC	460	1.0	12	0.25/0.25					(N)(NS)
FCLP	471	1.0	12	0.25/0.25	X	X			
	472	1.0	12	0.25/0.25					N
	473	1.0	12	0.25/0.25	X	X			N NS
CQ	474	1.5	12	0.25/0.25	X	X			
	475	1.5	12	0.25/0.25					N
	476	1.5	12	0.25/0.25	X	X			N NSMTG
MTG	480	1.5	12	0.5/0.5	X	X			
AG	481	1.0	12	0.25/0.25	X	X			
AG	482	1.0	12	0.25/0.25	X	X			2 A/C
AG	483	1.0	12	0.25/0.25	X	X			2 A/C N NS
TAC	490	2.0	12	0.25/0.50		X			3+A/C(N)(NS)
	492	2.0	12	0.25/0.25	X	X	X		2+A/C(N)(NS)
<b>REQUIREMENTS, QUALIFICATIONS, AND DESIGNATIONS</b>									
EVAL	600	1.5	12	N/A	X	X	X	X	(N)(NS)

Figure 2-2.--Aerial Gunner/Observer Refly Interval, Continued.

CREW CHIEF/AERIAL GUNNER/OBSERVER FLIGHT UPDATE CHAINING

<u>STAGE</u>	<u>FLIGHT</u>	<u>FLIGHTS UPDATED</u>
INT	200	
	201	200
FORM	210	
	211	210
CAL	220	
	221	210, 220
	222	220
	223	210, 211, 220, 221, 222
TERF	230	
	231	210, 230
	232	230
	233	210, 211, 230, 231, 232,
EXT	240	220
	241	220, 240
	242	220, 222, 240
	243	220, 222, 240, 241, 242
AG	280	
	281	280
TAC	290	210, 220, 221, 230, 231
	291	210, 211, 220, 221, 222, 223, 230, 231, 232, 233, 290
CAL	320	220, 222
	321	210, 211, 220, 221, 222, 223, 320
TERF	330	230, 232
	331	210, 211, 230, 231, 232, 233, 330
EXT	341	220, 230, 240, 241
	342	220, 222, 240, 241, 242, 243, 320, 341
	343	220, 222, 230, 232, 240, 241, 242, 243, 320, 330, 341, 342
DM	350	230, 231
AG	380	280, 281
	381	280, 281, 380
TAC	390	210, 220, 221, 230, 231, 280, 281, 290
	391	210, 211, 220, 221, 222, 223, 230, 231, 232, 233, 280, 281, 290, 291, 320, 321, 330, 331, 380, 381, 390

Figure 2-3.--Crew Chief/Aerial Gunner/Observer Flight Update Chaining.

CREW CHIEF/AERIAL GUNNER/OBSERVER FLIGHT UPDATE CHAINING

<u>STAGE</u>	<u>FLIGHT</u>	<u>FLIGHTS UPDATED</u>
<b>CORE PLUS PHASE</b>		
HIE	400	201
	401	201
	402	201
INT	410	200
DM	450	210,231,232
	451	210,231,232
NBC	460	
FCLP	471	
	472	471
	473	471,472
CQ	474	471
	475	471,472,474
	476	471,473,474
MTG	480	280,281
AG	481	
AG	482	481
AG	483	481,482
TAC	490	210,220,221,231,232,280,290,291,380
	492	210,220,221,231,232,280

Figure 2-3.--Crew Chief/Aerial Gunner/Observer Flight Update Chaining (Cont).