

CNAF M-3710.7

NATOPS GENERAL FLIGHT AND OPERATING INSTRUCTIONS MANUAL



CNAF M-3710.7

THIS PUBLICATION SUPERSEDES CNAF M-3710.7 DATED 1 SEPTEMBER 2023.

**DEPARTMENT OF THE NAVY
OFFICE OF THE CHIEF OF NAVAL OPERATIONS.**

This Page Intentionally Left Blank.



DEPARTMENT OF THE NAVY
 COMMANDER NAVAL AIR FORCE
 BOX 357051
 SAN DIEGO CALIFORNIA 92135-7051

COMNAVAIRFOR
 M-3710.7 N45
 7 Feb 2025

COMNAVAIRFOR MANUAL 3710.7

From: Commander, Naval Air Forces

Subj: NAVAL AIR TRAINING AND OPERATING PROCEDURES STANDARDIZATION
 GENERAL FLIGHT AND OPERATING INSTRUCTIONS

1. Purpose. To issue policy and procedural guidance applicable to a broad spectrum of users and complement individual NATOPS manuals.
2. Background. The Naval Air Training and Operating Procedures Standardization (NATOPS) program is a positive approach toward improving combat readiness and achieving a substantial reduction in the aircraft mishap rate. Standardization, based on professional knowledge and experience, provides the basis for the development of sound operating procedures. The standardization program is not intended to stifle individual initiative, but rather to aid Commanding Officers in increasing their unit's combat potential without reducing command prestige or responsibility. With the objective of maintaining agile standardization guidance, Commander, Naval Air Forces (CNAF) accepted responsibility for the NATOPS program management as directed in OPNAVINST 3710.7.
3. Point of Contact. CNAF Program Administrator (CNAP N455), (619) 545-2845.
4. Records Management. Records created as a result of this instruction, regardless of media or format, must be managed by Secretary of the Navy (SECNAV) 5210.1 of September 2019.
5. Review and Effective Date. Per OPNAVINST 5215.17, CNAF will review this instruction annually on the anniversary of its issuance date to ensure applicability, currency, and consistency with Federal, Department of Defense, SECNAV, and Navy policy and statutory authority using OPNAV 5215/40 Review of Instruction. This instruction will be in effect for 10 years, unless revised or cancelled in the interim, and will be reissued by the 10-year anniversary date if it is still required, unless it meets one of the exceptions in OPNAVINST 5215.17A, paragraph 9. Otherwise, if the instruction is no longer required, it will be processed for cancellation as soon as the need for cancellation is known following the guidance in OPNAV Manual 5215.1 of May 2016.

D. L. CHEEVER

Releasability and distribution:

This instruction is cleared for public release and is available electronically only via COMNAVAIRPAC directive Web site –

<https://flankspeed.sharepoint-mil.us/sites/CPF-CNAP-HQ/N004/directives/Forms/allItems.aspx>

This Page Intentionally Left Blank.

RECORD OF CHANGES

Date of Change	Remarks/Purpose and Affected Chapter/Section/Pages
7 February 2025	Revision
1 September 2023	Revision
15 January 2023	<ul style="list-style-type: none"> - LOAA, Paragraphs 2.2.1, 2.2.2, 2.2.3, 2.6.3, 2.6.5, 3.11.5, 3.16.1, 5.1.10.6, 8.4.11, 10.6.2.8 and I.1. - Figures 2-4, and 2-5. - PARENT AIRS NATOPS-2023-005.
15 May 2022	Revision
15 January 2021	<ul style="list-style-type: none"> - GLOSSARY, LOAA, Paragraphs 2.2.2, 2.7.2.6, 3.1.3.3, 3.1.5.1, 3.5.2, 4.4.1.2, 4.5.4, 4.5.5, 4.5.6, 4.8.3.2, 5.1.7, 5.1.10.4, 5.1.10.5, 5.3.2.2, 5.3.3, 5.5.8.1, 5.7.2, 6.2.1, 7.1.1.1, 8.2.1.1, 8.3.3, 8.4.1, 8.4.3, 8.8.4.2.1, 9.2.1, 10.3.1, 10.3.3, 11.2, 11.2.1, 11.2.5, 11.4.1, 11.5.1, 12.2.2.3, 12.5.1.1, 12.9.2, 12.10.2, 13.1.2.2, 13.2.3.3, 13.4, 14.1.4.1, 14.1.4.2, 14.1.5, 14.3.5.5, 14.5.2, 14.11.3.1, 14.11.3.4, 14.13.5.2, 14.13.7, A.2.1, A.2.3, D.5.1, F.3, H.2, J.2, K.3, K.4, and K.5 - Figures 2-4, 2-5, 2-6, 2-8, 2-9, 4-1, 11-3, and C-1 - PARENT AIRS NATOPS-2021-023.
1 August 2020	<ul style="list-style-type: none"> - Paragraphs 5.1.1.5, 5.7.2, 8.2.4, 8.2.4.1, 8.2.4.2, 8.2.4.3, 8.2.4.4, 8.2.4.5, 8.2.4.6, 8.2.4.6.1, 8.2.4.6.2, 8.2.4.6.3, 8.2.4.6.4, 8.2.4.6.5, 8.2.4.7, 8.2.4.8, 8.2.4.9, 8.4.9, 8.4.10, 8.4.12, E-4, and E.7. - Figures 8-3, 8-8, 8-9, and E-2. - AIRS 2020-272.
1 September 2019	<ul style="list-style-type: none"> - Paragraphs 3.13.1, 3.13.2, 3.13.3, 3.13.4, 4.5.4, 5.3.4, 8.2.1, 8.3.2, 8.7.1, 13.4, A.2.1, A.2.3, E.4, F.5, and K.3. - Figures C-1, E-2, E-3, and L-1. - AIRS 2019-276.
30 October 2018	<ul style="list-style-type: none"> - Updated Figure E-3, VH-92. Page E-5. - Updated reference to Aircrew Systems NATOPS Manual. Page 8-13. - Amplification for F-35B FRS, Unique Implications of Not Having a 2-Seat Trainer. Page 13-4. - Corrected WEB Address. Page 1-2, Page 3-14. - Added Tiltrotor Aircraft Commander Requirements for USMC Personnel. Page 12-7. - Deleted paragraph 4.5.4 Direct User Access Terminal Service (DUAT). Page 4-4. - Deleted "DUAT" from LOAA. Page 39. - Corrected reference for Chapter 7 (International Civil Aviation Organization). Page 5-20. - Deleted reference to F-14 and added F-35. Pages 5-9 and K-7. - Added C-38 to Figure E-3, Page E-5. - Updated Figure C-1. Pages C-1/4. - Added C-26 to Paragraph K.5, Page K-6. - Added MH-60R/S to Paragraph K.3, Page K-3. - Updated/Added E-6B to Paragraph K.3 and K.4, Pages K-2 and K-5. <p>CNAF M-3710.7 AIRS 2018-272; DTG: 032050Z NOV 2018</p>

CNAF M-3710.7

Date of Change	Remarks/Purpose and Affected Chapter/Section/Pages
15 August 2018	<ul style="list-style-type: none">– Addition of Aerospace Medicine Physician Assistant (APA) and Aeromedical Safety Corpsman (AMSC) - pages 39, 3-8, 8-8, 13, 15, 16, 17, 18, 19, 20, 23, 24, 27, 28, 31, 35, 36, 37, 38, 39, 10-16, 21, 22, 11- 3, 4, 6, 8, A-4, E-6, 7.– Relocate Figure 4-1 IFR Filing Criteria - Page 4-10.– Add Hyperventilation/Hypocapnia to Level A Hypoxia Awareness Training Requirements - Page 8-32.– Update to Chapter 8 pointing users to the Aircrew Systems NATOPS, 00-80T-123 - Page 8-1.– Updates to Crew Rest Requirements - Pages 8-13,14.– Aircrew Anthropometric Requirements - Pages 8-19, 20.– Joint Service Personnel Embarked on Naval Aircraft - Page 8-23.– Update USMC MOS 7372/7380 Title to Tactical Systems Operator/Officer - page J-1.– Basic UAS Qualification Levels - Page N-5 CNAF M-3710.7 AIRS 2017-476; DTG: 121735Z SEP 2018
15 July 2017	CNAF M-3710.7 AIRS 2017-044 thru 051, 053, 055 thru 063, 065, 066, 068 thru 073, 078, 220; DTG: 141744Z JUL 17
15 January 2017	CNAF M-3710.7 AIRS 2016-192 thru 197; DTG: 162325Z FEB 17

LIST OF EFFECTIVE PRINTED CONTENT

CHAPTER 1	Introduction	7 FEBRUARY 2025
CHAPTER 2	Naval Air Training and Operating Procedures Standardization Program	7 FEBRUARY 2025
CHAPTER 3	Policy Guidance	7 FEBRUARY 2025
CHAPTER 4	Flight Authorization, Planning, and Approval	7 FEBRUARY 2025
CHAPTER 5	Flight Rules	7 FEBRUARY 2025
CHAPTER 6	Air Traffic Control	7 FEBRUARY 2025
CHAPTER 7	Safety	7 FEBRUARY 2025
CHAPTER 8	Aeromedical and Survival	7 FEBRUARY 2025
CHAPTER 9	Miscellaneous	7 FEBRUARY 2025
CHAPTER 10	Flight Records, Reports, and Forms	7 FEBRUARY 2025
CHAPTER 11	General Instructions On Duty Involving Flying and Annual Flight Performance Requirements	7 FEBRUARY 2025
CHAPTER 12	Classification and Qualification of Flight Personnel	7 FEBRUARY 2025
CHAPTER 13	Instrument Ratings and Qualifications	7 FEBRUARY 2025
CHAPTER 14	UAS Policies and Operations	7 FEBRUARY 2025
APPENDIX A	NATOPS Flight Personnel Training/Qualification Jacket	7 FEBRUARY 2025
APPENDIX B	Aircraft Visual Identification System	7 FEBRUARY 2025
APPENDIX C	Directives Listed as References in this Manual	7 FEBRUARY 2025
APPENDIX D	Total Mission Requirement (TMR) Codes	7 FEBRUARY 2025
APPENDIX E	Naval Aviation Survival Training Program (NASTP) Requirements	7 FEBRUARY 2025
APPENDIX F	Exception, Special Qualification, Service, Landing, and Approach Codes	7 FEBRUARY 2025
APPENDIX G	Time Zone, System Status, Passenger Priority, and Opportune Cargo Codes	7 FEBRUARY 2025
APPENDIX H	Weapons Proficiency Codes	7 FEBRUARY 2025
APPENDIX I	Support Codes	7 FEBRUARY 2025
APPENDIX J	USMC Personal Data Syllabus and Status Codes	7 FEBRUARY 2025
APPENDIX K	COMNAVAIRFOR Approved IFAR Simulators	7 FEBRUARY 2025
APPENDIX L	List of Forms and Reports	7 FEBRUARY 2025
APPENDIX M	Standardized ACM Training Rules Briefing Guide	7 FEBRUARY 2025
APPENDIX N	BUQ Levels	7 FEBRUARY 2025

This Page Intentionally Left Blank.

NATOPS General Flight and Operating Instructions

CONTENTS

*Page
No.*

CHAPTER 1 — INTRODUCTION

1.1	GENERAL	1-1
1.1.1	Purpose and Scope	1-1
1.1.2	Submission of NATOPS Change Recommendations	1-1
1.1.3	Change Symbols	1-2
1.1.4	Areas of Responsibility	1-2
1.1.5	How To Obtain Copies	1-2
1.2	APPLICATION OF OPERATIONAL RISK MANAGEMENT ANALYSIS	1-2
1.3	OTHER GOVERNING SOURCES OF INFORMATION	1-3
1.3.1	NATOPS Manuals	1-3
1.3.2	Local Flying Rules and Instructions	1-3
1.3.3	Federal Aviation Regulations (FAR)	1-3
1.3.4	DOD Flight Information Publications (FLIPs) (NOTAL) and Notices to Airmen/Notices to Air Missions (NOTAMs) (NOTAL)	1-4
1.3.5	FAA Order JO 7110.65 (Air Traffic Control) (NOTAL)	1-4
1.3.6	NATOPS Air Traffic Control Manual (NAVAIR 00-80T-114)	1-5
1.3.7	NATOPS Airfield Operations Manual (NAVAIR 00-80T-124)	1-5
1.3.8	DoN Detail Specification for NATOPS Program Technical Publications and Products; Style, Format, and Common Technical Content, ACO NATOPS Style Guide	1-5
1.3.9	Other Instructions	1-5
1.4	EXPLANATION OF TERMS	1-5
1.5	WARNINGS, CAUTIONS, AND NOTES	1-5
1.6	WORDING	1-6

CHAPTER 2 — NAVAL AIR TRAINING AND OPERATING PROCEDURES STANDARDIZATION PROGRAM

2.1	PURPOSE	2-1
2.2	NATOPS PROGRAM ORGANIZATION	2-1
2.2.1	NATOPS Program Assignments	2-2

		<i>Page No.</i>
2.2.2	Responsibilities	2-3
2.2.3	General Administrative Requirements	2-6
2.3	NATOPS PRODUCTS AND PUBLICATIONS	2-7
2.3.1	Administrative NATOPS Products and Tools	2-7
2.3.2	NATOPS Manuals and Associated Products	2-8
2.3.3	Categories of NATOPS Products	2-9
2.3.4	Changes to NATOPS Products	2-10
2.4	CREATING, UPDATING AND CANCELLING NATOPS PUBLICATIONS	2-11
2.4.1	Creating a New NATOPS	2-11
2.4.2	Updating an Existing NATOPS	2-12
2.4.3	Cancelling a NATOPS	2-12
2.5	CHANGE RECOMMENDATIONS	2-12
2.5.1	Types of NATOPS Change Recommendations	2-12
2.5.2	Submission of NATOPS Change Recommendations	2-13
2.5.3	Routine Change Recommendations	2-13
2.5.4	Interim Change Recommendations	2-13
2.5.5	Preparation and Distribution of Interim Changes	2-15
2.6	NATOPS REVIEW PROCEDURES	2-19
2.6.1	General	2-19
2.6.2	Responsibility	2-19
2.6.3	Convening Announcement	2-19
2.6.4	Review Agenda	2-19
2.6.5	Conduct of NATOPS Reviews	2-19
2.6.6	NATOPS Review Report	2-20
2.6.7	Implementation of Approved Agenda Items	2-21
2.6.8	Prepublication Reviews	2-21
2.7	NATOPS EVALUATION PROCEDURES	2-21
2.7.1	General	2-21
2.7.2	Individual NATOPS Evaluations	2-22
2.7.3	Unit NATOPS Evaluation	2-25

CHAPTER 3 — POLICY GUIDANCE

3.1	POLICY CONCERNING USE OF AIRCRAFT	3-1
3.1.1	Special Policies	3-1
3.1.2	Nonessential Flights	3-2
3.1.3	Personnel Authorized To Pilot Naval Aircraft	3-3
3.1.4	Personnel Authorized To Taxi Naval Aircraft	3-4
3.1.5	Personnel Authorized To Perform Crew Duties in Naval Aircraft	3-4

		<i>Page No.</i>
3.1.6	Personnel Authorized as Project Specialists	3-5
3.2	POLICY CONCERNING USE OF SIMULATORS	3-5
3.3	ORIENTATION FLIGHTS	3-5
3.3.1	Purpose	3-6
3.3.2	Approval Authority	3-6
3.3.3	Categories of Eligible Participants for Orientation Flight	3-7
3.3.4	Orientation Flight Prerequisites	3-8
3.3.5	Flight Limitations	3-9
3.4	EMBARKATION OF PASSENGERS	3-9
3.5	FLIGHT DEMONSTRATIONS AND STATIC EXHIBITS	3-10
3.5.1	Naval Aircraft Participation	3-10
3.5.2	Approval Authority	3-11
3.5.3	Regulations	3-11
3.5.4	Exception	3-12
3.5.5	NATO Flight Demonstrations	3-12
3.5.6	NATO Live Weapons Demonstrations	3-12
3.6	EMPLOYMENT OF NAVAL AVIATORS BY CIVILIAN CONTRACTORS	3-12
3.7	COMMAND	3-12
3.7.1	Pilot in Command	3-12
3.7.2	Formation Leader	3-13
3.7.3	Mission Commander	3-13
3.7.4	Instructors	3-13
3.8	CREW RESOURCE MANAGEMENT	3-14
3.8.1	Critical Behavioral Skills	3-14
3.8.2	Effective CRM Training	3-15
3.9	OPERATIONAL-RISK MANAGEMENT	3-15
3.9.1	ORM Process Description	3-15
3.9.2	Enhancing ORM	3-16
3.10	FUNCTIONAL CHECKFLIGHTS	3-16
3.10.1	Crew Composition	3-16
3.10.2	Weather Criteria	3-16
3.11	REPORTING AND RECORDING OF DEVIATIONS AND VIOLATIONS OF FLYING REGULATIONS AND MISHAP INFORMATION	3-16
3.11.1	Reports of Investigations of Violations of Flying Regulations	3-16
3.11.2	FAA Reports and Cooperation	3-18
3.11.3	Applicability of Flying Regulations Other Than Naval	3-18
3.11.4	Alleged Offshore Air Defense Identification Zone Violations	3-18

3.11.5	Flight Personnel Training/Qualification Jacket Entry/Aviators Flight Log Book Entry	3-18
3.11.6	Incident Reports	3-18
3.12	CROSS-COUNTRY PLANNING	3-19
3.12.1	Cross-Country Training Flight	3-19
3.12.2	Risk Assessment	3-19
3.12.3	Implementation	3-20
3.13	TERMINAL INSTRUMENT PROCEDURES	3-20
3.13.1	General	3-20
3.13.2	U.S. Civil Airports	3-21
3.13.3	Other Than U.S. Airports	3-21
3.13.4	Conformance to TERPs	3-21
3.13.5	Annual Revalidation	3-21
3.14	MILITARY FLIGHT OPERATIONS QUALITY ASSURANCE (MFOQA)	3-21
3.14.1	Use of MFOQA Data	3-22
3.15	ALL-HANDS SAFETY ACTION PROGRAM (ASAP)	3-22
3.15.1	ASAP Data Requirements	3-22
3.16	AIRFIELD VEHICULAR TRAFFIC	3-23
3.16.1	Airfield Vehicle Operators Course	3-23
3.16.2	Local Airfield Rules	3-23
3.17	PUBLIC AIRCRAFT OPERATIONS (PAO) VERSUS CIVIL AIRCRAFT OPERATIONS	3-23
3.17.1	Airworthiness Authority	3-23
3.17.2	State Aircraft	3-24

CHAPTER 4 — FLIGHT AUTHORIZATION, PLANNING, AND APPROVAL

4.1	FLIGHT AUTHORIZATION	4-1
4.1.1	Authority	4-1
4.1.2	Documentation	4-1
4.1.3	Flightcrew Requirements	4-1
4.2	MINIMUM FLIGHTCREW REQUIREMENTS	4-1
4.2.1	Aircraft Commander Requirement	4-1
4.2.2	Insufficient NATOPS Guidance	4-2
4.2.3	Helicopters Not Requiring a Copilot	4-2
4.2.4	Use of Lookouts	4-2
4.2.5	Rescue Helicopters Operating Over Water	4-2
4.3	FLIGHT PLANNING	4-2
4.3.1	Preflight Planning	4-2

4.3.2	Detachment Operations	4-3
4.4	AUTHORIZED AIRFIELDS	4-3
4.4.1	Authorized Airfields for Stop-and-Go, Refueling and RON	4-3
4.4.2	Authorized Airfields and Landing Areas For Training	4-3
4.4.3	Helicopter, Tiltrotor, and VSTOL/STOL Landing Areas	4-4
4.4.4	Airfield Operations Outside Published Hours/Closed Control Tower Airfield Operations	4-4
4.4.5	Closed Airfields	4-4
4.5	FLIGHT PLANS	4-4
4.5.1	General	4-4
4.5.2	No Communication Link	4-4
4.5.3	Flight Plan Forms	4-4
4.5.4	Shore-to-Ship and Ship-to-Shore Operations	4-5
4.5.5	Stopover Flights Within the Contiguous United States	4-6
4.6	SUBMISSION OF THE FLIGHT PLAN	4-6
4.6.1	Pilot in Command/Formation Leader	4-6
4.6.2	Daily Flight Schedule	4-7
4.6.3	Flight Plan Approval	4-7
4.7	FLIGHT PLAN MODIFICATION	4-7
4.8	OTHER PREFLIGHT REQUIREMENTS	4-7
4.8.1	Call Sign Requirements	4-7
4.8.2	Manifest Requirements	4-7
4.8.3	Flight Route Weather Briefing	4-7
4.8.4	Weather Criteria for Filing	4-9
4.8.5	Minimum Fuel Requirements	4-11
4.8.6	Weight and Balance Control	4-12
4.9	CLOSING OF FLIGHT PLAN	4-12
4.9.1	Military Installations	4-12
4.9.2	Nonmilitary Installations	4-12

CHAPTER 5 — FLIGHT RULES

5.1	GENERAL FLIGHT RULES	5-1
5.1.1	Aircraft Lighting	5-1
5.1.2	Right-of-Way Between Single and Formations of Aircraft	5-2
5.1.3	Unusual Maneuvers Within Class B, C, or D Airspace	5-2
5.1.4	Aircraft Speed	5-2
5.1.5	Special Use Airspace	5-3
5.1.6	Military Training Routes (MTRs)	5-4

		<i>Page No.</i>
5.1.7	Flight Over the High Seas	5-6
5.1.8	Supersonic Flight Operations	5-7
5.1.9	Aerobatic Flight	5-7
5.1.10	Simulated Air Combat Maneuvering (ACM) Training Rules	5-8
5.1.11	Simulated Instrument Flight	5-17
5.1.12	Formation Flying	5-17
5.1.13	Electronic Kneeboard	5-20
5.1.14	Aerial Photography	5-20
5.2	VISUAL FLIGHT RULES PROCEDURES	5-20
5.2.1	Compliance With Directives	5-20
5.2.2	Judgment	5-20
5.2.3	See and Avoid	5-21
5.2.4	Weather Minimums	5-21
5.2.5	Weather Conditions Precluding VFR Flight	5-21
5.2.6	Additional Requirements	5-23
5.3	INSTRUMENT FLIGHT RULES AND POSITIVE CONTROL PROCEDURES	5-23
5.3.1	General Requirements	5-23
5.3.2	Aircraft Equipment Requirements	5-24
5.3.3	RNAV/GPS Navigation	5-26
5.3.4	Instrument Departures	5-27
5.3.5	Instrument Approaches and Landing Minimums	5-27
5.4	HELICOPTER/TILTROTOR OPERATIONS	5-29
5.4.1	Helicopter/Tiltrotor Operations in Class B, C, or D Airspace	5-29
5.4.2	Practice Autorotations	5-30
5.4.3	Helicopter/Tiltrotor Terrain Flight Operations	5-30
5.4.4	Helicopter/Tiltrotor Night Hover Operation Over Water	5-30
5.4.5	Helicopter Operations	5-30
5.5	REDUCING FLIGHT-RELATED DISTURBANCES	5-30
5.5.1	Annoyance to Civilians and Endangering Private Property	5-30
5.5.2	Disturbance of Wildlife	5-31
5.5.3	Zooming of Vessels	5-31
5.5.4	Avoidance of Commercial Carriers and Aircraft of Civil Registry	5-31
5.5.5	Avoidance of Installations Important to Defense	5-32
5.5.6	Jettisoning Fuel	5-32
5.5.7	Air-to-Air Missile Training Flights	5-32
5.5.8	Expenditure of Airborne Stores Through Extensive Cloud Cover	5-32
5.6	FLAMEOUT APPROACHES	5-33

5.6.1	Actual Flameout Approaches	5-33
5.6.2	Simulated Flameout Approaches	5-33
5.7	FLIGHT OPERATIONS WITH NIGHT VISION DEVICES	5-33
5.7.1	General	5-33
5.7.2	Operating Limitations	5-33

CHAPTER 6 — AIR TRAFFIC CONTROL

6.1	APPLICABILITY	6-1
6.2	AIR TRAFFIC CONTROL PROCEDURES	6-1
6.2.1	Authorized Personnel	6-1
6.2.2	Control Tower	6-1
6.2.3	Control of Formation Flights	6-1
6.2.4	Taxi Instructions	6-1
6.2.5	Departure Instructions	6-2
6.2.6	Minimum Fuel	6-2
6.2.7	Handling of VIP Aircraft	6-2
6.2.8	Approach Instructions	6-3
6.3	LANDING INSTRUCTIONS	6-3
6.3.1	Reduced Same Runway Separation	6-3
6.3.2	Procedure for Checking Wheels Down and Locked	6-4
6.3.3	Runway Braking Action Advisory/Condition Readings	6-4
6.4	LETTERS OF AGREEMENT	6-4
6.5	VITAL MILITARY OPERATIONS	6-4
6.5.1	Priority	6-4
6.5.2	Letters of Agreement	6-5

CHAPTER 7 — SAFETY

7.1	FLIGHT PRECAUTION	7-1
7.1.1	General Precautions	7-1
7.1.2	Starting, Turning, and Taxiing	7-2
7.1.3	Takeoff	7-4
7.1.4	Takeoff and Landing Checklists	7-4
7.1.5	Engine Malfunctions on Multiengine Aircraft	7-4
7.1.6	Distress and Emergency	7-5
7.1.7	Ditching and Bailout	7-5
7.1.8	Command and Control Communication	7-5
7.1.9	Tobacco Products in Aircraft	7-6
7.2	SAFETY BELTS AND SHOULDER HARNESES	7-6

	<i>Page No.</i>
7.3 UNUSUAL PERFORMANCE OF AIRCRAFT	7-7
CHAPTER 8 — AEROMEDICAL AND SURVIVAL	
8.1 GENERAL	8-1
8.2 AVIATION LIFE SUPPORT SYSTEMS	8-1
8.2.1 Aircrew Personal Protective Equipment Requirements	8-1
8.2.2 Liferafts	8-8
8.2.3 Parachutes	8-8
8.2.4 Aircraft Oxygen System and Cabin Pressurization	8-8
8.2.5 Chemical, Biological, Radiological, Nuclear, Defense (CBRND) Protective Equipment	8-20
8.3 HUMAN PERFORMANCE AND AEROMEDICAL QUALIFICATIONS FOR FLIGHT, FLIGHT SUPPORT, AND SAILORS	8-20
8.3.1 General	8-20
8.3.2 Factors Affecting Aircrew, Sailor, and Watch Stander Performance	8-21
8.3.3 Performance Maintenance During Continuous and Sustained Operations	8-27
8.4 NAVAL AVIATION SURVIVAL TRAINING PROGRAM	8-28
8.4.1 Training Requirements	8-28
8.4.2 Records	8-30
8.4.3 Physical and Training Prerequisites for Participation in NASTP Training	8-30
8.4.4 Training Waivers/Qualification Extensions	8-31
8.4.5 Coordination	8-32
8.4.6 Aircrew Indoctrination NASTP Training	8-32
8.4.7 Aircrew Refresher NASTP Training	8-32
8.4.8 Non-Aircrew NASTP Training	8-33
8.4.9 Non-Aircraft Specific NASTP Training	8-33
8.4.10 Adjunctive Training	8-34
8.4.11 Grading	8-35
8.4.12 Environmental Exposure	8-35
8.5 FLEET AIR INTRODUCTION/LIAISON OF SURVIVAL AIRCREW FLIGHT EQUIPMENT (FAILSAFE) PROGRAM	8-36
8.6 NVD TRAINING PROGRAM	8-36
8.7 SEARCH AND RESCUE PILOT/RESCUE SWIMMER TRAINING	8-36
8.7.1 Definitions	8-37
8.7.2 Training Requirements	8-37
8.7.3 Prerequisites	8-37
8.8 AVIATION PHYSICAL EXAMINATIONS AND QUALIFICATIONS	8-37
8.8.1 General Requirements	8-37

8.8.2	Required Evaluations	8-38
8.8.3	Scope of Examinations	8-40
8.8.4	Disposition of Aircrew Found Not Physically Qualified (NPQ)	8-40
8.8.5	Medical Service Groups	8-42
8.8.6	Medical Requirements for Contract Civilians Operating Naval Aircraft	8-43

CHAPTER 9 — MISCELLANEOUS

9.1	PARACHUTE JUMPS	9-1
9.1.1	General	9-1
9.1.2	Delayed Release Jumps	9-1
9.1.3	Jump Precautions	9-1
9.1.4	Federal Aviation Regulations	9-1
9.1.5	Demonstrations	9-1
9.2	SECURITY OF AIRCRAFT AWAY FROM BASE	9-1
9.2.1	General	9-1
9.2.2	Aircraft Mishap	9-1
9.3	AIRCRAFT FUEL PURCHASE	9-1
9.4	AIRCRAFT NOISE ABATEMENT	9-2
9.5	CLAIMS FOR PERSONAL PROPERTY IN MARITIME DISASTERS OF AIRCRAFT	9-2
9.6	U.S. CUSTOMS, HEALTH, IMMIGRATION, AND AGRICULTURAL CLEARANCE	9-2
9.6.1	Naval Aircraft	9-2
9.6.2	Military Aircraft Arriving in the Continental U.S. From Overseas	9-2
9.6.3	Discharging of Passengers/Cargo	9-2
9.6.4	Foreign Military Aircraft	9-2
9.6.5	Medical or Economic Insect Pests	9-3
9.7	DISPERSAL OF PESTICIDES	9-3
9.8	AIRCRAFT TAIL LETTERS AND SIDE NUMBERS	9-3

CHAPTER 10 — FLIGHT RECORDS, REPORTS, AND FORMS

10.1	NAVAL FLIGHT RECORD SUBSYSTEM	10-1
10.2	OPNAV 4790/141 (AIRCRAFT INSPECTION AND ACCEPTANCE RECORD)	10-1
10.2.1	Pilot in Command	10-1
10.2.2	“Limitations/Remarks” Section	10-1
10.3	OPNAV 3710/4 (NAVAL AIRCRAFT FLIGHT RECORD (NAVFLIRS))	10-1
10.3.1	Documentation of the Naval Aircraft Flight Record	10-2
10.3.2	Aircraft Data Section	10-6

10.3.3	Aircrew Data Section	10-8
10.3.4	Logistics Data Section	10-11
10.3.5	Weapons Proficiency Data Section	10-12
10.3.6	Personnel Data	10-14
10.3.7	Personnel Exchange Program/DCMA/Any Aeronautically Designated Personnel Assigned to an Activity Where NDCSC Support Is Not Available	10-15
10.3.8	Civilian Crewmembers Flying Naval Aircraft (Active)	10-16
10.3.9	Fleet Readiness Centers	10-16
10.4	OPNAV 3760/37 (RECORD OF COMPLETED FLIGHT TIME)	10-16
10.5	MASTER FLIGHT FILES	10-16
10.5.1	Specific Requirements	10-16
10.5.2	Procedures for Maintaining Master Flight Files	10-17
10.5.3	Master Flight File Certification	10-18
10.5.4	Retention of Master Flight Files	10-18
10.6	OPNAV 3760/31 (AVIATORS FLIGHT LOG BOOK)	10-18
10.6.1	General Policies	10-18
10.6.2	Entries	10-19
10.7	NATOPS FLIGHT PERSONNEL TRAINING/QUALIFICATION JACKET, OPNAV 3760/32	10-21
10.8	MONTHLY INDIVIDUAL FLIGHT ACTIVITY REPORT (NAVFLIRS-3)	10-21

CHAPTER 11 — GENERAL INSTRUCTIONS ON DUTY INVOLVING FLYING AND ANNUAL FLIGHT PERFORMANCE REQUIREMENTS

11.1	SCOPE, PURPOSE, AND APPLICABILITY	11-1
11.1.1	General Policies	11-2
11.2	OPERATIONAL FLYING	11-2
11.2.1	Aeromedical Officer Flying Policy	11-3
11.2.2	Aviation Qualified Foreign Area Officer (AFAO) Policy	11-3
11.2.3	Aviation Operations Officer (AVOPS)	11-4
11.2.4	Additional Ratings	11-4
11.2.5	Minimum Flying Hours	11-4
11.2.6	Prorating Minimums	11-6
11.2.7	Aviation Qualification/Currency Requirements Summary	11-6
11.2.8	Flying Activity Denied	11-6
11.2.9	Policy Governing Assignment of Inactive Reserve Personnel	11-12
11.3	FLIGHT PAY	11-12
11.3.1	Definitions	11-13
11.3.2	Policy and Procedures	11-13

11.3.3	Aviation Career Incentive Pay for Rated Members (Rated Members Include Aeronautically Designated Naval Aviators and Naval Flight Officers)	11-13
11.4	ENLISTED CREWMEMBERS	11-14
11.4.1	Navy Crewmembers	11-14
11.4.2	Marine Corps Crewmembers	11-14
11.5	WAIVERS OF MINIMUM FLYING REQUIREMENTS	11-16
11.5.1	Authority to Waive	11-16
11.5.2	Action Required	11-16
11.5.3	Assignment of Other Than Permanently Designated Aeronautical Personnel	11-17
11.6	POLICY GOVERNING LOGGING, REPORTING, AND USE OF SIMULATOR TIME	11-19
11.6.1	Policy Governing Flying Time Substitution	11-19
11.6.2	Policy Governing NATOPS Evaluation Flight Substitution	11-19
11.7	INDIVIDUAL AND COMMAND RESPONSIBILITIES	11-19
11.7.1	Supervision	11-19
11.7.2	Responsibilities	11-19
11.8	REVOCATION OF ORDERS TO DUTY INVOLVING FLYING	11-19

CHAPTER 12 — CLASSIFICATION AND QUALIFICATION OF FLIGHT PERSONNEL

12.1	SCOPE	12-1
12.2	MULTIPILOTED FIXED-WING AIRCRAFT (PILOT)	12-1
12.2.1	Pilot Classification	12-1
12.2.2	Specific Requirements for Qualification	12-1
12.2.3	General Requirements for Qualification	12-3
12.3	MULTIPILOTED ROTARY-WING AIRCRAFT (PILOT)	12-4
12.3.1	Pilot Classification	12-4
12.3.2	Specific Requirements for Qualification	12-4
12.3.3	General Requirements for Qualification	12-5
12.4	MULTIPILOTED TILTROTOR AIRCRAFT (PILOT)	12-6
12.4.1	Pilot Classification	12-6
12.4.2	Specific Requirements for Qualifications	12-6
12.4.3	Initial Qualification	12-7
12.4.4	Requalification	12-7
12.4.5	Time Limits	12-8
12.5	NAVAL FLIGHT OFFICERS	12-8
12.5.1	Naval Flight Officer Classification	12-8
12.5.2	Specific Requirements for Qualification	12-8
12.5.3	General Requirements for Qualification	12-9

		<i>Page No.</i>
12.6	QUALIFICATIONS OF UAS FLIGHTCREW	12-10
12.7	TRAINING OF ENLISTED FLIGHT PERSONNEL	12-10
12.7.1	General	12-10
12.7.2	Flight Records	12-10
12.7.3	Auditing of Enlisted Flight Record	12-10
12.7.4	Allocation of Temporary Flight Orders	12-10
12.8	CLASSIFICATION AND QUALIFICATION OF NAVAL AIRCREWMAN	12-10
12.8.1	Naval Aircrewman Classification	12-10
12.8.2	General Requirements for Positional Qualification as a Naval Aircrewman	12-10
12.8.3	Proficiency	12-11
12.8.4	Maximum Time Limit for Positional Qualification as Naval Aircrewman	12-11
12.8.5	Time of Requalification for Naval Aircrewman	12-11
12.8.6	Qualification Waivers for Naval Aircrewmembers	12-11
12.9	QUALIFYING AUTHORITIES	12-11
12.9.1	Aeronautical Organizations	12-11
12.9.2	Non-aeronautical Organizations	12-11
12.9.3	Fleet Replacement Squadrons	12-12
12.9.4	Guidance for Qualifying Authorities	12-12
12.10	QUALIFICATION TO TRANSITION INTO JET, HELICOPTER, OR TILTROTOR AIRCRAFT	12-12
12.10.1	Minimum Training Syllabus Requirements	12-12
12.10.2	Action	12-13
12.10.3	Chief of Naval Air Training Responsibility	12-13
12.11	REPORTS	12-14
12.11.1	Navy Flight Personnel	12-14
12.11.2	Marine Corps Flight Personnel	12-14
12.11.3	Revocation of Qualifications	12-14
CHAPTER 13 — INSTRUMENT RATINGS AND QUALIFICATIONS		
13.1	INSTRUMENT RATINGS AND QUALIFICATIONS	13-1
13.1.1	Pilots/Naval Flight Officers Required To Maintain Instrument Ratings/Qualifications	13-1
13.1.2	Renewal/Expiration of Instrument Ratings and Qualifications	13-1
13.1.3	Composition and Functions of Instrument Flight Boards	13-3
13.2	REQUIREMENT FOR INSTRUMENT RATINGS	13-3
13.2.1	Standard Rating	13-3
13.2.2	Special Rating	13-4
13.2.3	Failure To Meet Requirements	13-4

		<i>Page No.</i>
13.3	INSTRUMENT RATING FORMS	13-4
13.4	AIRCRAFT CONSIDERATIONS	13-4
13.5	GPS NAVIGATION TRAINING	13-5
13.5.1	General	13-5
13.5.2	Ground Instruction	13-5
13.5.3	GPS Navigation Flight Training	13-6

CHAPTER 14 — UAS POLICIES AND OPERATIONS

14.1	PURPOSE AND SCOPE	14-1
14.1.1	Directives, Procedures and Terminology Applicable to UAS Operations	14-1
14.1.2	Military Reporting Procedures For UAS Flight Deviations	14-1
14.1.3	Federal Aviation Regulations (FAR)	14-1
14.1.4	Other UAS-Specific Publications	14-1
14.1.5	Certificates of Waiver or Authorization (COAs)	14-2
14.1.6	Compliance with UAS-Related Directives	14-2
14.1.7	Explanation of UAS Groups	14-2
14.1.8	Waivers	14-3
14.1.9	Non-Programs of Record (POR) Systems	14-3
14.2	UAS NATOPS PROGRAM	14-4
14.2.1	UAS Qualification (BUQ) Levels	14-4
14.2.2	UAS NATOPS Program Implementation	14-4
14.3	POLICY GUIDANCE FOR USE OF UAS	14-4
14.3.1	Guidance for the Domestic Use of UAS	14-4
14.3.2	General Operating Precautions	14-5
14.3.3	Prohibited Maneuvers	14-5
14.3.4	Displays and Demonstrations	14-5
14.3.5	UAS Command Responsibilities	14-5
14.3.6	Transfer of UAS Responsibilities During Flight	14-6
14.3.7	Non-Participating Personnel	14-7
14.3.8	Functional Checkflights (FCFs)	14-7
14.4	FLIGHT AUTHORIZATION AND PLANNING	14-7
14.4.1	Requirement for Flight Authorization	14-7
14.4.2	UAS Flightcrew Requirements	14-7
14.4.3	Positive Control Requirement	14-8
14.4.4	UAS Preflight Planning	14-8
14.4.5	Airspace	14-9
14.4.6	Airfield Requirements	14-10
14.4.7	Weather Planning	14-10

		<i>Page No.</i>
14.4.8	Mission Essential Subsystem Matrix (MESM)	14-11
14.4.9	Fuel and Propulsion Battery Charge Considerations	14-11
14.4.10	Risk Assessment	14-12
14.4.11	UAS Preflight Briefings	14-12
14.5	GENERAL FLIGHT RULES	14-13
14.5.1	Right-of-way Rules	14-13
14.5.2	Airspace	14-14
14.5.3	UAS VFR Requirements	14-14
14.5.4	UAS IFR Requirements	14-15
14.5.5	UAS Airport Operating Procedures	14-15
14.6	AIR TRAFFIC CONTROL	14-16
14.7	SAFETY	14-16
14.7.1	Conduct of Flight	14-16
14.7.2	Starting, Turning, and Taxiing	14-16
14.8	AEROMEDICAL REQUIREMENTS	14-16
14.8.1	Aviation Physical Examinations and Qualifications	14-16
14.8.2	Human Performance and Aeromedical Qualifications For Flight and Flight Support Personnel	14-17
14.9	MISCELLANEOUS	14-18
14.10	FLIGHT RECORDS, REPORTS AND FORMS	14-18
14.10.1	Naval Flight Record Subsystem (NAVFLIRS)	14-18
14.10.2	UAS Flight Logs	14-18
14.11	GENERAL INSTRUCTIONS ON DUTY INVOLVING FLYING AND ANNUAL FLIGHT PERFORMANCE REQUIREMENTS	14-19
14.11.1	Operating UAS While in a Leave Status	14-19
14.11.2	Minimum Flying Hours	14-19
14.11.3	Operating Proficiency	14-19
14.11.4	UAS Simulators	14-20
14.12	UASC CLASSIFICATIONS AND DESIGNATION OF UAS FLIGHT AND MAINTENANCE PERSONNEL	14-20
14.12.1	UASC Classifications	14-20
14.12.2	Basic UAS Qualification (BUQ) Levels	14-21
14.12.3	Specific Requirements for Qualification	14-21
14.12.4	General Requirements for Qualification	14-22
14.12.5	Failure To Qualify	14-23
14.12.6	Revocation of Qualifications	14-23
14.13	UAS INSTRUMENT RATING	14-23

14.13.1	Requirement For UAS Instrument Ratings	14-23
14.13.2	UAS Instrument Rating Annual Qualification Requirements	14-23
14.13.3	Instrument Rating Administration	14-24
14.13.4	Initial Qualification For UAS Instrument Ratings	14-24
14.13.5	UAS Instrument Rating Renewal Requirements	14-25
14.13.6	Failure To Meet Renewal Requirements	14-25
14.13.7	Revoking of Instrument Ratings	14-25

APPENDIX A — NATOPS FLIGHT PERSONNEL TRAINING/QUALIFICATION JACKET

A.1	INTRODUCTION	A-1
A.1.1	Purpose	A-1
A.1.2	Scope	A-1
A.1.3	Responsibility	A-1
A.1.4	Security	A-1
A.1.5	Disposition	A-1
A.1.6	Review	A-3
A.1.7	Design	A-3
A.1.8	Maintenance	A-3
A.1.9	Forms	A-3
A.2	ASSEMBLY AND MAINTENANCE	A-3
A.2.1	General	A-3
A.2.2	Qualifications and Achievements	A-4
A.2.3	Training	A-4
A.2.4	Flight Records	A-4
A.2.5	Procurement	A-5

APPENDIX B — AIRCRAFT VISUAL IDENTIFICATION SYSTEM

B.1	GENERAL	B-1
B.1.1	Unit Identification	B-1
B.1.2	Aircraft Side Numbers	B-2
B.1.3	Marking of Aircraft	B-2

APPENDIX C — DIRECTIVES LISTED AS REFERENCES IN THIS MANUAL

C.1	REFERENCES TO DIRECTIVES	C-1
C.1.1	Directives Referenced in this Manual	C-1
C.1.2	Websites for the Above Directives	C-4

APPENDIX D — TOTAL MISSION REQUIREMENT (TMR) CODES

D.1	PURPOSE	D-1
-----	---------------	-----

		<i>Page No.</i>
D.2	NAVAL AIRCRAFT/SIMULATOR FLIGHT CLASSIFICATION SYSTEM	D-1
D.2.1	Primary Source	D-1
D.2.2	Deviation	D-1
D.3	APPLICABILITY OF THE TOTAL MISSION REQUIREMENT CODES	D-1
D.4	CLASSIFICATION OF TOTAL MISSION REQUIREMENT CODES	D-1
D.4.1	Purpose of Flight	D-1
D.5	GENERAL/SPECIFIC PURPOSE OF FLIGHT CODE COMBINATIONS A THROUGH I (TRAINING FLIGHTS)	D-2
D.5.1	General Purpose Codes	D-2
D.5.2	Specific Purpose Codes	D-3
D.6	GENERAL/SPECIFIC PURPOSE OF FLIGHT CODE COMBINATIONS J THROUGH R (SERVICE FLIGHTS)	D-3
D.6.1	SPCs To Be Used With GPCs J and K for Service Flights	D-3
D.6.2	GPCs L, M, N, and O for Service Flights	D-4
D.6.3	SPCs Used With GPC P	D-5
D.6.4	SPCs Used With GPC Q	D-5
D.6.5	SPCs Used With GPC R	D-5
D.7	GENERAL/SPECIFIC PURPOSE OF FLIGHT CODE COMBINATIONS S THROUGH Z (COMBAT FLIGHTS)	D-6
D.8	CURRENTLY ASSIGNED TOTAL MISSION REQUIREMENT CODES	D-8
APPENDIX E — NAVAL AVIATION SURVIVAL TRAINING PROGRAM (NASTP) REQUIREMENTS		
E.1	PURPOSE	E-1
E.2	NASTP TRAINING STATUS (DOES NOT INCLUDE NON-AIRCRAFT SPECIFIC NASTP TRAINING COURSES LISTED IN FIGURE E-1)	E-1
E.3	NASTP TRAINING REQUIREMENTS	E-2
E.4	NASTP CURRICULA OUTLINE	E-4
E.5	AIRCRAFT CLASS	E-5
E.6	APPROVED NASTP TRAINING SITES (AVIATION SURVIVAL TRAINING CENTERS (ASTC))	E-6
E.7	ADJUNCTIVE TRAINING	E-6
APPENDIX F — EXCEPTION, SPECIAL QUALIFICATION, SERVICE, LANDING, AND APPROACH CODES		
F.1	PURPOSE	F-1
F.2	EXCEPTION CODES	F-1
F.3	SPECIAL QUALIFICATION CODES	F-1
F.4	SERVICE CODES	F-3

F.5	LANDING CODES	F-3
F.6	APPROACH CODES	F-4

APPENDIX G — TIME ZONE, SYSTEM STATUS, PASSENGER PRIORITY, AND OPPORTUNE CARGO CODES

G.1	PURPOSE	G-1
G.2	TIME ZONE CODES	G-1
G.3	SYSTEM STATUS CODES	G-2
G.4	PASSENGER PRIORITY CODES	G-2
G.5	OPPORTUNE CARGO CODES	G-3

APPENDIX H — WEAPONS PROFICIENCY CODES

H.1	PURPOSE	H-1
H.2	ORDNANCE CODES	H-1
H.3	ORDNANCE DELIVERY DATA CODES	H-4
H.3.1	Ordnance System/Automatic Delivery Code	H-4
H.3.2	Manual Delivery Code	H-5
H.4	MISCELLANEOUS DATA RECORD CODES	H-5

APPENDIX I — SUPPORT CODES

I.1	PURPOSE	I-1
-----	---------------	-----

APPENDIX J — USMC PERSONAL DATA SYLLABUS AND STATUS CODES

J.1	PURPOSE	J-1
J.2	USMC ASSIGNED SYLLABUS (TEC) CODES	J-1
J.3	USMC SYLLABUS STATUS (SSC) CODES	J-2
J.4	USMC AIRCREW STATUS (ASC) CODES	J-2

APPENDIX K — COMNAVAIRFOR APPROVED IFAR SIMULATORS

K.1	PURPOSE	K-1
K.2	DESIGNATION OF NEW SIMULATORS	K-1
K.3	NAVY SIMULATORS (PILOT AND NFO SPECIAL CREW TIME)	K-2
K.4	NAVY SIMULATORS (SPECIAL CREW TIME ONLY)	K-5
K.5	NON-NAVY SIMULATORS (PILOT AND SPECIAL CREW TIME)	K-6

APPENDIX L — LIST OF FORMS AND REPORTS

L.1	PURPOSE	L-1
L.2	FORMS	L-1
L.3	FORMS WEBPAGES	L-3

APPENDIX M — STANDARDIZED ACM TRAINING RULES BRIEFING GUIDE

M.1	PURPOSE	M-1
M.2	ACM TRAINING RULES	M-1
M.2.1	Administrative	M-1

APPENDIX N — BUQ LEVELS

N.1	PURPOSE	N-1
N.2	BUQ LEVELS I–IV TRAINING	N-1

INDEX	Index-1
--------------------	---------

LIST OF ILLUSTRATIONS

	<i>Page No.</i>
CHAPTER 1 — INTRODUCTION	
Figure 1-1. CNAF M-3710.7 Areas of Responsibility	1-2
CHAPTER 2 — NAVAL AIR TRAINING AND OPERATING PROCEDURES STANDARDIZATION PROGRAM	
Figure 2-1. NATOPS Program Organization	2-1
Figure 2-2. NATOPS Flight Manual Waiver Authority	2-7
Figure 2-3. Interim Change Recommendation Approval Process	2-16
Figure 2-4. Sample NATOPS Interim Change Recommendation Message	2-17
Figure 2-5. Sample NATOPS Interim Change Message	2-18
Figure 2-6. Sample Pilot/NFO/Enlisted Aircrew Flight Logbook Entry	2-25
CHAPTER 4 — FLIGHT AUTHORIZATION, PLANNING, AND APPROVAL	
Figure 4-1. IFR Filing Criteria	4-9
CHAPTER 5 — FLIGHT RULES	
Figure 5-1. ACM Qualification	5-10
Figure 5-2. ACM Currency	5-10
Figure 5-3. Basic VFR Flight Minimums	5-22
CHAPTER 8 — AEROMEDICAL AND SURVIVAL	
Figure 8-1. Wind Chill Index	8-4
Figure 8-2. Anti-Exposure Assembly Requirements	8-5
Figure 8-2. Anti-Exposure Assembly Requirements (cont.)	8-6
Figure 8-3. Occurrence of Major Injury Resulting from Parachute Landing on Land or Ship in Ejections Between 1969 and 1998 in High Winds	8-9
Figure 8-4. Fractional Gas Concentration Versus Partial Pressure	8-10
Figure 8-5. Unpressurized Aircraft with Oxygen Systems Available	8-11
Figure 8-6. AFRL DCS Risk Assessment Model (No Pre-Oxygenation and Mild Activity)	8-11
Figure 8-7. AFRL DCS Risk Assessment Model (100% Pre-Oxygenation and Mild Activity)	8-12
Figure 8-8. Oxygen Requirement for Pressurized Aircraft Other Than Ejection Seat Aircraft	8-12
Figure 8-9. Adverse Physiological Conditions and Related Common Symptoms	8-15
Figure 8-10. Times of Useful Consciousness (TUC) without Supplemental Oxygen	8-18
Figure 8-11. Maximum Recommended Flight Time	8-23
CHAPTER 10 — FLIGHT RECORDS, REPORTS, AND FORMS	
Figure 10-1. Aircraft Data Section (OPNAV 3710/4)	10-7
Figure 10-2. Aircrew Data Section (OPNAV 3710/4)	10-9
Figure 10-3. Logistics Data Section (OPNAV 3710/4)	10-12

Figure 10-4.	Weapons Proficiency Data Section (OPNAV 3710/4)	10-14
Figure 10-5.	Personnel Data Section (OPNAV 3710/4)	10-15

CHAPTER 11 — GENERAL INSTRUCTIONS ON DUTY INVOLVING FLYING AND ANNUAL FLIGHT PERFORMANCE REQUIREMENTS

Figure 11-1.	Aviation Qualification/Currency Requirements Summary (Naval Aviator)	11-7
Figure 11-2.	Aviation Qualification/Currency Requirements Summary (NFO/AVOPS/FS/APA)	11-8
Figure 11-3.	Aviation Qualification/Currency Requirements Summary (Naval Aircrewman (NAC))	11-9
Figure 11-4.	DIFDEN Waiver Request	11-11
Figure 11-5.	Aviation Status Indicator Codes	11-15
Figure 11-6.	Minimum Flight Time Requirements Waiver Request	11-18

CHAPTER 14 — UAS POLICIES AND OPERATIONS

Figure 14-1.	UAS Groups	14-3
--------------	------------------	------

APPENDIX A — NATOPS FLIGHT PERSONNEL TRAINING/QUALIFICATION JACKET

Figure A-1.	Privacy Act Statement	A-2
-------------	-----------------------------	-----

APPENDIX C — DIRECTIVES LISTED AS REFERENCES IN THIS MANUAL

Figure C-1.	Directives Listed As References in this Manual	C-1
Figure C-2.	Websites Hosting Directives Listed in this Manual	C-5

APPENDIX D — TOTAL MISSION REQUIREMENT (TMR) CODES

Figure D-1.	Total Mission Requirement (TMR) Codes	D-8
-------------	---	-----

APPENDIX E — NAVAL AVIATION SURVIVAL TRAINING PROGRAM (NASTP) REQUIREMENTS

Figure E-1.	NASTP Training Status	E-1
Figure E-2.	NASTP Courses	E-2
Figure E-3.	Aircraft Class	E-5

APPENDIX L — LIST OF FORMS AND REPORTS

Figure L-1.	Forms Referenced in this Manual	L-1
Figure L-2.	Webpages Hosting Forms Referenced in this Manual	L-3

APPENDIX N — BUQ LEVELS

Figure N-1.	BUQ Level I	N-1
Figure N-2.	BUQ Level II	N-4
Figure N-3.	BUQ Level III	N-5
Figure N-4.	BUQ Level IV	N-6

GLOSSARY

The explanation or definitions of terms and abbreviations commonly used in the aviation community can be found in FAR, Part 1, and DOD FLIP General Planning, Chapter 2; and Aeronautical Information Manual (AIM) Pilot/Controller Glossary. No effort to duplicate these terms is intended. Where terms are used in this instruction with a different connotation or where definitions are lacking in the above-mentioned publications, the explanations of such terms are included.

A

actual instrument approach. When actual instrument conditions are encountered below 1,000 feet above the airport/flight deck elevation during an instrument approach.

actual instrument conditions. Conditions external to the aircraft in flight that do not permit visual reference to the horizon.

aerobatic flight maneuvers. An intentional maneuver involving an abrupt change in aircraft attitude, intentionally performed spins, or other maneuvers requiring pitch/dive angles greater than 45°, bank angles greater than 60°, or accelerations greater than 2 gs. A maneuver that conforms to the model NATOPS manual (e.g., break, weapons delivery, autorotations, etc.) is not considered to be aerobatic flight.

Aeromedical Dual Designator. An aeronautically designated Medical Department officer (i.e., flight surgeon, aerospace physician assistant, aerospace physiologist, aerospace experimental psychologist, or aviation optometrist) with the Additional Qualification Designator (AQD) of either 6AC (Med Dept & NFO) or 6AE (Med Dept & Pilot).

Aeromedical Officer. An aeronautically designated Medical Department officer (i.e., flight surgeon, aerospace physician assistant, aerospace and operational physiologist, aerospace experimental psychologist, or aerospace optometrist), or officer student in a course of instruction leading to such designation.

aeronautically designated personnel. A collective term that applies to all Naval Aviators, Naval Flight Officers, Naval Aerial Observers (USMC), Naval Flight Surgeons, Aerospace Physician Assistants,

Naval Aerospace and Operational Physiologists, Aerospace Optometrists, Naval Aerospace Experimental Psychologists, Aviation Operations Officers (AVOPS), Aviation qualified Foreign Area Officers (AFAO), Aviation Warfare Systems Operators (AW rating), personnel assigned by the Chief of Naval Personnel under a distribution Naval Enlisted Classification (NEC) of 82XX and 94XX, and USMC-enlisted crewmembers. Enlisted noncrewmembers are not considered aeronautically designated.

aircraft class. A broad classification as to the general mission purpose of an aircraft design (e.g., attack, fighter, helicopter, patrol, transport, vertical takeoff and landing and unmanned aerial vehicles).

aircraft commander time. The individual flight time during which an individual, designated as a qualified aircraft commander in the aircraft model being flown, is serving as pilot in command. Aircraft commander time is a measure of command experience rather than of pilot experience.

aircraft model. The basic mission symbol and design number (e.g., P-3, S-3, F/A-18, and H-60).

aircraft series. The specific version of aircraft within the same model (e.g., AV-8B; H-46D or E; F/A-18D or E/F).

aircraft type. The broadest classification of aircraft as to physical characteristics (i.e., fixed-wing, rotary-wing or tilt-rotor).

aircrew. A collective term that applies to all categories of personnel in a flight status either as crew or noncrewmember. Aircrew are military personnel on competent flight orders or civilian personnel whose duties require frequent and regular participation in aerial flights to perform inflight functions such as installation, maintenance, evaluation of airborne technical equipment (maintenance skins), communication specialists, photo specialists, etc.

aircrew aerial cameraman. Non-career aircrewman on DIFCREW orders knowledgeable of photographic equipment and qualified to integrate with the crew to obtain still and video imagery.

aircrew controlled breathing cycle. The aircrew controlled breathing cycle (ACBC) is the recommended

CNAF M-3710.7

breathing technique for ejection seat aircrew (consisting of a group of steps) performed during a strategic air break (SAB). Performing the ACBC during a SAB will assist in maintaining open alveoli for proper gas exchange and may reverse atelectasis that has previously occurred.

alveoli. Tiny balloon-shaped air sacs arranged in clusters that sit at the very end of the respiratory tree of the lungs whose function is to exchange oxygen and carbon dioxide molecules to and from the bloodstream.

arterial gas embolism. Arterial Gas Embolism (AGE) is caused by a blockage of blood supply to organs caused by bubbles in an artery formed during ambient (atmospheric) reductions in pressure. AGE is rare but can have serious life threatening consequences if not treated quickly.

atelectasis. Atelectasis is the collapse of one or more large or small lung regions. It occurs when the alveoli (tiny air sacs where gas exchange occurs) within the lung become deflated or filled with alveolar fluid. The consequence of atelectasis is a reduction in functional lung capacity, resulting from a reduction in area for gas exchange, leading to reductions in arterial oxygen levels. One type of aviation related atelectasis, known as *compressive or acceleration atelectasis*, is caused by increased accelerative forces during high G-force maneuvering causing alveoli to collapse. Absorptive atelectasis, the other aviation related form, is caused by breathing high fractional concentrations of oxygen (greater than 60%) that washes out alveolar nitrogen and replaces it with oxygen. As oxygen is more readily absorbed into the blood stream it may lead to alveolar collapse.

Aviation Qualified Foreign Area Officers (AFAO). Foreign Area Officers previously designated as naval aviators (pilots) and awarded the Aviation Qualified FAO AQD of FFQ.

Aviation Training System (ATS). The ATS is used to manage Marine Aviation Training (Maintenance, Aircrew and Command and Control) by facilitating standardization, evaluation and Crew Resource Management in order to provide a tactically relevant training continuum.

B

bolter. An attempted arrested landing on a carrier in which some portion of the aircraft, such as the landing gear

or hook, touches the deck but the arresting gear is not engaged and the aircraft continues in flight.

C

Career Crewmember (also known as Career Enlisted Flyer). A member of the Navy enlisted aviation community rating (AD, AE, AM, AMH, AME, AMS, AO, AT, AV, AW, PR, IT (TACAMO only), or AZ (TAR only)) holding a 78XX, 82XX, or 94XX NEC; or is in a formal training pipeline leading to the award of those NECs, and is detailed by PERS-404E or NRPC-417. Career Enlisted Flyers are crewmembers who are primarily detailed throughout their career into flying billets. Career Enlisted Flyers may be eligible to receive Career Enlisted Flyer Incentive Pay (CEFIP) in accordance with BUPERSINST 1326.4E, DoD 7000.14-R, and DoD 7730.67.

CASEVAC. The transportation of individuals, wounded or sick, in urgent need of medical attention by any combatant platforms which may or may not have medical care capabilities.

chemical, biological radiological, or nuclear defense (CBRND). Defensive measures taken against the effects of a chemical, biological, or a nuclear weapon attack.

civil aircraft operations. Aircraft operations other than those deemed as Public Aircraft Operations.

civilian non-DoD government employee. Individual could be with other Federal Government agency, state, county, or local government, etc., or an individual not with any government agency but whose activities benefit the general public at large. Firefighters and in-flight medical services are examples.

combatant commander. A commander of one of the unified or specified combatant commands established by the President.

contract simulator instructor (CSI). Contractor or Civil Service personnel designated by a service training agency or CNAF/CMC as a simulator instructor. A Contractor Simulator Instructor may be designated as an assistant NATOPS instructor and/or a NATOPS Instrument Evaluator by the respective Type Wing/Marine Air Group commander. CSIs who maintain these designations shall receive a NATOPS and instrument standardization evaluation annually by an appropriate NATOPS evaluator.

control (radar).

1. **Advisory.** The tactical control of aircraft by a designated control unit in which the pilot receives directions and recommendations. Aircraft commanders are not relieved of responsibility for their own safety and navigation.
2. **Close.** The tactical control of aircraft by a designated control unit, whereby the pilot receives orders affecting aircraft movements. The pilot will not deviate from controller instructions unless given permission or unless unusual circumstances require immediate action for the safety of the flight. In either case, the pilot will inform the controller of the action taken. This type of control requires two-way radio communication and radar contact. The controller is responsible for the safe separation of the aircraft, and the pilot must be informed whenever the aircraft is not held on the radarscope for periods in excess of 1 minute or five sweeps of the radar and, as a result, is being dead reckoned. The ultimate safety of the aircraft is the responsibility of the pilot.
3. **Positive.** The tactical control of aircraft by a designated control unit, whereby the pilot receives orders affecting aircraft movements that transfer responsibility for the safe navigation of the aircraft to the unit issuing such orders. The ultimate safety of the aircraft is the responsibility of the pilot.

controlling custodian. The command exercising administrative control of assignment, employment, and logistic support of aircraft. Controlling custodians are identified in COMNAVAIRFORINST 4790.2A.

conversion mode. Flight operations with the nacelles set between 74° and 5° are considered to be in CONV mode. (Constant nacelle settings between 5° and 1° are not selectable by the pilot.)

crew resource management (CRM). The use of specifically defined behavioral skills as an integral part of every flight to improve mission effectiveness by minimizing crew preventable errors, maximizing crew coordination, and optimizing risk management.

cross-country flight. A flight that either does not remain in the local flying area or remains in the local flying area and terminates at a facility other than an active military facility.

D

decompression sickness. Decompression sickness (DCS) is a disorder in which accumulated nitrogen dissolved in the blood and tissue forms bubbles upon

a significant decrease in the atmospheric pressure. As outside pressure decreases, as during a climb or a rapid cockpit decompression, bubbles may form in blood and tissue and may ultimately expand to injure tissue or block blood vessels. DCS in aviation is unlikely, but can have serious life threatening consequences if not treated quickly.

designations. A designation is a one-time occurrence and remains in effect until removed for cause. Commanders shall issue a designation letter to the individual upon the occasion of their original designation with appropriate copies for inclusion in their NATOPS qualification jacket.

DIFCREW. Duty for enlisted personnel in a flying status involving operational or training flights.

DIFDEN. Duty involving flying denied; duty in a flying status for an officer not involving flights.

DIFOPS. Duty in a flying status for an officer involving operational or training flights.

DIFTECH. Duty in a temporary flight status as a technical observer. Non-aeronautically designated officers assigned to duty involving flying will be issued DIFTECH orders by NAVPERSCOM in accordance with MILPERSMAN 1321-020.

DIFTEM (USN). Duty in a temporary flying status performing special mission duties as an enlisted non-crew member that is assigned to billets requiring duty involving flying. Enlisted personnel will be eligible under duty involving flying/temporary (DIFTEM) orders in accordance with MILPERSMAN 1210-260.

direct station-to-station communications. A means of passing flight progress information between airfields. Communications should be established by one of the following methods:

1. Voice landline.
2. Aeronautical Information System (AIS).

Dynamic Altitude Breathing Threats Training.

This course is provided at one of the Navy's eight Aviation Survival Training Centers and provides didactic and dynamic training focusing on experiencing the symptoms of acute altitude-induced hypoxia and hypocapnia, and performing corrective actions via a normobaric multi-crew or single crew altitude threats systems trainer, or other NASTP approved training device. This course was formerly known as Dynamic Hypoxia Training.

E

emergency landing (forced landing). An immediate landing, on or off an airport, necessitated by the inability to continue further flight.

enlisted crewmember (USMC). Enlisted personnel on competent orders to perform duty involving frequent and regular participation in aerial flight as a crewmember.

enlisted noncrewmember on flight orders (USMC). Enlisted personnel on competent orders to perform duty involving frequent and regular participation in aerial flight who are not performing duties related to the actual operation of the aircraft or associated equipment in the aircraft (i.e., maintenance personnel who perform inflight functions such as installation or troubleshooting of airborne technical equipment (maintenance skins) and VIP support, photo specialists, etc.).

F**flight.**

1. For operational purposes, a flight is one or more aircraft proceeding on a common mission.
2. For recording and reporting purposes, a flight begins when the aircraft first moves forward on its takeoff run or takes off vertically from rest at any point of support and ends after airborne flight when the aircraft is on the surface and either:
 - a. The engines are stopped or the aircraft has been on the surface for 5 minutes, whichever comes first.
 - b. A change is made in the pilot in command.
3. For helicopters, a flight begins when the aircraft lifts from a rest point or commences ground taxi and ends after airborne flight when the rotors are disengaged or the aircraft has been stationary for 5 minutes with rotors engaged.

Note

Flight time on repetitive evolutions such as field carrier landing practice (FCLP), passenger/cargo stops, and carrier qualifications shall be logged from the time the aircraft takes off until the aircraft has been on the surface for 5 minutes after each evolution flown (i.e., three sorties of 55 minutes actual air time interspersed with two 20-minute ground periods for refueling or passenger/ cargo transfer will be logged as 3.0 hours of flight time).

flight clearance. A flight clearance provides temporary flight operating limits for an aviation system operating in a nonstandard configuration or to a nonstandard envelope, pending issuance of the technical directive or change to the NATOPS, NATIP, or tactical manuals. A flight clearance is a temporary airworthiness approval from COMNAVAIRSYSCOM.

flight crew. Personnel whose presence is required on board a manned aircraft or at a control station for UAS to perform crew functions in support of the assigned mission (e.g., pilot, copilot, navigator, flight engineer, crew chief, air observer, special crew, trainee, etc.).

flight pay. A generic term used to denote any of the three monthly incentive pays associated with flying duty: Aviation Incentive Pay (AvIP), for aeronautically designated officers; Career Enlisted Flyer Incentive Pay (CEFIP), for aeronautically designated career naval aircrewmembers; and Hazardous Duty Incentive Pay (HDIP) for flying duty, for which any service member who is not receiving AvIP or CEFIP may be eligible, when required to perform in-flight duties in support of the command's mission. For more information and specific incentive pay policy, see references BUPERSINST 1326.4E, OPNAVINST 7220.18, DoD 7000.14-R, and DoD 7730.67.

flight support personnel. Personnel immediately involved in the maintenance, fueling, towing/moving, start-up, taxi, or launch and recovery of aircraft including, but not limited to, taxi directors, catapult and arresting gear crew, final checkers, landing signal enlisted (LSEs), aircraft maintenance personnel, and aircraft move crews and directors.

flight time. The elapsed time computed in accordance with the definition of flight. Flight time is logged in hours and tenths of hours and is creditable to the aircraft, personnel aboard, and equipment.

formation flight. A flight of more than one aircraft operating by prior arrangement as a single aircraft with regard to altitude, navigation, and position reporting, and where separation between aircraft within the flight rests with the pilots in that flight.

H

hazard. A condition with the potential to cause personal injury or death, property damage, or mission degradation.

hypercapnia. Hypercapnia is a condition of abnormally elevated carbon dioxide (CO₂) levels in the blood. Hypercapnia is generally caused by hypoventilation but may also be caused by exposure to environments

containing abnormally high concentrations of carbon dioxide.

hypocapnia. Hypocapnia is low CO₂ in the blood. Hypocapnia usually results from deep or rapid breathing, known as hyperventilation.

hypoxia. Hypoxia is a condition in which the body or a region of the body is deprived of adequate oxygen supply at the tissue level.

I

individual flight time. The total pilot time and special crew time creditable to an individual.

instructor. A naval aviator, naval flight officer, or naval aircrewman designated in writing by competent authority as a flight instructor, NATOPS evaluator, or NATOPS instructor in the aircraft model being flown.

instructor time. Individual flight time during which an instructor is required to instruct or evaluate other aeronautically designated personnel or students undergoing a formal flight syllabus.

instrument meteorological conditions. Meteorological conditions expressed in terms of visibility, distance from clouds, and ceiling less than the minimums specified for visual meteorological conditions. IMC conditions exist anytime a visible horizon is not distinguishable.

instrument time. The portion of pilot time in either day or night under actual or simulated instrument conditions.

1. Actual instrument time will be logged by both pilots in a dual/multipiloted aircraft during flight in actual instrument conditions.
2. Simulated instrument time shall be logged only by the pilot actually manipulating the controls.

Note

NFOs and student NFOs may report actual instrument time if they fly in an aircraft in which they can monitor the pilot instruments and recommend information to the pilot during actual instrument conditions.

L

landing. A return to the surface; landings include touch and go (providing the landing gear touches the surface), bolter, forced, or crash.

Note

Terms of control terminology such as immediately, possible, and practicable refer to the degree of urgency intended in the message:

1. Land immediately — Execute a landing without delay.
2. Land as soon as possible — Land at the first site at which a safe landing can be made.
3. Land as soon as practicable — Extended flight is not recommended. The landing site and duration of flight is at the discretion of the pilot in command.

local flight. A flight that remains within the local flying area and terminates at either the same facility or another military facility with which the originating station has direct station-to-station communications.

local flying area. That area in the vicinity of an air installation in which locally-based aircraft can operate during an average/typical sorties flight time. The local flying area shall not exceed 350 miles from an air installation and be designated as such in the Air Operations Manual by the Commanding Officer. In so far as practicable, local flying areas shall be bounded by prominent terrain features and/or air navigation aid radials/distances.

M

MEDEVAC. MEDEVAC is conducted with dedicated non-combatant ground and air ambulances, properly marked and employed in accordance with the Geneva Conventions and the law of war, designated with a Red Cross and associated medical equipment and personnel.

mile. All distances referred to in this instruction are nautical miles unless otherwise specified.

mission commander time. Flight time during which an individual, designated as a qualified mission commander in the aircraft model being flown, is serving as the mission commander. Mission commander time is a measure of command experience rather than flight experience.

multipiloted aircraft. Any aircraft having two sets of flight controls and instruments and operated by two pilots, both of who meet the requirements of the NATOPS manual for that model aircraft.

N

naval aircraft. For the purposes of this instruction, those aircraft accepted into the naval aircraft inventory reporting system, pre-accepted aircraft, and public use aircraft operated exclusively by or for the Department of the Navy.

naval aircrewman. A designation for enlisted personnel who have met the requirements for qualification and have been so certified in accordance with paragraph 12.8 of this instruction.

naval aviation shore facility. A facility at which an active airfield exists and is either owned, operated, or controlled by the Navy or Marine Corps.

Naval Aviator. A Naval Aviator (NA) is an officer or warrant officer in the United States Navy or Marine Corps that is qualified as a pilot.

Naval Flight Officer. A Naval Flight Officer (NFO) is an officer in the United States Navy or Marine Corps that specializes in airborne weapons and sensor systems. They may perform many co-pilot functions and operate the advanced systems on board in multi-crew naval aircraft, depending on the type of aircraft, and may also act as the overall mission commander and tactical coordinator of multiple air assets during a mission.

night time. The portion of pilot time during darkness (i.e., between the official time of sunset and sunrise (on the surface below the aircraft in flight), regardless of whether visual or instrument conditions exist).

normobaric hypoxia trainer. The normobaric hypoxia trainer (NHT) is used to train multiple aviation personnel at once in hypoxia recognitions and to familiarize them with the emergency procedures which include emergency survival equipment. The NHT replaced the Low Pressure Chamber.

O

oceanic. A situation where an aircraft has no radio communication and is greater than 250 nm from the nearest navaid.

officer in tactical command. The senior officer present eligible to assume command, or the officer to who has been delegated tactical command.

official business. The necessity to contact personnel, units, or organizations for the purpose of conducting transactions in the service of and in the interest of the United States Government. This definition does not authorize the use of official business only airfields, their

services, or other items attendant to itinerant operations when making en route stops while proceeding to an airfield at which official business is to be conducted. Official business only restrictions do not preclude the use of the facility as an alternate during instrument flight rule (IFR) conditions.

operational flying. (See paragraph 11.2 for definition and application.)

operational necessity. A mission associated with war or peacetime operations in which the consequences of an action justify accepting the risk of loss of aircraft and crew.

operational risk management. The process of dealing with the risk associated with military operations, which include risk assessment, risk decision making and implementation of effective risk controls.

orientation flight. A continuous-flight in DOD aircraft performed within the local flying area and terminating at the point of origin intended to further the understanding of particular programs concerning the roles and missions of the Department of Defense.

P

passenger. An individual who is not part of the aircrew traveling in an aircraft designed or normally configured for passenger (non-aircrew) carrying capability on a point-to-point flight.

pathfinder. An aircraft whose primary mission is to assist tactical aircraft with communication or navigation of flights over regions where normal tactical aircraft navigation/communication equipment is unusable.

physiological episode. A Physiological Episode (PHYSEP) occurs when aircrew experience adverse physiological, psychological, pathological or physical problems that manifest during or after flight, but that are not caused by the operation of the aircraft. For more information refer to OPNAVINST 3750.6S.

physiological event. A Physiological Event (PE) occurs when aircrew experience adverse physiological symptoms during or after flight attributed to a known or suspected aircraft and/or aircrew systems malfunction. Based on the malfunction, PEs can be divided into two categories, either pressure related or non-pressure related.

pilot in command. The pilot assigned responsibility for safe and orderly conduct of the flight.

pilot time. The flight time credited to a designated aviator, student naval aviator, student/designated

naval flight surgeon, student/designated aerospace physician assistant, student/designated aerospace physiologist, student/designated aerospace optometrist, or student/designated aerospace experimental psychologist assigned to duty involving flying. Pilot time includes all time credited as first pilot and copilot. Pilot time is intended to be a record of active participation in the control of an aircraft. Pilot time will be credited to the individual actually earning it regardless of rank, billet, age, or level of experience.

1. **First Pilot Time.** The portion of pilot time during which an individual is positioned with access to the flight controls and is exercising principal active control of the aircraft.
2. **Copilot Time.** The portion of pilot time while assisting the pilot exercising principal active control of a multipiloted aircraft during which the copilot is positioned with access to and is immediately ready to operate the flight controls; or, in those aircraft with only one set of flight controls, that portion of flight time while instructing the pilot who is exercising principal active control when the designated instructor is positioned so that pilot and aircraft instruments can be observed. Aeronautically designated personnel may log CPT while performing copilot duties as required by the aircraft mission.

pilot under instruction. A designated aviator under instruction.

pre-accepted aircraft. Those aircraft under development or in production for the Navy which have not yet been accepted into the naval aircraft inventory via DD 250.

precautionary landing. A premeditated landing, on or off an airport, when further flight is possible but inadvisable.

project specialist. A non-aeronautically designated individual (military or civilian) embarked in a government aircraft for the purpose of operating aircraft systems, operating specially designed equipment, or observing aircraft or crew performance, etc. when required in conjunction with assigned duties or contractual responsibilities. Project specialists are not responsible for normal aircrew duties. This category is not appropriate for those completing orientation flights or for midshipmen.

public aircraft operations. In general, the U.S. Armed Forces consider an aircraft operation "Public" when the aircraft is owned by the Armed Forces, or is used by the Armed Forces and operates outside of the purview of its FAA airworthiness certificate (e.g. configuration,

operational use, flight rules, or maintenance). See 49 U.S.C. §§ 40102 (A) (41) and 40125. Any command considering employing contracted aircraft services that may be conducting PAO is encouraged to contact COMNAVAIRSYSCOM (Airworthiness & CYBER Security Office (ACO)) for assistance.

Q

qualified in model. A designation that indicates the minimum requirements for qualification in a specific crew position, as set forth in the appropriate NATOPS manual, have been attained. Such designations are a one-time occurrence (per unit/command tour) and remain in effect until removed for cause. Annual NATOPS evaluations should not be confused with or combined with these designations. If specific aircraft model NATOPS guidance is lacking, an individual shall be considered qualified in model for specific crew position when so designated by the reporting custodian.

R

reporting custodian. An organizational unit of the lowest echelon of command accepting responsibility (involving accountability to CNO) for aircraft as designated either by CNO or by the controlling custodian of the aircraft.

risk. An expression of possible loss in terms of severity and probability.

risk assessment. The process of detecting hazards and assessing associated risks.

S

simulated instrument approach. An instrument approach flown under simulated instrument conditions.

simulated instrument conditions. Conditions external to the aircraft in flight are visual meteorological conditions (VMC), but pilot vision is limited primarily to the interior of the aircraft.

single-piloted aircraft. Any aircraft that has only one set of flight controls or a tandem cockpit, or any aircraft that has two sets of flight controls and instruments and is being operated by only one pilot who meets the requirements of the NATOPS manual for that model aircraft.

special crew time. The portion of flight time accrued while not acting as first pilot or copilot, but otherwise serving as a member of the authorized crew complement of an aircraft or as a student in flight training.

CNAF M-3710.7

special operations forces personnel. Herein referred to as SPECOPS. Personnel who are required to conduct special operations such as high altitude parachuting from military aircraft (SEALS, ANGLICO, RECON, etc.).

standardization evaluation. An evaluation conducted by the NATOPS evaluator for the purpose of measuring the knowledge and instructing capabilities of a NATOPS Instructor or Evaluator. This evaluation may be performed coincident with any annual NATOPS evaluation.

strategic air break. A technique used to improve ventilation and air exchange by removing the mask and breathing cabin air without restriction. This technique is most effective when utilizing the aircrew controlled breathing cycle (ACBC), which helps reintroduce nitrogen into the lungs and fully inflate lung alveoli.

stereo route. Routinely used route of flight established by users and ARTCC identified by a coded name. These routes simplify flight plan handling and communications.

student naval aviator (student pilot). An individual undergoing training who is not designated as a naval aviator.

T

TACEVAC. Tactical evacuation encompasses both medical evacuation (MEDEVAC) and casualty evacuation (CASEVAC) and is the third phase in the Tactical Combat Casualty Care Process in which casualties are moved from the hostile and austere tactical environment in which they were injured to a more secure location capable of providing advanced medical care.

tilt-rotor. Aircraft type capable of rotor-borne and wing-borne flight (e.g., MV-22).

time of useful consciousness. This is the period of time from interruption of the oxygen supply, or exposure to an oxygen-poor environment, to the time when an individual is no longer capable of taking proper corrective action. The higher the initial altitude, or the faster the rate of ascent, the more quickly impairment occurs.

trip. A consecutive series of flights by the same aircraft with the same general purpose of flight (with regard to the aircraft only), pilot in command, and transaction code (i.e., ship operations or shore operations) from point of original departure to destination.

U

unmanned aircraft (UA). A rotary, fixed-wing, or lighter-than-air aircraft which is capable of flight without an on-board crew. UA can be operated autonomously or remotely, can be expendable or recoverable, and can carry a lethal or nonlethal payload. Ballistic or semi-ballistic vehicles, cruise missiles, artillery projectiles, torpedoes, mines, satellites, and unattended sensors (with no form of propulsion) are not considered unmanned vehicles. Unmanned aircraft are the primary component of unmanned aircraft systems (UAS).

unmanned aircraft system(s) (UAS). The system, whose components include the necessary equipment, data communication links, and personnel to control and employ an unmanned aircraft (UA).

unmanned aerial vehicle. A legacy term replaced by unmanned aircraft (UA) or unmanned aircraft system (UAS) as applicable.

V

very important persons. VIPs are defined as flag officers, DOD officials equal to or senior to flag officers, high-profile public figures, elected members of Congress, etc.

visual meteorological condition. Meteorological conditions expressed in terms of visibility, cloud distance, and ceiling that are equal to or better than specified minimums. Basic weather conditions prescribed for flight under visual flight rules (VFR). (Refer to Chapter 5.)

VOD. For the purposes of this instruction, all helicopter and tilt-rotor aircraft that have the capability to deliver passengers or cargo.

LIST OF ABBREVIATIONS AND ACRONYMS

A

ABI.	Aviation billet indicator.	ALS.	Approach lighting system.
ACBD.	Aircrew controlled breathing cycle.	ALSS.	Aviation life support system.
ACFT CMDR.	Aircraft commander.	ALTRV.	Altitude reservation.
ACM.	Air combat maneuvers.	AMB.	Aviation mishap board.
ACO.	Airworthiness & CYBERSAFE Office	AMCM.	Airborne mine countermeasures.
ACP.	Allied communication publication.	AMDD.	Aeromedical dual designator.
ACT.	Aircraft commander time.	AMO.	Aviation medical officer.
ACTS.	Assignment, classification and travel system.	AMSC.	Aeromedical safety corpsman.
ADIZ.	Air defense identification zone.	AMSO.	Aeromedical safety officer.
ADRL.	Automatic distribution requirements listing.	AOA.	Angle of attack.
ADW.	Aviation data warehouse.	AP.	Area planning.
AEW.	Airborne early warning.	APA.	Aerospace physician assistant.
AFCS.	Automatic flight control system.	APMSE.	NAVAIR assistant program manager for systems engineering.
AFRL.	Air force research laboratory.	AQD.	Additional qualification designation.
A/G.	Air-to-ground.	ARTCC.	Air route traffic control center.
AGE.	Arteriolar gas embolism.	ASAP.	All-hands safety action program.
AGL.	Above ground level.	ASED.	Aviation service entry date.
AI.	Air intelligence; Air intercept.	ASEP.	Aircrew survivability enhancement program.
AIA.	Aircraft inspection and acceptance.	ASI.	Aviation status indicator.
AIRS.	Airworthiness issue resolution system; Aircraft inventory reporting system.	ASR.	Surveillance radar approach.
AIS.	Aeronautical information system.	ASTC.	Aviation survival training center.
		ASW.	Antisubmarine warfare.

CNAF M-3710.7

ATC. Air traffic control.

ATCAA. Air traffic control assigned airspace.

ATP. Allied tactical publication.

AV-3M. Aviation maintenance and material management.

AvIP. Aviation incentive pay.

AVOC. Airfield vehicle operators course.

AVOPS. Aviation operations officer.

AVP. Air vehicle pilot

B

BAM. Basic aircraft maneuvers.

BFM. Basic fighter maneuvers.

BUMED. Bureau of medicine and surgery.

BuNo. Bureau number.

BUQ. Basic UAS qualification.

C

CASEVAC. Casualty evacuation.

CASREP. Casualty report.

CB. Chemical, biological.

CBR. Chemical, biological, and radiological.

CBRND. Chemical, biological, radiological, or nuclear defense.

CCA. Carrier-controlled approach.

CEFIP. Career enlisted flyer incentive pay.

CFET. Centrifuge-based flight environment training.

CFR. Code of federal regulations.

CG FOURTH MAW. Commanding General, 4th Marine Air Wing.

CMC. Commandant of the Marine Corps.

CNAF. Commander, Naval Air Forces.

CNAL. Commander, Naval Air Force, U.S. Atlantic Fleet.

CNAP. Commander, Naval Air Force, U.S. Pacific Fleet.

CNATRA. Chief of Naval Air Training.

CNI. Communication, navigation, identification.

CNO. Chief of Naval Operations.

CO. Commanding Officer.

COD. Carrier on-board delivery.

COG. Cognizant command.

COMFLTFORCOM. Commander, Fleet Forces Command.

COMNAVAIRFOR. Commander, Naval Air Forces.

COMNAVAIRFORES. Commander, Naval Air Force Reserve.

COMNAVAIRLANT. Commander, Naval Air Force, U.S. Atlantic Fleet.

COMNAVAIRPAC. Commander, Naval Air Force, U.S. Pacific Fleet.

COMNAVAIRSYSCOM. Commander, Naval Air Systems Command.

COMNAVSAFECOM. Commander, Naval Safety Command.

COMSEVENTHFLT. Commander, Seventh Fleet.

COMSIXTHFLT. Commander, Sixth Fleet.

COMUSNAVCENT. Commander, U.S. Naval Forces Central.

COMUSNAVCENT. Commander, U.S. Naval Forces Central Command.

COMUSNAVEUR. Commander, U.S. Naval Forces Europe.

COMUSNAVSO. Commander, U.S. Naval Forces South.

COMUSNAVSO. Commander, U.S. Naval Forces Southern Command.

CONUS. Continental United States.

CPT. Copilot time.

CR. Canned route.

CRM. Crew resource management.

CSI. Contractor simulator instructor.

CTF. Commander task force.

CVW. Carrier air wing.

D

DABT. Dynamic altitude breathing training.

DAFIF. Digital aircraft flight information file.

DC AVN. Deputy Commandant for Aviation.

DCF. Document control form.

DCMA. Defense Contract Management Agency.

DCS. Decompression sickness.

DEWIZ. Defense early warning identification zone.

DH. Decision height.

DHT. Dynamic hypoxia training.

DIFCREW. Duty involving flying, crewman.

DIFDEN. Duty in a flying status not involving flying.

DIFOPS. Duty in a flying status involving operational or training flights.

DIFTECH. Duty involving flying as a technical advisor.

DIFTEM. Duty involving flying (temporary).

DME. Distances measuring equipment.

DNEC. Distributive naval enlisted classification.

DOD. Department of Defense.

DON. Department of the Navy.

DONI. Department of the Navy issuances.

DP. Departure procedure.

DSN. Defense switched network.

E

ECM. Electronic countermeasures.

ESCAT. Emergency security control of air traffic.

ETA. Estimated time of arrival.

ETD. Estimated time of departure.

ETE. Estimated time en route.

F

F/W. Fixed wing.

FAA. Federal Aviation Administration.

FAAO. FAA Order.

CNAF M-3710.7

FACSFAC. Fleet area control and surveillance facility.

FAILSAFE. Fleet air introduction/liaison of survival aircrew flight equipment.

FAR. Federal aviation regulation.

FCF. Functional checkflight.

FCLP. Field carrier landing practice.

FDLP. Flight deck landing practice.

FFPB. Field flight performance board.

FL. Flight level.

FLIP. Flight information publication.

FLIR. Forward looking infrared.

FMC. Full mission capable.

FMF. Fleet Marine Force.

FMS. Foreign military sales.

FNAEB. Field naval aviator evaluation board.

FOD. Foreign object damage.

FPC. Flight purpose code.

FPT. First pilot time.

FRC. Fleet readiness center.

FREDS. Flight readiness evaluation data system.

FRS. Fleet replacement squadron.

FS. Flight surgeon.

FSS. Flight service station.

FSSB. Flight status selection board.

FTI. Flight training instruction.

FWB. Flight weather briefer.

FXP. Fleet exercise publication.

FYTD. Fiscal year to date.

G

GCA. Ground-controlled approach.

GCI. Ground-controlled intercept.

GCS. Ground control station.

GLOC. G-loss of consciousness.

GMVO. Ground maintenance vehicle operator.

GPC. General purpose code.

GPS. Global positioning system.

GSA. General services administration.

H

HABD. Helicopter aircrew breathing device.

HAP. High-altitude parachute.

HAT. Height above touchdown.

HDIP. Hazardous duty incentive pay.

I

IAF. Initial approach fix.

IAW. In accordance with.

IC. Interim change.

ICAO. International civil aviation organization.

ICE-T. Memorization acronym for indicated, calibrated, equivalent, and true airspeeds.

IDC. Independent duty corpsman.

IFC. Interim flight clearance.

IFF. Identification friend or foe.

IFR. Instrument flight rules.

ILS. Instrument landing system.

IMC. Instrument meteorological conditions.

IMR. Individual master roster.

IT. Instructor time.

IUT. Instructor under training.

J

JAGMAN. Manual of the Judge Advocate General.

JANAP. Joint Army, Navy, Air Force publication.

JATO. Jet assisted takeoff.

JHMCS. Joint helmet mounted cueing system.

JUMPS. Joint uniform military pay system.

K

KIAS. Knots indicated airspeed.

L

LATT. Low altitude terrain tactics

LBFS. Local board of flight surgeons.

LEO. Law enforcement official.

LEP. Laser eye protection.

LIMDU. Limited duty.

LOA. Letter of agreement.

LOL. Loss of link.

LOP. Letter of promulgation.

LOS. Line of sight.

LPU. Life preserver unit.

LPV. Localizer performance with vertical guidance.

LSO. Landing signal officer.

M

MAG. Marine aircraft group.

MANMED. Manual of the Medical Department.

MAP. Military assistance program; missed approach point.

MARFORCOM. U.S. Marine Forces Command.

MARFORCOM. Commander, U.S. Marine Forces Command.

MARFORPAC. Commander, U.S. Marine Forces, Pacific.

MARSA. Military assumes responsibility for separation of aircraft.

MAW. Marine Air Wing.

MC. Mass communication specialist.

MCAS. Marine Corps Air Station.

MCIEAST. Marine Corps Installations East.

MCIWEST. Marine Corps Installations West.

MCO. Marine Corps Order.

MCS. Mission control station (UAS).

CNAF M-3710.7

MDA. Minimum descent altitude.

MDS. Maintenance data system.

MEDEVAC. Medical evacuation.

METS. Modular egress training system.

MFOQA. Military flight operations quality assurance.

MIFAR. Monthly individual flight activity report.

MIM. Maintenance instruction manual.

MITO. Minimum interval takeoff.

MMU. Model manager unit.

MOA. Military operating areas.

MOF. Month(s) operational flying.

MOS. Military occupational specialty.

MPO. Mission payload operator.

MPT&E Co E. Navy Medicine Manpower Personnel Training and Education Command Council on Occupational Education.

M-SHARP. Marine Corps Sierra Hotel Aircraft Readiness Program.

MSDD. Multi-station disorientation demonstrator.

MSL. Mean sea level.

MSN CDR. Mission commander.

MTR. Military training route.

N

NA. Naval aviator; Naval air systems command; not applicable.

NAC. Naval aircrewman.

NACCS. Naval Air Crew Candidate School.

NAFC. Naval Aviation Forecast Center.

NALCOMIS. Naval Aviation Logistics Command Management Information Systems.

NALDA. Naval Aviation Logistics Data Activity.

NALIS. Navy Logistics Information System.

NAMI. Naval Aerospace Medical Institute.

NAMT. Naval air maintenance trainer.

NAOP. Naval aerospace operational physiologist.

NAS. Naval air station; National airspace.

NASA. National Aeronautics and Space Administration.

NASTP. Naval Aviation Survival Training Program.

NATEC. Naval Air Technical Data and Engineering Service Command.

NATIP. Naval aviation technical information product.

NATO. North Atlantic Treaty Organization.

NATOPS. Naval air training and operating procedures standardization.

NAVAEROMEDINST. Naval Aeromedical Institute (NAMI).

NAVAID. Navigation aid.

NAVAVSCOLSCOM. Naval Aviation Schools Command.

NAVFIG. Naval Flight Information Group.

NAVFLIRS. Naval Flight Record Subsystem.

NAVMETOCCOM. Naval Meteorology and Oceanography Command.

NAVOCEANO. Naval oceanographic office.

NAVPERSCOM. Navy personnel command.

NAVREP. Navy representative.

NAVRESPERSCEN. Naval reserve personnel center.

NCOIC. Noncommissioned officer in charge.

NDB. Non-directional beacon.

NEC. Naval enlisted classification.

NETC. Naval education and training command.

NFM. NATOPS flight manual.

NFO. Naval flight officer.

NGA. National Geospatial Agency.

NHT. Normobaric hypoxia trainer.

NI. NATOPS instructor.

NITE. Night imaging and threat evaluation.

NJROTC. Naval Reserve Junior Officer Training Corps.

nm. Nautical mile.

NMC. Not mission capable.

NMCM. Not mission capable-maintenance.

NMCS. Not mission capable-supply.

NOBC. Naval officer billet code.

NOE. Nap of the earth.

NOMI. Naval Operational Medicine Institute.

NORDO. No-radio.

NOS. National Oceanographic Service.

NOTAL. Not sent to all.

NOTAM. Notice to airmen/Notice to air missions.

NPA. Non-precision approach.

NPQ. Not physically qualified.

NSTI. Naval Survival Training Institute.

NTTP. Naval tactics, techniques, and procedures publication.

NVCD. Night vision cueing device.

NVD. Night vision device.

NWP. Naval warfare publication.

O

OAT. Outside air temperature.

OCF. Out of control flight.

OCONUS. Outside of the continental US.

ODCR. Officer data control report.

OEM. Original equipment manufacturer.

OFT. Operational flight trainer.

OIC. Officer in charge.

OLF. Outlying landing field.

OMA. Operational maintenance activity.

OMB. Office of Management and Budget.

ORG. Organization.

ORI. Operational readiness inspection.

ORM. Operational risk management.

OSD. Office of the Secretary of Defense.

CNAF M-3710.7

OTC. Officer in tactical command; Over the counter.

OT&E. Operational test and evaluation.

P

PALS. Precision approach landing system.

PAR. Precision approach radar.

PCS. Permanent change of station.

PE. Physiological event.

PEP. Personnel exchange program.

PHYSEP. Physiological episode.

PIC. Pilot in command.

PMC. Partial mission capable.

POC. Point of contact.

POR. Program of record.

PPR. Prior permission required.

PPS. Precise positioning service.

PQM. Pilot qualified in model.

PQS. Personnel qualification standard.

PR. Parachute rigger.

R

RAC. Replacement aircrew.

RDO. Runway duty officer.

RDT&E. Research, development, test, and evaluation.

RNAV. Radar navigation.

RNP. Required navigation performance.

ROBD. Reduced oxygen breathing device.

RON. Remain overnight.

ROTC. Reserve Officer Training Corps.

RSS. Rescue swimmer school.

RSSMM. Rescue swimmer school model manager.

RSSTP. Rescue swimmer school training program.

RTO. Range training officer.

RUC. Reporting unit code.

RVR. Runway visual range.

RVSM. Reduced vertical separation minima.

S

SA. Situational awareness.

SAB. Strategic air break.

SAD. Senior air director.

SAR. Search and rescue.

SARMM. Search and rescue model manager.

SARP. Standards and recommended practices.

SCA. Self-contained approach.

SCT. Special crew time.

SEBD. Supplemental emergency breathing device.

SELRES. Selective reserve.

SERE. Survival, evasion, resistance to interrogation and escape.

SFA. Single frequency approach.

SHARP. Sierra hotel aviation readiness program.

SIF. Selective identification feature.

SIGMET. Significant meteorological information advisory.

SIM. Simulated.

SMCR. Selected Marine Corps Reserve.

SOP. Standard operating procedure.

SPC. Specific purpose code; Storm prediction center.

SPECOPS. Special operations forces personnel and/or missions.

SPS. Standard positioning device.

STANAG. Standardization agreement.

STAR. Standard terminal arrival notice.

STOL. Short takeoff and landing.

SUA. Special use airspace.

T

T&R. Training and readiness.

TACAN. Tactical air navigation.

TACEVAC. Tactical evacuation.

TACTS. Tactical aircrew combat training system.

TAD. Temporary additional duty.

TAR. Training air reserve.

TBA. To be assigned.

TC. Tactical coordinator.

TCAS. Traffic alert and collision avoidance system.

TDIP. Technical data indoctrination package.

TERPS. Terminal instrument procedures.

TMR. Total mission requirements.

T/M/S. Type/model/series.

TO. Table of organization.

TR. Training rules.

TRACOM. Training command.

TTT. Team tactics trainer.

TYCOM. Type commander. The aviation TYCOMs are CNAP and CNAL.

U

UA. Unmanned aircraft.

UAC. UAS aircraft commander.

UAS. Unmanned aircraft system(s).

UASC. UAS crewmember.

UHF. Ultra high frequency.

UIC. Unit identification code.

UMC. UAS mission commander.

USG. US Government.

USW. Undersea warfare.

UT. Under training.

UTC. Coordinated universal time.

V

VFR. Visual flight rules.

CNAF M-3710.7

VHF. Very high frequency.

V/STOL. Vertical/short takeoff and landing.

VIP. Very important person.

W

VMC. Visual meteorological conditions.

WST. Weapon system trainer.

VOD. Vertical on-board delivery.

WW. Severe weather watch.

VOR. VHF omni-directional range.

VR. Transport (aircraft/mission); VFR military training route.

CHAPTER 1

Introduction

1.1 GENERAL

OPNAVINST 3710.7 establishes the Naval Air Training and Operating Procedures Standardization (NATOPS) program. This manual contains detailed policies and procedures in support of OPNAVINST 3710.7. The NATOPS program is a positive approach towards improving combat readiness and achieving a substantial reduction in aircraft mishaps. This manual issues policy and procedural guidance of the Chief of Naval Operations (CNO) that is applicable to all NATOPS users.

1.1.1 Purpose and Scope

1. This manual prescribes general flight and operating instructions and procedures applicable to the operation of all naval aircraft and related activities. This manual is not intended to cover every contingency that may arise and every rule of safety and good practice. To achieve maximum value, the contents of all directives cited must be studied and understood. Routine interpretation and procedural questions should be referred to appropriate type wing/type command or MAG/MAW NATOPS offices for resolution prior to referral to a cognizant command (COG)/Naval Advisory Group (NAG). Where the need arises, special instructions or waivers will be issued by COMNAVAIRFOR or CMC as applicable.
2. Directives cited in the text of this manual are identified by the basic number, for example OPNAVINST 8000.16B will be identified as OPNAVINST 8000.16. [Appendix C](#) lists the specific version of each directive used in the preparation of the current manual. It is the responsibility of the user to determine the current status of any directive being used.
3. In the tactical environment, military exigency may require on-site deviations from instructions/procedures contained here. The existing risk of deviation must continually be weighed against the benefit of deviating from this manual. Deviation from specified flight and operating instructions is authorized in emergency situations when, in the judgment of the pilot in command, safety justifies such a deviation.
4. It is often not feasible to completely specify all situations or circumstances under which provisions of this manual shall apply; therefore, wording such as “normally,” “etc.,” “usually,” and “such as” is employed. Words or clauses of that type shall not be used as loopholes nor shall they be expanded to include a maneuver, situation, or circumstance that should not be performed or encountered by the aircraft in question.
5. To increase combat readiness and improve flight safety, the scope and operation of the NATOPS program, conduct of NATOPS evaluations, NATOPS change recommendation procedures, and NATOPS Review procedures are discussed in [Chapter 2](#).

1.1.2 Submission of NATOPS Change Recommendations

Recommended changes to this and other NATOPS publications may be submitted by anyone in accordance with [Chapter 2](#) of this manual. The preferred and most efficient means for submission of change recommendations for both this manual and the aircraft and general series NATOPS publications is to do so via the Airworthiness Issue Resolution System (AIRS) program found on the NATOPS page of the Airworthiness website, <https://airworthiness.navair.navy.mil>. When access to AIRS is not available, recommended urgent and priority changes should be submitted by Naval Message. Submit recommended routine changes to this manual to Commander Naval Air Forces (N455), NAS North Island, P.O. Box 357051, San Diego, CA 92135-7051 via Form OPNAV 3710/6 (NATOPS/Tactical Change Recommendations) only when unable to do so via AIRS.

CNAF M-3710.7

1.1.3 Change Symbols

Revised text is indicated by a black vertical line in either margin of the page, adjacent to the affected text, like the one printed next to this paragraph. The change symbol identifies the addition of new information, a changed procedure, the correction of an error, or a rephrasing of the previous material.

1.1.4 Areas of Responsibility

Figure 1-1 delineates administrative areas of responsibility within this manual. Questions about policy content should be referred to the appropriate command listed in Figure 1-1. For waivers to the requirements set forth in this manual, refer to Paragraph 2.2.3 subparagraph 2.

Figure 1-1. CNAF M-3710.7 Areas of Responsibility

ORGANIZATION	CHAPTER
COMNAVAIRFOR (N455)	Chapters 1, 3-7, 9-14, and Appendices A-D and F-N
COMNAVAIRSYSCOM Airworthiness & CYBERSAFE Office (ACO)	Chapter 2
COMNAVAIRFOR (N451)	Chapter 8, Appendix E

1.1.5 How To Obtain Copies

1.1.5.1 CNAF M-3710.7

Distribution of this manual is by electronic means only. Electronic copies of the revisions, changes and interim changes to this manual can be found in the following locations:

1. Unclassified SECNAV and OPNAV directives are at the Department of the Navy Issuances (DONI) website: <http://doni.documentservices.dla.mil/default.aspx>.
2. Airworthiness Website — <https://airworthiness.navair.navy.mil>.
3. NATEC website — <https://mynatec.navair.navy.mil>.

1.1.5.2 NATOPS Publications

1. Automatic Distribution. Automatic distribution of individual NATOPS publications are as requested by the individual units in their Automatic Distribution Requirements Listing (ADRL) accounts. Units flying the aircraft will receive paper copies based on requirements determined by the NATOPS Model Manager. Other units will receive distribution via appropriate digital media, whenever available, as determined from the unit's ADRL request.
2. Additional Copies. Those who require paper copies can obtain them from the NATOPS Model Manager unit, whose address is published in the Preface of each NATOPS publication. The name, rank, telephone number, and e-mail address of the NATOPS Program Manager for each publication is contained in the NATOPS Status Report which is a product posted on the Airworthiness website, <https://airworthiness.navair.navy.mil>. Electronic copies of most NATOPS publications are posted in PDF-format on the NATOPS Search page of the NATEC website, <https://mynatec.navair.navy.mil> and Airworthiness website <https://airworthiness.navair.navy.mil>. Active interim change messages are normally posted on the site within five days of their release.

1.2 APPLICATION OF OPERATIONAL RISK MANAGEMENT ANALYSIS

As directed by DODINST 6055.1 and OPNAVINST 3500.39, Operational Risk Management (ORM) analysis principles shall be applied during the planning and execution phases of all military operations and training situations.

1.3 OTHER GOVERNING SOURCES OF INFORMATION

Instructions and procedures contained in this manual are not intended to replace or duplicate the following governing sources.

1.3.1 NATOPS Manuals

NATOPS manuals include the NATOPS flight manuals, which are issued for particular aircraft (e.g., MH-60S NATOPS Flight Manual), and the General Series NATOPS manuals, which are issued for aviation-related activities (e.g., CV NATOPS Manual). They contain specific doctrine and the optimum operating procedures for the aircraft model or aviation activity concerned. Where a NATOPS manual is not issued for a particular model aircraft, appropriate commands shall issue doctrine and procedures locally. Individual aircraft NATOPS requirements should be at least as stringent as those set forth in this manual. If as a result of a NATOPS Review, it is desired to establish a less stringent requirement, approval shall be obtained from COMNAVAIRFOR. Such approval may be requested by submitting a copy of the Review report to COMNAVAIRFOR (N455) and COMNAVAIRSYSCOM (ACO) with the item listed as a change requiring further approval in accordance with [Chapter 2](#). When more stringent requirements are issued in this manual, this manual shall govern until specific authority to deviate has been granted by COMNAVAIRFOR (N455).

1.3.2 Local Flying Rules and Instructions

Local flying rules and instructions will be found in regulations issued by the various fleets, forces, naval air stations, and other activities where naval aircraft are based or operated. Navy and Marine Corps Air Stations and other naval aviation shore facilities that routinely conduct flight operations shall supplement this manual with air operations manuals. Guidelines for the preparation of air operations manuals are contained in NAVAIR 00-80T-124 (Airfield Operations NATOPS manual).

1.3.3 Federal Aviation Regulations (FAR)

Naval aircraft shall be operated in accordance with applicable provisions of FAR, Part 91, except:

1. Where this manual prescribes more stringent requirements.
2. Where exemptions or authorizations issued to the Department of the Navy/DOD permit deviation from FAR.

1.3.3.1 FAR Exemptions

Current FAR exemptions on file with the FAA are listed below. Users shall determine the expiration date, full scope and restrictions of an exemption prior to exercising it. Exemptions to FARs applicable to DOD aircraft may be viewed on the FAA Automated Exemption System (AES) website, <http://aes.faa.gov>, using petitioner as “Department of Defense” or “Department of the Navy” for USN and USMC exemptions and consulting the AES User Manual as needed. Some exemptions require a letter of agreement with the local FAA ATC facility and may contain additional restrictions for the local area.

1. 91.117(a) and (b), 91.119(c), and 91.303(c), (d), and (e) (Blue Angels). Allows the Blue Angels to conduct demonstration rehearsals involving low-level, high-speed, and aerobatic flight (Exemption 4504)
2. Section 91.117 (Aircraft Speed). Operation of naval aircraft at speeds in excess of limits imposed by section 91.117 shall be governed by [Paragraph 5.1.4](#) of this manual.
3. Section 91.121 (Altimeter Settings). Allows the use of the local altimeter setting when conducting high-speed tactical maneuvers that include rapid transits of Flight Level 180. (Exemption 2861A, non-expiring).
4. Section 91.135 (Operations in Class A Airspace). Authorizes USN undergraduate student aviators to conduct solo flight in Class A airspace without an instrument rating (non-expiring).

5. Section 91.159 (a) (VFR Cruising Altitude or Flight Level). Allows operations at altitudes other than those prescribed by section 91.159 (a) while engaged in drug interdiction operations, only to the extent necessary to obtain positive identification of a suspect aircraft and maintain visual contact with that aircraft, provided the aircraft has a dedicated on-board observer (other than the pilot) to watch for other air traffic, and the aircraft has an operating transponder with Mode C. (Exemption 5100.)
6. Section 91.169 (b) and (c) (Alternate Airport Requirements). Alternate airport requirements and alternate airport weather criteria for clearance of flights to be conducted under IFR shall be specified in [Paragraph 4.8.4.2](#) of this manual. (Exemption 30B, non-expiring).
7. Section 91.179 (b) (1) (IFR Cruising Altitude or Flight Level). Exemption from the altitudes to be maintained in uncontrolled airspace has been granted to the extent necessary to conduct military training route (MTR) training. Policies and procedures for the conduct of MTRs are contained in FAAO JO 7610.4, Special Operations, and in FLIP Area Planning AP/1B. (Exemption 2396, non-expiring).
8. Section 91.209 (a) (1) and (b) (Aircraft Lights). An exemption has been granted to DOD aircraft engaged in drug interdiction flights provided the aircraft has a dedicated on-board observer plus an additional resource capable of detecting all aircraft operating in the vicinity of the DOD aircraft. The resource may be radar capable of detecting all aircraft operating within the vicinity of the interdiction aircraft or a spotter aircraft with lights on. (Exemption 5100.)
9. Sections 91.209 (a) (1) and (b) (Aircraft Lights). Three exemptions have been granted for USN/USMC aircraft to conduct lights-out NVD training.
 - a. Two exemptions cover operations in specific MOAs (Exemption 18479) and ATCAAs (Exemption 18663). In both cases, aircraft shall operate in monitored airspace or, when not operating in monitored airspace, operate in airspace within a prescribed area that is identified in a NOTAM. The monitoring of flight operations may be performed by military personnel not participating in NVD training activities (i.e., air traffic controllers, military radar personnel, airborne radar unit personnel, or pilots of non-participating aircraft observing the NVD training).
 - b. A third exemption allows lights-out NVD training in helicopter and tiltrotor aircraft in any pre-defined area with an active NOTAM (not necessarily a MOA or ARTCAA) below 500 ft AGL provided each aircraft has a dedicated observer to identify non-participating aircraft or is escorted by a properly lighted aircraft serving as an observation platform. (Exemption 8028)
10. Section 91.215 (Transponder-Off Area in the Fallon Range Training Complex). An exemption has been granted to DOD aircraft to provide realistic air combat training in airspace defined in the exemption as the Transponder-Off Area excluding that airspace defined as the “VFR Corridor” as depicted on the Fallon Range Chart. (Exemption 11985)

1.3.4 DOD Flight Information Publications (FLIPs) (NOTAL) and Notices to Airmen/Notices to Air Missions (NOTAMs) (NOTAL)

The procedures, special notices, and instructions contained in the FLIPs and NOTAMs are mandatory for all pilots flying naval aircraft.

1.3.5 FAA Order JO 7110.65 (Air Traffic Control) (NOTAL)

The FAA order is applicable to air traffic control by Department of Defense (DoD) activities unless individual military service exceptions are noted therein. The applicable procedures shall be used by naval aviation shore facilities when performing air traffic control (ATC) functions. Waivers for deviations from the procedures set forth in FAA order JO 7110.65 may be granted by CNO (N980A). Authority for reduced runway separation for arriving and departing aircraft using the same runway is outlined in [Paragraph 6.3.1](#).

1.3.6 NATOPS Air Traffic Control Manual (NAVAIR 00-80T-114)

This manual is applicable to the operation of Navy and Marine Corps air traffic control facilities. Applicable procedures shall be used by shore facilities when performing ATC functions.

1.3.7 NATOPS Airfield Operations Manual (NAVAIR 00-80T-124)

This manual standardizes US Navy and US Marine Corps air operations program policies and procedures at US Navy and US Marine Corps airfields.

1.3.8 DoN Detail Specification for NATOPS Program Technical Publications and Products; Style, Format, and Common Technical Content, ACO NATOPS Style Guide

This document contains the style, format, and content standards and requirements for NATOPS publications. It applies to all (paper and electronic media) NATOPS flight manuals, General Series manuals, and checklist publications, and to the other derivative NATOPS-series documents. Persons preparing or modifying NATOPS publications shall be familiar with the specifications and guidelines contained in the ACO NATOPS Style Guide. The ACO NATOPS Style Guide can be found at the airworthiness website (<https://airworthiness.navair.navy.mil>) under Library, References, Permanent Flight Clearance.

1.3.9 Other Instructions

References contained in the manual are listed in [Appendix C](#).

1.4 EXPLANATION OF TERMS

The explanation or definitions of terms and abbreviations commonly used in the aviation community can be found in FAR, Part I, and DOD FLIP General Planning, Chapter 2; and Aeronautical Information Manual (AIM) Pilot/Controller Glossary. No effort to duplicate these terms is intended. Where terms are used in this manual with a different connotation or where definitions are lacking in the above-mentioned publications, the explanations of such terms are included in the Glossary.

1.5 WARNINGS, CAUTIONS, AND NOTES

Standard Warnings, Cautions, and Notes for all NATOPS products are defined as follows:

WARNING

Explanatory information about an operating procedure, practice, or condition, etc., that may result in injury, death, or loss of aircraft if not carefully observed or followed.

CAUTION

Explanatory information about an operating procedure, practice, or condition, etc., that may result in damage to equipment if not carefully observed or followed.

Note

Explanatory information about an operating procedure, practice, or condition, etc., that must be emphasized.

1.6 WORDING

The concept of word usage and intended meaning that has been adhered to in preparing this manual is as follows:

1. “Shall” is used only when application of a procedure is mandatory.
2. “Should” is used only when application of a procedure is recommended.
3. “May” and “need not” are used only when application of a procedure is optional.
4. “Will” indicates futurity and never indicates any degree of requirement for application of a procedure.
5. “Land Immediately” means execute a landing without delay.
6. “Land as Soon as Possible” means land at the first site at which a safe landing can be made.
7. “Land as Soon as Practicable” means extended flight is not recommended. The landing site and duration of flight are at the discretion of the pilot in command.

CHAPTER 2

Naval Air Training and Operating Procedures Standardization Program

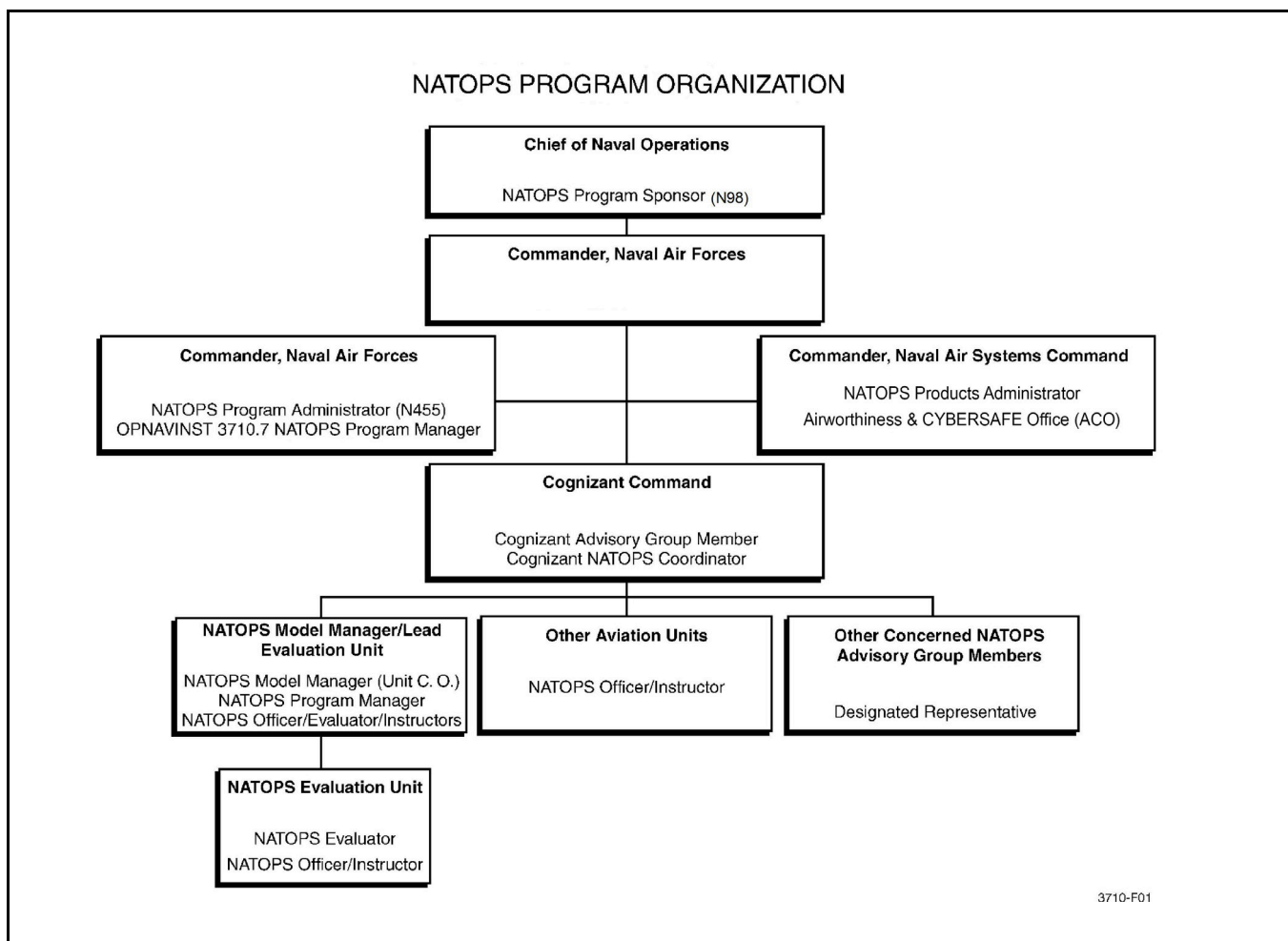
2.1 PURPOSE

This chapter defines the NATOPS program organization and relationships, assigns responsibilities, and specifies administrative procedures.

2.2 NATOPS PROGRAM ORGANIZATION

The NATOPS program organization shall be in accordance with this chapter. (See [Figure 2-1.](#))

Figure 2-1. NATOPS Program Organization



2.2.1 NATOPS Program Assignments

Unit and individual NATOPS Program assignments and their purposes are defined as follows:

1. NATOPS Program CNO Sponsor — CNO (N98) is the overall NATOPS program sponsor.
2. Commander, Naval Air Forces (COMNAVAIRFOR) — COMNAVAIRFOR is delegated responsibility for overall management of the NATOPS program.
3. Commander, Naval Air Systems Command (COMNAVAIRSYSCOM) — COMNAVAIRSYSCOM is delegated cognizance over the administration and maintenance of NATOPS publications.
4. NATOPS Program Administrator — COMNAVAIRFOR (N455) is NATOPS program administrator for the overall management of the NATOPS program and is responsible for the daily administration and management of NATOPS policy.
5. NATOPS Products Administrator — The COMNAVAIRSYSCOM ACO is delegated responsibility for the administration and maintenance of NATOPS manuals and derivative products (checklists, etc.) representing CNO at all NATOPS reviews, and overseeing or monitoring all aspects of the production of NATOPS publications.
6. NATOPS Advisory Group — The NATOPS advisory group is composed of the following (and other commands as designated by COMNAVAIRFOR):
 - a. Chief of Naval Operations (CNO).
 - b. Commander, Naval Air Forces (COMNAVAIRFOR).
 - c. Commandant of the Marine Corps (CMC).
 - d. Commander, Naval Air Systems Command (COMNAVAIRSYSCOM).
 - e. Chief of Naval Air Training (CNATRA).
 - f. Commander, U.S. Marine Corps Forces Command (MARFORCOM).
 - g. Commander, U.S. Marine Forces Pacific (MARFORPAC).
 - h. Commander, Naval Air Force Reserve (COMNAVAIRFORES).
 - i. Commanding General, 4th Marine Aircraft Wing (CG FOURTH MAW).
 - j. Commander, Naval Safety Command (COMNAVSAFECOM).
 - k. Chief, Bureau of Medicine and Surgery (BUMED).
 - l. Commander Navy Installations Command (CNIC N3).
7. CNO NATOPS Coordinator — An individual assigned to the NATOPS Products Administrator (COMNAVAIRSYSCOM ACO), who represents CNO NATOPS policy at all NATOPS reviews.
8. Cognizant (COG) Command — An advisory group member responsible for specific portions of the NATOPS program as designated by COMNAVAIRFOR (N455). COG Command assignments are delineated in the NATOPS status report posted on the Airworthiness website (<https://airworthiness.navair.navy.mil>). The COG is responsible for the management and coordination of the NATOPS Program and shall represent COMNAVAIRFOR at NATOPS advisory group meetings. They closely monitor all programs under their cognizance and are responsible for the coordination and scheduling of unit evaluations by the Model Manager or by Evaluation Units. In the case of General Series NATOPS programs only, when the program manager is also part of the cognizant command, a separate COG representative is not required. The COG representative cannot be delegated below an Echelon IV command.
9. NATOPS Model Manager Unit (MMU) — The unit or department designated by the COG Command to administer the NATOPS program for a specific aircraft model or aviation-related system. The NATOPS MMU is also the lead NATOPS evaluation unit for that aircraft model.

10. NATOPS Model Manager — The unit commander or head of department designated by the COG Command to administer the NATOPS program for a specific aircraft model or aviation-related system. These assignments are delineated in the NATOPS status report posted on the Airworthiness website.
11. NATOPS Program Manager — An individual within the MMU assigned by the Model Manager to perform administrative responsibilities for the NATOPS program and who is given written authority to act on behalf of the Model Manager in NATOPS-related matters. The NATOPS Program Manager of a NATOPS Flight Manual shall be an aviator, NFO, or UAS Air Vehicle Pilot highly qualified in model. The NATOPS Program Manager of a General Series NATOPS Manual shall be knowledgeable of and highly experienced in the subject areas addressed in the manual. The NATOPS Program Manager should be assigned these responsibilities for a minimum of 18 months.
12. Lead NATOPS Evaluation Unit — The NATOPS MMU designated by the T/M/S COG Command. The Lead NATOPS Evaluation unit is responsible for ensuring all individuals and units operating that T/M/S aircraft receive NATOPS evaluations.
13. NATOPS Evaluation Unit — Additional NATOPS Evaluation units designated by the Lead NATOPS Evaluation Unit and endorsed by the T/M/S COG Command to conduct annual NATOPS evaluations of specific units.
14. NATOPS Evaluator — A highly qualified air crewmember assigned to a NATOPS Evaluation Unit. Designations shall be in writing by the NATOPS Model Manager. The NATOPS Evaluator shall have direct access to the CO of the squadron or Air Station to which they are assigned, and is authorized direct liaison with squadrons or units within their designated areas of responsibility. The NATOPS Evaluator shall be a primary duty and should not be assigned collateral duties.
15. NATOPS Instrument Evaluator — A highly qualified military aviator, NFO, or AVP designated by the commanding officer to conduct instrument evaluation flights. Contract Simulator Instructors (CSIs) may also be designated as NATOPS Instrument Evaluators by the respective Type Wing/Marine Air Group commander. CSIs who maintain this designation shall receive a NATOPS instrument standardization evaluation annually by an appropriate NATOPS evaluator.
16. NATOPS Instructor (NI) — A highly qualified air crewmember whose primary duty should be administering the NATOPS evaluation program within a squadron or unit. NATOPS instructors shall receive initial and subsequent NATOPS standardization evaluations from the appropriate NATOPS evaluator and be designated in writing by the commanding officer. Commands shall limit the number of NATOPS Instructors to the minimum required to conduct NATOPS evolutions.
17. Assistant NATOPS Instructor (ANI) — A highly qualified air crewmember who shall receive initial and subsequent NATOPS evaluations from the appropriate NATOPS evaluator or unit NATOPS instructor and be designated in writing by the commanding officer. CSIs may also be designated as assistant NATOPS instructors by the respective Type Wing/Marine Air Group commander. CSIs who maintain this designation shall receive a NATOPS standardization evaluation annually by an appropriate NATOPS evaluator. Commands shall limit the number of Assistant NATOPS Instructors to the minimum required to conduct NATOPS evolutions.
18. Unit NATOPS Officer — An aviator, NFO, or AVP whose primary duty is to administer the NATOPS program within a squadron or unit. The NATOPS officer may also be a NATOPS instructor.

2.2.2 Responsibilities

Duties and responsibilities for the above assignments are as follows:

1. COMNAVAIRFOR — Acts as the COG command for OPNAVINST 3710.7 and this manual. Designates the NATOPS Program Administrator (N455).
2. NATOPS Program Administrator (COMNAVAIRFOR (N455)) — Acts for COMNAVAIRFOR on matters related to OPNAVINST 3710.7 and CNAF M-3710.7 (this manual), including:
 - a. Oversees and monitors the overall NATOPS program.

CNAF M-3710.7

- b. Formulates and issues specific NATOPS policy.
 - c. Designates NATOPS cognizant commands.
 - d. Performs duties as the cognizant coordinator and NATOPS program manager for CNAF M-3710.7.
 - e. Responsible for the routing of all permissions and waivers required by CNAF M-3710.7.
3. COMNAVAIRSYSCOM — Promulgation authority for NATOPS manuals. Designates the NATOPS Products Administrator. Responsible for providing and maintaining accurate and up-to-date Flight Manual products to the fleet. COMNAVAIRSYSCOM has cognizance over all aircraft equipment limitations and technical data in NATOPS publications and airworthiness certification of all Naval aircraft.
4. NATOPS Products Administrator (ACO) — Acts on behalf of COMNAVAIRSYSCOM on matters relating to the NATOPS program, including:
- a. Oversees and monitors the entire NATOPS products program.
 - b. Represents and executes CNO policy at all NATOPS Reviews.
 - c. Aids NATOPS MMU representatives in preparing for and conducting Reviews.
 - d. Monitors the progress of urgent, priority, and routine change recommendations and coordinates the development and review of interim changes, changes, and revisions to NATOPS products.
 - e. Release authority for NATOPS interim changes.
 - f. Prepares Letters of Promulgation (LOPs) for NATOPS products for signature by direction of COMNAVAIRSYSCOM.
 - g. Manages the resources for the content development and editorial production process, printing, and distribution of Navy and Marine Corps aircraft platform and general series NATOPS products. Funding for these resources is provided by various means including the aircraft acquisition program offices and other appropriate sources. Coordinates budget and resources for the production, printing and distribution of NATOPS publications with procuring program office for all in-production Navy and Marine Corps aircraft platforms.
 - h. Monitors the status of all NATOPS publications and compiles and distributes the NATOPS status report.
 - i. Facilitates communication among all NATOPS Program participants including: primary review authorities, NATOPS Advisory Group members, NATOPS Model Managers, NATOPS Program Managers, Cognizant Commands and other commands, editorial production contractors, NATEC, and Original Equipment Manufacturers (OEM) on matters related to the NATOPS program.
 - j. Manages the release of a NATOPS promulgation announcement message.
 - k. Maintains the documents for the standardized content and formatting of NATOPS manuals, NATOPS flight manuals and associated checklists.
 - l. Ensures and coordinates an appropriate review of technical data contained in the NATOPS publications in support of interim changes and the NATOPS review schedule.
 - m. Maintains the Airworthiness website to provide NATOPS and other airworthiness and flight clearance products (including Interim Flight Clearances and Naval Aviation Technical Information Product (NATIP)) to the Fleet.
 - n. Designates CNO NATOPS Coordinators who represent CNO NATOPS policy at all NATOPS Reviews.
5. NATOPS Advisory Group — Monitors NATOPS program and is responsible to COMNAVAIRFOR for its proper operation. The advisory group shall meet as required, to properly implement and coordinate the program. Each member shall issue instructions implementing NATOPS directives that shall include NATOPS evaluation, waiver, and reporting procedures.
- a. COG Command — Responsible for oversight of the NATOPS program for specifically assigned T/M/S aircraft or aviation-related function. The COG Command designates NATOPS MMUs, coordinates with

the NATOPS MMU prior to release of NATOPS review convening announcements, and reviews change recommendations. The COG Command shall liaison with other NATOPS Advisory Group members and shall attend or designate in writing a fully authorized representative to attend applicable NATOPS reviews. Designated representatives shall ensure that copies of their letters of designation are forwarded to the NATOPS Products Administrator (ACO) and COMNAVAIRFOR (N455).

- b. NATOPS Advisory Group Representative — Represents their respective command at NATOPS reviews and speaks for their respective commands on matters of NATOPS policy. NATOPS Advisory Group representatives shall be designated in writing and their letters of designation shall be forwarded to COMNAVAIRFOR (N455) and the NATOPS Products Administrator (ACO).
 - c. COMNAVAIRSYSCOM — Because of their research, development, test, and evaluation mission, COMNAVAIRSYSCOM has cognizance over all aircraft equipment limitations and technical data in NATOPS publications and is responsible for ensuring the airworthiness of all Naval aircraft, both manned and unmanned, including preaccepted aircraft and public use aircraft operated by or for the Navy or USMC. NAVAIR's research, development, test, and evaluation mission encompasses responsibilities to support the NATOPS program and as a major aviation command employing aircraft. Therefore, NAVAIR's advisory group representation is held by two NAVAIR representatives having responsibility for two distinct functional areas. First, the ACO has cognizance over the areas outlined in [Paragraph 2.2.2](#). Second, the NAVAIR Aviation Safety Director, as a representative of the NAVAIR Aircraft Controlling Custodian Program Manager (ACC), acts as the NATOPS advisory group representative for all matters involving the employment and operation of aircraft where NAVAIR is the controlling custodian.
 - d. COMNAVSAFECOM — Responsible for informing other advisory group members of the effectiveness of the NATOPS program as it applies to aviation safety. This includes comments on routine (NATOPS Review agenda) as well as urgent and priority change recommendations.
6. Naval Survival Training Institute (NSTI) — Designated as the aviation training advisor for emergency egress.
 7. NATOPS Model Manager — Responsible for the currency of all assigned NATOPS publications and flight crews.
 - a. Ensures thorough review of assigned NATOPS products for latest approved operating procedures. Makes appropriate recommendations on all matters concerning the NATOPS products.
 - b. Hosts NATOPS Review on their assigned NATOPS products. Prior to convening a Review, the NATOPS Model Manager shall consult with the COG Command and NATOPS Products Administrator (ACO) to coordinate scheduling and verify that funding is available to produce, print, and distribute NATOPS publications.
 - c. As the head of the Lead Evaluation unit, the Model Manager shall ensure all units operating that T/M/S aircraft receive a NATOPS evaluation every 18 months and shall further ensure that an annual evaluation is conducted on each NATOPS evaluator within T/M/S. The report of the evaluations shall be forwarded to the evaluatee's commanding officer after signature by the Model Manager.
 8. NATOPS Program Manager — Responsible to the Model Manager for specific duties in the maintenance of the assigned NATOPS products, and acts as the Model Manager's single point of contact for all NATOPS related issues. This assignment is delineated in the NATOPS status report. The NATOPS Program Manager (PM) shall:
 - a. Conduct a continuous review of existing publications, including appropriate NATOPS manuals, Maintenance Instruction Manuals (MIMs), Allied Tactical Publications (ATPs), Naval Warfare Publications (NWP), Naval Tactics, Techniques, and Procedures (NTTPs), Naval Aviation Technical Information Product (NATIPs) and associated instructions to discover any conflicts that might exist.
 - b. Submit change recommendations via Airworthiness Issue Resolution System (AIRS) to resolve any conflict.

CNAF M-3710.7

- c. Maintain close liaison with the NATOPS Products Administrator (ACO) including access to the Airworthiness website in order to expedite review, approval, and release of NATOPS interim changes and ensure knowledge of any changes in NATOPS Program policy.
 - d. Review all pending NATOPS change recommendations submitted to the AIRS at the Airworthiness website within the time period designated for that priority of change: urgent change recommendation, less than 24 hours; priority change recommendation, 3 to 5 days.
 - e. Liaise with evaluators of similar aircraft models to correlate data, locate any areas of weakness, and recommend appropriate action.
 - f. Make recommendations to the Model Manager on proposed NATOPS changes and NATOPS Review scheduling.
 - g. Provide guidance and assistance to NATOPS instructors.
 - h. Visit and observe, as appropriate, special exercises, tests, and projects involving new operating techniques or procedures applicable to the model aircraft.
 - i. Review the NATOPS status report to ensure the accuracy of all pertinent information.
 - j. Forward a copy of designation letter and point-of-contact phone number(s) to the COG Command, the NATOPS Program Administrator (CNAF (N455)), and the NATOPS Products Administrator (ACO).
 - k. Monitor and conduct the Unit evaluation on behalf of the NATOPS Model Manager for that T/M/S aircraft. Every unit operating that specific T/M/S aircraft shall have a unit evaluation conducted by the MMU or their designated representative every 18 months. All NATOPS Evaluators shall be evaluated annually coincident with the individual's own NATOPS evaluation.
9. NATOPS Evaluator — Conducts NATOPS Unit Evaluations and NATOPS Instructor standardization evaluations for units operating a specific T/M/S aircraft.
 10. NATOPS Instrument Evaluator — Conducts an instrument evaluation flight in either an aircraft or simulator in accordance with [Chapter 13](#) of this manual.
 11. NATOPS Instructor — NATOPS instructors conduct evaluations on flight crewmembers within their units. Instructors are responsible to the commanding officer for providing the required standardization and shall keep the commanding officer informed of NATOPS development within the community and the unit.
 12. Assistant NATOPS Instructor — Assists squadron NATOPS instructor in performing assigned duties and can administer NATOPS evaluation checks. Assigned as deemed necessary by the commanding officer.

2.2.3 General Administrative Requirements

1. Letters of Designation — Designations of responsibilities discussed above shall be made in writing, on command letterhead. Copies of the designation letters for COG Command representatives, NATOPS MMUs, NATOPS Evaluation Units, and NATOPS Program Managers shall be sent or e-mailed to the NATOPS Program Administrator (COMNAVAIRFOR (N455)) and the NATOPS Products Administrator (ACO).
2. Waiver Delegation Authority — Unless specifically delegated, waiver requests for the requirements set forth in this manual shall be forwarded to COMNAVAIRFOR (N455). Copies of all waivers shall be forwarded to COMNAVAIRFOR (N455) and to COMNAVSAFECOM Aircraft Operations (Code 11). USMC units submitting waivers shall include HQMC Safety Division and shall also forward copies to DC AVN (ACP).
 - a. Waiver approval delegation is provided within this manual for specific situations involving individual personnel waivers, such as Orientation Flights and Flight Time Waivers. Where authorized, the aviation TYCOMs (Commander, Naval Air Force, Pacific (CNAP) and Commander, Naval Air Force, Atlantic (CNAL)), CMC, CNATRA, COMNAVAIRSYSCOM, MARFORCOM, CG 4th MAW, MARFORPAC, and Commander, Naval Air Forces Reserve (COMNAVAIRFORES), may grant waivers for assigned units.

- b. Commands indicated below in the first column of [Figure 2-2](#) may grant waivers to the provisions of T/M/S NATOPS Flight manuals in order to develop new procedures or when compliance increases the risk of a required flight operation prior to initiating recommendations for permanent changes. This provision is not intended to permit a waiver for the sole purpose of convenience to that command. Waiver authority may be delegated in writing at the discretion of the empowered commands listed in the second column of [Figure 2-2](#).
- c. COMNAVAIRSYSCOM may grant waivers to the provisions of this manual and T/M/S NATOPS Flight manuals when required to support research, development, test, and evaluation events. This provision is not intended to permit a waiver for the sole purpose of convenience or training but only when part of an approved Test Plan. Waiver authority may be delegated in writing at the discretion of COMNAVAIRSYSCOM. Copies of all approved NATOPS waivers will be provided to NAVAIR ACCO and CNAF N45 for record keeping.
- d. All waivers shall always indicate the purpose for which granted and include a time limit. If a waiver must be continually renewed, it is a good indication that the particular procedure, requirement, or limitation should be revised.

Figure 2-2. NATOPS Flight Manual Waiver Authority

DELEGATING COMMAND	WAIVER AUTHORITY MAY BE ISSUED TO:
COMNAVAIRFOR	ALL COMMANDS
CMC	ALL USMC COMMANDS
AVIATION TYCOM (CNAP/CNAL)	ALL CNAP/CNAL COMMANDS
COMNAVAIRFORES	ALL USN RESERVE COMMANDS
MARFORPAC	ALL MARFORPAC COMMANDS
MARFORCOM	ALL MARFORCOM COMMANDS
CNATRA	ALL CNATRA ACTIVITIES
COMNAVAIRSYSCOM	ALL COMNAVAIRSYSCOM AND DCMA ACTIVITIES

2.3 NATOPS PRODUCTS AND PUBLICATIONS

2.3.1 Administrative NATOPS Products and Tools

Administrative NATOPS products and tools are designed to alleviate some of the administrative burden from the NATOPS user and the NATOPS Program Manager. These tools define processes, facilitate change recommendation submission and tracking, and assist with execution of NATOPS program responsibilities.

1. NATOPS Status Report — A report prepared by the NATOPS Products Administrator (ACO) and distributed via the Airworthiness website delineating the status of all NATOPS publications, COG Command, Model Manager, and Program Manager assignments, and other pertinent information.
2. NATOPS Program Manager's Handbook — A guide maintained by the NATOPS Products Administrator (ACO) containing detailed descriptions of the functions and responsibilities of the NATOPS Program Manager as well as the processes for updating NATOPS products. The NATOPS PM Handbook is available in the References section on the Airworthiness website.
3. Airworthiness Website — Located at <https://airworthiness.navair.navy.mil>. The primary information conduit for all participants in the NATOPS program. NATOPS products, NATOPS interim changes, the Program Manager's Handbook, the Airworthiness Issue Resolution System, OPNAVINST 3710.7, the NATOPS Status Report and the NATOPS Review schedule are among the items available on the website. Naval Aviation Technical Information Product (NATIP) and Interim Flight Clearance (IFC) information is also located at the website.

4. **Airworthiness Issue Resolution System (AIRS)** — A web-based, interactive NATOPS change recommendation and tracking system resident on the Airworthiness website. All NATOPS change recommendations should be submitted via AIRS. Urgent and priority change recommendations are taken for action in accordance with the interim change process described herein upon submittal via AIRS. Routine change recommendations are collected and held within AIRS until the next NATOPS Review for the affected NATOPS product. AIRS provides the NATOPS Program Manager with tools to assist with Review agenda and post-review report generation. AIRS allows entry of the same information as previously contained on the OPNAV 3710/6 NATOPS/Tactical Change Recommendation Form.

2.3.2 NATOPS Manuals and Associated Products

NATOPS products are published for all Navy and Marine Corps Aircraft Types, Models, and Series (T/M/S) as well as for aviation-related subjects. Depending on its maturity, a set of NATOPS products may be categorized as draft, preliminary, or promulgated, (see [Paragraphs 2.3.3](#) through [2.3.3.3](#) below for additional information). The technical content, style, and format for both paper and digital NATOPS publications shall be in accordance with the applicable military specifications including the ACO NATOPS Style Guide.

Due to the joint nature of the Joint Strike Fighter Program (JSF), the F-35 uses different aircrew products that are approved equivalents to NATOPS manuals and products. The Flight Manual Product Set (FMPS) consists of Flight Series Data (FSD), which is the electronic flight manual; the Pilot's Checklist (PCL); the Functional Check Flight Check List (FCFCL); and Safety Supplements (updates to the printed portions of the FMPS). The FMPS will be supplemented by additional products in the future as the platform matures. F-35 aircrew shall use these approved manuals to meet any required use of NATOPS manuals.

1. **NATOPS Flight Manual (NFM)** — A manual for a specific aircraft model containing standardized ground and flight operating procedures, training requirements, aircraft limitations, and technical data necessary for safe and effective operation of the aircraft. To reduce the size of some NATOPS flight manuals, supplements may be issued for specific sections of the NFM (e.g., Performance Supplement). Variations of the standard NATOPS Flight Manual include the following:
 - a. **Pointer NFM** — A skeleton NATOPS flight manual structured per the ACO NATOPS Style Guide which “points” to the original equipment manufacturer (OEM) or other service flight and operating manuals for specific data. Any required information not covered within the OEM commercial or other service manuals is included in the pointer manual. Typically this includes Functional Checkflight information, unique equipment systems descriptions, unique operating procedures, and pilot currency requirements. All emergency procedures shall be co-located in a single document. “Pointer” NATOPS manuals can be used with commercial derivative aircraft (CDA) and other-service (e.g., USAF or US Army) aircraft publications. Current OEM and other-service publications for the specific aircraft configuration in Naval operation shall be provided to and maintained for the Fleet via appropriate means (e.g., OEM subscription service) by the specific COMNAVAIRSYSCOM aircraft Program Office. Pointer manuals, in conjunction with their respective OEM and other-service manuals, may not be an effective long-term flight manual solution for all aircraft, therefore development of any pointer manual shall be coordinated with the NATOPS Products Administrator (ACO), the applicable COMNAVAIRSYSCOM aircraft Program Office, and the respective fleet NATOPS Model Manager.
 - b. **Unmanned Aircraft System (UAS) NATOPS Flight Manual** — A UAS NATOPS flight manual shall contain information required for a flight manual by the ACO NATOPS Style Guide but may be tailored based on the respective community requirements. Such development of tailored UAS NATOPS products shall be coordinated with the NATOPS Products Administrator (ACO), the applicable COMNAVAIRSYSCOM aircraft Program Office, and the respective fleet NATOPS Model Manager.
2. **NATOPS General Series Manual** — A manual issued for special aviation-related operations or systems that require fleet-wide standardization (e.g., Aircraft Refueling NATOPS, CV NATOPS, LSO NATOPS).
3. **Partial NATOPS Flight Manual** — An NFM issued for a variant of the basic aircraft model and affecting a small but significant percentage of the total fleet. This publication is used in conjunction with the basic NFM and addresses only the differences in the variant.

4. Supplemental NATOPS Manual — To reduce the size of an aircraft platform NFM, a Supplemental NATOPS manual may be issued which contains additional information from specific sections of the NFM (e.g., Performance Charts Supplement, Mission Systems Supplement). The Supplemental manual is only valid when used in conjunction with the aircraft NFM.
5. NATOPS Checklists — Excerpts, often in abbreviated form, of selected sections of the NFM or supplement, designed for easy accessibility for use while airborne (i.e., Pocket Checklist, PCL; Functional Checkflight Checklist, FCFCL; Card Checklist, CCL). Information contained in a NATOPS Checklist shall be derived from the NFM, other approved NATOPS or NATIP.

2.3.3 Categories of NATOPS Products

There are three categories of NATOPS products. These are Draft NATOPS products, Preliminary NATOPS products, and Promulgated NATOPS products.

2.3.3.1 Draft NATOPS Products

Draft NATOPS products are developed as the first versions of the publication. They are given NAVAIR numbers and dates but not a Navy stock number and they are produced in very limited quantities. A Draft NATOPS product shall have an indication on every page that the product is draft. This indication could be in the form of a watermark, a header statement or other appropriate marking. They are often prepared by the OEM and are distributed to COMNAVAIRSYSCOM Program Office, NAVAIR engineering competencies, and Integrated Test Team personnel. Draft NATOPS are typically used for Developmental Test (DT) and are not appropriate for Operational Test (OT) or Fleet use. The contents of Draft NATOPS grow and are revised throughout DT as source data and new information for them becomes available. Configuration management of a Draft NATOPS is typically the responsibility of the NAVAIR Assistant Program Manager for Systems Engineering (APMSE — NAVAIR T/M/S Class Desk). The NATOPS change processes defined herein are not applicable to Draft NATOPS publications. Draft NATOPS do not contain a letter of promulgation and are therefore not considered an approved Flight Clearance. An Interim Flight Clearance issued by COMNAVAIRSYSCOM is required in order to operate an aircraft with a Draft NATOPS to ensure appropriate review of technical data and limitations present in the NATOPS has been completed.

2.3.3.2 Preliminary NATOPS Products

Once a Draft NATOPS product has been sufficiently developed, but prior to fleet introduction and use, the COMNAVAIRSYSCOM program office shall request the NATOPS Products Administrator (ACO) execute an engineering review of the technical data and limitations present in the draft NATOPS. Upon successful completion of this review, the NATOPS Products Administrator (ACO) will declare the NATOPS to be Preliminary, typically via release of an Interim Flight Clearance (IFC). This IFC is required in order to operate an aircraft with a Preliminary NATOPS. Preliminary NATOPS products contain a NAVAIR number, date, and a Navy stock number. They look like mature NATOPS publications except that they contain the word Preliminary in their titles and do not contain a letter of promulgation. Preliminary NATOPS are not distributed for routine Fleet use. A Preliminary NATOPS may be incomplete with respect to containing all of the information required by the ACO NATOPS Style Guide for a mature NATOPS publication but shall contain technically correct engineering data, configurations, limits and procedures reviewed by COMNAVAIRSYSCOM. NATOPS change processes for Preliminary NATOPS are defined herein. The COMNAVAIRSYSCOM Program Office shall coordinate with the NATOPS Program and Product Administrators for the designation of Fleet NATOPS Cognizant Command and Advisory Group membership.

Inputs to the Preliminary NFM are the responsibility of COMNAVAIRSYSCOM, the designated Model Manager, and the OEM. To update a Preliminary NATOPS, the MMU shall convene a Review as data becomes available and new procedures and techniques are developed. COMNAVAIRSYSCOM shall provide the technical information and recommended operating procedures to the NATOPS model manager, who may then propose modifications to the operating procedures within the technical constraints.

2.3.3.3 Promulgated NATOPS Products

Promulgated NATOPS products contain all of the information required by the ACO NATOPS Style Guide and have been judged sufficiently mature to receive a Letter of Promulgation. Promulgated NATOPS are approved

CNAF M-3710.7

permanent flight clearances for that T/M/S aircraft. The NATOPS change processes defined herein shall be followed for promulgated NATOPS products. NATOPS products for aircraft that are deployed in fleet units should normally be promulgated.

2.3.4 Changes to NATOPS Products

A NATOPS product is updated via an interim change, change, or revision.

1. Interim Change — An update to a publication, initiated by an urgent or priority change recommendation (based on the consequence of the recommendation), and issued by rapid means, normally via message with accompanying replacement pages, if appropriate. Interim changes are numbered consecutively throughout the life of the NATOPS publication, regardless of the number of subsequent changes or revisions. Refer to [Paragraph 2.5](#) for a detailed discussion of the interim change process. Interim changes can be cancelled or modified by a NATOPS Review report or another interim change with a new interim change number.

Note

Assignment of a new interim change number to a correction or a change to an interim change provides visibility for new information in the NATOPS Status Report.

2. Change — An update to a NATOPS product which is limited to only those pages containing revised information. A Change is typically the result of the release of a Technical Directive and is outside the size and scope that can be accommodated via the Interim Change process. Changes to NATOPS publications shall include a new title page showing the change number and date below the original publication or revision date. The change number will appear on the bottom of all changed pages.
3. Revision — A second or subsequent edition of a complete publication, superseding the preceding edition and incorporating all previously issued interim changes and changes. Revisions to NATOPS publications are indicated only by a revised date on the title page.

2.3.4.1 Issuing Interim Changes

For interim changes that contain both technical information and operating procedures, COMNAVAIRSYSCOM shall provide the technical information and any recommended operating procedures to the NATOPS Model Manager and the cognizant coordinator, who may then propose modifications to the operating procedures within the technical constraints. The NATOPS Products Administrator (ACO) shall issue all interim changes.

2.3.4.2 Distribution of Changes

1. Revisions and changes are distributed in printed and/or electronic form to all organizations that are on automatic distribution for those publications.
2. Interim changes are distributed in the following ways:
 - a. By priority message to major aviation commands and other addressees when urgency so warrants. The major aviation commands shall immediately readdress and redistribute the priority message to appropriate subordinate commands.
 - b. In digital form to all holders of the manual via the Airworthiness and NATEC websites as replacement pages.
3. Copies of the revised publications with changes incorporated are also placed on the NATEC (<https://mynatec.navair.navy.mil>) and Airworthiness (<https://airworthiness.navair.navy.mil>) websites.
4. Distribution of NATOPS changes and products to foreign military sales (FMS) customers, as well as any required releasability authorization, is the responsibility of the COMNAVAIRSYSCOM Program Office responsible for the affected aircraft.
5. Distribution and/or resale of NATOPS products outside their distribution statements shall not be allowed without the express written permission of the affected COMNAVAIRSYSCOM Program Office (or

distribution authority when the product does not fall under a Program Office) and the NATOPS Products Administrator (ACO).

2.3.4.3 Incorporation of Changes

1. Unless otherwise directed, changes to manuals shall be inserted upon receipt. After checking against the list of effective pages, the superseded pages shall be destroyed.
2. Interim changes, will be entered as replacement pages to the existing manual and shall be recorded on the interim change summary page in the front of the manual. Normally a replacement page package will include an updated Interim Change Summary Page.

Note

The interim change summary page in each NATOPS manual should be checked against the NATOPS Status Report to determine if the manual contains the latest update.

3. Replacement pages that have been modified to incorporate message and/or printed interim changes that were not included in the latest printed change shall:
 - a. Retain their printed change marking (e.g., ORIGINAL, CHANGE 1, CHANGE 2), and
 - b. Be marked beside the printed change marking with the number(s) of the interim change(s) that modifies them (e.g., CHANGE 2 with IC 3, ORIGINAL with ICs 26 and 29), as applicable.

2.4 CREATING, UPDATING AND CANCELLING NATOPS PUBLICATIONS

2.4.1 Creating a New NATOPS

1. Request for Creation of a New NATOPS — A letter shall be sent to the NATOPS Products Administrator (ACO) by the initiating unit via the Advisory Group Member in the chain of command, justifying the need for the new publication, outlining the proposed contents of the publication, and recommending a MMU to manage the publication. When available, a draft of the new publication should accompany the letter.
2. Designation of NATOPS COG Command and MMU — Upon receipt of the letter, the NATOPS Products Administrator (ACO) shall evaluate the need for the publication. If a need for the publication exists, the NATOPS Products Administrator shall recommend to COMNAVAIRFOR that further development of the publication be undertaken and that a cognizant command be assigned. COMNAVAIRFOR (N455) shall then assign a cognizant command for the publication. The COG Command, shall in turn, appoint the MMU of the publication.
3. Formal Approval of the NATOPS — The MMU shall convene a NATOPS Review to formally address the content of the new NATOPS. The Review will also determine whether the new NATOPS is complete or lacks any information considered essential for a complete publication. If the NATOPS contains all information required by the ACO NATOPS Style Guide it is judged to be complete and will normally receive a Letter of Promulgation (LOP). If the publication is determined to be lacking essential information, it shall contain the word Preliminary in the title of the publication, in lieu of receiving a LOP. If the publication is considered complete but remains subject to a high volume of proposed changes, and the aircraft is not yet deployed beyond the fleet replacement squadron, the publication may be retained in a Preliminary status. A NATOPS should be matured sufficiently to support release of a LOP prior to being used in deployed Fleet units. ACO may approve a deviation to allow use of preliminary NATOPS by Fleet units, beyond the FRS, if analysis supports this usage as in the best interest of the Navy.
4. Assignment of NAVAIR Number — The NATOPS Products Administrator (ACO) shall request assignment of a NAVAIR number for the new publication from the Naval Air Technical Data and Engineering Service Command (NATEC) Logistics Element Manager (LEM), who will provide the new NAVAIR number.
5. Automatic Distribution Requirements List — The NATOPS Program Manager shall submit a proposed distribution list for each new publication and forward it via the NATOPS Products Administrator (ACO)

to NATEC. Each proposed distribution list shall be comprised of a list of each unit to receive automatic distribution of the publication. Include the NATEC Activity Address Code if one already exists. The completed distribution list shall include (1) the NATEC Distribution Account Code of each expected user, or the complete address of each user if a NATEC Activity Address code has not yet been established, (2) the user unit's command attention code, if known, and (3) the recommended distribution quantities of paper and/or CD-ROM copies for each user account. The NATOPS Program Manager may contact the NATOPS Products Administrator (ACO) or the NATEC LEM to obtain a copy of the distribution list of a similar publication as an aid in preparing the initial list. FMS customers shall not be included on ADRLs. Distribution of NATOPS products to FMS customers as well as any required releasability authorization is the responsibility of the COMNAVAIRSYSCOM Program Office responsible for the affected aircraft.

6. Following preparation of the master copy of the new NATOPS, a copy shall be forwarded to the NATOPS Products Administrator (ACO) for final approval and preparation of the LOP for the publication.

2.4.2 Updating an Existing NATOPS

1. NATOPS are updated periodically by convening a NATOPS Review to formally disposition and approve the accumulated routine change recommendations submitted since the last NATOPS Review. The changes addressed by the NATOPS Review are documented in a NATOPS Review Report. The approved changes in the Review report and any interim changes that have been issued, but are not yet incorporated in the publication, are then incorporated by editors into a change or revision to the publication.
2. COMNAVAIRSYSCOM ACO is the delegated NATOPS promulgation authority and signs a LOP for the updated NATOPS products provided by the NATOPS Products Administrator (ACO). An updated LOP shall be included in each revision of a publication that has been previously published with a LOP. A LOP may also be inserted in any changed or revised Preliminary publication that has matured and is determined to warrant incorporation of a LOP. Barring a request from ACO to review the publication, the NATOPS Products Administrator (ACO) may incorporate the LOP without the change or revision being forwarded for further review. In both of these cases, incorporation of the LOP into the new publication is subject to the provision that all changes have been formally approved by the NATOPS change processes and have been incorporated into the publication as intended by the Review.

2.4.3 Cancelling a NATOPS

Superseded NATOPS are identified on the cover(s) of the changed or revised publications that supersede them. The Model Manager of a NATOPS that is no longer required and will not be superseded by another, shall submit a recommendation to COMNAVAIRFOR (N455) that the publication be cancelled. Upon receipt of concurrence by the appropriate COG command and COMNAVAIRSYSCOM APMSE, COMNAVAIRFOR shall relieve the COG command of management responsibilities for the publication, and direct the NATOPS Products Administrator (ACO) to retire the publication. The NATOPS Products Administrator (ACO) shall, in turn, declare the publication canceled and notify NATEC of the cancellation. The NATEC LEM will then retire the NAVAIR number and notify the appropriate distribution authority and the NATOPS Program Manager so that shelf stocks and stock numbers are retired.

2.5 CHANGE RECOMMENDATIONS

The effectiveness of the NATOPS program is dependent on the currency and accuracy of NATOPS products. Inputs from many sources are used to maintain the integrity of the program. Any NATOPS product user who notes a deficiency or an error is obligated to submit a change recommendation (CR). The participation of the individual is essential to ensure continuing improvement of the NATOPS products.

2.5.1 Types of NATOPS Change Recommendations

NATOPS change recommendations are either routine or interim, depending on the urgency of the recommendation. Interim change recommendations are additionally categorized as either priority, or urgent based on the consequence of the content of the change.

Routine CRs must be classified into one of three areas at the time of submission:

1. Technical — Those changes that affect systems/limits/values descriptions. These CRs must be confirmed/evaluated by engineers and do not require fleet/user review. For example, requesting that the max engine oil temperature changes from 180 to 200 degrees is a technical CR.
2. Administrative — Those changes that fix obvious errors and require no technical review (typos, duplications, grammar, numbering, etc.).
3. Operational — Those changes that affect the operation of aircraft/systems and typically involve changes in procedures. These CRs require NATOPS PM review before acceptance by the ACO.

2.5.2 Submission of NATOPS Change Recommendations

All NATOPS change recommendations should be submitted via AIRS located at the Airworthiness website (<https://airworthiness.navair.navy.mil>). AIRS is a web-based, interactive NATOPS change recommendation and tracking system. AIRS will acknowledge receipt of the change recommendation via email to the submitter. Ensure POC information listed in AIRS is current and the submitter is available to address questions regarding the proposed change. Urgent and priority change recommendations are taken for action in accordance with the interim change process contained herein upon submittal via AIRS. AIRS also provides the fleet user with insight into the progress of the change recommendation through the approval and release process. If web connectivity is unavailable, use of Naval message or the OPNAV 3710/6 form is acceptable. Transmission of urgent and priority change recommendation messages is authorized during MINIMIZE.

2.5.3 Routine Change Recommendations

Routine change recommendations are those that do not require immediate issuance to the fleet. Routine change recommendations are submitted via AIRS and held within the database until addressed at the next NATOPS Review for the affected NATOPS product. If approved, the routine change recommendations are promulgated to the user via a change or revision to the NATOPS product. As NATOPS Reviews are typically held every 2-3 years, a routine change recommendation could take several years to be resolved.

Note

The NATOPS Model Manager may elect to upgrade the classification of a routine change recommendation to urgent or priority and forward the recommendation for immediate action.

2.5.4 Interim Change Recommendations

Interim change recommendations are those that require near-term issuance to the fleet. Approved recommendations are promulgated to the fleet user via interim change Naval message and replacement pages, if appropriate. Interim change recommendations are divided into two categories, urgent and priority, based on the nature of the recommendation. Routine changes are processed only during NATOPS Reviews and are not included in the IC process.

1. Urgent change recommendations are changes that immediately affect safety of flight. Urgent change recommendations shall be generated any time a hazard has been identified and classified as high risk with respect to personal injury, property damage, or mission degradation or if the situation involves the fundamental airworthiness of the aircraft or operating procedures likely to place flight personnel in immediate danger. Include the phrase “safety of flight” in the subject line. The turnaround time goal for urgent change recommendation release as an interim change is 3 days from receipt of the recommendation.
2. Priority change recommendations are changes that cannot be allowed to wait for implementation until after the next Review. Priority change recommendations shall be generated any time a hazard has been identified that must be addressed in the short term, but does not immediately impact safety of flight. Turnaround time goal for priority change recommendation release as an interim change is 30 days from receipt of the recommendation. Proposed change recommendations of a large scale may not be able to be developed, reviewed, and released in the 30 day target. In these cases, an appropriate turnaround time will be coordinated with the NATOPS Product Administrator (ACO).

2.5.4.1 Interim Change Recommendation to NATOPS Publications

The approval process for priority and urgent change recommendations to NATOPS publications is shown in [Figure 2-3](#).

1. Initial Change Recommendation — The initial change recommendation should be submitted via AIRS on the Airworthiness website. The recommendation should be given an initial category of urgent or priority based on the consequence of the change. If a recommendation is safety of flight related and needs to be defined as urgent, additionally state so in the subject line and in the justification section.

Note

If the Airworthiness website is inaccessible, a change recommendation should be sent to the NATOPS Program Manager, using the format shown in [Figure 2-4](#). COMNAVAIRFOR (N455) and COMNAVAIRSYSCOM (ACO) shall be included as information addressees. The NPM should then enter the change recommendation into AIRS to expedite continued processing.

2. Initial NATOPS Program Manager Approval — Once a change recommendation is submitted, AIRS automatically sends the appropriate NATOPS Program Manager an email notification. Upon receipt of the notification email, the NATOPS Program Manager shall go to the Airworthiness website and review the change recommendation for appropriateness and completeness, recommend cancellation or downgrading to routine, or upgrade a recommendation to urgent, if the recommendation warrants. Incomplete change recommendations should be returned to the originator for staffing to meet the required standards. The NATOPS Program Manager shall at this time give initial approval on behalf of the NATOPS Model Manager to execute the review process for the particular change. This initial approval is not concurrence for release of the change recommendation, but is instead approval for the recommendation to proceed into review. For urgent change recommendations, this initial review shall be completed and forwarded within 24 hours of receipt of the notification email; for priority change recommendations, this initial review shall be completed and forwarded within 3 days of receipt of the notification email. It is imperative that the NATOPS Program Manager verifies that the change recommendation contains all the specific details (content, publication, location, effect on derivative pubs, etc.) required for clarity and to ensure complete understanding of the recommendation. This will facilitate timely turnaround and ensure quality of the requested change.
3. Change Recommendation Review — Once initial approval to proceed is received from the NATOPS Program Manager, the NATOPS Products Administrator (ACO) shall develop the recommendation package for advisory group and technical review. Draft replacement pages may be generated as part of this package, if necessary. The review package is forwarded to the advisory group members, typically via email or other electronic means, for review. Concurrences and comments shall be returned to the NATOPS Products Administrator (ACO) in a timely manner to support release of the interim change within the designated turnaround time for a priority or urgent change. Advisory group members not exercising operational control of subject aircraft need not respond. For cases that involve both technical information and operating procedures, COMNAVAIRSYSCOM shall provide approved technical information and any recommended procedures for review.
 - a. Approval of Technical Information — COMNAVAIRSYSCOM has cognizance over the content and layout specifications, all aircraft equipment limitations, flight envelopes, and technical data in NATOPS publications. The fleet COG Command/Model Manager has cognizance over all operating procedures, but must operate within the constraints of the technical limitations. Following receipt of a change recommendation that involves technical information, COMNAVAIRSYSCOM may issue it directly as an interim change provided that no operating procedures are involved.
 - b. Emergency Egress, Rescue, and Survival Information — When the change recommendation affects any aspect of emergency egress, rescue, or survival, Naval Survival Training Institute (NSTI), the aviation training advisor for emergency egress, shall be included in the review process.

4. COG Command's Request for Release — The COG Command shall review comments from the members of the advisory group and the MMU and then recommend final action to the NATOPS Products Administrator (ACO) in a timely manner to support release of the interim change within the designated turnaround time for an urgent or priority change. The COG Command shall either cancel or downgrade the change recommendation, or submit a request to issue the recommended change to the NATOPS Products Administrator (ACO).
5. NATOPS Products Administrator (ACO) Release of Interim Change — Upon receipt of the COG Command's recommendation for issuance, the NATOPS Products Administrator (ACO) shall assemble the final NATOPS interim change package. The package shall include copies of the original change recommendation and related NATOPS advisory group comments and recommendations. The MMU shall review the final package for accuracy and completeness. Upon receipt of final MMU concurrence, the NATOPS Product Administrator (ACO) shall issue the interim change package.

2.5.4.2 Interim Change Recommendations To CNAF M-3710.7

The approval process for change recommendations to CNAF M-3710.7 is very similar to that for interim change recommendations to the NATOPS publications, except that COMNAVAIRFOR performs both the COG coordinator and the releasing authority functions for CNAF M-3710.7 change recommendations. Change recommendations shall be submitted via AIRS at the Airworthiness website as previously detailed. AIRS will notify COMNAVAIRFOR (N455) to initiate the review. COMNAVAIRFOR (N455) functions as the cognizant command and collects comments from the other concerned NATOPS advisory group members. As with the NAVAIR NATOPS publications, COMNAVAIRSYSCOM has cognizance over limitations and technical data, and shall provide the approved technical information and any recommended operating procedures. COMNAVAIRSYSCOM, however, may not issue changes to CNAF M-3710.7. After receiving the NATOPS advisory group's comments, COMNAVAIRFOR decides on the action to be taken and may cancel or downgrade the change recommendations, or issue an interim change to CNAF M-3710.7.

2.5.5 Preparation and Distribution of Interim Changes

Approved change recommendations to CNAF M-3710.7 are issued by COMNAVAIRFOR as interim changes to CNAF M-3710.7. Approved change recommendations to NATOPS publications are issued as interim changes by the NATOPS Product Administrator (ACO). If replacement pages are included as part of the interim change package, the interim change message serves as notification of issuance of the interim change. The replacement pages can be downloaded from the Airworthiness or NATEC websites or may be received via email from a POC listed in the interim change message. Replacement pages shall be inserted into the appropriate NATOPS products upon receipt. If no replacement pages are available, the interim change message shall be complete in itself and should not require the user to refer to another source for the approved text. Interim change messages shall be in the format of [Figure 2-5](#), with copies to all commands listed, as appropriate for the changed publications. Advisory group members are responsible for readdressal of interim change messages to their subordinate commands.

Figure 2-3. Interim Change Recommendation Approval Process

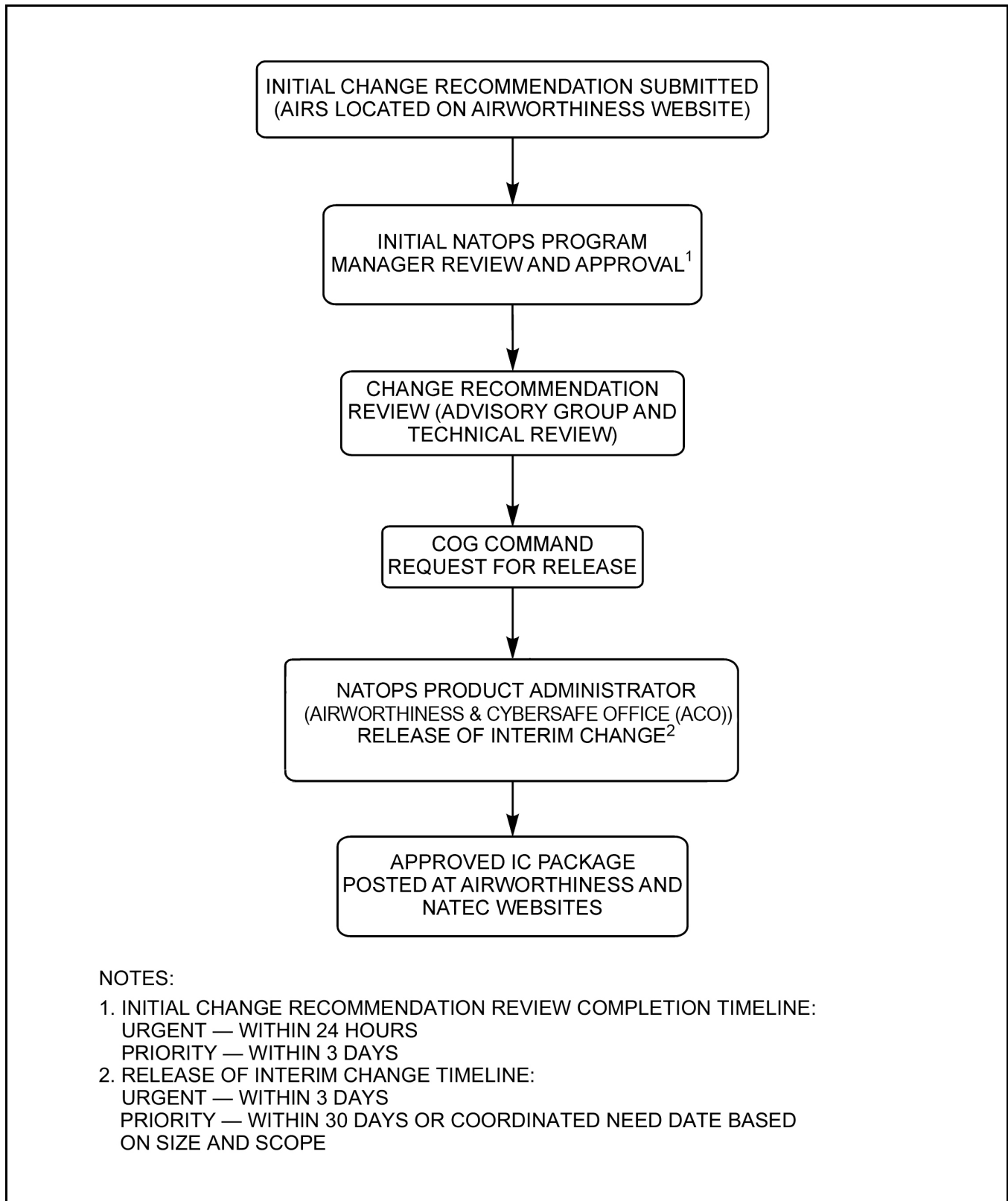


Figure 2-4. Sample NATOPS Interim Change Recommendation Message

P R Date-time group
 FM Originator //***//
 TO Advisory group member in your chain of command //***//
 INFO COMNAVAIRFOR SAN DIEGO CA//N455//
 COMNAVAIRSYSCOM PATUXENT RIVER MD//ACO/4.1/5.0F//
 COMNAVSAFECOM NORFOLK VA//***// (If it's a safety-of-flight issue)
 NAVSURVTRAINST PENSACOLA FL//02/025// (If aircrew emergency egress/rescue/survival
 PEOASWASM PATUXENT RIVER MD//PMA code// equipment/procedures involved)
Other appropriate units in your chain of command//***//
Model Manager unit//***//
Evaluation unit in your chain of command//***// (If different from the model manager)
 HMX ONE QUANTICO VA//C148-11// (If VH-3, VH-60 or MV-22 aircraft involved)

BT

UNCLAS //N03711//

MSGID/GENADMIN/ originator unit //

SUBJ/INTERIM CHANGE RECOMMENDATION TO aircraft/title NATOPS PUBLICATIONS//

REF/A/DOC/OPNAV/ date // (When appropriate, add: — — SAFETY OF FLIGHT)
 (3710.7 Instruction, date when last changed)
 REF/B/DOC/NAVAIR pub#/ date of latest change or revision// (e.g., NAVAIR 01-T45AC-NFM-000 (T-45 NFM))
 REF/C/.....//
 ...ETC. (Additional references as necessary)

NARR/REF A IS CNAF M-3710.7, CHAPT 2. . REF B is Pub Title (short pub title). REF C IS
 NAVAIR Pub Title (short pub title)... Etc. (e.g., NAVAIR 01-T45AC-NFM-000 (T-45 NFM))

RMKS/1. IAW REF A, RECOMMEND CHANGE REF B (AND C, ...ETC.)
 AS FOLLOWS:

A. CHANGE REF B, PART number, CHAPTER number, PAGE number, FIGURE/PARAGRAPH number and title, SENTENCE/LINE number or other unidentifiable landmarks on page.

(1) DELETE: (Always indicate what is to be deleted. If no deletion is necessary, enter NA.)
 (2) ADD: (Quote new text or describe changed material. If none, enter NA. unless otherwise indicated, new text is inserted in the same location as deleted material.)

B. (Continue change recommendations with next pub and/or next location.)
 2. Justification:: (Indicate if Urgent or Priority. Enter remarks necessary to justify change recommendations.)

3. Unit POC IS Code Rank Name, TEL DSN _____ - _____ COMM _____ - _____, EMAIL _____ @ _____.

//

BT

Note

- *** Indicates message routing code. (Use “//JJJ//” when code required but not known).
- NATOPS Advisory Group routing codes may be located in the Urgent Change Recommendation section of the NATOPS Status Report; or, determined by contacting the individual NATOPS Program Manager for the subject publication.
- This sample is intended as a content guide. Refer to NTP-3 for detailed GENADMIN MTF formatting instructions.
- Naval message format for NATOPS interim change submission should only be used when web connectivity to AIRS is unavailable.
- Include priority categorization (urgent or priority) in justification paragraph.

Figure 2-5. Sample NATOPS Interim Change Message

PTTUZYUW RULSABU1234 XXXXXXXX-UUUU-RHMCSUU.
 ZNR UUUU
 P XXXXXXXZ MMM YY
 FM COMNAVAIRSYSCOM PATUXENT RIVER MD//ACO//
 TO ALL NATOPS MODEL MANAGER UNIT ACTIVITIES
 INFO COMNAVSAFECOM NORFOLK VA//11//
 COMNAVAIRSYSCOM PATUXENT RIVER MD//4.1/5.0F//
 ADVISORY GROUP MEMBERS//XX// (As designated in publication)
 NAVAIRDEPOT XXXX/XXX// (If assigned as cognizant field activity)
 NAVAIRDEPOT JACKSONVILLE FL//3.3.3//
 PEOTACAIR PATUXENT RIVER MD//PMAXXX// (If appropriate)
 DCMA NAME//XX// (If in-production aircraft involved)
 HMX ONE QUANTICO VA//C148-11// (If VH-3, VH-60 or MV-22 aircraft involved)
 NAVSURVTRAINST PENSACOLA FL//02/025// (If aircrew emergency egress/rescue/survival equip/procedures involved)
 BT
 UNCLAS //N03711//
 MSGID/GENADMIN/COMNAVAIRSYSCOM/ACO//
 SUBJ/PLATFORM AIRCRAFT NATOPS PUBLICATIONS INTERIM CHANGE
 /SAFETY OF FLIGHT (Add when appropriate)//
 REF/A/XXX/COG COMMAND INFO/DATE//
 REF/B/DOC/COMNAVAIRSYSCOM/DATE//
 REF/C/DOC/COMNAVAIRSYSCOM/LATEST REVISION DATE// (e.g., NAVAIR 01-T45AC-NFM-000 (T-45 NFM))
 NARR/REF A IS PLATFORM COG COMMAND REQUEST FOR RELEASE.
 REF B IS AIRS XXXX-XXX.
 REF C IS PLATFORM, PUBLICATION, NAVAIR # AND DATES//
 RMKS/1. THIS MESSAGE IS ISSUED IN RESPONSE TO REFS A AND B. THIS MESSAGE ISSUES INTERIM CHANGE (IC) NUMBER XX TO REF C.
 2. SUMMARY.
 A. THESE CHANGES TO REF C (SHORT SUMMARY OF CHANGE)
 B. THIS MESSAGE IS FOR NOTIFICATION OF THESE CHANGES ONLY. THE DETAILS OF THE ACTUAL CHANGES ARE FOUND IN REPLACEMENT PAGES. ALL PAGES MUST BE DOWNLOADED, PRINTED AND INSERTED.
 C. REPLACEMENT PAGES CONTAINING THESE CHANGES FOR DOWNLOADING AND INSERTION INTO REF C WILL BE ATTACHED TO THIS INTERIM CHANGE MESSAGE WHEN IT IS POSTED ON THE AIRWORTHINESS AND NATEC WEBSITES (SEE LAST PARA BELOW).
 3. THE REPLACEMENT PAGES IMPACT THE FOLLOWING EXISTING NATOPS FLIGHT MANUALS (AND CHECKLISTS AS APPROPRIATE):
 A. REF C (PLATFORM NFM), PAGES XX AND XX
 4. POINTS OF CONTACT:
 A. PLATFORM NATOPS PROGRAM MANAGER IS NAME, TEL DSN OR COMM, EMAIL:
 B. NAVAIR POCS:
 (1) ACO IC COORDINATOR
 (2) NAME, PLATFORM CLASS DESK etc
 5. THIS MESSAGE WILL BE POSTED ON THE AIRWORTHINESS WEBSITE, [HTTPS://AIRWORTHINESS.NAVAIR.NAVY.MIL](https://airworthiness.navair.navy.mil) WITHIN 48 HOURS OF RELEASE. INTERIM CHANGES MAY BE FOUND IN TWO PLACES ON THE WEBSITE:
 A. IN THE NATOPS LIBRARY SORTED BY AIRCRAFT PLATFORM AND T/M/S.
 B. IN AIRS SEARCHED BY AIRS NUMBER FOUND IN REF B ABOVE.
 THIS MESSAGE WILL ADDITIONALLY BE POSTED ON THE NATEC WEBSITE, [WWW.NATEC.NAVY.MIL](http://www.natec.navy.mil). IF THE IC MESSAGE INCLUDES REPLACEMENT PAGES, THEY WILL BE PLACED WITHIN THE MANUAL AND REPLACED PAGES DELETED.
 IF UNABLE TO VIEW THIS MESSAGE ON EITHER THE AIRWORTHINESS OR NATEC WEBSITES, INFORM THE NATOPS GLOBAL CUSTOMER SUPPORT TEAM AT
 (301) 342-3276, DSN 342-3276, OR BY EMAIL AT NATOPS @ NAVY.MIL//
 BT
 #1234
 NNNN

Note

- *** indicates message routing code. (Use “//JJJ//” when code required but not know).
- NATOPS Advisory Group routing codes may be located in the Urgent Change Recommendation section of the NATOPS Status Report, or, determined by contacting the individual NATOPS Program Manager for the subject publication.
- This sample is intended as a content guide. Refer to NTP-3 for detailed GENADMIN MTF formatting instructions.

2.6 NATOPS REVIEW PROCEDURES

2.6.1 General

The effectiveness of the NATOPS program is largely dependent upon frequent review and update of NATOPS manuals to ensure that they reflect current operational procedures and accurate technical information. The formal NATOPS Review is the primary means of carrying out this phase of the program. The information in this chapter represents CNAF policy concerning NATOPS Reviews and includes information relevant to all NATOPS users. Specific information concerning the planning and execution of Reviews can be found in the NATOPS Program Manager's Handbook.

A NATOPS product should be formally reviewed every 2 years. Under certain circumstances a span of more than 2 years between reviews may be warranted, but in no case shall a publication exceed 5 years between formal reviews. Reviews can be in person or virtual, or consist of rolling eNATOPS updates, as long as the MMU (Model Manager and NATOPS PM), Class Desk, and ACO agree that the publication has been thoroughly reviewed with sufficient fleet input.

2.6.2 Responsibility

The responsibility for scheduling, convening, and conducting a NATOPS Review rests with the appropriate MMU. In performing those functions, the MMU shall consult with the COG Command and the NATOPS Products Administrator (ACO). In practice, the tasks delegated to the MMU concerning the planning and execution of NATOPS Reviews usually fall to the NATOPS PM.

2.6.3 Convening Announcement

1. When the Review date and location have been confirmed and appropriate funding has been identified, the MMU shall originate the convening announcement. The convening announcement shall precede the date of the review by at least 60 days.
2. Announcement of the Review shall be by message to all major aviation commands employing the aircraft, COMNAVAIRFOR, COMNAVAIRSYSCOM, COMNAVSAFECOM, NSTI, NATEC, and DCMC at the manufacturer's facility.
3. Upon receipt of the convening announcement, NATOPS Advisory Group representatives shall inform units within their commands as appropriate. Review announcements and requests for agenda items should receive wide dissemination.
4. Attendance by foreign government or military representatives at NATOPS Reviews is subject to SECNAVINST 5510.34 foreign disclosure policy and is the responsibility of the COMNAVAIRSYSCOM Program Office responsible for the affected aircraft.

2.6.4 Review Agenda

Change Recommendations (CRs), for inclusion in the Review Agenda shall be received by the MMU no later than 30 days prior to the Review convening date. These CRs are used to build the Review Agenda. The Agenda is posted to the Airworthiness website by the ACO approximately one week prior to the Review. The NATOPS PM shall distribute the Agenda to all addressees on the Review Convening Announcement. Review attendees are encouraged to be thoroughly familiar with the Agenda prior to Review.

2.6.5 Conduct of NATOPS Reviews

1. The NATOPS Model Manager's designated representative (normally the NATOPS Program Manager) shall act as chairperson and establish the review schedule.
2. Minimum Review attendance shall include the NATOPS Products Administrator (ACO), the COG Command representative, any Advisory Group member exercising operational control of the subject aircraft, the NAVAIR APMSE representative, COMNAVSAFECOM, and all NATOPS evaluation units for the subject aircraft. Additional attendees may be invited by the MMU as indicated in the convening message.

- a. If the COG Command representative cannot attend, they must designate in writing (email is acceptable) a stand-in that can attend the Review and sign the Review Agreement Letter in their stead. This stand-in cannot be a representative from the MMU.
3. The formal voting membership shall be limited to direct representatives of advisory group members, the APMSE, the MMU, and in some cases NATOPS evaluation units. Each voting command represented shall be limited to one vote and no individual shall have more than one vote. Designation of a representative from another command to vote and act for a voting member who cannot attend the Review shall be done in writing. Votes may be cast in absentia only if made in writing. The ACO shall make the determination of any voting procedures other than those specified herein.
4. Agenda items that involve changes to policy shall not be introduced at the Review if not provided to all voting members in sufficient time for staffing prior to the Review.
5. Discussion should be free and relatively informal. However, the chairperson shall exercise the authority to discontinue discussion when it is no longer profitable.

2.6.5.1 NATOPS Program Manager's Handbook

The NATOPS Program Manager's Handbook provides an in-depth discussion of the NATOPS program and shall be thoroughly reviewed by the NATOPS Program Manager during the planning of the Review. The Handbook is available on the Airworthiness website (<https://airworthiness.navair.navy.mil>) under Library-References-NATOPS Program Manager-NATOPS PM Guide.

2.6.6 NATOPS Review Report

The NATOPS Review Report (NRR) is the official record of the results of the Review events and includes the disposition of all recommended changes. It is prepared by the ACO and distributed via the PM to Review attendees, fleet units, and Advisory Group members for information and use as needed. Although prepared by the ACO and editorial staff, the accuracy of the Review report is still the responsibility of the Model Manager.

Note

Distribution of the NATOPS Review report and related products to Foreign Military Sales (FMS) attendees must be cleared through the required releasability authority.

The ACO's NATOPS Review Standard Work Package (SWP-ACO-014) details the preparation of the NRR and is available to the MMU upon request. During the Review process, MMUs and NATOPS PMs should note the following regarding the NRR:

1. NATOPS Style Guide, as appropriate, and other established publishing guidelines governing the content and format of the reviewed publication shall be adhered to. For instances when strict adherence to these guidelines results in content that is confusing or counterintuitive to the intended user, deviation from the standard is permitted with written approval from the NATOPS Products Administrator or NATOPS Program Administrator, depending on the level of deviation.
2. The copy freeze date is the date on which the contents of the manual are frozen (i.e. no outstanding items remain) and editorial progress may proceed without further delays. If there are no outstanding change items, the copy freeze date shall coincide with the last day of the Review. If outstanding items exist, a clear plan and date shall be agreed upon. Delays in copy freeze will impact publication release.
3. No further changes or additions may be submitted after the conclusion of the Review unless coordinated with the NATOPS Review editorial team and the ACO representative.
4. If circumstances warrant the incorporation of additional technical content during the post-review NATOPS revision period (e.g., new equipment is approved for installation/use in the aircraft), the NATOPS Products Administrator ACO reserves the right to develop a Review Addendum incorporating the information into the ongoing revision. The Review addendum shall be approved by the necessary Advisory Group members (similar to an interim change) prior to inclusion into the NATOPS revision. The MMU and the NATOPS

Products Administrator ACO shall maintain record of the addendum with the approved Review report. Additionally, any content that is deemed critical enough to be incorporated post copy freeze date can be accommodated using the interim change process.

5. When a Model Manager strongly disagrees with the Review approved disposition of an agenda item, that item shall remain in the record as an approved change; however, the NATOPS Model Manager shall identify the agenda item in the Review report letter and indicate the reason for objection. Within 30 days following the conclusion of the Review, the Model Manager shall submit a CR to resolve the item in question. Failure to submit a CR constitutes a withdrawal of the objection. The change item in question shall not be incorporated into the publication until the CR is resolved.

2.6.7 Implementation of Approved Agenda Items

The agenda items approved at the Review are approved for fleet-wide use but are not mandatory upon receipt of the NATOPS Review Report. Advance change items become mandatory once issued by a NATOPS Update message. Use of approved agenda items prior to receipt of a NATOPS Update or Revision is at the discretion of the MMU commanding officer.

2.6.8 Prepublication Reviews

The editorial production contractor will incorporate the Review-approved changes into the master copy of the publication(s). Production of NATOPS publications requires close coordination between the NATOPS Model Manager, the NATOPS Products Administrator ACO, NATEC, and the editorial production organization. Information in the NATOPS Review Report may be incomplete. If questions arise, delays will occur until the editor receives the information necessary to proceed. When questions do arise, every effort should be made to forward the necessary information to the editors as expeditiously as possible to avoid further delays.

During incorporation of the approved items into the manual, there should be at least one in-process review scheduled for the NATOPS Model Manager or the designated representative(s) to ensure that changed information is being incorporated into the publication(s) as intended by the Review. The new table of contents and index, which are not generated until after the contents of the chapter pages are fixed, will not be available during the in-process reviews. In-process reviews are normally done via email or at the editor's production site. All discrepancies requiring correction should be listed and passed to the ACO and editorial team. Unrecorded discrepancies are often overlooked and may not be corrected.

After the chapters have been reviewed and the complete publication has been assembled, including table of contents and index, ACO shall perform a final review of the completed publication(s) prior to printing and distribution. Travel and TAD funding for the NATOPS Model Manager or the representatives to attend the final review is the responsibility of the MMU.

In-process and final reviews shall be completed in an expeditious manner as coordinated by ACO and the editorial team. Delays in production initiated by the NATOPS Model Manager to resolve unexpected problems discovered with the approved items are unacceptable. Model Managers shall recommend modifications to the approved text via the NATOPS Update process rather than interrupting editorial production of the publication(s), unless waived by the NATOPS Products Administrator (ACO).

2.7 NATOPS EVALUATION PROCEDURES

2.7.1 General

The technical data and standard operating procedures prescribed in the NATOPS Flight Manuals represent the optimum manner of operating various aircraft and related equipment. By grading adherence to NATOPS procedures, NATOPS evaluations are intended to measure how closely those procedures are being followed. There are two types of NATOPS evaluations — individual NATOPS evaluations and unit NATOPS evaluations. Each aircrewmember is evaluated annually, normally by own unit NATOPS instructors, for compliance with NATOPS procedures. Unit evaluations are normally conducted on an 18-month cycle by an evaluator from the NATOPS model manager unit or assigned NATOPS evaluation unit and include conducting individual NATOPS evaluations of selected individuals. Both evaluations measure degree of compliance, the health of the NATOPS program, and

CNAF M-3710.7

the level of individual proficiency within that unit. Naval Aviation Technical Information Product (NATIP) data is testable during NATOPS evaluations at the MMU's discretion.

2.7.2 Individual NATOPS Evaluations

The individual NATOPS evaluation allows a close assessment of the pilot or aircrewman and is the basic building block of the unit NATOPS evaluation.

2.7.2.1 Definitions

The following definitions shall apply to the NATOPS evaluation program:

1. NATOPS Evaluation — An evaluation of individual pilot or crewmember, consisting of an open book examination, a closed book examination, oral examination, and an evaluation flight (aircraft or simulator).
2. Standardization Evaluation — An evaluation conducted by the NATOPS evaluator for the purpose of measuring the knowledge and instructing capabilities of a NATOPS Instructor or Evaluator. This evaluation may be performed coincident with any annual NATOPS evaluation.
3. Qualified — That degree of standardization demonstrated by a very reliable flight crewmember who has a good knowledge of standard operating procedures and thorough understanding of aircraft capabilities and limitations.
4. Conditionally Qualified — That degree of standardization demonstrated by a flight crewmember who meets the minimum acceptable standards. The individual is considered safe enough to fly as pilot in command or to perform normal duties without supervision, but more practice is needed to become Qualified.
5. Unqualified — That degree of standardization demonstrated by a flight crewmember who fails to meet minimum acceptable criteria. The individual should receive supervised instruction until the individual has achieved a grade of Qualified or Conditionally Qualified.
6. Area — A routine of preflight, flight, or post-flight.
7. Subarea — A performance subdivision within an area that is observed and evaluated during an evaluation flight.
8. Critical Area/Critical Subarea — Any area or subarea that covers items of significant importance to the overall mission requirements or the marginal performance that would jeopardize safe conduct of the flight.

2.7.2.2 Implementation

The NATOPS evaluation program shall be carried out in every unit operating naval aircraft. Fleet replacement squadrons (FRS) shall ensure those pilots, NFOs, naval aircrewmen, Air Vehicle Pilots (AVP) and Mission Payload Operators (MPO) have successfully completed a NATOPS evaluation prior to their completion of the course of instruction. In instances where it is impractical to NATOPS qualify such individuals, the formal course of replacement training shall be considered as having conditionally satisfied NATOPS requirements for a period of 1 year from the individual's completion date, provided that all required phases of instruction are completed. An entry shall be made in the individual's training jacket and log book stating that the individual is NATOPS Conditionally Qualified, utilizing a format similar to that shown in [Figure 2-6](#) of this chapter. Evaluations shall be administered to flightcrew personnel as follows:

1. Pilots (other than VP, VR, VQ, VAW, and HM/HS/HSC/HSL/HSM), NFOs, and naval aircrewman — Within 6 months after reporting to a unit if not currently qualified in model.
2. Pilot (VP, VR, VQ, VAW, and HS) — Prior to advancing beyond third pilot or equivalent.
3. Aircrew candidates — Prior to designation as aircrewman.
4. AVP and MPO — prior to designation as an AVP or MPO.
5. All pilots, NFOs, naval aircrewmen, AVPs and MPOs holding current evaluation in model aircraft — Renewal NATOPS evaluations may be accomplished within 60 days preceding expiration of a current

qualification and will be valid for 12 months from the last day of the month in which the current qualification expires. Otherwise, qualifications will be valid for 12 months from the last day of the month in which the evaluation is completed.

2.7.2.3 Procedures

The following procedures shall be followed in implementing the NATOPS evaluation program:

1. The evaluation shall consist of a ground evaluation and an evaluation flight. A maximum of 60 days may elapse between the commencement of the initial ground evaluation and the date the evaluation flight is satisfactorily completed. At the discretion of the squadron or unit commanding officer, all or part of the flight should be simulated in a weapons system trainer (WST), operational flight trainer (OFT), or other suitable training device. Use of trainers is particularly encouraged for those simulated emergencies and/or scenarios that present significantly increased risk when performed in an aircraft. If no such device is available, the aircraft cockpit, flight deck, or communications suite may be used. Evaluation flights in aircraft that require simulated emergencies should be avoided while deployed at sea.

Note

- Commanding officers may extend the expiration date of all NATOPS qualifications that would otherwise expire during the period of a long deployment or within 90 days of return. NATOPS qualifications that are due to expire prior to the last 90 days of a long deployment should be renewed prior to deployment. The expiration date for the extension shall not be later than 90 days after return from deployment.
 - Extension letters shall be filed permanently with the OPNAV 3710/7 (NATOPS Evaluation Report) for which the extension is granted in section III, Part D (NATOPS Evaluation Report) of the NATOPS Flight Personnel Training Qualification Jacket. See [Paragraph A.2.3](#). An appropriate flight log book entry shall also be made, listing the new expiration date.
2. Evaluatees who receive a grade of Unqualified on a ground or flight evaluation shall be allowed 30 days in which to complete a reevaluation. At the discretion of the commanding officer, the reevaluation need only consist of those areas/subareas in which a grade of Unqualified was assigned. A maximum of 60 days may elapse between commencement of the initial ground evaluation and the date the evaluation flight is satisfactorily completed. Aviation type commanders may waive the time limitations under circumstances making compliance impracticable.
 3. Failure to successfully complete a reevaluation should result in a recommendation to the unit CO that the evaluatee appear before a Field Naval Aviator Evaluation Board or Field Flight Performance Board.
 4. While this instruction and the individual NATOPS publications establish standards for grading individual performance, they do not relieve the NATOPS evaluator or instructor from using sound judgment based upon knowledge and experience. The NATOPS evaluation flight is intended to measure performance with regard to knowledge of and adherence to prescribed procedures. Any tendency to extend the evaluation into the areas of pilot proficiency or weapons readiness must be avoided.
 5. Activities that do not have personnel suitable for designation as NATOPS Instructors shall make arrangements for their pilots/crews to obtain individual NATOPS evaluations at the nearest naval activity or unit that has a NATOPS Evaluator or NATOPS Instructor qualified to check pilots/crews in the appropriate T/M/S.

2.7.2.4 Ground Evaluation

Prior to commencing the evaluation flight, an evaluatee must achieve a minimum grade of Qualified on the open book and closed book examinations. The oral examination is also part of the ground evaluation, but may be conducted as part of the flight evaluation. To ensure a degree of standardization between units, the Model Manager shall prepare and maintain a bank of questions and answers for use by unit NATOPS instructors in preparing the written

CNAF M-3710.7

examinations. The areas to be evaluated in the ground phase shall be delineated in the individual aircraft model NATOPS manual. When appropriate, NATIP material may be included in the ground evaluation at the discretion of the MMU.

1. Examinations — The maximum and minimum number of questions and the time limits for the written examinations shall be specified in the manual. The oral examinations may be conducted prior to or as part of the flight evaluation and should be based on selected general areas outlined in the NATOPS manual.
2. Grading Instructions — Examination grades shall be computed on a 4.00 scale and recorded in the appropriate column of the NATOPS Evaluation Report OPNAV 3710/7.
 - a. Open Book Examination — To obtain a grade of Qualified, an evaluatee must obtain a minimum score of 3.5.
 - b. Closed Book Examination — To obtain a grade of Qualified, an evaluatee must obtain a minimum score of 3.3.
 - c. Oral Examination — Questions may be taken from the NATOPS manual, question banks, or drawn from the experience of the instructor/evaluator. Such questions should be direct and positive and should in no way be opinionated. A grade of Qualified or Unqualified shall be assigned.

2.7.2.5 Evaluation Flight

The areas, subareas, critical areas, and critical subareas of an evaluation flight shall be specified in the NATOPS manual. When appropriate, NATIP material may be included in the evaluation flight at the discretion of the MMU. It may be conducted on any operational or training flight or in an OFT. The following procedures shall be used in determining the final grade.

1. A grade of Unqualified in any critical area or critical subarea will result in an overall grade of Unqualified for the flight.
2. Evaluation flight (or area) grades shall be determined by assigning the following for each subarea: UQ (Unqualified), CQ (Conditionally Qualified), or Q (Qualified). All areas graded less than Q shall be justified in the evaluator's remarks. An overall grade of less than Q for the flight shall be justified in the evaluator's remarks.
3. Evaluation flights resulting in an overall grade of less than Q shall contain the unit commander's remarks concerning the qualifications of the evaluatee.
4. Evaluation worksheets and kneepad worksheets contained in the applicable NATOPS manual shall be used during the evaluation flight.

2.7.2.6 Documentation/Record

1. A NATOPS evaluation report, OPNAV 3710/7 (4-16), shall be completed and signed by the NATOPS evaluator/instructor for each evaluation conducted, and forwarded directly to the evaluatee's commanding officer.
2. For each evaluatee, the evaluatee's commanding officer may make remarks on the evaluation report regarding the aviation skills and future potential of the evaluatee. The evaluatee's commanding officer, who need not be aviation-qualified, shall then sign the NATOPS evaluation report as the unit commander. Alternately, if the evaluatee is on Temporary Assigned Duty (TAD) orders, that commanding officer may designate the evaluatee. Otherwise, this responsibility shall not be delegated. The report shall then be filed in the individual's flight training jacket.
3. An entry shall be made in the pilot/NFO/enlisted air crewmen flight logbook under "Qualifications and Achievements" as shown in [Figure 2-6](#).

Figure 2-6. Sample Pilot/NFO/Enlisted Aircrew Flight Logbook Entry

Qualification	Date	Signature
NATOPS EVAL (Aircraft Model)	(Crew Position) (Date Issued)	(Signature)(Unit that administered eval)

2.7.3 Unit NATOPS Evaluation

Unit NATOPS evaluations shall be conducted by the appropriate NATOPS Evaluator for the T/M/S aircraft assigned. NATOPS Evaluators shall be designated by the Model Manager and maintain annual NATOPS currency. The Unit NATOPS Evaluation shall follow the same procedures delineated in [Paragraphs 2.7.2 through 2.7.2.6](#). Additionally, the unit NATOPS evaluation shall be administered as follows:

1. It shall include one or more individual NATOPS evaluations for each crew position (ground evaluation and an evaluation flight) and be administered to flight crewmembers selected at random by the evaluator to measure overall adherence to NATOPS procedures.
2. The evaluation may be conducted as a part of command inspections.
3. NATOPS Unit evaluator shall review unit NATOPS records; spot check of unit NATOPS manuals for appropriate change incorporation. Digital or print NATOPS publications are acceptable.
4. The unit commander shall be informed in writing of the results of the evaluations and the effectiveness of the NATOPS program within the command. These results may be forwarded and briefed to the ISIC of the unit commander upon request. A critique should be held following completion of the unit evaluation to be attended by the unit commander. The critique will be informal, with the inspected unit offered adequate opportunity for questions and comments.
5. In instances where an unsatisfactory level of unit adherence to NATOPS is uncovered, the NATOPS Evaluator shall forward an appropriate description of the discrepancies to the applicable aviation type commander via the Model Manager, unit commander and normal chain of command. Copies of all unit evaluations, regardless of findings, shall be forwarded to COMNAVAIRFOR N455.
6. NATOPS Unit evaluations are valid for a period not to exceed 18 months from the last day of the month in which the evaluation was completed. The 18-month evaluation cycle may be extended to a maximum of 24 months by the NATOPS Model Manager for circumstances such as extended deployments, but only for units whose previous evaluations indicated a high degree of NATOPS program effectiveness.

This Page Intentionally Left Blank.

CHAPTER 3**Policy Guidance****3.1 POLICY CONCERNING USE OF AIRCRAFT****3.1.1 Special Policies****3.1.1.1 Emergency and Humanitarian Operations**

Naval aircraft operations are authorized in emergencies such as forest fire, search, rescue, major calamities, and for humanitarian reasons involving life-threatening circumstances. Notification of the operation shall be made to CNO or CMC, as appropriate, and the responsible local commander, but without delaying action when time is an essential factor. Squadron commanders and officers in charge will operate under the direction of assigned Joint Task Force commanders per Combatant Commander policy/guidance.

3.1.1.2 Theater Indoctrination Training

Prior to operating at other than U.S. airports, commands/detachments shall receive specific training for the theater(s) in which the unit will operate. As a minimum, this training shall include a thorough review of theater-unique instrument requirements and procedures, the use of non-DoD instrument approach procedures, required instrumentation for specific approaches, theater weather, and local area procedures.

3.1.1.3 Special Airlift Requirements

Special airlifts shall meet the following requirements:

1. The sole purpose of the flight must be to provide air transportation for the accomplishment of urgent business in the national interest that would suffer if other forms of transportation were relied upon.
2. The flight must be in the national interest or result in cost savings to the Department of the Navy.

3.1.1.4 Assignment of Aircraft to Specific Individuals

Unless otherwise authorized by the Secretary of the Navy, no naval aircraft will be assigned to a specific individual nor shall any individual require a specific aircraft or aircraft crew be made available for exclusive use. This does not preclude the display of pilot, crew and support personnel names on aircraft.

3.1.1.5 Flights Requested by Civilian Contractors

A civilian contractor request to use naval aircraft for flight(s) not directly associated with the terms of their contract shall be referred to CNO (N98) for authorization.

3.1.1.6 Aircraft Performance Record Attempts

1. Proposed aircraft performance record attempts shall be submitted to CNO (N98) for consideration. Appropriate details, including predicted performance and estimate of results, shall be submitted.
2. The Director, Air Warfare Division, will take appropriate action to obtain the approval of the Assistant Secretary of Defense through the Office of Information and will obtain National Aeronautics Association sanction for the proposed record attempt(s).

CNAF M-3710.7

3.1.1.7 Celebrations

Rules for participation of naval aircraft in celebrations are currently contained in SECNAVINST 5720.44, Department of the Navy Public Affairs Regulations.

3.1.1.8 Shipment Orders

Shipment orders specifying transfer by air or aircraft do not imply orders or authority for the indicated flight.

3.1.1.9 Travel Orders

This instruction does not grant authority to issue orders to personnel for travel where expenses for the personnel are involved. Such authority originates from instructions issued by the Chief of Naval Personnel (CHNAVPERS) or U.S. Marine Corps, as applicable.

3.1.1.10 Flight Training

Flight training in Navy or Marine aircraft shall not be given to any individual without specific CNO or CMC authorization, or designation as a student in a prescribed course of aviation instruction.

3.1.1.11 Aircraft of Other Services

Naval aviators may fly aircraft of another service, provided the other service has no objection.

3.1.1.12 Civilian Law Enforcement Officials (LEO)

Embarkation of civilian LEOs is authorized for helicopters, tiltrotor, and non-ejection seat aircraft. SECNAVINST 5820.7 provides specific guidance for authorized missions. Authority to approve flights for LEO personnel and responsibility for establishing operational procedures is delegated to COMUSFLTFORCOM, COMPACFLT, COMNAVAIRPAC, COMNAVAIRLANT, CMC, COMNAVAIRSYSCOM and CNATRA for aircraft under their respective control. Authority to approve flights may be delegated to numbered fleet commanders and type commanders. Flight requests for high-performance, ejection seat aircraft shall be forwarded to COMNAVAIRFOR or CMC for approval.

Note

LEO personnel authorized in accordance with this paragraph should comply with the aeromedical and survival training requirements set forth in [Paragraph 8.4](#) of this instruction when time and facilities permit. The flight approval authority is authorized to waive [Chapter 8](#) NASTP requirements. COMNAVAIRFOR (N455) shall be an information addressee on all such waiver requests and approvals.

3.1.2 Nonessential Flights

The use of aircraft for nonessential flights shall not be authorized. Any flight open to misinterpretation by the public shall be avoided. Examples of flights that are considered nonessential are as follows:

1. Flights of a routine business nature for which commercial or other military transportation could be more economically substituted
2. Flights for any officer or group of officers, the sole purpose of which is the convenience and/or prestige of the officers concerned and not the performance of official duties or accomplishment of bona fide training
3. Repeated flights to the hometown area of flight personnel concerned
4. Flights coinciding with major sports events or civic celebrations.

3.1.3 Personnel Authorized To Pilot Naval Aircraft

When qualified in accordance with current directives, the following personnel may pilot Navy and Marine Corps aircraft.

Note

Requests for authorization required by the following subparagraphs shall be forwarded sufficiently in advance to allow for staffing through the chain of command prior to the proposed flight.

3.1.3.1 Regular and Reserve Personnel

Regular and Reserve personnel on active duty under appropriate orders to duty in a flying status including:

1. Naval aviators of the Navy and Marine Corps.
2. Coast Guard aviators and aviation pilots.
3. Students undergoing authorized courses of instruction in flight training.
4. Rated pilots of the Air Force and Air Force Reserve.
5. Army and Army Reserve aviators.
6. Rated pilots of the Air National Guard and National Guard.
7. Aeromedical Dual Designators who are pilots and serving as such under the provisions of OPNAVINST 1542.4.
8. Aviation Qualified Foreign Area Officers (AFAO) are 1710 designated officers previously designated as naval aviators (pilots), awarded the Aviation Qualified FAO AQD (FFQ) and serving under the provisions of OPNAVINST 1301.10 series.

3.1.3.2 Other Military Personnel

1. Naval aviators under the cognizance of COMNAVAIRFORES or CG FOURTH MAW whose status as naval aviators has been confirmed by BUPERS or Headquarters, U.S. Marine Corps.
2. Coast Guard aviators and aviation pilots of the Coast Guard Reserve whose status has been confirmed by the Commandant, U.S. Coast Guard.
3. Naval, Marine Corps, and Coast Guard Reserve students undergoing authorized courses of instruction in flight training.
4. Officers of the Naval and Marine Corps Reserve not designated as naval aviators, but specifically authorized to pilot aircraft by CHNAVPERS or the Commandant, U.S. Marine Corps.

3.1.3.3 Civilian Aircraft Pilots

Civilian aircraft pilots are those employed in a flight status by agencies or departments of or contractors to the U.S. Government when such flights are in the interest of the U.S. Government and the pilots have been cleared by COMNAVAIRFOR. Authority is delegated to the Commander, Naval Air Systems Command, to approve flights in COMNAVAIRSYSCOM aircraft or those in contractor custody. Approval authority is the CMC for aircraft in USMC custody. Contractor pilots or UASCs are not permitted to fly aircraft or UA aboard U.S. naval vessels or to perform public demonstrations in naval aircraft without specific COMNAVAIRFOR or COMNAVAIRSYSCOM approval. Contractor flight operations, pilot and UASC qualifications are governed by NAVAIRINST 3710.1.

3.1.3.4 Foreign Military Personnel

Subject to security provisions in existing directives, physically and professionally qualified personnel of foreign nations may be authorized to pilot naval aircraft as follows:

CNAF M-3710.7

1. The reporting custodian may authorize exchange personnel or personnel attending naval aviation training programs to pilot naval aircraft. Pilot time is not to exceed 110 hours per year except when attached to an operating squadron or as necessary in connection with a course of instruction. Personnel in this category can be designated as pilot in command.
2. Except as indicated in the preceding paragraph, foreign pilots must be accompanied by an U.S. pilot in command. The latter shall exercise all responsibility of command set forth in this instruction. Requests for such operations shall be submitted to COMNAVAIRFOR (N455) for approval.
3. All personnel shall meet the minimum NATOPS qualification for the model aircraft involved.
4. Authority is delegated to Commander, Naval Air Systems Command, to approve flights in COMNAVAIRSYSCOM aircraft or in contractor custody.

3.1.4 Personnel Authorized To Taxi Naval Aircraft

3.1.4.1 Fixed Wing

No one shall be permitted to taxi an aircraft except persons authorized to fly the aircraft or those specifically designated by their commanding officer as taxi pilots after appropriate training or checkout.

3.1.4.2 Helicopter

No one shall be permitted to taxi a helicopter except those persons who are authorized to fly helicopters.

3.1.4.3 Tiltrotor

No one shall be permitted to taxi a tiltrotor except those persons who are authorized to fly tiltrotors.

3.1.5 Personnel Authorized To Perform Crew Duties in Naval Aircraft

Note

Requests for authorization required by the following subparagraphs shall be forwarded sufficiently in advance to allow for staffing through the chain of command prior to the proposed flight.

3.1.5.1 Military Personnel

Regular and Reserve military personnel under orders by competent authority to active duty or active duty for training who are qualified in accordance with current directives are authorized as flightcrew or flightcrew under training. This includes non-career aircrew ratings (CT, CS, MC) under DIFCREW orders. Non-career crewmembers may complete approved qualification across multiple platforms in lieu of T/M/S NATOPS qualification (i.e. MC qualified as Aircrew Aerial Cameramen, NAVEDTRA 43242-2). All flightcrew, career and non-career, shall be physically qualified, receive egress training and complete NASTP for each class of aircraft in which they embark. Non-career flightcrew shall be logged by name on the NAVFLIR to account for minimum annual flight hour requirements. A summary of requirements can be found in [Figure 11-3](#).

3.1.5.2 Civilian Personnel

DoD civilian employees, and contractors to DoD are authorized as flightcrew when required in conjunction with assigned duties or contractual responsibilities. Contractor flightcrew operations and qualifications are governed by NAVAIRINST 3710.1, Contractor's Flight and Ground Operations. Government Service flightcrew operations and qualifications are governed by this instruction and utilize the Military Health System occupational health clinics to coordinate mandatory occupational health exams. Point-to-point transportation is not authorized under this paragraph.

COMUSFLTFORCOM, COMPACFLT, COMUSNAVEUR, COMUSNAVCENT, and COMUSNAVSO are authorized to approve flights for civilian personnel in aircraft under their operational control. Delegation of approval authority to numbered fleet commanders or the first aviation Flag Officer in the unit's operational chain

of command is authorized. For CONUS based operations, the TYCOM (CNAP/CNAL) is the approval authority for active duty units; COMNAVAIRFORES is the approval authority for Naval Reserve Units; CNATRA is the approval authority for training command units. COMNAVAIRSYSCOM is the approval authority for assigned assets; and the CMC is the approval authority for USMC units.

After reviewing currency and qualifications, Type Commanders may authorize COMNAVAIRSYSCOM approved civilian personnel as flightcrew or project specialists in fleet aircraft for a period not to exceed one year. Prior to scheduling COMNAVAIRSYSCOM personnel, fleet units shall verify NATOPS currency of civilian personnel with their host unit.

Note

- DoD Civilian personnel authorized in accordance with this paragraph shall comply with the aeromedical and survival training requirements set forth in [Paragraph 8.4](#) of this instruction. Contractor flightcrews governed by NAVAIRINST 3710.1 shall meet the requirements of that instruction.
- NATOPS currency requirements will include training requirements from this manual for DoD personnel, NAVAIRINST 3710.1 for contractors, T/M/S NATOPS limitations, and local SOP requirements which may differ across TYCOM/SYSCOM units. Where differences exist, the more restrictive training and currency requirements will take precedence.

3.1.5.3 Foreign Military Personnel

Subject to security provisions in existing directives, physically and professionally qualified personnel of foreign nations may be authorized to perform crew duties in naval aircraft that is in the best interest of official DoD business. Embarkation may be authorized for the purpose of performing a crew duty such as operating installed equipment or observing aircraft or crew performance. Foreign military personnel must possess proper base or installation visitation authorization.

3.1.6 Personnel Authorized as Project Specialists

COMNAVAIRFOR, CMC, COMUSFLTFORCOM, COMPACFLT, COMUSNAVEUR, COMUSNAVCENT, COMUSNAVSO, COMNAVAIRSYSCOM, TYCOMs and COMNAVAIRFORES may authorize military personnel, DoD civilian employees, and contractors to DoD embarkation as Project Specialists when required in conjunction with assigned duties or contractual responsibilities. Point-to-point transportation is not authorized under this paragraph. Project specialists are not responsible for normal aircrew duties.

Authority to waive NASTP requirements for Project Specialists is delegated to COMNAVAIRSYSCOM for aircraft under its control. Decisions to waive shall be based on the risks identified through a thorough Operational Risk Management (ORM) analysis. Under no circumstances shall NASTP ejection seat training requirements be waived.

3.2 POLICY CONCERNING USE OF SIMULATORS

Naval Aviation simulators, simulation systems, and networks augment the Training and Readiness (T&R) Program. These training devices and networks shall provide the level of fidelity and capability required to execute T&R events designated to be flown in such devices.

These simulation systems and the network on which they operate will be certified T&R Program Manual capable for each aviation community by the appropriate certification body as designated in Navy and Marine Corps directives, instructions and orders.

3.3 ORIENTATION FLIGHTS

This section establishes policy, procedures, and approval authority for orientation flights and implements DoD guidance set forth in OPNAVINST 4630.25.

3.3.1 Purpose

1. Orientation flights are typically one-time events for selected participants in a particular model aircraft. Orientation flight status shall not be used to circumvent normal training requirements for individuals required to fly multiple flights in naval aircraft. Orientation flights for midshipmen participating in official training programs are an exception and may involve multiple flights. Additionally, orientation flights are stand-alone events, specifically authorized, sanctioned and planned to accomplish the purposes listed in [Paragraph 3.3.1, subparagraph 2](#). Sanctioned air transport flights — those authorized expressly for the purposes of providing point-to-point transportation and lift for personnel — are different events per OPNAVINST 4630.25, and are not typically scheduled in conjunction with orientation flights. Conversely, personnel embarked on local flights (not point-to-point transportation) in passenger carrying aircraft are not “passengers” and are therefore subject to the limitations of orientation flight unless embarking for another authorized role such as project specialist, non-career aircrew, etc.
2. Individuals are selected to participate in orientation flights for one of the following purposes:
 - a. To familiarize them with an aircraft, its operation, capabilities, requirements, concept of employment, or limitations.
 - b. To familiarize them with a base complex from the air for official purposes other than merely sightseeing or goodwill.
 - c. To allow FAA personnel to perform official functions that require their infrequent embarkation on naval aircraft.
 - d. To perform other military duties not assigned to the flight crew.
 - e. To recognize the superior performance of active and reserve personnel when in the best interest of the Navy and/or Marine Corps.

3.3.2 Approval Authority

Flight approval authorities for orientation flights are listed below, and includes waiver authority for NASTP training and specific elements therein. NASTP waiver authority shall be applicable only for orientation flights. Letters or messages authorizing orientation flights and/or training waivers shall contain specific verbiage on what is being approved and waived (e.g., NASTP aviation water survival elements). For all other NASTP waivers, [Chapter 8](#) applies; refer to [Paragraph 8.4.4](#).

Note

Requests shall be forwarded sufficiently in advance to allow for staffing and scheduling NASTP.

1. Subject to limitations in [subparagraphs a through d](#), COMFLTFORCOM, COMPACFLT, COMNAVEUR, COMNAVCENT, and COMNAVSO are authorized to approve orientation flights in aircraft under their operational control. Delegation of approval authority to numbered fleet commanders or the first aviation Flag Officer in the unit’s operational chain of command is authorized. For CONUS based operations, the TYCOM (CNAP/CNAL) is the approving authority for active duty units; COMNAVAIRFORES is the approval authority for naval reserve units; CNATRA is the approval authority for training command units; COMNAVAIRSYSCOM is the approval authority for assigned assets; and the CMC is the approval authority for USMC units.
 - a. Orientation flights for members of Congress or their staffs require prior concurrence from the Chief of Legislative Affairs. Orientation flights for White House staff members require prior concurrence from the White House Military Office.
 - b. Retiring members of Congress and retiring congressional staff members may be flown on orientation flights aboard military aircraft only upon the written endorsement of the Assistant Secretary of Defense for Legislative Affairs.

- c. Public affairs orientation flights or orientation flights for public figures where the resulting presentation or publicity will receive national or international distribution or interest require prior concurrence from the Department of the Navy Chief of Information (DONCIO).
 - d. Orientation flights for U.S. Ambassadors or their senior deputies within overseas theaters must be endorsed by the theater unified or component commander.
 - e. Authority is delineated in OPNAVINST 4630.25 concerning specific procedures for approval of flights requested for diverse groups such as ROTC students, NJROTC students, Explorer Scouting Program Senior Explorers and leaders, and the Civil Air Patrol. Any flights so approved shall be subject to the provisions of [Paragraphs 3.3.4](#) and [3.3.5](#).
2. To expedite action and simplify procedures for approving certain routine flights, further delegations of approval authority are contained in [subparagraphs a](#) through [c](#).
- a. Type Wing, Air Wing Commanders may authorize flights in ejection seat and/or personal oxygen system equipped aircraft for active duty personnel in recognition of superior performance when these flights do not involve shipboard catapult launch and/or arrested landings. Commanders listed in [Paragraph 3.3.2 subparagraph 1](#) retain NATSP requirements waiver approval authority.
 - b. Unit commanding officers may authorize flights and waive NASTP for active duty military personnel in aircraft not equipped with ejection seats and/or personal oxygen systems (excluding emergency oxygen systems).
 - c. Type wing commanders, air wing commanders or higher authority may authorize flights and waive NASTP for federal employees, government officials, or civilian contractors for the purposes of familiarization of a base complex or operating area in aircraft not equipped with ejection seats and/or personal oxygen systems (excluding emergency oxygen systems).

3.3.3 Categories of Eligible Participants for Orientation Flight

- 1. Active and Reserve personnel when flights would materially improve job performance and are in the best interest of the Navy and/or Marine Corps. This includes flights in recognition of superior performance.
- 2. Federal and local government officials, foreign officials, members of Congress and their staff, and civilian contractors when flights would materially improve job performance and are in the best interest of the Navy and/or Marine Corps.
- 3. U.S. legislators, senior government executives, White House staff personnel, and legislative staff personnel when flights are coordinated through the White House Military Office, the Office of Legislative Affairs, the Department of Defense, or host service component.
- 4. U.S. citizens who, because of position and contacts with various public organizations, can make positive contributions to public understanding of the roles and missions of the Navy and/or Marine Corps (e.g., persons affiliated with the news media, entertainment personalities, etc.). Flights of this nature are designated public affairs orientation flights. Participants must be carefully selected to ensure that the greatest benefit to understanding Navy and/or Marine Corps missions can result from such flights. Individuals shall not be selected for public affairs orientation flights solely in an effort to engender good will or as a reward for unusual service to the Navy and/or Marine Corps.
- 5. Personnel who, because of their group affiliation, are authorized orientation flights by separate directives (e.g., Explorer Scouting Program Senior Explorers/leaders, Navy League Sea Cadets, Civil Air Patrol, Naval Academy Midshipmen, Reserve Officer Training Corps/Naval Reserve Junior Officer Training Corps (ROTC/ NJROTC) students), officer students enrolled at the Uniform Services University of Health Sciences or in the Health Professions Scholarship Program and other such groups as may be designated by CNO.
- 6. Federal Aviation Administration (FAA) employees under the following conditions:

CNAF M-3710.7

- a. FAA employees engaged in flight-checking local military air traffic control procedures and facilities, navigational aids, communications and approach and departure procedures only when such flights are coordinated by the appropriate regional Navy Representative, FAA.
 - b. FAA flight examiners engaged in the evaluation or examination of rated aircrew personnel of the Military Department for civil pilot, navigator, or engineer certificates or ratings.
 - c. FAA employees participating in approved military familiarization flights under existing arrangements between the Navy and the FAA, if seating position permits direct monitoring of aircrew duties.
7. U.S. Ambassadors or their senior deputies, within overseas theaters, when invited by the overseas unified or Component commander, when the commander determines that the orientation flight is primarily in support of the DoD mission.
 8. Foreign personnel, either military or civilian, who require orientation flights in military aircraft for scientific research, development, test and evaluation (RDT&E) or training evaluation; and, to support the Military Assistance Program (MAP)/Foreign Military Sales (FMS).
 9. Foreign military personnel of nations participating in and during the course of bilateral or multinational operations or exercises. Flights may be by shore-based aircraft or may originate and/or terminate on board ship.

3.3.4 Orientation Flight Prerequisites

1. All personnel participating in orientation flights shall receive an appropriate physical screening or examination. The scope of this screening or examination shall be determined by the reporting custodian flight surgeon or aerospace physician assistant but shall also include clearance for participation in high-risk NASTP training.
2. Completion of Naval Aviation Survival Training Program (NASTP) is mandatory for all orientees unless waived by designated approving authority. In those instances, orientees shall agree in writing (e.g., PG-13) to participate in the flight and assume the associated risks themselves. COMNAVAIRFOR (N455) will be an information addressee on all waiver requests and approvals except those vetted through CMC. For aeronautically designated personnel participating in orientation flights, the appropriate aircrew or non-aircrew NASTP training for that class of aircraft shall be required unless waived.
3. Unless waived, civilian personnel and military non-aviators selected for orientation flights shall complete appropriate non-aircrew NASTP training, which is valid for a period of 90 days.
4. All midshipmen participating in orientation flights or on a summer cruise with possibility of flying shall complete appropriate midshipmen non-aircrew NASTP training.
5. Non-DOD personnel are required to sign an Air Transportation Agreement, DD Form 1381 (Air Transportation Agreement), as set forth in Chapter 1 of enclosure (1) to OPNAVINST 4630.25 when the orientation flight originates in a foreign country. NATO member nation personnel are exempt from this requirement.
6. Prior to approval of flights by foreign nationals involving access to classified or controlled unclassified information, permission for the disclosure of such information shall be obtained from the Director of Naval Intelligence in accordance with SECNAVINST 5510.34.
7. Parental/legal guardian approval in writing is required prior to participation in orientation flights for anyone under 18 years of age.
8. Orientation flight briefing:
 - a. Orientees shall be briefed on any information that may be pertinent for their safety and comfort. Each item should be fully explained to avoid apprehension or confusion.
 - b. Orientees occupying flight personnel positions shall be briefed on procedures, controls, and instrumentation.

3.3.5 Flight Limitations

1. Only highly qualified flight personnel shall be selected to conduct orientation flights.
2. All orientation flights shall be conducted within the local flying area and terminate at the point of origin. Flights outside the local flying area may be approved if the specific mission of the orientation flight cannot be accomplished within the local flying area. FAA personnel may be enplaned on a noninterference basis in order to conduct aircrew examinations or participate in familiarization flights (as defined in [Paragraph 3.3.3, subparagraph 5.](#)) for other than local flights within their own FAA region.
3. Orientation flights involving third-nation nationals into or over foreign countries will not be approved unless confirmation of entry and/or overflight clearance for such third-nation nationals has been received from the foreign government(s) concerned in accordance with the DOD Foreign Clearance Guide.
4. Except for flights with FAA personnel, orientation flights shall be performed only during daylight and with weather minimums equal to or better than VFR. Exceptions for midshipmen training will be granted by COMNAVAIRFOR/CMC.
5. FAA examiners shall not be permitted to pilot an aircraft without an assigned Navy or Marine Corps pilot in command who shall exercise all responsibility of command set forth in this instruction.
6. Formation flying shall not be performed unless required for a specific purpose and authorized by the commanders listed in [Paragraph 3.3.2 subparagraph 1.](#)
7. Orientation flights in high-performance jet aircraft shall not be approved except when the specific aircraft utilized is integral to the orientation flight purpose.
8. Orientation flights operating from an aircraft carrier are strongly discouraged because of the extra hazards inherent in carrier operations. Such flights may be authorized for midshipmen training, VIPs, MAP, FMS, or warranted within the provisions of [Paragraph 3.3.3, subparagraph 9.](#) COD/VOD flights, used only as a means to embark or debark personnel at sea, are intended for passenger transportation and not orientation flights and are therefore exempt from the provisions of this paragraph.
9. An aircraft accepted into the naval inventory shall not be used for orientation flights in support of foreign military sales (FMS) by contractor flightcrews unless the aircraft has been provided to the contractor under a COMNAVAIRSYSCOM lease. The use of naval aircraft under lease to contractors for orientation flights is governed by terms of the lease agreement and may not be subject to the policy and procedures contained in this instruction. Contractor flightcrews may be authorized to participate in non-FMS orientation flights with COMNAVAIRSYSCOM approval, but participants will be subject to all of the orientation flight requirements provided in this instruction, including NASTP requirements.
10. Flights shall be conducted at no additional cost to the Government on a noninterference basis with operations and training unless a waiver is granted by the approving authority.
11. Orientation flights may not include those flights where a record attempt is made, a first flight is made on an aircraft just accepted into the inventory, a first flight over an isolated geographical area, or any other flight of a similar or special nature where abnormal conditions may exist.
12. Individuals occupying a seat with flight controls during orientation flights are permitted to fly the aircraft during non-critical phases of flight as determined by the pilot-in-command, in accordance with command policy.

3.4 EMBARKATION OF PASSENGERS

1. No person shall be enplaned as a passenger nor shall any cargo be embarked on a naval aircraft unless authorization has been granted by competent authority in accordance with applicable directives. (See OPNAVINST 4630.25, and NAVSUP Publication 505.) Military Sealift Command personnel (i.e., Civil Service Mariners (CIVMARS)), DoD civilian employees, federal agency technical representatives (Tech Reps), and contract field services personnel may be authorized Carrier Onboard Delivery/Vertical Onboard Delivery (COD/VOD) transportation with approval by competent authority in cases of official business. Reporting Custodians for helicopter units may authorize personnel to be embarked as passengers onboard

their aircraft. This authority may be delegated to a designated detachment officer in charge when deployed or embarked. No person shall be carried in a taxiing aircraft as a passenger unless such person is authorized to fly in it or has been authorized by competent authority to be embarked therein.

2. COMUSFLTFORCOM, COMPACFLT, COMUSNAVEUR, COMUSNAVSCENT, COMUSNAVSO, CMC, COMNAVAIRPAC, COMNAVAIRLANT, COMNAVAIRSYSCOM, COMNAVAIRFORES, and CNATRA may authorize COD/VOD transportation for civilian guests and other designated personnel not otherwise qualified for government air transportation. Their authority may be delegated to numbered fleet commanders and type commanders and is granted for the specific purpose of facilitating embarkation/debarkation of these selected individuals when ships are at sea. It shall not be extended to include flights of convenience for the individual(s) concerned. Due consideration shall be given to the age and physiological characteristics of the individuals, particularly when catapult launchings or arrested landings are involved. (See [Paragraph 8.4](#) regarding aeromedical and survival training requirements for passengers.)
3. COD overwater flights at night are authorized. The following restrictions apply when carrying passengers:
 - a. Ship launches and recoveries shall be made during daylight hours.
 - b. Ship launches shall be conducted not less than 60 minutes prior to sunset. This time constraint may be waived to 30 minutes by the Strike Group Commander or Officer in Tactical Command (OTC).
4. Helicopter and Tiltrotor passenger overwater flights at night are authorized subject to the following restrictions:
 - a. Ship launches and recoveries shall be made during daylight hours. This constraint may be waived by the Strike Group Commander, Amphibious Squadron commander, Marine Air Ground Task Force (MAGTF) Commander or Officer in Tactical Command (OTC) in cases of operational necessity.
 - b. In cases of Tactical Evacuation (TACEVAC), a qualified medical attendant who is current in approved water survival training (non-aircrew underwater emergency egress as a minimum training requirement), and has been properly briefed on emergency egress procedures for that aircraft, may be transferred at night with approval from the ship's Commanding Officer.
 - c. This does not preclude troop movement in support of amphibious exercises, visit board search and seizure (VBSS) level III operations, or SPECOPS training and operational missions.
5. The pilots in command/mission commanders of a naval aircraft (while absent from home unit) may authorize air transportation for personnel and/or equipment not otherwise qualified for Government air transportation (i.e., civilian physicians, paramedic teams, sheriff department personnel, park rangers, search dogs, medical equipment, etc.) when required for the successful prosecution of a search and rescue (SAR), Tactical Evacuation (TACEVAC), or disaster relief mission. This authority shall only be exercised when all practical means of obtaining authorization from competent authority in accordance with applicable directives (OPNAVINST 4630.25 and NAVSUP Publication 505) have proven unsuccessful or unavailable. Appropriate authority shall be notified of such air transportation as soon as practicable.
6. The following exceptions apply for Marine Helicopter Squadron One and other aircraft in support of a White House Military Office tasked mission:
 - a. The HMX-1 Commanding Officer may approve civilians to fly as passengers if it is deemed necessary to support future, or on-going, White House missions.
 - b. White House Military Office manifests serve as authorization for civilian passengers for directed missions.

3.5 FLIGHT DEMONSTRATIONS AND STATIC EXHIBITS

3.5.1 Naval Aircraft Participation

Participation of naval aircraft, other than the scheduled appearance of the flight demonstration squadron, in any airborne display is not encouraged and should only be approved in the most exceptional and carefully considered

situations (e.g., occasional flights at unique aviation related events and station open houses; however, does not include routine changes of command, sporting events, etc.). Static displays by naval aircraft at aviation events are encouraged within the limits of available resources. The approving command shall ensure that a safe, professional and appropriate event is conducted weighing the risks against the benefits of any airborne demonstration (to include demonstration parachute jumps). Approval authorities are required to ensure event coordinators obtain necessary FAA/ICAO waivers in a timely manner. SECNAVINST 5720.44 further discusses participation of naval aircraft at public and private gatherings.

3.5.2 Approval Authority

COMFLTFORCOM, COMPACFLT, COMNAVEUR, COMNAVCENT, AND COMNAVSO are authorized to approve flight demonstrations and static displays for units under their operational control. Delegation of approval authority to numbered fleet commanders or the first aviation flag officer in the unit's operational chain of command is authorized. For CONUS based flight demonstrations: The TYCOM (CNAP/CNAL) is the approving authority for active duty units; COMNAVAIRFORES is the approval authority for naval reserve units; CNATRA is the approval authority for training command units; COMNAVAIRSYSCOM is the approval authority for all NAVAIR ACC assigned aircraft; and the CMC is the approval authority for USMC units. Approval authority for CONUS static exhibits is delegated to the unit's commanding officer.

3.5.3 Regulations

Flight demonstrations introduce unique technical (and programmatic) challenges and as such, the Approval Authorities should engage NAVAIR (ACO) to analyze critical parameters for Flight Demonstration maneuvers (e.g., assess expected aircraft response to deviations, critical flight failures, emergency procedures, and ejection envelopes (if applicable)) in order to determine if the planned Flight Demonstration requires a modified flight clearance to be issued. The following regulations apply to participation in flight demonstrations and static displays:

1. Flight personnel assigned to participate in flight demonstrations should be those with the maximum training and experience. No pilot shall be permitted to participate who has not currently demonstrated to the commanding officers satisfaction complete familiarity with the flight characteristics by performing with precision and safety all maneuvers to be demonstrated.
2. Flight demonstrations shall be conducted within the bounds of a NAVAIR (ACO) issued Flight Clearance. No extra hazardous or unusual maneuvers shall be planned or permitted at the demonstration. Routine maneuvers shall not be conducted in a manner that could make them hazardous (e.g., at excessively low altitudes or with undue close interval between aircraft). Care shall be exercised in planning and conducting the demonstration to provide maximum safety to personnel and property in event of mishap. Any ordnance delivery or expenditure in connection with a demonstration ashore for nonmilitary personnel shall receive prior specific approval from the type commander concerned.
3. Pre-coordination shall be accomplished with air traffic control authorities exercising jurisdiction over the affected airspace.
4. When deciding whether to allow public access to naval equipment, any probability of risk must be considered. Any doubt shall be resolved by limiting or denying public access and strictly enforcing the decision once it has been made.
5. Personnel assigned to aircraft static displays shall be selected for their maturity, appearance, personality, demonstrated soundness of judgment, and knowledge of equipment. Commanding officers shall ensure that the pilot in command is particularly sensitive to any hazards that the aircraft might present to an uninformed spectator.
6. The aircrew of an aircraft used for static display shall be in attendance at the aircraft and dressed in appropriate flight clothing at all times the public has access to the aircraft. They shall take precautions to prevent damage to aircraft and ensure public is safeguarded from aircraft hazards.
7. The public shall be denied access to the interior of all aircraft employing ejection seats or other installed pyrotechnic devices that could cause injury.

CNAF M-3710.7

8. Ancillary equipment (workstands, etc.) must be in good condition and suitable for the purpose for which use is intended. If in the case of workstands or platforms, sufficient aircrew or other competent supervisory personnel are not available to control spectator loading to safe limits, then access shall not be permitted.
9. Aircraft selected for static display shall be clean, well painted, and prepared for public inspection.

3.5.4 Exception

The U.S. Navy Flight Demonstration Squadron, which is specially trained for such flight exhibitions and operates within the bounds of a special Flight Clearance issued by NAVAIR (ACO), is not bound by [Paragraph 3.5](#), but will be employed in accordance with the instructions of CNATRA and the on-scene commander in each instance.

3.5.5 NATO Flight Demonstrations

Flight demonstrations (including parachutists) involving aircraft of more than one NATO nation shall be conducted in accordance with NATO Standardization Agreement (STANAG) 3533, Safety Rules for Flying Displays.

3.5.6 NATO Live Weapons Demonstrations

For NATO standardization and safety purposes, the rules and procedures for the planning and conduct of live air weapons demonstrations as specified in NATO STANAG 3564FS, Rules for Live Weapons Demonstrations, shall be adhered to when the nation is either the operator of the weapon system or is responsible for the range on which the demonstration is being held.

3.6 EMPLOYMENT OF NAVAL AVIATORS BY CIVILIAN CONTRACTORS

Civilian contractors to the Federal Government cannot legally employ a naval officer on the active list to give flight demonstrations of aircraft intended for the United States Government.

3.7 COMMAND

A naval aircraft or formation of naval aircraft shall be flown under the command of a pilot in command, mission commander, or formation leader, as appropriate, and so designated by the reporting custodian or higher authority. The status of each individual participating in the mission or formation shall be clearly briefed and understood prior to takeoff and must be indicated as required by DoD FLIP General Planning. When a flight schedule is published, the pilot in command, mission commander, or formation leader shall be specifically designated for each aircraft or formation, as appropriate. Reporting custodians shall establish minimum requirements of initial qualification and requalifications for each model aircraft in their custody and for each flight phase and/or mission normal to the aircraft models (e.g., day solo, night solo, functional check, FCLP, air combat maneuvers (ACM), night combat air patrol (CAP), intercepts, airborne early warning (AEW), barriers, etc.). They shall be guided by the requirements of this instruction where applicable and by appropriate NATOPS manuals. Flight personnel meeting those requirements may be considered qualified in model and phase and are eligible for designation as pilot in command, mission commander, or formation leader for a specific mission.

3.7.1 Pilot in Command

Pilot in command refers to the pilot of an individual aircraft. The pilot in command is responsible for the safe, orderly flight of the aircraft and well-being of the crew. The pilot in command may also be the mission commander or formation leader when so designated. Pilot in command should not be confused with the various qualifications defined in [Chapter 12](#). If there is no NATOPS manual for a particular model aircraft or if an existing manual fails to set forth specific initial qualifications and currency requirements, a pilot shall not be designated as pilot in command unless the pilot has made at least two takeoffs and landings and logged 5 hours of pilot time in the same model aircraft within the preceding 90 days, except in single-piloted aircraft for the purpose of qualification/requalification. Also, lacking NATOPS guidance for a specific aircraft, 10 hours first pilot time in model is required for initial qualification. Pilots meeting the criteria may be considered qualified in model and phase and are then eligible for designation as pilot in command. In the absence of direct orders from higher authority cognizant of the mission, responsibility for starting or continuing a mission with respect to weather or any other condition affecting the safety of the aircraft rests with the pilot in command. The authority and responsibility of the pilot in command shall not be transferred during

flight. It shall not be transferred to another individual except as required by emergency, operational necessity, or as directed by the commanding officer of the unit to which the aircraft is attached. The authority and responsibility of a pilot in command is independent of rank or seniority in relation to other persons participating in the mission or flight except for the following.

3.7.1.1 Officer in Tactical Command Embarked

Wing, group, or squadron commander, if embarked on a mission involving aircraft of their command, retains full authority and responsibility regarding command, including the mission in which participating.

3.7.1.2 Flag or General Officer Embarked

The pilot in command of an aircraft with a flag or general officer eligible for command at sea or in the field embarked as a passenger shall be subject to the orders of such flag or general officer in accordance with U.S. Navy Regulations. When such an embarked passenger exercises authority to command the aircraft, that passenger thereby assumes full responsibility for the safe and orderly conduct of the flight. The embarked passenger shall give due consideration to the judgment of the pilot in command regarding items of flight safety such as hazardous weather and aircraft/crew limitations. Flying rule violations, accident reports, and any other actions arising out of the flight will be referred to the embarked passenger as the responsible commander of the aircraft.

Note

The provisions of [Paragraphs 3.7.1.1](#) and [3.7.1.2](#) shall not be used to circumvent normal NATOPS qualification procedures if the officer desires to physically pilot the aircraft. Flights that require a NATOPS-qualified crew shall not be physically piloted by any individual not so qualified; however, the flight may be directed by an officer in tactical command embarked who is not NATOPS qualified.

3.7.1.3 Flight Control Station

The pilot in command shall occupy a flight control station during critical phases of flight (i.e., takeoff, landing, formation flight, functional checkflight (FCF), degraded aircraft performance regimes, etc.). During an Instructor Under Training (IUT) flight in a multi-piloted aircraft, the pilot in command or a qualified/qualifying IUT Instructor pilot shall occupy one of the flight control stations during critical phases of flight, provided the pilot in command remains in the flight station.

3.7.2 Formation Leader

A formation of two or more naval aircraft shall be under the direction of a formation leader who is authorized to pilot naval aircraft. The formation leader may also be the mission commander when so designated. The status of each member of the formation shall be clearly briefed and understood prior to takeoff. The formation leader is responsible for the safe and orderly conduct of the formation.

3.7.3 Mission Commander

The mission commander shall be a properly qualified naval aviator or NFO designated by appropriate authority. The mission commander may exercise command over single naval aircraft or formations of naval aircraft. The mission commander shall be responsible for all phases of the assigned mission except those aspects of safety of flight that are related to the physical control of the aircraft and fall within the prerogatives of the pilot in command. Mission commander qualifications shall be outlined in appropriate NATOPS manuals. The mission commander shall direct a coordinated plan of action and be responsible for effectiveness of the mission.

3.7.4 Instructors

In those aviation commands where training is conducted, the commanding officer is authorized to designate highly qualified naval aviators and NFOs as instructors. Instructor duties shall be specifically delineated by the unit commanding officer (CO) in formal directives. The instructor will be charged with authority and responsibility to provide appropriate direction to students (naval aviation or NFO) to ensure safe and successful completion of each

training mission. The exact function, authority, and responsibility of the individual flight instructor are dependent upon the training mission and the crew assigned as issued in approved training syllabuses. On those training missions where a pilot under instruction is the pilot in command, instructor guidance shall be advisory in nature and under no circumstance shall pilots in command be relieved of their authority and responsibility as outlined in [Paragraph 3.7.1](#). Termination of the training or evaluation portions of the flight for reasons of safety, unsatisfactory performance, or material discrepancy shall be the instructor's prerogative.

3.8 CREW RESOURCE MANAGEMENT

The objective of the Crew Resource Management (CRM) Program is to integrate the instruction of specifically defined behavioral skills throughout Navy and Marine Corps aviation training, and to integrate the effective application of these behavioral skills into operational aviation procedures wherever appropriate. CRM training will increase mission effectiveness, minimize crew preventable error, maximize aircrew coordination, and optimize risk management.

Commanders shall ensure that all personnel whose duties involve flying as an aircrew member in naval aircraft receive annual CRM training including an academic portion and a flight/simulator evaluation. Annual recurrency training shall be recorded in the NATOPS jacket in accordance with COMNAVAIRFORINST 1542.7.

3.8.1 Critical Behavioral Skills

The critical behavioral skills that form the basis of CRM training are:

1. Decision making. The ability to choose a course of action using logical and sound judgment based on available information. Effective decision making requires:
 - a. Assessing the situation.
 - b. Verifying information.
 - c. Identifying solutions.
 - d. Anticipating decision consequences.
 - e. Making the decision.
 - f. Telling others of the decision and rationale.
 - g. Evaluating the decision.
2. Assertiveness. An individual's willingness to actively participate, state, and maintain a position, until convinced by the facts that other options are better. Assertiveness is respectful and professional, used to resolve problems appropriately, and to improve mission effectiveness and safety.
3. Mission Analysis. The ability to develop short-term, long-term, and contingency plans and to coordinate, allocate, and monitor crew and aircraft resources. Effective planning leads to flight conduct that removes uncertainty, increases mission effectiveness, and enhances safety.
4. Communication. The ability to clearly and accurately send and acknowledge information, instructions, or commands, and provide useful feedback. Effective communication is vital to ensure that all crewmembers understand aircraft and mission status.
5. Leadership. The ability to direct and coordinate the activities of other crewmembers or wingmen, and to encourage the crew to work together as a team. There are two types of leadership:
 - a. Designated Leadership — Leadership by authority, crew position, rank, or title. This is the normal mode of leadership.
 - b. Functional Leadership — Leadership by knowledge or expertise. Functional leadership is temporary and allows the most qualified individual to take charge of the situation.
6. Adaptability/Flexibility. The ability to alter a course of action based on new information, maintain constructive behavior under pressure, and adapt to internal and external environmental changes. The

success of a mission depends upon the crew's ability to alter behavior and dynamically manage crew resources to meet situational demands.

7. Situational Awareness. The degree of accuracy by which ones perception of the current environment mirrors reality. Maintaining a high level of situational awareness will better prepare crews to respond to unexpected situations.

3.8.2 Effective CRM Training

Optimal CRM training is integrated, research-based, and skill-oriented, incorporating the Information, Demonstration, Practice, and Feedback Instructional Methodology. The success or failure of Crew Resource Management rests ultimately with each individual performing duties as an aircrew member in naval aircraft. Naval Aircrew shall exhibit thorough knowledge of self, aircraft, team, environment, the seven critical skills, and risk to employ sound and logical judgment in the prevention of human errors. Human error is the leading causal factor in aviation mishaps. Additional human error-based training should complement CRM training. More information is available through the U.S. Navy CRM website at:

<http://www.public.navy.mil/NAVSAFECEN/Pages/aviation/SAS/CRM/index.aspx>.

3.9 OPERATIONAL-RISK MANAGEMENT

Operational-Risk Management (ORM) is a systematic, decision making process used to identify and manage hazards that endanger naval resources. ORM is a tool used to make informed decisions by providing the best baseline of knowledge and experience available. Its purpose is to increase operational readiness by anticipating hazards and reducing the potential for loss, thereby increasing the probability for success to gain the competitive advantage in combat. The integration of the ORM process into the planning and execution of everyday operations is required by OPNAVINST 3500.39 and is useful not only in naval aviation, but applies throughout the warfighting spectrum.

3.9.1 ORM Process Description

1. ORM employs a five-step process:
 - a. Identify hazards.
 - b. Assess hazards.
 - c. Make risk decisions.
 - d. Implement controls.
 - e. Supervise.
2. The ORM process is utilized on three levels based upon time and assets available.
 - a. Time-critical: A quick mental review of the five-step process when time does not allow for any more (i.e., in-flight mission/situation changes).
 - b. Deliberate: Experience and brain storming are used to identify hazards and is best done in groups (i.e. aircraft moves, fly on/off).
 - c. In-depth: More substantial tools are used to thoroughly study the hazards and their associated risk in complex operations (i.e., Weapons Det).
3. The ORM process is guided by the four principles:
 - a. Accept risk when benefits outweigh the costs.
 - b. Accept no unnecessary risk.
 - c. Anticipate and manage risk by planning.
 - d. Make risk decisions at the right level.

3.9.2 Enhancing ORM

To enhance ORM awareness and standardization, the NATOPS model manager shall incorporate risk management concepts and wording into crew coordination and flight planning sections of the individual aircraft NATOPS manuals.

3.10 FUNCTIONAL CHECKFLIGHTS

The requirements for functional checkflights are stated in COMNAVAIRFORINST 4790.2. Commanding officers shall ensure compliance with the following.

3.10.1 Crew Composition

Functional checkflights shall be conducted with the minimum crew required for safe flight. All flight personnel shall be fully qualified in accordance with this instruction and the applicable NATOPS manual. Appropriate maintenance quality assurance and project specialist personnel required to accomplish the functional check may be utilized, provided they meet minimum NASTP training requirements. Passengers shall not be carried. The pilot in command shall be designated in writing by the commanding officer as a functional check pilot for either a full-system check or the partial system(s) to be checked.

3.10.2 Weather Criteria

Functional checkflights should be conducted during daylight hours within the local flying area in VMC. If necessary to accomplish the assigned mission, unit commanders may authorize checkflights under conditions other than the above if in their opinion the flight can be conducted with an acceptable margin of safety under the existing conditions. The authority shall not be delegated. Those portions of the flights that are considered critical shall be conducted in the vicinity of a suitable landing area.

3.11 REPORTING AND RECORDING OF DEVIATIONS AND VIOLATIONS OF FLYING REGULATIONS AND MISHAP INFORMATION

This section details the procedures for alleged violations of service or Federal flying regulations. Generally, commanders or commanding officers will receive notification of an alleged deviation by a member of their command. [Paragraph 3.11.6](#) delineates the responsibility of the command for flight incidents. Reports of alleged violations received from the Federal Aviation Administration will be forwarded to CNO (N98). CNO (N98) will review available information and direct commands to conduct an investigation in order to provide the response to the Federal Aviation Administration.

3.11.1 Reports of Investigations of Violations of Flying Regulations

3.11.1.1 Responsibility

An alleged violation of flying regulations falls within the purview of U.S. Navy regulations. The responsibility to conduct the investigation into an alleged flight violation belongs to the immediate superior in the chain of command of the individual involved. However, activities whose base facilities and/or aircraft are used by pilots not attached to those activities are responsible for conducting the investigation and for notifying the commanding officer of the individual involved.

3.11.1.2 Procedures

Investigation and reporting procedures shall be in JAGMAN format using the guidelines and rules contained in JAGINST 5800.7, Manual of the Judge Advocate General. Each fact must be supported by testimony, documentary, or real evidence. Statements of the pilots concerned should be included along with maintenance action forms, flight schedules, and other documentary evidence. The report of violation of flying regulations is administrative in nature, and statements taken thereunder may not be the basis of subsequent legal or disciplinary proceedings unless the provisions of Uniform Code of Military Justice (UCMJ) Article 31 have been observed.

3.11.1.3 Intent

Lack of intent does not in itself constitute absence of culpability. One can be so grossly negligent as to equate omission with commission. The question is whether the pilot in command or the formation leader could reasonably have been expected to avoid the violation.

3.11.1.4 Content of Report

In making a report of an alleged violation of flying regulations, the commanding officer shall state a conclusion as to whether the alleged violation actually occurred, and if so:

1. A conclusion as to whether or not the pilot in command was culpable in the light of pilot responsibilities and any mitigating or extenuating circumstances that may have existed.
2. Any action taken, pending, or recommended.

The Naval Representative to the Federal Aviation Administration (NAVREP) will assist in preparation of the report and provide examples of corrective actions and recommendations up to and including the recommendation to issue a flight violation.

Note

The authority to issue a flight violation lies solely with the Chief of Naval Operations.

3.11.1.5 Forwarding of Report

With the exception of alleged air defense identification zone (ADIZ) violations, reports regarding naval personnel shall be forwarded to CNO (N98) via the chain of command. Alleged flight violations involving USMC personnel shall be forwarded through CMC (DC AVN) prior to final processing by CNO (N98). Each endorser shall indicate concurrence/non-concurrence with the commanding officers report. Under no circumstances shall a report of investigation be released to any agency outside the Navy without prior approval of CNO (N98). Direct communication with commands (activities/agencies) outside the naval service in connection with violations shall be limited to that authorized in the basic instruction.

3.11.1.6 Time Limits on Action of Each Report of Investigation

1. To meet statutory timelines in 49 U.S.C. § 46101 and to expedite action on a report of an investigation of an alleged violation, investigation by military agencies are limited as follows:
 - a. By the investigating unit — within 14 duty days from time of receipt.
 - b. By each intermediate command — within 7 duty days from time of receipt.
2. Each report will reach the appropriate final addressee within 60 days except in the following cases:
 - a. When a commander cannot complete an investigation within the above time schedule, the commander will notify the final addressee of the reason for the delay and give an estimate of when the investigation will be forwarded.
 - b. When Field Naval Aviator Evaluation Board (FNAEB) or Field Flight Performance Board (FFPB) proceedings are involved, the commander will be governed by current regulations (NAVMILPERSMAN ART. 3410300) or Marine Corps Order 1000.6 (ACTS) Manual as appropriate. A FNAEB or FFPB does not relieve the command of the requirement to conduct a JAGMAN investigation.
 - c. When a commander takes UCMJ action as a result of a flying violation, the commander will promptly forward the report of investigation and inform the final addressee of any pending action. An officer who exercises general court-martial jurisdiction will inform the final addressee of the final appellate action taken in each general and special court-martial case involving a violation of flying regulations.
3. The final addressee for flight violation processing is CNO (N98).

3.11.2 FAA Reports and Cooperation

When requested to do so by FAA, commands:

1. Shall not release the names of the aircrew; names are to be released only by CNO.
2. May furnish only factual information (excluding aircrew names) that would normally be available to air traffic facilities; this response shall not contain any conjectures, assumptions, or hearsay.

Note

Each command shall ensure that all attached/assigned aircrew and air operations personnel understand that:

- They may make oral or written statements to FAA personnel, but that such a statement is voluntary and may be used against the individual making the statement.
- Reports required by Part 91 of the FARs are mandatory; they are not included in the foregoing policy.

3.11.3 Applicability of Flying Regulations Other Than Naval

Pilots flying naval aircraft are responsible for compliance with flying regulations of other agencies, military or civil, only to the extent specifically provided by OPNAV directives (see [Paragraphs 1.3.4](#) and [1.3.5](#)).

3.11.4 Alleged Offshore Air Defense Identification Zone Violations

Commanders receiving a report of an alleged offshore ADIZ violation will investigate the report promptly. Results of such an investigation will be forwarded to the immediate superior. Reports shall contain the following:

1. Conclusions.
2. The action(s) taken or recommended to prevent a recurrence.
3. The nature of any disciplinary action taken.

3.11.5 Flight Personnel Training/Qualification Jacket Entry/Aviators Flight Log Book Entry

An entry of a violation into Flight Personnel Training/Qualification Jacket and Aviators Flight Log Book will be made at the sole direction of CNO and will be made in accordance with [Paragraph 4.8.6](#) and [Appendix A](#). Care shall be exercised to avoid the use of information from aircraft mishap board members, mishap reports, and endorsements, including the COMNAVSAFECOM endorsement, as a basis for the entries.

3.11.6 Incident Reports

1. Pilots in command and local commanders will ensure that deviations from ATC clearances and instructions, which result because of emergency or operational necessity, are reported to FAA immediately. Refer to FAR, Part 91 Sections 91.3 and 91.123.
2. Incident reports (FAA 8020-11) are sent from FAA to the Department of the Navy Representatives (NAVREPs). The NAVREPs shall forward the reports to the appropriate commands for information.
3. Subsequent FAA investigation of flight incidents may reveal that the deviation involved a violation of the FARs. If a violation is found, the incident is further processed as an alleged flight violation and FAAs investigation is sent to CNO (N98) for processing in accordance with [Paragraph 3.11.1](#). Because of the lengthy FAA investigative process, as much as a 1-year delay may occur before the responsible naval commands receive notification of an alleged flight violation. Because of such delays, commands are advised to make and retain statements concerning incidents in the event the incidents are subsequently processed as flight violations.

3.12 CROSS-COUNTRY PLANNING

3.12.1 Cross-Country Training Flight

A cross-country training flight is any flight that either does not remain in the local flying area or remains in the local flying area and terminates at a facility other than home military facility. This includes out and ins. Excluded are flights established by operational commitments or official business, such as unit movements and detachment training where qualified personnel receive custody of aircraft.

Cross-country flights fill a valid training requirement through development of aircrew skills in mission planning, weather analysis, instrument flight procedures, airways and VFR navigation and knowledge of aircraft servicing and maintenance procedures. Operating conditions encountered during cross-country flights serve to develop experience, judgment and maturity required of all aircrews.

Commanding officers must ensure that these flights contribute to the mission of the command and the naval service, achieve training requirements, and can be completed safely. Commanders/commanding officers shall ensure a thorough risk assessment has been conducted for the proposed cross-country flight. The following preflight planning checklist provides additional factors which should be considered by the approving authority. These risk considerations are not intended to impose unnecessary restrictions on those flights that are deemed necessary for the training and experience of aviators/aircrew or those evolutions which contribute to the missions of the naval service.

1. Does the cross-country flight achieve training objectives as established in a training syllabus or training/readiness matrix?
2. Does the flight contribute to the mission of the command or the naval service?
3. Could this flight be perceived by the public as not in the best interest of the U.S. Government?
4. If the flight is exclusively for the transportation of the aircrew, is the purpose to meet operational commitments? If so, is alternate transportation, commercial or military, readily available? More economical?
5. Is this flight planned exclusively for the convenience and/or to enhance the prestige of the officers concerned?
6. Is there a major sporting or civic event scheduled at the destination? Cross-country flights are not authorized to these destinations.
7. Is the cross-country destination the home town of any of the crewmembers? A flight to ones home town is legal, provided repeated flights are not performed (refer to [Paragraph 3.1.2](#)). Is there a personal event such as a wedding, family reunion, graduation, etc. that a member of the flight is trying to attend? Is it in the hometown of anyone on the aircraft or a destination that has been repeatedly flown to by the aircrew?
8. Has the aircrew thoroughly planned all aspects of the flight? Are they qualified and properly designated to conduct the flight?
9. Is proper security for the aircraft adequate at the intended destination? The alternate?
10. Does the flight meet squadron, wing, and aviation TYCOM directives?
11. Have adequate maintenance precautions been planned to ensure proper servicing and maintenance of the aircraft is performed?

3.12.2 Risk Assessment

The above checklist is derived from policy guidance contained in other sections of this manual. This list is not all-inclusive, since it does not cover unique risk factors determined by squadron mission, employment, operating environment, geographical location, aircraft type, model, series, and aircrew personal factors. However, it should provide a starting point for conducting a thorough risk assessment of each intended flight. The commanding officer's written authorization and the submittal of a flight plan by the pilot in command indicate that a thorough risk assessment has been conducted.

3.12.3 Implementation

This guidance is not intended to reduce the frequency and/or value of a unique and productive training opportunity, nor is it intended as a substitute for thorough planning, sound airmanship, and good headwork. Type, wing, and squadron commanders shall ensure appropriate procedures are in place for consistent implementation and monitoring of full compliance with this guidance.

3.13 TERMINAL INSTRUMENT PROCEDURES

3.13.1 General

Except when this requirement is waived for a flight in support of a nonstandard operation, aircrews flying passenger and/or troop-carrying aircraft shall not fly an instrument approach that has not been validated as safe and accurate per the following table.

		Valid Coverage		
		United States and Territories	Foreign Nations – DoD Approved Host Nation List (HNL)	Foreign Nations – Not on the DoD Approved Host Nation List (HNL)
Source Data	DoD FLIP and FAA Terminal Procedures Publications	As published - Yes	As published - Yes	As published - Yes
	Jeppesen Commercial Products	Yes - US National Airspace System (NAS)	Yes – For countries on the DoD HNL (link)	No* Individual procedures must be specifically validated per NAVFIG
	Host Nation Developed Products by Civil or Military Authorities	Not Applicable	Yes – For countries on the DoD HNL (link)	No* Individual procedures must be specifically validated per NAVFIG
<ul style="list-style-type: none"> • The DoD Host Nation List may be accessed via the NAVFIG website at https://atc.navy.mil. • Commercial procedures may be accessed via the Electronic Flight Bag or company sites. • Host Nation civil and military procedures may be accessed via NGA Aeronautical Source Packaging Service at https://asps.leidos.com. 				

3.13.1.1 DoD Electronic Instrument Procedure Library

The National Geospatial Intelligence Agency (NGA), as the DoD aeronautical information/data supplier, is populating a world-wide repository containing a library of some additional Instrument Flight Procedures (IFPs) that are not currently published in the DoD FLIP. This repository is known as the Electronic Instrument Flight Procedure Library (E-IPL). These procedures will eventually be also coded into the Digital Aeronautical Flight Information File (DAFIF) in order to enable US government capability supporting the DoD's transition to Performance Based Navigation (PBN). However, the E-IPL has not been certified by the Department of the Navy for use by USN/USMC aircrews. Use of E-IPL procedures will require a TERPS review by NAVFIG prior to use, similar to a Jeppesen procedure. E-IPL procedures can be differentiated from FLIP Instrument procedures by the annotated “E-IPL” at the top of the procedure and effective dates in the left and right margins. E-IPL can be found on the NGA website (<https://aerodata.nga.mil/AeroDownload/>) and TERPS reviews are requested via NAVFIG's website (<https://atc.navy.mil/ATC/navfig/default.aspx>) as described in [Paragraph 3.13.1](#).

3.13.1.2 Nonstandard Operation

A non-standard operation is defined as when an urgent requirement exists to fly a short-notice mission in support of a humanitarian, contingency, TACEVAC, special access or state department requirement. Commanders (O-8 or above) exercising Operational Control (OPCON) of aircraft operating in support of nonstandard operations are responsible for mission risk assessment and therefore may waive the requirement for a TERPS review of a Non-USG instrument procedure. If aircraft and aircrew are chopped to a Joint Task Force (JTF) and a waiver is required, the JTF Commander shall request the waiver, and if operationally feasible, the commander issuing the waiver shall consult with the appropriate service component before granting the waiver. When a waiver is issued, the Commander issuing the waiver shall immediately notify the National Military Command Center's On-Duty Deputy Director for Operations (DDO) DSN 225-0098 or COMM 703-695-0098, of the extent of the waiver and provide, at a minimum, the mission identification, the time and date the waiver was granted, and the circumstances that precipitated the decision.

3.13.2 U.S. Civil Airports

Activities or commands having a requirement for instrument procedures to civil airports in the U.S. that are not published in the DoD FLIP Terminal Procedures or E-IPL shall submit a request for the procedure(s) desired, with justification, through the aviation type commander to NAVFIG for publication. The justification will include a statement indicating that the procedure is needed to support an operational or contingency requirement and the expected annual usage of the procedure. NAVFIG address is contained in DoD FLIP General Planning, Chapter 11.

All FAA-approved civil instrument departures and arrivals for the U.S. are published through NOS. They are not published in the DoD FLIP.

3.13.3 Other Than U.S. Airports

Activities or commands having a requirement for terminal instrument procedures to airports in areas other than the U.S. that are not authorized in accordance with [Paragraph 3.13.1.1](#) shall coordinate requirements with NAVFIG DSN 588-5282, Comm (843) 218-5282 or email navfig-org@us.navy.mil and appropriate aviation type commander. The request shall be forwarded with justification to NAVFIG, designating the specific host government procedure desired and indicating aviation type commander concurrence. Approach under consideration must be approved to U.S., ICAO, or NATO standards (i.e., proper obstacle clearance, etc.).

3.13.4 Conformance to TERPs

NAVFIG is the only Naval Authority authorized to validate instrument approaches and shall evaluate all such requests, review procedures for conformance with TERPs, and arrange for publication of the procedure in the appropriate FLIP. Instrument approach minimums published in FLIP shall be those specified by TERPs criteria application or the host government minimums, whichever are higher.

3.13.5 Annual Revalidation

In order that FLIP terminal publications contain only those procedures for which an operational or contingency requirement exists, originating activities shall annually revalidate their requirement for procedures published pursuant to this paragraph. This will be accomplished by direct coordination between the establishing activity or command and NAVFIG.

3.14 MILITARY FLIGHT OPERATIONS QUALITY ASSURANCE (MFOQA)

Military Flight Operations Quality Assurance (MFOQA) is a developing information management process that draws on the capability of advanced aircraft to monitor and record operating parameters and systems health indicators. MFOQA provides individual aircrew and maintenance personnel the ability to review flight data immediately after a flight, squadron leadership an ability to increase awareness of mission effectiveness and risk, and higher-level command echelons with aggregate, quantifiable information that can be used to improve policies, procedures, training, equipment and facilities. MFOQA benefits maintenance, operations, training, and safety.

3.14.1 Use of MFOQA Data

3.14.1.1 Performance and Procedures

Squadron/unit commanders should use MFOQA data to help quantify aircrew and maintenance performance, not only to identify hazards and deficiencies in operating procedures, but also to identify those positive trends and practices that validate existing operating procedures. MFOQA data shall not be used as the sole source of evidence to support punitive or disciplinary action except in the case of willful disregard or blatant violation of established policies or directives. MFOQA data and analytical products may be used for purposes of aircrew and/or maintenance performance reviews (e.g., Field Naval Aviator Evaluation Boards/Flight Status Selection Boards, human factors related performance reviews).

3.14.1.2 Data Handling for Mishaps

In the event of a mishap, MFOQA data shall be considered to be evidence pertaining to the mishap as defined by OPNAVINST 3750.6 series, and shall be provided to the Senior Member of the Aviation Mishap Board (AMB). MFOQA data, as downloaded from the aircraft without subsequent analysis, shall be released by the AMB to the JAGMAN investigator, if requested. However, any manipulation, reconstruction, or other use of the data by the AMB shall be considered a deliberative act of the AMB, and such data shall be considered privileged information protected from release under OPNAVINST 3750.6 guidelines.

3.15 ALL-HANDS SAFETY ACTION PROGRAM (ASAP)

ASAP is an information management process implemented across Naval Air Forces. It is based on self-disclosed reporting to identify errors, potential precursors to mishaps and improve operational efficiency. ASAP is used to identify and proactively address unfavorable trends pertinent to aircrew training, aircraft maintenance, flight operations and safety using human factors data and error reporting. ASAP is a tool for validation of existing operating and maintenance procedures, or an avenue for change based on metrics using aggregate data. ASAP may be the sole source of mishap prevention due to early establishment of human factor leading indicators.

3.15.1 ASAP Data Requirements

3.15.1.1 ASAP Submission Requirements

ASAP is a complement to existing safety programs. There are no changes to established processes for time critical or safety related issues. Mandatory HAZREP reporting criteria are contained in OPNAVINST 3750.6 and may require an ASAP report to be elevated to a HAZREP. A list of common hazards suitable for ASAP reports is provided on the CNAF N45 sharepoint site. This list is not all-encompassing but rather intended as a tool to promote the use of ASAP. Unit commanders may include any additional reporting criteria they deem useful. Additionally:

1. It is the responsibility of the PIC/Mission Commander/Flight Lead to ensure a flight debrief is conducted to include any encountered safety hazards and to ensure ASAP reports are submitted for any identified hazards.
2. It is the responsibility of squadron members to submit additional reports for all issues which impacted the safe and orderly conduct of the flight/mission.

3.15.1.2 ASAP Data Handling and Review

ASAP data combined with MFOQA analyses provide the unit safety chain of command with critical information about the daily and long term operations of the unit. This data is only effective if reviewed and acted upon in a timely manner.

Unit commanding officers and Officers-in-Charge shall ensure that ASAP data is reviewed weekly unless conditions (location, available IT assets, electronic connectivity) restrict access to the ASAP software. Although ASAP data is reviewed at the Wing and TYCOM level, the goal of ASAP is to provide the unit commander with information about safety issues within the unit. Action to correct these issues shall be taken at the lowest level practicable.

Wing and TYCOM safety departments shall review ASAP data for their assigned units. Issues that cannot be handled at the unit level should have comments added during the unit review process to alert the Wing/TYCOM. Use of FIST satisfies ASAP requirements for NAVAIR units.

Reports may be submitted anonymously or the submitter may provide contact information. ASAP reports are not safety privileged but the information provided shall only be used for safety purposes unless an event involved an intentional disregard for safety or indicates that a false statement was made intentionally. More information about user and data protection requirements can be found in DoDI 6055.19 and OPNAVINST 3750.6.

3.16 AIRFIELD VEHICULAR TRAFFIC

3.16.1 Airfield Vehicle Operators Course

Commanding officers of naval aviation shore installations shall establish an airfield vehicle operators course program. The Airfield Manager (AFM) (USN), per NAVAIR 00-80T-124, or the Aviation Operations Specialist (AOS) (USMC), per NAVMC 3500.96, manages and has oversight of the AVOC program. The ATC Facility Officer shall be involved in the development of those portions of the course curriculum relating to airfield operational procedures to ensure compliance with FAA regulations and directives. Organizations with airfield vehicle operators who operate on the aircraft movement area shall ensure operators attend and successfully complete the course initially upon assignment and annually thereafter. Attendance at the course shall be documented and maintained by the AFM/AOS, or designated representative. Additional information and examples can be found on the Naval Safety Command web site at <https://navalsafetycommand.navy.mil/>, selecting "NAVSAFE's CAC Site" (<https://intelshare.intelink.gov/sites/nsc>) from the "Links" drop down menu. A CAC and a one-time account registration are required for access.

3.16.2 Local Airfield Rules

Local rules shall be established which minimize vehicle traffic on movement areas. Unnecessary vehicular traffic on the airfield is a safety hazard, which requires constant evaluation to develop alternative measures such as use of perimeter roads.

3.17 PUBLIC AIRCRAFT OPERATIONS (PAO) VERSUS CIVIL AIRCRAFT OPERATIONS

U.S. Code defines aircraft operations in the National Airspace System (NAS) as either public or civil. Civil aircraft operations are defined as anything other than public aircraft operations. For contracted air services (CAS) aircraft conducting a mission for the DoD the status (Civil or Public) of a particular aircraft operation must be determined and depends on multiple factors, such as, airworthiness pedigree, configuration of the aircraft, and the specific operations being conducted.

Note

PAO determinations are made on an operation-by-operation basis and may be bounded by specific contract language. A CAS aircraft could conduct a civil operation in the morning and then that same aircraft could be tasked to conduct a public operation in the afternoon based on changes to the aircraft configuration and/or the mission being conducted. Within the NAE, PMA-226 has been designated as the PMA responsible for coordinating and managing CAS contracts for DON activities. Any command considering utilizing CAS is encouraged to contact primary stakeholders within NAVAIRSYSCOM (ACO, ACCO, PMA 226) for assistance.

3.17.1 Airworthiness Authority

While the FAA is the airworthiness authority for all U.S. Civil aircraft operations, NAVAIR is the airworthiness authority for all DON PAO, including CAS aircraft that conduct DON PAO. However, the FAA retains the authority for enforcement of flight operating rules (in accordance with 14 CFR Part 91) for PAO operating within the NAS. While the vast majority of DoD owned or leased aircraft operations are PAO, CAS aircraft operations may or may not be PAO depending on the operation and aircraft configuration. The DoD has both the authority and responsibility for

the airworthiness approval and continuing airworthiness (operations, maintenance, and safety) oversight for aircraft owned, leased, or under contract to the DoD when operating as a PAO. It is essential that organizations contracting for CAS (e.g., range operations, threat simulation, training support, aerial refueling, etc.) understand when the operations being conducted are determined to be PAO and when they remain civil aircraft operations.

3.17.2 State Aircraft

The concept of PAO does not apply outside of NAS. In international airspace, including airspace controlled by sovereign nations, aircraft are identified as either State aircraft or Civil aircraft. The International Civil Aviation Organization (ICAO) and international law provide guidance related to the definition of state, which generally applies to military, customs, and police/firefighter aircraft. Sovereign nations have varying legal definitions for state aircraft. Some nations consider aircraft ownership, operators, or type of passengers/cargo as factors for state designation. U.S. military aircraft are by default designated as state aircraft. State aircraft can be restricted or denied access to civil controlled foreign sovereign airspace at the discretion of the host nation.

OPNAV policy on sovereign immunity has stated that, under customary international law, all manned and unmanned aircraft owned or operated by a State, and used, for the time being, only for government non-commercial service are entitled to sovereign immunity. Accordingly, such aircraft, wherever located, are immune from arrest, search, and inspection by foreign authorities, including inspections by or under the supervision of a competent authority of areas, baggage, containers, conveyances, facilities, goods or postal parcels, and relevant data and documentation thereof for most purposes. Moreover, such aircraft are exempt from certain foreign taxes, duties, or fees. Customary international law further grants to commanding officers, officers-in-charge, aircraft commanders, the right to protect the identity or details of personnel, stores, weapons, and other property aboard a sovereign immune vessel or aircraft, as well as exclusive control over any person aboard a sovereign immune vessel or aircraft concerning acts performed aboard.

Although immune from arrest by foreign authorities, state aircraft shall comply with host nation requirements regarding traffic control, health, customs, and immigration, to the extent such requirements do not contravene U.S. Government sovereign immunity policy. Noncompliance with any such requirement may be subject to diplomatic complaint or host nation orders to leave its internal waters, territorial sea, or national airspace, but does not change the requirements of this policy. Because adherence to this policy may result in a country's refusal or expulsion of an aircraft, aircraft commanders must work with their legal counsel and embassy teams early to understand airfield requirements including international agreements or other arrangements which may apply.

3.17.2.1 CAS Aircraft Designated as State Aircraft

According to the DoD Foreign Clearance Manual (FCM), “the USG normally does not designate civil-registered aircraft as state aircraft.” Therefore, CAS aircraft must meet the appropriate international or sovereign regulations associated with civil operations in international and/or sovereign foreign airspace. When state status is required by a DoD mission, a USG official from a DoD Component, who is empowered to designate state aircraft status, must formally authorize and oversee state aircraft operations to ensure contract terms and flight authorizations are commensurate with the state aircraft designation. Civil-registered commercial aircraft flying DoD CAS missions should use the procedures for non-scheduled commercial aircraft set forth in the DoD Foreign Clearance Guide (FCG) Commercial Contract Aircraft Appendix and the host nation Aeronautical Information Publication (AIP) unless the mission profile or specialized equipment require the privileges of a U.S. state aircraft, and they are approved and designated state aircraft by an authorized USG official in accordance with sponsoring DoD Component procedures.

3.17.2.2 Airworthiness Authority of CAS Aircraft Designated State

Although one may be tempted to link PAO operations in U.S. National Air Space to state aircraft designation when that operation necessitates a shift to operations outside of the NAS, there are many factors that affect state aircraft designation. Airworthiness authority is rarely a deciding factor in the state aircraft determination. State designation is primarily driven by sovereign immunity concerns; however, airworthiness and the ability to comply (or not) to established civil ruleset are factors that must be considered. Similar to determining if a CAS aircraft operation is PAO, the proper airworthiness authority for CAS aircraft designated as state must be determined based on a thorough

review of the aircraft configuration, the mission, and international laws. The designation of a CAS aircraft as state does not force the DON to be the airworthiness authority for that aircraft.

Note

- An example of when a contracted aircraft needs to be designated as state is when the CAS aircraft cannot enter a foreign nation's sovereign airspace as a Civil aircraft because it is in a configuration not authorized by the applicable civil airworthiness certificates. As such, NAVAIR airworthiness authority would be required (i.e., issued a NAVAIR Flight Clearance).
- Another example, is if a PAO aircraft departs the NAS and transits into international air space, with no intent to cross into the sovereign air space of another country, then a formal state designation is not required per the DoD FCG; however, this aircraft is a state aircraft during the period of time in which operations occurred outside the NAS (where PAO does not convey), but will remain under NAVAIR airworthiness authority.
- There are also situations (e.g., need for sovereign immunity) where a CAS aircraft could remain under Civil airworthiness authority, while being designated by a COCOM as a state aircraft, provided the operation and configuration of the aircraft complies with the civil airworthiness certificates and operating limitations.

3.17.2.3 Authority to Designate CAS Aircraft as State Aircraft

State aircraft designations are ultimately tied to U.S. Government sovereign immunity. DON sovereign immunity policy is managed by OPNAV N3/N5 and that office is working to develop DON policy. It must be understood that designating CAS aircraft supporting military operations as state aircraft exposes the DoD to diplomatic risk. As a consequence, per guidance from OPNAV, requests for state aircraft designations are normally addressed by the contracting agency to the geographic combatant commanders as those commands are ultimately responsible for activities within their cognizant areas of operation.

This Page Intentionally Left Blank.

CHAPTER 4

Flight Authorization, Planning, and Approval

4.1 FLIGHT AUTHORIZATION

4.1.1 Authority

Naval aircraft shall not be flown by any person unless authorized by the reporting custodian or other commander exercising operational control over the aircraft concerned. All flights shall be in the national interest with fleet readiness receiving the highest priority. Efficient utilization of aircraft and available funds is the responsibility of the reporting custodian.

4.1.2 Documentation

Authorization for a flight shall be documented by a published flight schedule or other similar directive signed by COs or their delegated authority. As a minimum, the document shall contain the following elements:

1. Names and flight function of all flight personnel.
2. Designation of the pilot in command, mission commander, and/or formation leader as appropriate.
3. Chain of command for formation flights in the event of an abort by the designated flight leader.
4. Aircraft model assigned.
5. Total mission or requirement code.
6. Point of departure, destination, and en route stopover points.
7. Date and estimated time of departure (ETD).
8. Estimated time en route (ETE) or estimated time of arrival (ETA).

Note

For missions such as strip alert, SAR alert, etc., the words as directed or to be assigned (TBA) may be entered for ETD and ETE/ETA.

4.1.3 Flightcrew Requirements

Prior to authorizing flight in naval aircraft, commanders shall ensure that the person designated as pilot in command is in all respects qualified for flight in model and that minimum flightcrew requirements are met.

4.2 MINIMUM FLIGHTCREW REQUIREMENTS

The minimum flightcrew requirements for naval aircraft are set forth in the applicable NATOPS manual for individual aircraft models. CNATRA may modify such requirements and the requirements set forth below as necessary for training purposes.

4.2.1 Aircraft Commander Requirement

An aircraft commander ([Paragraph 12.2.2.3](#)) shall be designated for the following multipiloted aircraft missions:

1. Operational/tactical missions.
2. Administrative missions in helicopters/tiltrotors.

CNAF M-3710.7

3. Training flights, except those that are within the capabilities of pilots of lower classification and which, in the opinion of the commanding officer, are best suited to teach such pilots self-reliance and command responsibility.
4. Flights in which the transport of passengers is involved.

4.2.2 Insufficient NATOPS Guidance

The minimum flight crew requirements for naval aircraft are set forth in the applicable NATOPS manual for individual aircraft models. Where individual NATOPS manual guidance is lacking, the minimum flightcrew requirements for multipiloted aircraft are as follows:

1. A pilot in command possessing a valid instrument rating designated in accordance with [Paragraph 3.7](#).
2. A copilot qualified to perform all the assist functions required for the flight conditions and mission. If passengers are embarked, the copilot shall be qualified in model.
3. Other flightcrew necessary for the safe conduct of the flight.

4.2.3 Helicopters Not Requiring a Copilot

For helicopters that are configured with either dual or single-flight controls but do not require a copilot, the minimum crew requirements will be specified in the appropriate NATOPS manual. If a lookout is required, the lookout will be capable of performing internal communication and all assist functions required for the mission. The designation of the pilot in command shall be pilot qualified in model (PQM).

4.2.4 Use of Lookouts

Use of a qualified lookout in lieu of a copilot for those aircraft specified in [Paragraph 4.2.3](#) shall be limited to flights conducted under VMC.

4.2.5 Rescue Helicopters Operating Over Water

Any naval helicopter that is assigned the primary mission to operate as a rescue vehicle over water shall have as a member of its crew one aircrewman who is completely outfitted for water entry as required in [Paragraph 8.2.1.2](#) and has completed an approved CNO/CMC rescue swimmers school.

Note

Where SAR/plane guard is briefed as a primary mission, or when it becomes the primary mission, the rescue air crewman shall be prepared for immediate water entry.

4.3 FLIGHT PLANNING

4.3.1 Preflight Planning

Before commencing a flight, the pilot in command shall be familiar with all available information appropriate to the intended operation. Such information should include but is not limited to available weather reports and forecasts, NOTAMs, Temporary Flight Restrictions (TFR), fuel requirements, terminal instrument procedures (to include proper use of non-DoD approaches, circling procedures, local traffic patterns, and contingencies for landing at all runways at field), alternatives available if the flight cannot be completed as planned, and any anticipated traffic delays. In addition, the pilot in command and mission commander (when there is one designated) shall conduct a risk assessment prior to the flight.

For flight planning involving unfamiliar airports or runways, it is highly encouraged to utilize approved Appendix K simulator devices to practice local procedures in inclement weather conditions.

4.3.2 Detachment Operations

Prior to operating a detachment at an area of operations away from their normally assigned airfield, commands/detachments should conduct specific training for the local flying area(s) in which the unit will operate. At a minimum, this should include a thorough review of terminal instrument procedures, weather patterns, local operating procedures, and course rules as applicable. The use of Appendix K simulators is highly encouraged to conduct this training. Simulator training should include inclement weather conditions, instrument approaches, pattern work, ramp procedures, and emergency procedures at all airfields expected to be used while on detachment, including any military and civilian divers.

4.4 AUTHORIZED AIRFIELDS

4.4.1 Authorized Airfields for Stop-and-Go, Refueling and RON

4.4.1.1 DoD Airfield Facilities

1. Naval aircraft are authorized to operate at and land at all U.S. military and joint civil-military airfields. When planning to operate at other than home airfields, local training airfields or OLFs, pilots in command shall ensure that they are aware of and meet airfield operating requirements and, when necessary, have satisfied PPR requirements. PPRs need not be obtained for planned alternate fields or emergency divert airfields.
2. When returning to the United States from abroad, pilots in command shall ensure that they will be able to satisfy U.S. Customs Service clearance requirements at their point of entry airfield.

4.4.1.2 Civilian Airfields

Naval aircraft are permitted to operate at civilian airfields listed in the DoD Enroute Supplement or appropriate FAA publications when such operations contribute to mission accomplishment, add value to training, or are otherwise in the interests of the government and taxpayer. Pilots in command and other authorizing officials should consider the issues set forth in [Paragraph 3.12](#) of this instruction when planning operations at civilian airfields. Civilian airfields shall not be used for RON unless required for mission accomplishment. In such cases, approval by the appropriate Wing/Group Commander is required. RON is authorized if required for aircraft maintenance or following an emergency divert.

4.4.1.2.1 Local Procedures

Pilots in command shall ensure that they are familiar with any special procedures, practices or rules that apply at the civilian airfield.

4.4.1.2.2 Facilities

When planning for operations at civilian airfields, pilots in command shall ensure that runway length and runway and taxi load-bearing capabilities are adequate. If fueling and/or servicing are anticipated, pilots in command shall ensure that DoD contract services are available.

4.4.1.2.3 Security

Unit commanding officers shall ensure that appropriate security and force protection plans can be implemented whenever an aircraft is left unattended away from its home field. Wing/Group Commanders shall only authorize planned RON stops at civilian airfields if the security and force protection requirements set forth in applicable directives can be satisfied.

4.4.2 Authorized Airfields and Landing Areas For Training

Commanding Officers, Wing/Group Commanders, and base commanders may designate airfields or landing areas for routine training. Local area flight plans need not specifically indicate planned operations at these facilities. Unit

CNAF M-3710.7

or local commanders shall ensure that standardized procedures, course rules, and guidance are set forth to ensure safe operations.

4.4.3 Helicopter, Tiltrotor, and VSTOL/STOL Landing Areas

Helicopter, tiltrotor, and VSTOL/STOL aircraft are authorized to land at other than airfield locations (such as fields, highways, and parks), provided:

1. A military requirement exists for such landing.
2. Adequate safeguards are taken to permit safe landing and takeoff operations without hazard to people or property.
3. There are no legal objections to landing at such nonairfield sites.

Note

COs are authorized to waive the provisions in [subparagraph 1](#) through [3](#) when dispatched helicopters, tiltrotor, or VSTOL/STOL aircraft is engaged in SAR operations.

4.4.4 Airfield Operations Outside Published Hours/Closed Control Tower Airfield Operations

1. Commanding officers of airfields are authorized to extend airfield operating hours beyond those published in the Digital Airport/Facility Directory without opening the control tower.
2. Naval aircraft are permitted to operate from a closed control tower airfield when both the aircraft reporting custodian (unit commander) and the commanding officer of the airfield have specifically authorized such operations.
3. Naval aircraft are permitted to operate from a closed control tower airfield without the crash crew being present with concurrence of the reporting custodian (unit commander) and the commanding officer of the airfield.

4.4.5 Closed Airfields

All naval aircraft are prohibited from taking off or landing at closed airfields except in the case of an emergency.

4.5 FLIGHT PLANS

4.5.1 General

A flight plan appropriate for the intended operation shall be submitted for all flights of naval aircraft except the following:

1. Flights of operational necessity.
2. Student training flights under the cognizance of CNATRA conducted within authorized training areas. CNATRA shall institute measures to provide adequate flight following service.

4.5.2 No Communication Link

If no communication link exists between the point of departure and the ARTCC/FSS, the pilot may relay the flight plan to an appropriate FSS by commercial telephone. When unable to file in person or by telephone, the flight plan may be filed as soon as possible by radio after takeoff. Flight in controlled airspace in IMC without ATC clearance is prohibited. Filing by radio after takeoff is not permitted when it will involve unauthorized IMC flight. In any case, the pilot's responsibility is not fulfilled until a completed flight plan and passenger manifest have been deposited with the airport manager or other suitable person.

4.5.3 Flight Plan Forms

The following are authorized methods of submitting a flight plan:

1. DD-1801 (DoD International Flight Plan), completed in accordance with FLIP General Planning, may be used for other than local flights originating from airfields in the United States at which a military operations department is located (see 14 CFR § 91.153 and § 91.169 for mandatory items). A completed flight plan will be submitted to flight planning personnel, either in-person or electronically, for entry into the ARTCC system. Electronic signature of DD-1801 is authorized.

An abbreviated DD-1801 may be used for flights conducted within the established local flying area and adjacent offshore operating/training areas. Items 1-4, 6, 7, 9-12, 20, 21, 24, and 25 of the flight plan (see FLIP General Planning) shall be completed at a minimum. For VFR flights within the local flying area, the term "local" may be entered as route of flight (item 9). For day VFR and IFR flights that penetrate or operate within an ADIZ (unless an authorized exception, see FLIP (En Route) IFR Supplement), the estimated time and point of penetration(s) shall be entered in the remarks (item 12).

Completed flight plans will be retained in operations files for 6 months as per SECNAV M-5210.1.

2. Authorized third-party applications may be used to file a flight plan. Because third party applications circumvent base operations monitoring of scheduled land time, the squadron duty officer or other assigned representative shall track safe-on-deck status to ensure activation of overdue aircraft procedures. Completed flight plans will be archived electronically on the third-party application site for 6 months as per SECNAV M-5210.1.
3. A daily flight schedule may be used by the approval authority when:
 - a. The flight will utilize an approved stereo route (ARTCC computer stored)/canned flight plan code for other than local flights, provided the point of departure is a military facility and the stereo/canned flight plan conforms to agreements with the parent ARTCC.
 - b. The flight will be conducted within the established local flying area and adjacent offshore operating/training areas, provided:
 - (1) Sufficient information relative to the flight is included to satisfy the needs of the local ATC/FSS facility that guards the flight.
 - (2) Facility operations maintain cognizance of each flight plan and are responsible for initiating any overdue action or issuing in-flight advisory messages. Termination of local flights at facilities other than the point of departure is authorized only in those cases where local flight plans may be closed out by direct station-to-station communication.
 - (3) The flight shall not be conducted in IMC within controlled airspace except as jointly agreed to by the local naval command and the responsible air traffic control agency. When making such agreements, naval commands shall ensure that they do not conflict with policies and directives established by CNO.
4. FAA flight plan FAA 7233-4 (FAA International Flight Plan), may be used at airfields in the United States at which a military operations department is not located.
5. The flight plan form specified by the local authorities shall be used for flights originating at points of departure outside the United States.

4.5.4 Shore-to-Ship and Ship-to-Shore Operations

For shore-to-ship and ship-to-shore operations, the following procedures apply:

1. Prior to flight from a shore activity to a ship operating in offshore areas when a landing aboard the ship is intended, the pilot in command shall file a flight plan. For flights conducted in IMC, a DD-1801 or daily flight schedule with approved stereo (ARTCC computer stored)/canned flight plan code shall be filed. Flights conducted under VFR may use an abbreviated DD-1801 or daily schedule.
2. Flight plans must be filed when flights originating from offshore operating areas will penetrate controlled airspace or terminate at shore activities. Ships shall relay flight plans to appropriate ATC facilities in a

CNAF M-3710.7

timely manner and pilots shall confirm their flight plans with an appropriate ATC facility ashore as soon as practicable.

3. Timely handling of flight movement information for each shore/ship operation is essential.
4. Flight suspense for SAR purposes becomes the responsibility of the destination activity after acknowledging receipt of a flight plan.
5. Procedures for flights penetrating or operating within a coastal or domestic ADIZ or defense early warning identification zone (DEWIZ) are prescribed in FLIP (En Route) IFR Supplements.

4.5.5 Stopover Flights Within the Contiguous United States

Naval Aviators are authorized to utilize one DD-1801 to plan flights involving en route stops, subject to compliance with the following procedures and limitations:

1. The flight plan (DD-1801) shall be prepared in accordance with the applicable instructions contained in the DoD FLIP (planning).
2. NOTAM and flight route weather briefing (in accordance with [Paragraph 4.6.3](#)) shall be obtained at point of origin for the entire route of flight. If used, the weather information entered on the DD-175-1 shall clearly indicate the forecast weather (en route) for each leg of the flight, each destination, and each alternate (if required). Separate DD-175-1s may be utilized for each leg. Pilots shall periodically determine that the intended route of flight remains clear of aviation severe weather watch (WW) bulletins and that weather forecasts for each successive intermediate destination (and alternates when required) continue to satisfy the minimums established in [Paragraph 4.8.4](#) or [5.2](#) as applicable. Pilots shall periodically update weather forecasts along the intended route of flight to ensure the minimums established in [Paragraph 4.8.4](#) and [5.2](#), as applicable, are satisfied, and the route remains clear of severe weather to include severe thunderstorms, severe icing, or severe turbulence (see [Paragraphs 4.8.4.4](#) and [4.8.4.5](#)).
3. No change shall be made in the pilot in command.
4. A corrected manifest shall be left with a responsible person at each intermediate base at which a change of passengers or crew occurs (see [Paragraph 4.8.2](#)).
5. Weight and balance must remain within limits (see [Paragraph 4.8.6](#)).
6. A revised flight plan void time shall be filed with Flight Service when appropriate.
7. The pilot shall close out the balance of the original flight plan if the flight is terminated at an intermediate base.

Note

Stopover flights outside of the United States are governed by the procedures contained in the appropriate area FLIP (planning) publication.

4.6 SUBMISSION OF THE FLIGHT PLAN

4.6.1 Pilot in Command/Formation Leader

Except when a daily flight schedule is used in lieu of a flight plan form, the pilots in command/formation leaders shall submit a flight plan for their flight (including remote filing via the Flight Weather Briefer (FWB) system). For multipiloted aircraft, the pilot in command/formation leader may choose to delegate this responsibility to a NATOPS qualified pilot/NFO. Regardless, the pilot in command/formation leader is responsible for compliance with [subparagraphs 1](#) through [8](#).

1. The flight has been properly authorized.
2. Adequate flight planning data, including NOTAM service, was available for complete and accurate planning.

3. The flight will be conducted in accordance with governing directives and adherence to criteria for fuel requirements and weather minimums.
4. Each pilot in a formation flight has received the required flight route weather briefing (in accordance with [Paragraph 4.6.3](#)).
5. The pilot in command/each pilot in a formation flight possesses a valid instrument rating if any portion of the flight is to be conducted under IMC or in positive control areas or positive control route segments.
6. Passengers have been properly briefed and manifested.
7. Proper weight and balance forms, if applicable, have been filed.
8. The pilot in command acknowledges responsibility for the safe and orderly conduct of the flight.

4.6.2 Daily Flight Schedule

A signature by the reporting custodian or other appropriate authority on the daily flight schedule, when used in lieu of a flight plan form, signifies that preceding items 1. through 8. shall be ensured prior to flight.

4.6.3 Flight Plan Approval

The pilots in command of a naval aircraft or formation leaders are authorized to approve the flight plan for their proposed flight or modification thereof.

4.7 FLIGHT PLAN MODIFICATION

Modification of a written flight plan shall be accomplished only with the concurrence of the pilot in command.

4.8 OTHER PREFLIGHT REQUIREMENTS

4.8.1 Call Sign Requirements

Call sign selection for cross-country flights shall be made in accordance with DoD FLIPs. It is strongly recommended that squadron modex (NJ213, DB214) be used in flight planning. If the use of tactical/squadron call signs is necessary, call signs shall be the approved JANAP 119 call sign for the unit concerned. Abbreviations or contractions of these call signs is not authorized.

4.8.2 Manifest Requirements

The pilot in command of a naval aircraft flight shall ensure that a copy of the manifest is on file with a responsible agency at the point of departure prior to takeoff. The manifest shall include an accurate list of personnel aboard the aircraft, showing names, serial numbers, grade and service if military, duty station, and status aboard the aircraft (passenger or crew). All persons aboard other than flight personnel are passengers and shall be manifested as such. When initial transmission of a flight plan by radio is permitted after takeoff in accordance with this instruction, depositing such a personnel list continues to be a mandatory pretakeoff requirement of the pilot in command of the flight. The pilot shall state the location of the required personnel list when filing by radio or telephone. Helicopter and tiltrotor pilots engaged in SAR missions, lifting reconnaissance parties, patrols, and outposts during field problems are released from manifest responsibilities when there is no proper agency available with whom a passenger manifest could be deposited.

4.8.3 Flight Route Weather Briefing

4.8.3.1 General

Naval Aviators shall be thoroughly familiar with weather conditions for the area in which flight is contemplated. Many sources of weather information, both governmental and commercial, are readily available to assist pilots in flight planning and operational risk management. For flights where any portion of the intended route is forecast to

CNAF M-3710.7

be under IMC, Naval Aviators shall obtain a flight route weather brief from a DoD-qualified forecaster or approved forecasting service.

1. Flight route weather briefings ashore may be obtained online through the web-enabled Flight Weather Briefer (FWB) system (<https://fwb.metoc.navy.mil/fwb/web/#/landing>) operated by DoD-qualified meteorological forecasters at the Fleet Weather Center (FWC) Norfolk or San Diego, its satellite components, or within the Marine Corps Weather Services. Alternate methods of delivery are available upon request.
2. Naval Aviators may obtain route weather forecast support from FWC Norfolk or San Diego, a Navy contract forecaster located at home station (NAS), or via 1-888-PILOTWX. Additionally, an approved flight route weather briefing may be obtained via a Flight Service Station (FSS), through Air Force Weather and Marine Corps Services where available, or,
3. Approved commercial third-party applications and weather forecasting services may be used provided they meet the following requirements:
 - a. Utilize National Weather Services and International Civil Aviation Organization (ICAO) approved aviation weather information.
 - b. Comply with all ICAO, FAA, FAR and Joint Aviation Requirement on Commercial Air Transportation (JAROPS) requirements.

Note

- DD-175-1 flight route weather briefings will include briefing (flimsy) number and brief void time. DD-175-1 briefs are only valid up to 3.0 hours past briefing/FWB delivery time or ETD plus one-half hour. Briefings received more than 3.0 hours prior to takeoff will be void and require rebriefing prior to departure. Whenever possible, Naval aviators should request a DD-175-1 flight route weather briefing at least 1 hour prior to proposed brief time to allow sufficient time for brief preparation.
- Canned local area/route weather briefs (canned DD-175-1s) and associated canned local area/route brief numbers (CR) for flight plan filing will be available via FWB in accordance with local instruction for military airfields to streamline support for local flight operations using stereo routes, canned routes, local training routes, or MTR. Any portions of the local area/route that are forecast for IMC will be clearly indicated on the canned local area/route weather brief, and it is incumbent on the pilot in command to remain cognizant of weather flight safety requirements. If significant portions of the local area are IMC or are covered by a Storm Prediction Center Watch Notification Message, severe weather warning, or SIGMET, the local area/route weather brief and the associated CR may be suspended. Canned local area/route weather briefs will be updated in accordance with briefing void times above.
- If required by local instruction to file a DD-1801 IFR flight plan for local air control only, the route of flight is intended for VMC within the field's defined local area, and the route is covered by a canned local area/route weather brief, the CR may be used for filing the flight plan.
- For IMC flights within a field's defined local area covered by a canned local area/route weather brief, a CR may be used for filing a DD-1801 IFR flight plan as allowed by local instruction.

4.8.3.2 Flight Weather Packet

A flight weather packet may be requested, but is not mandatory. Naval Aviators should normally allow a minimum of 2 hours for preparation of the packet. Items provided in the flight weather packet are listed in NAVMETOCCOMINST 3140.14 (series).

4.8.4 Weather Criteria for Filing

Flight plans shall be filed based on all the following:

1. The actual weather at the point of departure at the time of clearance.
2. The existing and forecast weather for the entire route of flight.
3. Destination and alternate forecasts for a period 1 hour before ETA until 1 hour after ETA.

4.8.4.1 VFR Flight Plans

The pilot in command shall ascertain that actual and forecast weather meets the criteria specified in [Paragraph 5.2.4](#) prior to filing a VFR flight plan.

4.8.4.2 IFR Flight Plans

Regardless of weather, IFR flight plans shall be filed and flown whenever practicable as a means of reducing midair collision potential. In any case, forecast meteorological conditions must meet the weather minimum criteria shown in [Figure 4-1](#) for filing IFR flight plans and shall be based on the pilot's best judgment as to the runway that will be in use upon arrival. IFR flight plans may be filed for destination at which the forecasted weather is below the appropriate minimums provided a suitable alternate airfield is forecast to have at least 3,000-foot ceiling and 3-statute-mile visibility during the period 1 hour before ETA until 1 hour after ETA.

Figure 4-1. IFR Filing Criteria

DESTINATION WEATHER ETA plus and minus 1 hour	ALTERNATE WEATHER ETA plus and minus 1 hour	
0 — 0 up to but not including Published minimums	3,000 — 3 or better	
Published minimums up to but not including 3,000 — 3 (single-piloted absolute minimums 200 — 1/2) (single-piloted helicopter/tiltrotor absolute minimums 200-1/4)	NON-PRECISION	PRECISION
	* Published minimums plus 300-1	* Published minimums plus 200-1/2
3,000 — 3 or better	No alternate required	
<div><div>*</div><div>In the case of single-piloted or other aircraft with only one operable UHF/VHF transceiver, radar approach (PAR/ASR) minimums shall not be used as the basis for selection of an alternate airfield.</div><div>*</div><div>For aircraft equipped with non-WAAS GPS receivers (TSO-C129/C196), aircrew may plan on the use of GPS-based approaches at either the destination or alternate, but not both. See Paragraph 5.3.3 for alternate planning restrictions.</div><div>*</div><div>For aircraft equipped with WAAS GPS receivers (TSO-C145/C146), aircrew may plan for GPS based approaches at both the destination and alternate. See Paragraph 5.3.3 for alternate planning restrictions.</div><div>*</div><div>When an alternate is required for certified LPV capable aircraft, aircrew may select the lowest published LNAV or LNAV/VNAV minima and add 300-1. See Paragraph 5.3.3 for alternate planning restrictions.</div></div>		

4.8.4.3 Alternate Airfield

An alternate airfield is required when the weather at the destination is forecast to be less than 3,000-foot ceiling and 3-statute-mile visibility during the period 1 hour before ETA until 1 hour after ETA.

If an alternate airfield is required, it shall have a published approach compatible with installed operable aircraft navigation equipment that can be flown without the use of two-way radio communication whenever either one of the following conditions is met:

1. The destination lacks the above described approach.
2. The forecasted weather at the alternate is below 3,000-foot ceiling and 3-statute-mile visibility during the period 1 hour before ETA until 1 hour after ETA.

In either situation, the pilot shall plan for an approach at the alternate that can be flown without the use of two-way radio communications in the event of lost communications, but may attempt such an approach if fuel state and weather conditions permit.

4.8.4.4 Hazardous Weather (Icing, Thunderstorms, Turbulence, Volcanic Ash)

Except for operational necessity, emergencies, and flights involving all-weather research projects, flights shall be planned to circumvent areas of hazardous weather whenever practicable. Aircraft commanders and/or mission commanders shall be cognizant of hazardous weather advisories (e.g. SIGMETs, AIRMETs, thunderstorm warnings, tornado warnings, and available ICAO or Fleet Weather Center equivalents) when making mission based ORM/TEM decisions.

1. Flight in icing conditions shall be conducted in accordance with the aircraft flight manual and operate within [paragraph 5.3.2.1 \(Instrument Flight Equipment\)](#).
2. Avoid thunderstorms and associated hazards (e.g. hail, microbursts, wind shear, etc.). Flight in turbulence shall be conducted in accordance with the aircraft flight manual.
3. Avoid aircraft operations in the general area of volcanic activity, which may extend for several hundred miles. Flights should be planned well clear of the area and, if possible, the flight path should be above or upwind of the volcanic ash. Aircraft which have encountered volcanic ash shall not be cleared to fly until suitable maintenance inspections have been accomplished.

4.8.4.5 Severe Weather Watch Bulletins

The Storm Prediction Center (SPC), in Norman, OK, issues Watch Notification Messages to provide an area threat alert for the aviation meteorology community to forecast organized severe thunderstorms that may produce tornadoes, large hail, and/or convective damaging winds within the CONUS. Aviation Watch Notification Messages (SAW), Severe Thunder Storm or Severe Tornado Watch Bulletins (WW) may be found at <https://www.spc.noaa.gov> under the “Watches” tab. SPC Watch Notifications are issued for areas where conditions are favorable for development of severe weather and warnings are issued by local National Weather Service Forecast Offices where these conditions are actually occurring. Severe thunderstorm and tornado warnings should be treated similar to SPC Watch Notification Messages when flight planning. Except for operational necessity, emergencies, and flights involving all-weather research projects or weather reconnaissance, pilots shall not file into or through areas for which the SPC has issued a Watch Notification Message unless one of the following exceptions apply:

1. Storm development has not progressed as forecast. For air operations originating/terminating at Naval installations or at other DoD installations that serve as main operating bases for naval aircraft, local installation commanding officers and/or Wing Commanders may continue operations in areas under a SPC Watch Notification based on a determination that storm development has not progressed as forecast for the planned route of flight. Normally, such determination should include verification by a DoD forecaster or a Flight Service Station (FSS). For Naval aviators contemplating flight operations from other DoD or commercial airfields, flight operations through SPC Watch Notifications are authorized only if storm development has not progressed as forecast for the planned route as verified by DoD forecasters or a Flight Service Station (FSS). In either situation:

- a. VFR filing is permitted if existing and forecast weather for the planned route permits such flights.
 - b. IFR flight may be permitted if aircraft radar is installed and operative, thus permitting detection and avoidance of isolated thunderstorms.
 - c. IFR flight is permissible in controlled airspace if VMC can be maintained, thus enabling aircraft to detect and avoid isolated thunderstorms.
2. Performance characteristics of the aircraft permit an en route flight altitude above existing or developing severe storms.

Note

It is not the intent to restrict flights within areas encompassed by or adjacent to a SAW or WW area unless storms have actually developed as forecast.

4.8.5 Minimum Fuel Requirements

4.8.5.1 Fuel Planning

All aircraft shall carry sufficient usable fuel, considering all meteorological factors and mission requirements as computed below:

1. If alternate is not required, fuel to fly from takeoff to destination airfield, plus a reserve of 10 percent of planned fuel requirements.
2. If alternate is required, fuel to fly from takeoff to the approach fix serving destination and thence to an alternate airfield, plus a reserve of 10 percent of planned fuel requirements.
3. In no case shall the planned fuel reserve after final landing at destination or alternate airfield, if one is required, be less than that needed for 20 minutes of flight, computed as follows:
 - a. Reciprocating engine-driven aircraft. Compute fuel consumption based on maximum endurance operation at normal cruise altitudes.
 - b. Turbine-powered fixed-wing aircraft. Compute fuel consumption based on maximum endurance operation at 10,000 feet.
 - c. Turbine-powered helicopters and tiltrotors. Compute fuel consumption based on operation at planned flight altitude.
4. Minimum fuel reserve requirements for specific model aircraft shall be contained in the appropriate NATOPS manual.

4.8.5.2 In-Flight Refueling

Aircraft shall carry sufficient usable fuel to fly from takeoff point to air refueling control point(s) (ARCP), thence to a suitable recovery field in the event of an unsuccessful refueling attempt. In no case shall the fuel reserve at rendezvous point be less than 10 percent. For multiple in-flight refuelings, the aircraft must have the required reserve at each rendezvous point. After the last in-flight refueling is completed, the fuel reserve required for the remainder of the flight shall be in accordance with [Paragraph 4.8.5.1](#).

4.8.5.3 Delays

Any known or expected traffic delays shall be considered time en route when computing fuel reserves. If route or altitude assigned by air traffic control causes or will cause planned fuel reserves to be inadequate, the pilot shall inform ATC of the circumstances, and, if unable to obtain a satisfactory altitude or routing, alter destination accordingly.

4.8.6 Weight and Balance Control

4.8.6.1 Requirements

All aircraft are subject to weight and balance control requirements, and certification that the aircraft will remain within weight and balance flight clearance requirements for the duration of flight is signified by the presence of an authorized signature on the flight plan. Blank USN/USMC aircraft weight and balance handbook forms are contained in NA 01-1B-50, Technical Manual, Weight and Balance Data. When filled in for a specific BuNo aircraft, the NA 01-1B-50 data pages become the weight and balance handbook for that aircraft. An explanation of the data required to prepare the individual aircraft weight and balance handbook pages and the associated flight clearance requirements are specified in NA 01-1B-50, Technical Manual, USN/USMC Aircraft Weight and Balance Control. Maximum operating weights, restrictions, and center-of-gravity limitations are delineated in the applicable NATOPS manual.

4.8.6.2 Responsibility

With the exception of aircraft to be ferried, the responsibility for ensuring safe loading of Class 1A, 1B, and Class II aircraft is assigned to reporting custodians. The responsibility for safe loading of aircraft to be ferried rests with the activity preparing the aircraft for ferry movement.

4.8.6.3 Filing

Submission of the flight plan constitutes pilot in command certification that aircraft weight and center of gravity will be within safe limits at time of takeoff and remain so for the duration of the flight. Additionally, the pilot in command certifies that:

1. A completed DD 365-4 (Weight and Balance Clearance Form F — Transport/Tactical) presented with the flight plan represents the actual aircraft loading.
2. A completed DD 365-4 representing the actual aircraft loading is on file at the aircrafts home base.

4.8.6.4 Records

DD 365-4 originals shall be retained for a period of 3 months.

4.9 CLOSING OF FLIGHT PLAN

It is the responsibility of the pilot in command/formation leader to ensure that the proper agency is notified of flight termination.

4.9.1 Military Installations

At military installations, the pilot either shall verbally confirm the closing of the flight plan with tower or base operations personnel or deliver a copy of the flight plan form to base operations.

4.9.2 Nonmilitary Installations

At nonmilitary installations, the pilot shall close the flight plan with flight service through any means of communication available. Collect, long-distance telephone service may be used if required. When appropriate communication links are known or suspected not to exist at the point of intended landing, a predicted landing time in lieu of the actual landing shall be reported to an appropriate aeronautical facility while airborne.

Note

Cancellation of an instrument flight plan does not meet the requirement for closing out the flight plan. When a landing report has been properly delivered, the flight plan will be considered closed out.

CHAPTER 5

Flight Rules

5.1 GENERAL FLIGHT RULES

5.1.1 Aircraft Lighting

Except when the nature of operations requires different lighting displays (i.e., formation flight, aerial refueling, carrier operations, night vision device (NVD) operations, FCLP pattern, emergency signals, etc.) or the model aircraft configuration precludes compliance, the following rules shall apply.

Note

Flight operations with NVDs are specifically addressed in [Paragraph 5.7](#).

5.1.1.1 Position Lights

Standard position lights shall be displayed during the period 30 minutes before official sunset until 30 minutes after official sunrise or at any time when the prevailing visibility as seen from the cockpit is less than 3 statute miles. During the aforementioned conditions, position lights shall be displayed:

1. Immediately before engine start and anytime the engine(s) is running.
2. When the aircraft is being towed unless the aircraft is otherwise illuminated.
3. When an aircraft is parked and likely to cause a hazard unless the aircraft is otherwise illuminated or marked with obstruction lights.

5.1.1.2 Anti-Collision Lights

Anti-collision lights shall be used immediately before engine start and at all times when the aircraft engine(s) is in operation, except when the use of such lights adversely affects ground operations (i.e., arming and dearming, refueling operations, etc.). They may be turned off during flight through clouds when the rotating light reflects into the cockpit. The use of green anti-collision lights for the specific purpose of identifying airborne tankers is authorized, provided that standard position lights are also displayed.

5.1.1.3 Landing/Taxi Lights

The use of landing/taxi lights is an effective means of illuminating surface hazards during taxi movements at night and alerting all concerned of an aircraft's presence/position in flight. Landing/taxi lights should be utilized for all taxi movements ashore during the hours of darkness unless a taxi signalman is directing the aircraft. Use of those lights during landing approaches (both day and night) within class B, C, or D airspace is recommended when meteorological conditions permit.

Note

- Good judgment should be exercised to avoid blinding pilots of other aircraft that are either airborne or on the ground.
- Use of landing/taxi lights is recommended in areas of high bird concentration.

5.1.1.4 Formation Flight Lighting

To the extent necessary for safety, lighting configuration for formation flights may be varied according to aircraft model and mission requirements. Normally, all aircraft in the flight shall have external lights on and at least one aircraft in the flight shall have lights on bright and the anti-collision light on when aircraft lighting is required.

Note

Aircraft engaged in drug interdiction operations are granted relief from FAR 91.209(a) provided each operation is conducted using a dedicated on-board observer, electronic/radar equipment, or an observer in a spotter aircraft, all of which must be capable of detecting the presence of other aircraft operating in proximity to the interdiction aircraft and alerting the pilot to those aircraft locations. Additionally, interdiction aircraft will be required to operate the aircraft position lights to the maximum extent possible when instructed by ATC and will be authorized to operate without lights only when necessary to avoid detection by illegal elements.

5.1.1.5 Lights Out Operation

Reduced lighting or lights-out operations are authorized when required for effective training, all participating aircraft must be positively de-conflicted from other aircraft, and operations are conducted within an approved Special Use Airspace (SUA) or Air Traffic Control Assigned Airspace (ATCAA). In these conditions, aircraft are granted relief from FAR 91.209(a) and (b) of 14 CFR. All aircraft shall abide by conditions and limitations set forth by FAA Exemption No. 18479 (series) which can be found at <https://www.regulations.gov/>.”

5.1.2 Right-of-Way Between Single and Formations of Aircraft

When a single naval aircraft is converging with an aircraft formation at approximately the same altitude (except head-on, or nearly so), the formation flight has the right of way. In other cases, the formation shall be considered as a single aircraft and the right-of-way rules of FAR 91.113 apply.

5.1.3 Unusual Maneuvers Within Class B, C, or D Airspace

Pilots shall not perform or request clearance to perform unusual maneuvers within class B, C, or D airspace if such maneuvers are not essential to the performance of the flight. ATC personnel are not permitted to approve a pilot's request or ask a pilot to perform such maneuvers. Unusual maneuvers include unnecessary low passes, unscheduled fly-bys, climbs at very steep angles, practice approaches to altitudes below specific minimums (unless a landing is to be made), or any so-called flat hatting wherein a flight is conducted at a low altitude and/or a high rate of speed for thrill purposes.

5.1.4 Aircraft Speed**5.1.4.1 FAR 91**

To reduce midair collision hazards associated with high aircraft speeds at low altitudes, FAR, Part 91.117, imposes a maximum airspeed limitation of 250 knots indicated airspeed (KIAS) on all aircraft operating below 10,000 feet mean sea level (MSL) in airspace where FAR, Part 91, applies and a maximum of 200 KIAS for aircraft operating: (1) at or below 2,500 feet above the surface within 4 nm of the primary airport of a Class C or D airspace area, or (2) in the airspace underlying a Class B airspace area designated for an airport or in a VFR corridor designated through such a Class B airspace area. The regulation grants exception for operations that cannot safely be conducted at airspeeds less than the prescribed maximum airspeed. The FAA has authorized the DoD to exceed 250 KIAS below 10,000 feet MSL for certain military requirements.

Note

Aircraft engaged in drug interdiction operations are exempted from the general speed limit of 250 KIAS below 10,000 feet MSL. However, pilots of aircraft so involved are required to establish and maintain two-way radio communication with the tower prior to entering the class B, C, or D airspace and, unless otherwise authorized by ATC, avoid the traffic patterns for any airport in class B, C, or D airspace.

5.1.4.2 Policy

In accordance with FAA authorization, flight operations below 10,000 feet MSL at an indicated airspeed in excess of 250 knots are authorized under the following conditions:

1. Within restricted areas.
2. Within military operations areas.
3. When operating on DoD/FAA mutually developed and published routes.
4. When operating on DoD-developed and DoD-published VR routes. Such routes shall be established for specific missions and used only by designated units when the provisions of [subparagraphs 1. through 3.](#) above will not accommodate the required national defense mission. Routes shall be developed and published in accordance with DoD/FAA mutually developed criteria.
5. When operating within large-scale exercises or on short-term special missions approved by commanders listed in [Paragraph 5.1.4.3.](#) Such exercises or missions may be authorized provided that coordination is effected to ensure awareness on the part of the nonparticipating flying public.
6. If the airspeed required or recommended in the aircraft NATOPS manual to maintain safe maneuverability is greater than the maximum speed described in FAR, Part 91.117, the aircraft may be operated at that speed. Where the required or recommended speed is given as a range, the lower part of the speed range consistent with good operating practice should be used. The primary purpose of this provision is to accommodate climbs, descents, and terminal area operations and shall not be used to circumvent the provisions of subparagraphs above. Under no circumstance will this safe maneuverability provision be construed as authorization for individual pilots or mission commanders to conduct other flights below 10,000 feet MSL in excess of 250 KIAS.

5.1.4.3 Approval Authority

Approval Authority for [Paragraph 5.1.4.2, subparagraph 5.](#) is as follows: CMC; NAVAIRFOR, COMNAVAIRPAC; COMNAVAIRLANT; MARFORPAC; MARFORCOM; CNATRA; COMNAVAIRFORES; CG FOURTH MAW; or COMNAVAIRSYSCOM, as appropriate. Such operations may be approved providing full consideration is given to mission requirements and the safety of nonparticipating aircraft. The above commanders must review and approve each route established in accordance with [Paragraphs 5.1.4.2, subparagraph 3.](#) and [5.1.4.2, subparagraph 4.](#) within respective areas of responsibility. Coordination will be effected with the appropriate NAVREP at the FAA Regional Office to ensure that notice to the aviation public is provided.

Note

When an altitude below 10,000 feet MSL is assigned to aircraft requiring a higher operating speed for safe maneuverability, as indicated in the NATOPS manual for that aircraft, the pilot shall notify the controlling ATC facility of that higher minimum speed.

5.1.5 Special Use Airspace

When operating within Special Use Airspace (SUA), ATC Assigned Airspace (ATCAA), or altitude reservations (ALTRVs), flights shall be conducted under the prescribed operational area procedures appropriate to the airspace area and mission/operation. Procedures and separation standards may be contained in a letter of agreement between the FAA and the military, or other applicable military or FAA directives.

CNAF M-3710.7

Military Assumes Responsibility for Separation of Aircraft (MARSA) may be applied between military aircraft as specified by letter of agreement or other appropriate military and FAA documents. However, MARSA may not be invoked by individual aircraft or between flights of aircraft.

Note

- It is of the utmost importance that aircraft operating independently or under the control of a ground, ship, or airborne controller remain within the specified vertical and horizontal limits of assigned airspace. Remaining within assigned airspace can only be achieved by maintaining a total awareness of details depicted in current charts, publications, and military directives, coupled with a continual assessment of the accuracy of the controlling agency's radar. It may be required to operate with self-imposed vertical and horizontal buffers to remain within assigned airspace.
- When operating in designated SUA, aircrews should be aware that civilian aircraft may not honor the existence of such areas, nor monitor radio frequencies to receive appropriate warning/advisories.

5.1.6 Military Training Routes (MTRs)

5.1.6.1 General

MTRs have been developed to accommodate high-speed, low-level tactical training in excess of 250 KIAS. Operations shall be conducted at the minimum airspeed compatible with mission requirements. General information concerning MTRs is contained in FAAO JO 7610.4, Special Operations. Specific route information is contained in FLIP AP/1B (Military Training Routes). Safety of flight is of prime consideration during all phases of low-altitude training.

MTRs that include one or more segments above 1,500 feet AGL are identified by a three-digit identifier; those with no segment above 1,500 feet AGL are identified by four digits.

Flight operations conducted along these routes or segments of these routes shall conform to the direction of traffic flow indicated in the route description.

5.1.6.2 Preflight Planning

1. Low-altitude, high-speed navigation training can be safely conducted by the execution of carefully planned flights. It is the responsibility of each crewmember to maintain professionalism in low-level operations and exercise a thorough knowledge of MTRs and operating constraints to ensure safe and meaningful training.
2. Low-level flying requires extensive preflight planning. A thorough review of FLIP AP/1B, temporary route advisories, Chart Updating Manual (CHUM), and Chart Updating Manual Supplement (CHUMSUPP) is essential to ensure flight safety and maximum training from each sortie. Check with the scheduling agency for unpublished restrictions and low-altitude charts for airspace restrictions.
3. A 1:500,000 scale chart, current tactical pilotage chart (TPC) or sectional aeronautical chart, should be used for flying low-level navigation.
4. Review the route corridor to identify all significant obstacles and high terrain. Note the avoidance criteria for airfields and the need to remain clear of published noise-sensitive areas.
5. Compute a route abort altitude. This altitude shall provide obstruction clearance. Aircrew must be aware of route structure.

5.1.6.3 Operating Procedures

5.1.6.3.1 General

1. Unless otherwise delineated in a MTRs special operating procedures, aircrew shall avoid charted, uncontrolled airports by 3 nm or 1,500 feet.

2. Aircrew shall avoid Class B, C and D airspace.
3. Aircrew shall minimize disturbance to persons/property on the ground.
4. All route entries shall be accomplished at published entry/alternate entry points only.
5. Adherence to scheduled entry times provides for safe separation from other aircraft on the route or aircraft on conflicting/crossing routes.
6. Pilots shall be responsible for remaining within the confines of the published route width and altitude. If in an emergency it should become necessary to exceed the route parameters, the 250-knot speed restriction of FAR 91.117 applies.
7. MTR Segment Transition.
 - a. Pilots transitioning from one MTR segment to another segment with a lower minimum altitude must cross the fix defining the next leg no lower than the preceding segments minimum altitude. Example: "05 AGL B 15 AGL to "E" 02 AGL B 15 AGL to..." indicates "E" must be crossed no lower than 500 feet AGL.
 - b. Pilots transitioning from one MTR segment to another segment with a higher minimum altitude must cross the fix defining the next leg no lower than the subsequent segments minimum altitude. Example: "02 AGL B 15 AGL to "B" 10 AGL B 15 AGL to ..." indicates "B" must be crossed no lower than 1,000 feet AGL.
 - c. Pilots transitioning from one MTR segment to another segment with a lower maximum altitude must cross the fix defining the next leg no higher than the subsequent segments maximum altitude. Example: "10 AGL B 60 MSL to "D" 02 AGL B 15 AGL to ..." indicates "D" must be crossed no higher than 1,500 feet AGL.
 - d. Pilots transitioning from one MTR segment to another segment with a higher maximum altitude must cross the fix defining the next leg no higher than the preceding segments maximum altitude. Example: "10 AGL B 40MSL "B" 02 AGL B 70 MSL to ..." indicates "B" must be crossed no higher than 4,000 feet MSL.
8. Pilots shall be responsible for adhering to the provisions of FAR 91.119 (Minimum Safe Altitude, General).
9. All route exits shall be accomplished at published exit/alternate exit points only.
10. When exiting an MTR below 10,000 feet MSL, the flight shall comply with FAR 91.117 (Aircraft Speed).

5.1.6.3.2 IR Procedures

1. All IFR Military Training Route (IR) operations shall be conducted on IFR flight plans.
2. Pilots shall be responsible for obtaining a specific ATC entry clearance from the appropriate ATC facility prior to entering an IR route.
3. Contour flight on IRs is outlined in FLIP AP/1B. Refer to Terrain Following Operation entry for applicable IR routes.
4. Pilots shall be responsible for obtaining an IFR ATC exit clearance prior to exiting an IR route.

5.1.6.3.3 VR Procedures

1. Flight plan requirements for VFR Military Training Route (VR) usage:
 - a. Pilots departing on IFR clearances to fly VRs are required to file to the fix/radial/distance of their route entry/alternate entry point.
 - b. Pilots transitioning to IFR upon exiting a VR are required to have on file a previously filed IFR flight plan from the appropriate fix/radial/distance of their exit point.
2. Operations on VRs shall be conducted only when the weather is at or above VFR minimums except that:

CNAF M-3710.7

- a. Flight visibility shall be 5 miles or more and
 - b. Flights shall not be conducted below a ceiling of less than 3,000 feet AGL.
3. For VR routes, the primary method of deconfliction is the schedule. Do not fly the VR without properly scheduling through the scheduling activity. When entering the VR, broadcast on the MTR common advisory frequency 255.4 MHz (unless another advisory frequency is published in the FLIP AP/1B) the flight call sign, VR (number), entry time, number/type aircraft, exit fix and estimated exit time. Monitor the advisory frequency while on the VR to receive air-to-air communications, facilitating awareness of other tactical aircraft on the route or crossing route(s).
 4. Pilots of aircraft operating on a VR route will adjust their transponder to code 4000 unless otherwise assigned by ATC.

5.1.6.4 Communication Failure

1. If the failure occurs in VMC, or if VMC are encountered after the failure, each pilot shall continue the flight VFR and land as soon as practicable. Refer to FAR 91.185b and DoD FLIP Flight Information Handbook.
2. If the failure occurs in IMC or if [subparagraph 1.](#) above cannot be complied with, each pilot shall:
 - a. Maintain to the exit/alternate exit point the higher of the following:
 - (1) The minimum IFR altitude for each of the remaining route segment(s).
 - (2) The highest altitude assigned in the last ATC clearance.
 - b. Depart the exit/alternate exit point at the altitude determined in [subparagraph a.](#) above, then climb/descend to the altitude filed in the flight plan for the remainder of the flight.
3. Adjust transponder to reply on Mode 3/A Code 7600.

5.1.6.5 Emergency

If aircrews are unable, during an emergency, to continue on a VR or IR at the published altitude(s), they shall immediately squawk 7700 and contact the appropriate ATC facility.

Note

Climbing above the MTR structure may place aircraft in close proximity to airways traffic; caution is advised.

5.1.7 Flight Over the High Seas

International law recognizes the right of aircraft of all nations to fly in airspace over the high seas. By convention, procedures for international flight are prescribed and certain nations have agreed to provide air traffic services in designated airspace over the high seas. Naval aircraft should operate in accordance with the procedures presented in DODI 4540.01 (Use of International Airspace by U.S. Military Aircraft and for Missile and Projectile Firings) and DoD FLIP General Planning, which address use of airspace by U.S. military aircraft and define due regard operations for military aircraft.

During flight operations at sea, tower or radar control by a ship, Fleet Area Control and Surveillance Facility (FACSFAC), or other suitable agency, shall be used to the maximum extent practicable. The degree of control shall be appropriate to the nature of the operation, classification of airspace, number of aircraft involved, and the requirement to coordinate aircraft ingress and egress to/from the operating area.

When operating offshore within domestic ARTCC boundaries, airspace of the Hawaiian Islands, and the San Juan Domestic Control Area, Navy policy is to use domestic air traffic control services and procedures to the maximum extent practicable consistent with mission requirements.

Note

When radar control of fixed-wing aircraft is being provided by a Navy ship or shore station in airspace managed by a FACSAC, continuous two-way communication is required between that ship or shore station and the FACSAC. Also the FACSAC must maintain two-way communication with the appropriate FAA facility as required.

5.1.8 Supersonic Flight Operations**5.1.8.1 General**

COs assigned aircraft capable of supersonic flight shall ensure that aircrews are thoroughly familiar with the shock wave phenomenon peculiar to supersonic flight. Serious damage, annoyance, and mental stress have resulted from sonic booms. It is incumbent on every pilot flying aircraft capable of generating sonic booms to reduce such disturbances and damage to the absolute minimum dictated by operational/training requirements.

5.1.8.2 Policy

Supersonic flight operations shall be strictly controlled and supervised by operational commanders. Supersonic flight over land or within 30 miles offshore shall be conducted in specifically designated areas. Such areas must be chosen to ensure minimum possibility of disturbance. As a general policy, sonic booms shall not be intentionally generated below 30,000 feet of altitude unless over water and more than 30 miles from inhabited land areas or islands. Deviations from the foregoing general policy may be authorized only under one of the following:

1. Tactical missions that require supersonic speeds.
2. Phases of formal training syllabus flights requiring supersonic speeds.
3. Research, test, and operational suitability test flights requiring supersonic speeds.
4. When specifically authorized by CNO for flight demonstration purposes.

5.1.8.3 Reports, Inquiries, and Investigations

The Department of the Navy must accept responsibility for restitution and payment of just claims for damage resulting from sonic booms determined to have been caused by naval aircraft. To assist in determining validity of claims, all supersonic flights conducted over the continental United States or within 50 miles offshore shall be logged as to time, date, location, speed, and altitude of occurrence and retained at the unit level for 24 months.

Section 0910f of the Manual of the Judge Advocate General (JAGINST 5800.7) provides information and instructions concerning investigations into sonic boom complaints and alleged damage claims.

5.1.9 Aerobatic Flight**5.1.9.1 General**

CNO does not desire to discourage or curtail aerobatic training; however, it is of the utmost importance that aerobatic training be well regulated as to time, place, and conditions that enhance safety of flight.

5.1.9.2 Aerobatic Flight Precautions

Aerobatic flight maneuvers, as defined in the Glossary, shall not be performed:

1. If prohibited by the NATOPS manual or other directives applicable to a particular model aircraft.
2. Over any congested area of a city, town, or settlement;
3. Over an open air assembly of persons;
4. Within the lateral boundaries of the surface areas of Class B, Class C, Class D, or Class E airspace designated for an airport;

CNAF M-3710.7

5. Within 4 nautical miles of the centerline of any Federal airway;
6. Below an altitude of 1,500 feet above the surface; or
7. When flight visibility is less than 3 statute miles.

5.1.9.3 Designated Aerobatics Areas

Appropriate commanders shall establish and designate areas in which aerobatics may be performed in compliance with the above restrictions and, under FAR, Part 91.303, in airspace where FARs apply. Pilots are encouraged to conduct aerobatic flight within the limits of designated aerobatic areas whenever the assigned mission permits.

5.1.10 Simulated Air Combat Maneuvering (ACM) Training Rules

5.1.10.1 General

The nature of ACM demands that pilots be thoroughly familiar with the performance capabilities and limitations of the aircraft being flown. Rapid changes in heading, altitude, and the wide range of velocities generated, greatly increase the possibility of collisions between aircraft, departure from controlled flight, and or flight into terrain. ACM must be closely supervised with training rules that will provide a high degree of safety. Given the dynamic nature of ACM, these TRs cannot predict every possible airborne scenario, and do not relieve aircrew of the responsibility to apply sound judgment and the principles of Operational Risk Management (ORM). Waivers to ACM Training Rule requirements shall be submitted to Commander, Naval Air Forces (CNAF).

1. ACM is defined as the following:
 - a. Aggressive three-dimensional maneuvering (beyond 180 degrees of turn) between two or more aircraft simulating offensive or defensive aerial combat where the potential for a role reversal exists.

Note

- Aerobatic maneuvers in accordance with NATOPS manuals on scheduled training flights approved by competent authority are not considered to be ACM. However, single aircraft practicing ACM maneuvers shall comply with the appropriate portions of the training rules (decks, cloud clearance, area, g warmup, etc.).
- Air intercepts, performed in accordance with NATOPS manuals or as prescribed by cognizant aviation TYCOMs are not considered to be ACM. These intercepts shall result in no more than 180° of turn by any aircraft postmerge and shall be terminated prior to any potential role reversal; however, applicable portions of the training rules (intercept/element deconfliction) shall be briefed.
- The following maneuvers are considered to be ACM. This list should not be considered to be all inclusive.
 1. Neutral starts (to include butterfly starts).
 2. Offensive/defensive perches.
 3. Scissors maneuvers (roller, flat, looping).
 4. Gun defenses.
 5. Missile defenses to full blown engagements.
- The following maneuvers are not considered to be ACM. However, ACM flight leads should use prudent headwork to ensure that adequate separation from clouds can be maintained during any three-dimensional maneuvering:
 1. Snapshot drill (guns weave, weapons weave).
 2. Tail chase (heat-to-guns drill).
 3. Forward quarter missile defenses that are terminated at the merge.

2. Qualification & Currency. Squadron commanders shall ensure that all participants are qualified and current in order to participate in ACM. ACM training flights shall be conducted under a formal training syllabus under direct supervision of mature, experienced flight leaders and only after all participants have been thoroughly briefed on the conduct of the flight.
 - a. ACM qualification ([Figure 5-1](#)).
 - (1) Initial ACM qualification in T/M/S may only be achieved by completing an FRS (Fleet Replacement Squadron) approved Basic Fighter Maneuvers (BFM) syllabus. All CAT I/II/III/FRS students receive this training. Transitioning CAT IV students shall complete an advanced handling characteristics flight as part of their syllabus at the FRS under the instruction of a qualified BFM instructor aircrew. Pilots may complete the FRS approved BFM syllabus, the TOPGUN Strike Fighter Tactics Instructor (SFTI) and BFM Instructor Under Training (IUT) syllabi, and the TOPGUN approved Adversary BFM syllabus prior to reaching the applicable flight hour requirements for ACM Qualification as delineated in [Figure 5-1](#).
 - (2) Out of control flight training. Pilots and Naval Flight Officers (NFOs) flying Strike Fighter Class aircraft shall complete out of control flight (OCF)/spin training prior to initial ACM Qualification.
 - (3) Centrifuge-based Flight Environment Training (CFET) is required initial training for Strike Fighter Class aircrew prior to reporting for FRS training. Further guidance is located in Naval Aviation Survival Training Program, Specialized Training Requirements section.
 - (4) Training Command (TRACOM) Instructor Pilot ACM qualification is subject to the CNATRA Flight Training Instruction (FTI).
3. Pilots of naval aircraft shall not make simulated attacks on any aircraft that has troops or passengers embarked except as may be authorized by Marine Air Ground Task Force Commanders or Navy equivalent for exercises where coordinated and scheduled simulated attacks against military troop transport aircraft are desired for training purposes.
4. Squadron commanders shall ensure all participants are qualified and current in accordance with applicable directives in order to participate in ACM.
 - a. Strike/Fighter Experience applies to all aircraft within the Strike/Fighter Class (F/A-18, EA-18, F-5, F-16, AV-8, and F-35).
 - b. Instructor pilots in Trainer Class aircraft (T-45, T-2) fall under the same Strike/Fighter flight experience requirements in [Figure 5-2](#).
 - c. Type/Class/Model/Series (T/C/M/S) Definition.
 - (1) Type — Broadest classification (e.g. fixed wing or rotary wing).
 - (2) Class — Classification of general mission purpose of an aircraft (e.g. strike fighter, trainer, helicopter). Strike fighter class aircraft include F/A-18, EA-18, F-5, F-16, AV-8, and F-35.
 - (3) Model — Basic mission symbol and design of an aircraft (e.g. F/A-18, H-60).
 - (4) Series — Specific version of an aircraft model (e.g. F/A-18C, F/A-18F, H-60R).
 - d. Dynamic maneuvering is defined as three dimensional flight at or near the aircraft's aerodynamic/operating limits, or the limits as defined by NATOPS. Examples of dynamic maneuvering include tail-chase, dive weapons delivery, LATT, and 1V0 high-performance flight.
5. Prior to commencing ACM maneuvering, fixed-wing aircrews shall perform a “g” awareness maneuver. This maneuver shall consist of a total of 180° of turn and should be used to operationally check g-suits and to practice straining maneuvers up to an amount of g's approaching the maximum amount anticipated on that particular flight.
6. If an aircrew experiences g loss of consciousness (GLOC) during any portion of the flight, the flight shall immediately terminate and that aircraft shall return to base.

CNAF M-3710.7

7. Departure/spin recovery procedures shall be covered for all ACM participants during the preflight brief.
8. A face-to-face brief shall be conducted by collocated ACM participants with a minimum one individual from each participating unit. For units not collocated, a telephone brief shall be conducted to satisfy face-to-face briefing requirements. A pre-exercise brief, memorandum of agreement, e-mail, or fax may be used to complement or finalize prior face-to-face or telephone coordination between participating units. Hard and/or soft documents such as these are encouraged to add depth to training rules, special instructions, and conduct of flight coordination; however, they shall not replace the requirements mandated in a face-to-face or telephone brief. The following guidelines for telephone briefs and debriefs apply:
 - a. A flight representative shall conduct the coordination/special instructions brief.
 - b. All applicable training rules shall be covered during the telephone brief and included in the pre-exercise brief, memorandum of agreement, email, or fax.
 - c. The flight representative receiving the brief for composite or joint force training will brief all other participating aircrews prior to their flights.
 - d. All aircrew shall be thoroughly familiar with the ACM Training Rules contained in this instruction. During the flight brief, ACM Training Rules ([Appendix M](#)) may be briefed as “Training Rules in accordance with 3710” and shall cover, at a minimum, the mandatory briefing items denoted by asterisks. Non-mandatory briefing items do not need to be read verbatim, however, training rules specific to the mission shall be discussed in order to reduce the risk of a mishap.

Figure 5-1. ACM Qualification

BACKGROUND	FLIGHT EXPERIENCE	ADDITIONAL REQUIREMENTS
Pilot with Strike/Fighter Experience	25 hours in Type/Model and meet initial ACM Qualification requirements in Paragraph 5.1.10.1 subparagraph 2.a.(1) .	Aircrew shall be NATOPS qualified in T/M/S Aircrew shall receive OCF training Pilot time must be FPT Note: CNATRA approved ACM Instructor Training syllabus replaces FRS syllabus for T-45 Instructor Pilots
Pilot without Strike/Fighter Experience	100 hrs in Type/Model and meet initial ACM Qualification requirements in Paragraph 5.1.10.1 subparagraph 2.a.(1) .	
NFO	Meet initial ACM Qualification requirements in Paragraph 5.1.10.1 subparagraph 2.a.(1) .	

Figure 5-2. ACM Currency

Flight Experience	Flight Currency	Additional Requirements
Pilot with < 750 hours in T/C	1 flight within the previous 6 days. 2 flights within the previous 14 days.	1 flight shall be in a dynamic maneuvering hop in the T/M aircraft ACM will be conducted. Non-tactical aircraft do not satisfy flight requirements. Flight must occur on or before 6th, 14th, 30th day (If a flight is flown on a Friday, the following flight must be flown on or before the following Thursday in order to satisfy 1 in 6 requirement.)
Pilot with > 750 hours in T/C	1 flight within the previous 14 days. 2 flights within the previous 30 days.	
NFO Hours Independent		

5.1.10.2 ACM Training

1. The nature of ACM demands that pilots be thoroughly familiar with the performance capabilities and limitations of the aircraft being flown. Rapid changes in heading, altitude, and the wide range of velocities generated greatly increase the possibility of collisions between aircraft. ACM must be closely supervised and training rules (TR) (formerly rules of engagement) applied that will provide a high degree of safety for all concerned.
2. Such training shall be conducted in airspace as nearly free from other aircraft as practicable. It shall be conducted only in designated warning/restricted areas, in controlled airspace as assigned by ATC, or in other designated areas where safe separation from non-participants can be maintained. As a minimum, designated ACM areas shall be clear of Federal airways, Class B, C, or D airspace, and other areas of traffic congestion unless established under a letter of agreement with the FAA or host nation. Aviation TYCOMs or officers in tactical command (OTCs), when deployed, shall designate ACM training areas and establish procedures to ensure that entering flights are aware of the existence of other scheduled flights operating there.
3. The ACM training rules set forth here are minimum requirements. Supplementary directives shall be issued as required by responsible commanders delineating syllabus contents, proficiency levels required, communication procedures, safety precautions, and other applicable areas of concern.

5.1.10.3 ACM Training Rules

The following rules are intended to provide guidance for conducting effective mishap-free ACM training. ACM training rules shall be thoroughly reviewed annually and documented in the NATOPS training jacket. The standardized ACM Training Rules Briefing Guide is listed in [Appendix M](#).

1. Always assume the other aircraft does not see you.
2. Aircraft shall maneuver to maintain at least 500 feet of separation from all other aircraft during engagements, including aircraft within the same division/section.
3. During a forward quarter or head-on pass (track crossing angle greater than 135°), both aircraft shall maintain the established trend. Where no established trend exists, each aircraft shall give way to the right to create a left-to-left pass. When operating on the same radio frequency, aircrew should broadcast their own intentions if the direction of pass is in doubt. When operating on dual frequencies, exaggerate aircraft movements to ensure that the other aircraft recognizes your intentions.
4. The “up-sun” aircraft has responsibility for maintaining flight separation. If the up-sun aircraft loses sight, it shall broadcast lost sight and maintain a predictable flight path. If the “down-sun” aircraft loses sight, it shall break off the attack, lag the up-sun aircraft, and broadcast that it has lost sight. If the up-sun aircraft still has sight of the down-sun aircraft and safe separation can be maintained, the up-sun aircraft shall immediately broadcast “continue,” otherwise a knock-it-off shall be initiated.
5. An aircraft pursuing another aircraft in a descent shall monitor the defensive aircraft's altitude/attitude and break off the attack with a turn away prior to either aircraft descending through the applicable altitude deck based on airspeed and angle of attack.
6. Nose-high aircraft on converging flightpaths shall deconflict with the higher nose attitude aircraft going high unless unable because of energy state or aircraft performance. The low or nose-low aircraft has the responsibility for maintaining flight separation.
7. A lead turn conducted while on converging flightpaths that causes the attacking aircraft to lose sight is prohibited.
8. With an offensive aircraft approaching gun parameters, defensive aircraft shall not dispense flares as part of a gun defense or as a distraction.
9. Fixed wing versus fixed-wing training rules:

CNAF M-3710.7

- a. Missile attacks — All fixed-wing, forward-quarter missile attack acquisition (attempts to obtain AIM-9 tone rise or self-track from boresight, or attempts to obtain a radar lock from boresight) within 20° of the targets nose shall be broken off at a minimum of 9,000 feet. Inside 9,000 feet, the aircrew's undivided attention shall first be devoted to maintaining flight separation. Inside 9,000 feet, missile attacks may be prosecuted down to missile minimum range provided that flight separation has already been established and maintained.
- b. Gun attacks — Fixed-wing gun attacks shall be broken off at a minimum of 1,000 feet so as not to pass any closer than 500 feet to the defensive aircraft. Gun attacks within 45 degrees of target's nose are prohibited.
- c. Intercept deconfliction.
 - (1) Aircrews conducting ACM or intercepts shall establish assigned blocks by 10 nm of the merge without situational awareness (SA) of the aircraft/formation being intercepted. This SA may be obtained from onboard sensors, communication with element members/C2, or tally (sight of adversary/visual (sight of wingmen)).
 - (2) Altitude blocks shall normally be MSL-definable in 4,000 foot intervals (e.g., Blue Air 5 to 9's, Red Air 0 to 4's) for all aircraft not equipped with radar altimeters. In mountainous terrain for Blue Air aircraft with training objectives that require operation in a low altitude arena, a 3,000 foot AGL definable block (i.e., Blue Air 1,000 to 4,000 feet AGL) for radar altimeter equipped aircraft is permissible. For situations where weather is less than 10,000 feet of clear air, Red Air will own the top 2,000 feet of the defined clear airspace, and Blue Air will own all clear airspace below the Red Air block (e.g., Blue Air 0 to 5, Red Air 6 to 8). In all cases where significant terrain, low level ingress routes, or nonmaneuvering intercepts (e.g., 1V1 all-weather intercepts) are involved, any adjustments to Red and Blue air altitude block deconfliction shall be thoroughly briefed.
- d. Element deconfliction.
 - (1) Blind aircraft within an element shall immediately transmit “blind,” and wingman shall respond visual with the aircraft's position. If the wingman is simultaneously blind, the wingman shall transmit “blind” with their altitude and maintain a level flight plan. It is the responsibility of the first aircraft in the element that calls “blind” to establish altitude deconfliction. If communications are prohibited, each aircraft that remains blind shall maintain a level and predictable flight path, and their priority shall be to clear their flight path.
- e. Engagement deconfliction.
 - (1) No more than eight aircraft may participate in ACM in the same visual engagement. A visual engagement is defined as merges occurring within 10 nm of each other.
 - (2) Blue and Red Air roles shall be clearly defined for each prior to fights on.
 - (3) Blue Air shall not turn at an engagement unless they have sufficient SA to clear their flight path. This SA may be obtained from onboard sensors, communication with element members/C2, or tally/visual. Without a tally/visual on all fighters and bandits, aircraft shall conduct belly checks at a minimum of every 90° of turn.
 - (4) Red Air shall have a more restrictive mindset to provide predictability than required of Blue Air. If tally not obtained on all fighters, Red Air shall maintain a predictable flight path in their block until positive SA ensures that they are clear of the merge/engagement. This SA may be obtained from onboard sensors, communication with element members/C2, and or tally/visual.

10. Fixed wing versus helicopter/tiltrotor training rules:

- a. All aircrew shall have completed initial low-altitude flight training as outlined by appropriate COMNAVAIRFOR, COMNAVAIRFORES or CMC directives.
- b. Supersonic flight is not authorized.

- c. If aircraft lose sight, they shall disengage. Fixed-wing aircraft will climb to at least 3,000 feet AGL. Helicopters shall climb to at least 300 feet AGL.
 - d. Fixed-wing gun attacks shall be broken off at a minimum of 1,000 feet.
11. Helicopter versus helicopter training rules:
- a. All aircrew shall have completed initial low-altitude flight training as outlined by appropriate COMNAVAIRFOR, COMNAVAIRFORES or CMC directives.
 - b. During prebriefed tail chase maneuvers, aircraft shall maintain a minimum of 200 feet of separation.
 - c. An engagement shall be terminated if all aircrews unintentionally lose sight of each other. The engagement shall not be resumed until all participants have reacquired each other.
 - d. Close range helicopter engagements shall involve no more than two 360° turns.
 - e. Pilots shall not attempt to counter an adversary's altitude advantage with erratic or excessive climbing maneuvers.
 - f. Astern gun attacks shall be broken off at a minimum of 500 feet.

5.1.10.4 ACM Communication Requirements

To facilitate positive control of aircraft and provide adequate safety measures, the following shall apply for the conduct of flights involving ACM training:

1. All aircraft participating in ACM shall have two-way radio communication. All multiplace aircraft shall have an operable intercommunication system (ICS).
2. Guard frequency shall be monitored throughout all engagements.
3. A single aircraft engaging another single aircraft shall monitor a common radio frequency.
4. Multiple flights:
 - a. Flights of two or more aircraft engaging another flight of one or more aircraft may operate on assigned separate frequencies using either of the following control measures: each flight is under positive radar control of separate controllers and a senior air director (SAD) in the supervisory role is monitoring both frequencies, or each flight is under the positive control of separate range training officers (RTOs) or a tactical aircrew combat training system (TACTS) instrumented range. When a potentially dangerous situation develops, a call to "Knock it off"/terminate shall be relayed by the SAD or RTO on both frequencies. Aviation TYCOMs may waive this restriction as requirements dictate.
 - b. Dual-radio-equipped aircraft may elect to use a discrete intraflight frequency without separate GCI/TACTS control provided one radio is used to monitor the opposing section frequency.
5. Any no-radio (NORDO) aircraft shall rock its wings and assume 1g flight to signal loss of communication. If an aircraft rocks its wings or assumes a wings-level 1g condition during an encounter, that engagement shall be terminated.
6. If any aircrew observes an unsafe or potentially dangerous situation developing, the aircrew shall announce by transmitting, "Knock it off/terminate," and shall maneuver appropriately to terminate the engagement.

5.1.10.5 ACM Weather Criteria

All ACM engagements shall be conducted in daylight VMC (minimum 30 minutes after official sunrise and 30 minutes prior to official sunset) using local altimeter and the following criteria:

1. ACM shall not be conducted into or through an overcast or undercast.
2. The top of the undercast or broken cloud layer is the simulated ground level.
3. Fixed wing versus fixed wing ACM shall be conducted with:

CNAF M-3710.7

- a. At least 2,000 feet vertical and 1-nm horizontal separation from clouds at all times.
 - b. Five miles minimum visibility with a defined horizon.
4. Fixed wing versus helicopter/tiltrotor ACM shall be conducted with:
- a. A minimum ceiling of 3,000 feet above ground level (AGL).
 - b. Five miles minimum visibility with a defined horizon.
5. Helicopter versus helicopter ACM shall be conducted with:
- a. A minimum ceiling of 1,000 feet AGL.
 - b. Three miles minimum visibility with defined horizon.

This does not preclude non-ACM intercepts conducted under IMC training rules approved by NAWDC, Type Wing, Air Wing, or Marine Aircraft Group commanders. Air intercepts, performed in accordance with NATOPS manuals or as prescribed by cognizant aviation TYCOMs are not considered to be ACM. These intercepts shall result in no more than 180° of turn by any aircraft postmerge and shall be terminated prior to any potential role reversal; however, applicable portions of the training rules (intercept/element deconfliction) shall be briefed.

5.1.10.6 Fixed Wing Versus Fixed-Wing ACM Altitude Restrictions

To ensure standardization and provide an adequate margin of safety, the following restrictions shall apply:

1. No sustained maneuvering shall occur below a 5,000-foot hard deck above the terrain or undercast (e.g., over 4,000-foot terrain or a 4,000-foot undercast, the hard deck shall be adjusted to 9,000 feet). If the terrain or undercast is not of uniform height in the area of engagement, the deck shall be adjusted to reflect the highest terrain/undercast. Aircrew shall brief that visual altitude and attitude cues are not accurate under these circumstances. Aircrew shall also brief to deck and terrain management awareness, system cues, and techniques that are tailored to the area of engagement (e.g., RADALT settings, “watch the deck” calls, valley orientation).
2. High angle of attack (AOA)/slow-speed maneuvering shall be terminated passing through 10,000 feet AGL (soft deck). If the 5,000-foot AGL hard deck has been raised because of an undercast, high AOA/slow speed shall be raised and maneuvering shall be terminated at the appropriate altitude AGL (i.e., with a 4,000-foot AGL undercast, the hard deck shall be 9,000 feet AGL and the soft deck shall be 14,000 feet AGL). An aggressive, nose low, out of plane gun defense maneuver to defeat an attackers gun solution shall not be executed below the soft deck.
3. Offensive and defensive maneuvering below the 5,000-foot deck shall be conducted in accordance with the following:
 - a. For aircrews not low-altitude-flight-training qualified and current in accordance with appropriate service directives, the minimum altitude shall be 500 feet AGL.
 - b. For aircrews low-altitude-flight-training qualified and current in accordance with appropriate service directives, the minimum altitude shall be 200 feet AGL.
 - c. Functional wing/operational/group commanders may request waivers from such minimum altitudes from COMNAVAIRLANT, COMNAVAIRPAC, COMNAVAIRFORES, or CMC as appropriate.
 - d. When an offensive/defensive relationship is established, the defensive aircraft shall react with a wing rock, an extension or separation maneuver, or the continuation of a level or climbing defensive turn of not more than 180° as measured from the heading at the beginning of the turn. The engagement shall also be terminated if a role reversal occurs.
 - e. When during the initial maneuvering neither aircraft can be assessed as defensive, the engagement shall be terminated when any aircraft has turned a maximum of 180° as measured from the heading at the beginning of the maneuvering.

- f. If the attacking aircraft's initial conversion turn is undetected, the engagement needs not be terminated until the defensive aircraft reacts and turns a maximum of 180°.
- g. If a low-flying, fixed-wing aircraft wishes to maneuver in excess of 180° of turn, the initial turn shall be made so as to carry the pilot above the 5,000-foot deck. Once above 5,000 feet, ACM may be continued only if each aircraft meets the appropriate airspeed and AOA requirement for ACM below the soft deck. Any aircraft not meeting those requirements shall terminate ACM.

WARNING

The flightpath behind a low-flying aircraft, co-altitude, should be avoided because of the effects of wake turbulence, jet or propeller wash, and the possibility of ordnance release. In addition, extended maneuvering precipitated by defensive reactions to repeated attacks can result in a depleted energy state such that continued maneuvers are unsafe because of ground proximity.

4. The Floor is an altitude (MSL or AGL as appropriate) in which flight below is prohibited. A floor may be briefed if a no-lower-than altitude is desired for training, range restrictions, etc., above minimum NATOPS altitude restrictions.

5.1.10.7 Fixed Wing Versus Helicopter/Tiltrotor and Helicopter Versus Helicopter ACM Altitude Restrictions

1. No fixed-wing (F/W) high AOA/slow-speed maneuvering below 10,000 feet AGL is authorized.
2. The following are the minimum altitudes for aircraft by type engagement:
 - a. Helicopter versus helicopter — 100 feet AGL both aircraft.
 - b. Helicopter versus F/W (low attack angle 0° to 10°) — 100 feet AGL, 500 feet AGL respectively.
 - c. Helicopter versus F/W (high attack angle greater than 10°) — 100 feet AGL, 1,000 feet AGL respectively.
 - d. Tiltrotor versus F/W (low attack angle 0-10) — 200 feet AGL, 500 feet AGL respectively.
 - e. Tiltrotor versus F/W (high attack angle greater than 10) — 200 feet AGL, 1000 feet AGL respectively.

5.1.10.8 Fixed Wing Versus Fixed-Wing ACM and Ground Attack Interface

The following additional ACM related rules apply to multimission and composite force training where ground attack and escort aircraft may come under attack:

1. Aggressor aircrew shall be briefed on target location for any ordnance drops. The briefing shall include planned weapon delivery maneuvers and type ordnance, as appropriate. Aggressors shall break off an attack on strike aircraft below 10,000 feet AGL at a minimum of 3 nm prior to the designated target area. In no case shall strike aircraft be attacked while executing an ordnance delivery maneuver.
2. Aircraft carrying live or heavy inert external A/G ordnance (defined as 500 pounds or greater) shall not engage in ACM. A wing rock or a defensive hard turn, not to exceed 180°, may be made to acknowledge an attack. Aircraft carrying inert ordnance (including captive carry air-to-ground missiles) may engage in ACM at the discretion of the squadron CO based on weight/drag and specific aircraft performance.
3. Aggressor aircraft shall discontinue attack on a strike/escort aircraft following the strike/escort aircrafts wing rock or defensive turn (maximum of 180°).

5.1.10.9 Termination of ACM Engagements

1. ACM shall cease when:
 - a. Any training rule is violated.
 - b. “Knock it off/terminate” is called by any aircrew or controller.
 - c. Any dangerous situation develops or there is a loss of situational awareness.
 - d. Any out-of-control flight situation develops.
 - e. Radio failure by any aircraft.
 - f. Bingo fuel state is reached.
 - g. Training objectives have been accomplished.
 - h. An unbriefed aircraft enters the engagement area and is detrimental to flight safety.
 - i. When an aircraft rocks its wings (fixed or rotary).
2. At the completion of engagement, aircraft shall maneuver appropriately to deconflict with all other aircraft and should extend beyond visual range prior to any reattack, consistent with the briefed training objectives. The intent is to prevent visual repositioning and repeated attacks against defending aircraft that are pursuing a different mission.
3. All ACM participants have responsibility for termination of ACM training engagements when a dangerous or rapidly deteriorating situation is recognized.
4. “Knock it off” means that all participating elements in an exercise shall cease maneuvering. Terminate applies to individual elements or engagements within an overall exercise and means the individual units involved in a localized engagement shall cease maneuvering for that particular engagement without knocking off the entire exercise. After terminating a localized engagement, the affected aircraft are free to pursue additional missions within the exercise in accordance with prebriefed instructions. Knock it off calls shall be acknowledged via UHF radio calls by all participating pilots using individual call signs.

WARNING

High midair collision potential exists following “Knock it off” calls.

5.1.10.10 ACM Special Considerations

1. Night flying — Additional restrictions occur when operating in the night environment.
 - a. Aircraft shall not execute any engaged maneuvering between 30 minutes prior to official sunset and 30 minutes after official sunrise (i.e. ACM is not authorized at night).
 - b. Night Aircraft Intercept Control (AIC): Altitude blocks shall be assigned for all participants for any night AIC event. Careful attention to block management at night is critical to safely executing night AIC tactics.
2. Joint Helmet Mounted Cueing System (JHMCS).
 - a. All aircrew participating in intercept phases of air-to-air events must be made aware that JHMCS high off-boresight and/or forward quarter acquisitions will be executed if so planned.
 - b. Flight path separation must be established prior to any high off-boresight or forward quarter JHMCS acquisition. Inside 9000 feet (1.5 nm), the pilot's undivided attention shall first be devoted to maintaining flight separation. Inside 9000 feet, off-boresight missile attacks may be prosecuted down to missile minimum range provided that flight separation has already been established. When in doubt, broadcast own intentions and “BLANK for SAFETY.”

- c. Obtaining tallies at the merge is most important. The JHMCS display shall be blanked if at any time the display symbology interferes with obtaining timely tallies or maintaining proper lookout doctrine.
- 3. Towed decoy — Aircraft configured with a Towed Decoy are prohibited from ACM in Training Events and shall wing rock and terminate at all merges.
- 4. Electronic Attack (EA).
 - a. Aircrew must be made aware of the capabilities of advanced EA such as Digital Radio Frequency Memory (DRFM)-based techniques and their potential to degrade onboard radar SA approaching a merge.
 - b. Aircrew proficiency and/or limited experience countering EA may require additional proactive steps (RTO-provided raid counts, securing EA approaching a merge, and/or inflexible altitude block restrictions) to mitigate the risks associated with potentially higher SA degradation due to advanced EA employment.

5.1.11 Simulated Instrument Flight

5.1.11.1 Chase Aircraft Requirement

A chase aircraft shall be used for all simulated instrument flight in single-piloted aircraft when a vision restricting device is being used. A chase plane shall also be required for simulated instrument flight in multipiloted aircraft if adequate cockpit visual lookout cannot be maintained. Visual lookout is considered adequate:

1. For side-by-side seating configurations, when two crewmen in addition to and having positive communication with the pilot are aboard. One crewman must be in a suitable position to monitor the flight instruments and both crewmen together must be able to clear the aircraft from potential midair collision hazards.
2. For tandem seating configurations, when the vision-restricting device is being used only in the rear seat.

5.1.11.2 Chase Aircraft Position and Communication

The chase plane should fly in a position 500 feet aft and 500 feet to either side of the aircraft being chased so as to ensure clearance in all quadrants. Positive communication must be maintained at all times between the two aircraft and any controlling agency. If communication is lost, the pilot practicing simulated instruments shall immediately go contact and remain contact until positive communication is reestablished.

5.1.11.3 Altitude Limitations

Pilots of single-seat aircraft may not use a vision restricting device below 1,000 feet AGL except on a precision approach. The vision restricting device may be used down to 500 feet AGL. In single-piloted aircraft, with dual sets of flight controls and in multipiloted aircraft, a vision restricting device may be used by one pilot for simulated instrument takeoffs and down to minimums for the approach being flown, provided the other pilot is NATOPS qualified in model. Helicopters equipped with automatic hover equipment are specifically waived from simulated instrument altitude restrictions during low level ASW/SAR training, provided the pilot not on the controls is NATOPS qualified in model.

5.1.12 Formation Flying

5.1.12.1 General

Formation flying is authorized only for units and types of aircraft for which a valid requirement exists. Appropriate commanders shall ensure issuance of and adherence to specific instructions and standard operating procedures for all aspects of formation flying. Formation flights operate as a single aircraft with regard to navigation and position reporting. A standard formation is defined as a formation with a proximity of no more than 1 mile laterally or longitudinally and within 100 feet vertically between the flight leader and each wingman.

CNAF M-3710.7

Non-standard formation flights shall be limited to a maximum of four aircraft and shall be approved by ATC prior to establishing non-standard spacing. ATC may limit the number of aircraft per formation depending on traffic density and SUA activity or complexity, and shall provide radar flight following for the entire formation. A non-standard formation is defined as a formation operating under any of the following conditions.

1. When the flight leader has requested and air traffic control has approved other than standard formation dimensions.
2. When operating within an authorized ALTRV or under the provisions of a letter of agreement.
3. When the operations are conducted in airspace specifically designed for special activity.

Note

Flight Leads of non-standard formations shall notify Air Traffic Control and be prepared for additional aircraft to squawk if requested.

5.1.12.2 Preflight

The formation leader shall execute one flight plan for the entire formation and shall:

1. Sign the flight plan form as pilot in command.
2. Ensure that all pilots are briefed on en route weather and navigational aids.
3. Ensure that each pilot holds a valid instrument rating if any portion of flight is to be conducted under IMC.
4. Ensure that a flight leader formation brief is conducted to include, but not to be limited to, loss of sight, lost communication, inadvertent IMC, and emergency procedures.
5. Ensure that necessary maps, charts, and publications are in the possession of each pilot.
6. Ensure that formation integrity is maintained in flight.

5.1.12.3 Formation Takeoffs

Section takeoffs for fixed-wing aircraft of similar performance are authorized only for units and types of aircraft whose military missions require formation flying, including essential pilot training. On ground roll, safe lateral separation shall be maintained (in event of blown tire, aborted takeoff, etc.) with leading aircraft on downwind side (if crosswind exists). Differences in flying characteristics, especially stall speeds because of gross weight and/or configuration, shall be considered.

Note

Lateral separation for required minimum interval takeoff (MITO) shall be governed by local directives.

5.1.12.4 Instrument Departures

Two-plane formation for subsequent flight into instrument conditions is authorized provided the weather (ceiling and visibility) is at or above the published circling minimums for the runway in use. In the event a circling approach is not authorized, ceiling and visibility must be at least 1,000 feet and 3 statute miles.

5.1.12.4.1 Sensor Trail Departures

For aircraft equipped with operable air-to-air radar or datalink capability, formations of up to four aircraft are authorized to depart as a nonstandard formation (sensor trail departure) when existing weather conditions are other than prescribed in [Paragraph 5.1.12.4](#) and that nonstandard formation has been approved by the ATC Facility responsible for providing instrument separation (i.e., departure control, ARTCC).

5.1.12.5 Joining Formations

Unless specifically ordered, a single aircraft shall not join a formation in the air. One formation shall not join another formation. The order for joining formation in the air shall be given prior to takeoff of the aircraft concerned or by radio, and the leader of the formation to be joined shall be informed that the order has been given. Exceptions to this paragraph may be made when the leader of a formation signals another aircraft to join the formation.

When about to join a formation, the pilot of a single aircraft or leader of other formations shall approach their formation position from a safe altitude and from the side. They shall not take their final position until their presence has been acknowledged by the leader of the formation to be joined.

Whenever a lead change is required in a formation of two or more aircraft, it will be accomplished in an unambiguous manner. Pilots shall ensure that both aircraft exchanging the lead are aware of the change through positive acknowledgment by visual signals or voice transmissions.

5.1.12.6 Approach Criteria for Aircraft in Formation

1. Instrument approaches with or without intent to land in IMC by standard formations of more than two aircraft are not authorized. Penetration of IMC to obtain VMC by formations of more than two aircraft is authorized.
2. Standard formation flights shall not commence an instrument approach when the reported weather is less than circling minimums for the particular instrument approach in use. In the event a circling approach is not authorized, the ceiling and visibility must be at least 1,000 feet and 3 statute miles. Once an approach has been commenced, leaders may, at their discretion, continue the approach in formation to the minimums prescribed in [Paragraph 5.3.5](#) for the type aircraft being flown.
3. Whenever feasible, aircraft making section instrument penetrations/approaches should transition to landing configuration above the overcast whenever existing weather is below VFR minimums. Aircraft in formation shall not obtain interval by slowing to less than normal approach speed by “S” turning. If safe landing interval cannot otherwise be obtained, a waveoff shall be executed. When landing interval will result in two or more aircraft on the runway at the same time, staggered landings on alternate sides of the runway shall be made. When crosswind conditions dictate or when centerline landings are preferred, landing interval shall be the same as that required for aircraft proceeding independently.
4. Formation approaches by aircraft of markedly different approach performance characteristics are not recommended.
5. Formation touch-and-go landings are prohibited.

5.1.12.7 Sensor Trail Approaches

Aircraft equipped with operable air-to-air radar or datalink may execute sensor trail recovery procedures for formations of up to four aircraft with ATC approval in conjunction with a published instrument approach. Once established on a segment of a published approach, each aircraft shall comply with all altitude restrictions while maintaining in-trail separation. Unless local procedures establish defined reference points, all formation aircraft should immediately perform airspeed and configuration changes when directed by the flight leader.

Naval shore facilities may establish sensor trail approach procedures with TYCOM approval. Procedures shall be included in the facility air operations manual (AOM), and LOA, if required, and shall be included in course rules training. Procedures shall address the following:

1. Recovery procedures and notification requirements, to include ATC approval of sensor trail approach prior to establishing non-standard spacing.
2. Missed approach, break-out, and go-around procedures.
3. Lost communications procedures.
4. Procedures when sensor equipment impacts PAR approaches.

CNAF M-3710.7

5.1.12.8 Dissimilar Formation Flight

Pilots involved should perform a preflight brief delineating all aspects of the pending formation flight. Items to be briefed in addition to those identified above shall include items peculiar to either aircraft community (e.g., limitations/capabilities/hazards affecting the flight/rendezvous/joinup/separation).

5.1.12.9 Unplanned Formation Flight

In the event unscheduled formation flight becomes necessary, every attempt shall be made by the aircrew involved to conduct a sufficient in-flight brief prior to joinup.

5.1.13 Electronic Kneeboard

Approved electronic kneeboards (EKBs) and applications can increase situational awareness in both VFR and IFR. Use of devices for any purpose other than mission accomplishment (e.g., unapproved photography, gaming, etc.) is prohibited. Approved uses include:

1. Preflight planning including weather and filing services.
2. Carriage of electronic NATOPS, FLIPs, charts, approach procedures or other imagery.
3. In-aircraft weather updates prior to taxi or inflight (if internet connection is permitted by OPSEC policy).
4. Situational awareness.

Note

Only certified, integrated GPS systems may be used for primary navigation. EKBs may be used as the primary source for charts and approach procedures but their GPS capability shall not be the primary source of navigation. Refer to [Paragraph 5.3.2.2](#).

Use of devices in classified aircraft (Secret, SCI, or SAP cockpits or cabins) are governed by CNAFINST 5510.18. For unclassified aircraft or those specifically authorized in CNAFINST 5510.18, devices shall be operated in accordance with limitations contained in the T/M/S NATOPS manual and Interim Flight Clearance (IFC). IFCs and current information about approved devices, applications, and software versions can be found on the PMA-281 EKB website: https://flankspeed.sharepoint-mil.us/sites/NAVAIR_NAVY_EKB (CAC Required). Users are responsible for compliance with OPSEC policy for the device, installed applications, aircraft, and assigned mission.

5.1.14 Aerial Photography

Except when supporting a mission requirement, aircrew shall not perform aerial still or video photography in flight unless authorized by the Commanding Officer via the flight schedule. Once authorized, images or video shall not be posted to the internet unless approved by the security manager and designated public affairs officer (Navy 165X, Marine Corps 45XX, or civil service/joint equivalent). Public affairs officers shall ensure posted video does not infringe on copyright material (e.g., cruise video set to copyrighted music) or seek legal review if in doubt.

5.2 VISUAL FLIGHT RULES PROCEDURES

5.2.1 Compliance With Directives

The pilot in command shall ascertain that the contemplated flight can be conducted in accordance with the visual flight requirements of FAR, other governing regulations, and flight rules set forth in this instruction. Visual meteorological conditions are the flight weather conditions that permit military aircraft operations under VFR. If weather conditions are not VMC, military aircraft operations must be either under special VFR or IFR (excluding special military operations).

5.2.2 Judgment

Although the choice of flight rules to be followed is normally dictated by weather and mission considerations, sound judgment plays a most important role. There are occasions when VFR may be legally followed by applying the

appropriate visibility and cloud clearance criteria. That prerogative should be exercised with reasonable restraint. The established weather criteria are minimums. The pilot should allow a greater margin of safety when operational requirements permit, particularly in terminal areas or when reduced visibility or cloud conditions make flight under VFR questionable. Pilots shall file and retain an IFR clearance to the maximum extent practicable consistent with mission accomplishment. (See [Paragraphs 5.3.1](#) and [6.4.](#))

5.2.3 See and Avoid

The see-and-avoid concept applies to visual flight conditions, thus eliminating the need for specific route clearance from ATC agencies under most circumstances. Since pilots are responsible for their own separation from other aircraft, conditions must exist that permit ample opportunity to see and avoid other air traffic and maintain obstruction clearance. The following measures shall serve as additional precautions when separation is maintained through the see-and-avoid concept, provided no degradation of the assigned mission will result.

1. Excepting single-seat aircraft, electronic equipment such as airborne radar should be used where feasible.
2. Where available, radar advisory service shall be requested especially when VFR flight is required through high-density traffic areas.

5.2.4 Weather Minimums

Within airspace where FAR, Part 91, pertains, cloud clearance and visibility minimums shown in [Figure 5-3](#) shall prevail throughout a VFR flight. In addition, ceiling and visibility minimums within Class B, C, D, or E surface areas must be at least 1,000 feet and 3 statute miles. If more stringent VFR minimums have been established for the point of departure or destination, as noted in the supplementary airport remarks section of the DoD FLIP AP/1, AP/2, AP/3, or AP/4 then ceiling and visibility must be at or above those minimums in the applicable Class B, C, D, or E surface area. Existing and forecast weather must be such as to permit VFR operations for the entire duration of the flight. Destination weather shall be at least 1,000-foot ceiling and 3-statute mile visibility (or such higher minimums as noted in the supplementary airport remarks section of the DoD FLIP AP/1, AP/2, AP/3, or AP/4) and forecast to remain at or above those minimums during the period 1 hour before ETA until 1 hour after ETA. Exceptions to the minimums are as follows:

1. Deviations under FAR 91.157, Special VFR Weather Minimums, are permitted except at those airports where special VFR is not authorized in fixed-wing aircraft. For special VFR within controlled airspace, the pilot must obtain authorization from air traffic control; ceiling must be a minimum of 500 feet; visibility must be a minimum of 1 statute mile; aircraft must remain clear of clouds, and (except for CNATRA helicopter operations) the pilot and aircraft must be certified for instrument flight. Aviation commanding officers in the chain of command may authorize tiltrotors in helicopter conversion mode and helicopter special VFR flights in conditions below 500 feet/1 mile for missions of operational necessity. The authority granted by this paragraph shall not be delegated.
2. Outside of controlled airspace, tiltrotors in helicopter conversion mode and helicopters may be operated below 1,200 feet AGL, clear of clouds, when the visibility is less than 1 statute mile if operated at a speed that allows the pilot adequate opportunity to see and avoid other air traffic and maintain obstacle clearance.

Note

FLIP General Planning, Chapter 7 (International Civil Aviation Organization), outlines the general flight rules for operation of military aircraft in airspace where FAR 91 does not apply.

5.2.5 Weather Conditions Precluding VFR Flight

When weather conditions encountered en route preclude compliance with visual flight rules, the pilot in command shall take appropriate action as follows to:

1. Alter route of flight so as to continue under VFR conditions or
2. Remain in VFR conditions until a change of flight plan is filed and IFR clearance obtained or
3. Remain in VFR conditions and land at a suitable alternate.

Figure 5-3. Basic VFR Flight Minimums

AIRSPACE	FLIGHT VISIBILITY	DISTANCE FROM CLOUDS
CLASS A	NOT APPLICABLE	NOT APPLICABLE
CLASS B	3 STATUTE MILES	CLEAR OF CLOUDS
CLASS C	3 STATUTE MILES	500 FEET BELOW 1,000 FEET ABOVE 2,000 FEET HORIZONTAL
CLASS D	3 STATUTE MILES	500 FEET BELOW 1,000 FEET ABOVE 2,000 FEET HORIZONTAL
CLASS E LESS THAN 10,000 FEET MSL	3 STATUTE MILES	500 FEET BELOW 1,000 FEET ABOVE 2,000 FEET HORIZONTAL
AT OR ABOVE 10,000 MSL	5 STATUTE MILES	1,000 FEET BELOW 1,000 FEET ABOVE 1 STATUTE MILE HORIZONTAL
CLASS G 1,200 FEET OR LESS ABOVE THE SURFACE (REGARDLESS OF MSL ALTITUDE) DAY, EXCEPT AS PROVIDED IN §91.155(b) NIGHT, EXCEPT AS PROVIDED IN §91.155(b)	1 STATUTE MILES 3 STATUTE MILES	CLEAR OF CLOUDS 500 FEET BELOW 1,000 FEET ABOVE 2,000 FEET HORIZONTAL
MORE THAN 1,200 FEET ABOVE THE SURFACE BUT LESS THAN 10,000 FEET MSL DAY	1 STATUTE MILES	500 FEET BELOW 1,000 FEET ABOVE 2,000 FEET HORIZONTAL
NIGHT	3 STATUTE MILES	500 FEET BELOW 1,000 FEET ABOVE 2,000 FEET HORIZONTAL
MORE THAN 1,200 FEET ABOVE THE SURFACE AND AT OR ABOVE 10,000 FEET MSL	5 STATUTE MILES	1,000 FEET BELOW 1,000 FEET ABOVE 1 STATUTE MILE HORIZONTAL

5.2.6 Additional Requirements

1. Except when necessary for takeoff and landing or when the mission of the flight requires otherwise, flights in fixed-wing aircraft shall not be conducted below an altitude of 500 feet above the terrain or surface of the water.
2. For aircraft to operate on a VFR clearance above broken clouds or an overcast, climb to and descent from such on top flight shall be made in accordance with VFR and aircraft shall be equipped and pilots qualified for instrument flight.
3. A simulated instrument approach to an airport for which an approved instrument approach exists shall not be commenced until prior approval has been obtained from the appropriate approach control or, in the case of nonapproach control locations, the airport traffic control tower. At nontower airports, the associated flight service station, if applicable, shall be notified of the simulated instrument approach.

5.3 INSTRUMENT FLIGHT RULES AND POSITIVE CONTROL PROCEDURES

5.3.1 General Requirements

5.3.1.1 IFR Filing and Positive Control

To decrease the probability of midair collisions, all flights in naval aircraft shall be conducted in accordance with IFR to the maximum extent practicable. This shall include all point-to-point and round-robin flights using Federal airways and other flights or portions thereof, such as flights to and from target or operating areas accessible through IFR filing. All other flights shall be conducted under positive control to the maximum extent possible. This shall apply in the following areas:

1. In the airspace over the United States and adjacent coastal waters within the 12-mile limit.
2. Within offshore operating areas of CONUS and Alaska outward to the limit of the domestic Air Route Traffic Control Center (ARTCC), airspace in the Hawaiian Islands, and in the San Juan Domestic Control Area.
3. Airspace in the vicinity of other U.S. territories and overseas airfields as prescribed by local area commander policies.

Note

- Commanding officers shall ensure compliance with the intent and spirit of this requirement and shall scrutinize all flight operations as to mission and purpose to ensure they are conducted in accordance with IFR or positive control to the maximum extent practicable without mission degradation.
- Global positioning system (GPS) shall not be used as the means of navigation to file or fly in the National Airspace System unless that aircraft has been certified for GPS use in the National Airspace System.
- Aircrew operating in visual conditions under IFR should be aware that they are in a see and avoid environment. ATC provides separation only from other IFR aircraft.

5.3.1.2 Waiving IFR Requirement

Where VFR conditions exist, pilots may waive this requirement for specific flights when necessary to circumnavigate or otherwise avoid severe weather or when dictated by an in-flight emergency.

5.3.1.3 ATC Clearance Requirement

Flights shall not be made in IFR conditions within controlled airspace until an ATC clearance has been obtained.

5.3.1.4 Instrument or Composite Flight Plan

An instrument or composite (VFR/IFR) flight plan shall be filed for all flights that may reasonably expect to encounter in-flight IFR conditions during any portion of the planned route. The VFR portion of the flight shall meet VFR criteria set forth in [Paragraph 5.2](#).

5.3.1.5 Compliance With Directives

The pilot in command shall ascertain that the clearance requested is in accordance with the instrument flight requirements of FAR, other governing regulations, and flight rules set forth in this instruction.

5.3.1.6 Minimum Altitude

1. When in uncontrolled airspace, an aircraft shall not be flown less than 1,000 feet above the highest terrain, surface of the water, or obstacle within 22 miles of the intended line of flight, except when the mission requires otherwise.
2. When in uncontrolled airspace and over designated mountainous terrain, as shown in appropriate DoD FLIPs, an aircraft shall not be flown less than 2,000 feet above the highest terrain or obstacle within 22 miles of the intended line of flight.
3. In controlled airspace, an aircraft shall not be flown at less than the minimum en route altitude or the altitude specified by the agency exercising control over the airspace concerned when operating in IFR conditions.
4. Authorized missions may be flown at lower altitudes than specified above when operating on published IFR military training routes (IRs) that have been developed in accordance with FAAO JO 7610.4, Special Operations.

5.3.2 Aircraft Equipment Requirements

Pre-flight procedures will be established and monitored to ensure that communication, navigation, and identification equipments required for the flight are operative at takeoff. Preflight/in-flight malfunctions of such equipment shall be construed as adequate cause to cancel/abort missions other than those of operational necessity. The pilot shall ensure that ATC is advised of any limitations of the pilot's aircraft and equipment that will necessitate special handling.

5.3.2.1 Instrument Flight Equipment

1. The pitot heater and all vacuum pressure or electrical sources for the pilot flight instruments must operate satisfactorily.
2. The aircraft shall be equipped with the following instruments in proper operating condition:
 - a. Airspeed indicator.
 - b. Altimeter.
 - c. Turn-and-slip indicator.
 - d. A clock displaying hours, minutes, and seconds with a sweep-second pointer or digital readout.
 - e. Attitude indicator.
 - f. Magnetic compass with current calibration card.
 - g. Heading indicator or gyrostabilized magnetic compass.
 - h. Vertical speed indicator.
3. Aircraft shall be equipped with deicing or icing control equipment for sustained or continuous flight in known or forecast icing conditions.
4. Navigation lights must operate satisfactorily.

5.3.2.2 Communication, Navigation, Identification (CNI) Equipment

1. The aircraft shall have two-way radio communication equipment and operating navigation equipment required for the en route and approach navigation aids to be used and on which the clearance is predicated.
2. Pilots planning to operate in or through areas that require special communication frequencies shall ensure that the frequencies are available in the aircraft.
3. A functioning radar beacon transponder is required for flight in airspace where FAR specify such equipment.
4. When operating with a servoed altimeter below FL 180, use either the STANDBY or RESET mode and use only the RESET mode when operating above FL 180.
5. A Commander, Naval Air Forces (CNAF N42) fleet release approval letter, indicating conformance with approved standards for Global Navigation Satellite Systems navigation performance requirements shall approve all GPS integrations prior to use for air navigation. The approved standards shall consist of one of the following:
 - a. For USN and USMC Tactical Aircraft — A Program Manager Air Combat Electronics (PMA-209) Letter of Certification confirming conformance with the Chief of Naval Operations Functional Requirements Document for Required Navigation Performance Area Navigation (CNO FRD for RNP RNAV) is required to receive approval from CNAF.
 - b. For Commercial Derivative Aircraft — A Federal Aviation Administration (FAA) approved STC demonstrating conformance of the installation to applicable FARs using components meeting requirements set forth in applicable FAA Technical Service Orders (TSO). These documents ensure capability and conformance to FARs, as well as the performance requirements of applicable FAA Advisory Circulars (AC). The STC may be used as a basis for USN airworthiness determination and flight clearance for commercial derivative aircraft integrating GNSS navigation capabilities.
6. Military GPS avionics are not authorized for supplemental or primary means of air navigation for instrument flight in controlled airspace, unless certified by PMA-209 and approved for release by a CNAF N42 fleet release approval letter.
7. The CNAF N42 fleet release letter approves an integrated GPS receiver for terminal and enroute GNSS navigation and the aircraft GNSS may be used for any RNAV-based routes and procedures listed in the DoD FLIP, using a DoD-approved navigation database. DoD approved navigation databases include the National Geospatial-Intelligence Agency (NGA) Digital Aeronautical Flight Information File (DAFIF) or approved commercial navigation databases per the CNAF N42 fleet release approval letter for the specified aircraft. The approval authority for commercial navigation database products is the Naval Flight Information Group (NAVFIG).
8. IFR Navigation with handheld GPS receivers is prohibited.
9. DoD FLIP or approved commercial enroute and terminal charts (see [Paragraph 3.13.1](#)) are required in the cockpit and shall be the primary source for navigation to complement the aircraft navigation database. Either print copy or digital media products are acceptable. Any discrepancies between charted procedures and the aircraft navigation database require compliance with the charted procedure.
10. Only keyed GPS Precise Positioning Service (PPS) receivers shall be used for combat, combat support, and combat service support operations.
11. All approved military GPS receivers and embedded systems (i.e. EGI, GEM series, RINU-G, MAGR), when keyed and integrated with aircraft navigation systems, may be used for practice of GPS approaches under VFR, if the approach procedure is electronically loaded.
12. Approach procedures shall be loaded electronically from the aircraft navigation database using the procedure name. Manual entry of waypoints between the IAF and the missed approach point (MAP) is prohibited. The IAF, the MAP, and any waypoints in between shall not be edited or altered. This does not prohibit the use of “Vectors To Final” features or “Direct To” functions.

5.3.2.3 Instrument Navigation Packet

The following items constitute the minimum required articles to be included in instrument navigation packets. Additional items may be included when required by local operating procedures.

1. Appropriate FLIPs.
2. Navigation computer.
3. Navigation flight log forms.
4. Appropriate aeronautical charts.

5.3.3 RNAV/GPS Navigation

The unique nature of GPS approach construction and the procedures for selecting, loading, choosing the proper minimums, and flying require a dedicated training program. Pilots should practice Global Positioning System (GPS) approaches under VFR until thoroughly proficient with all aspects of their equipment (receiver and installation) prior to attempting flight under IFR in IMC. Many GPS receivers provide a simulation mode which can be used to become familiar with receiver operations prior to actual flight operations. Proper training of GPS navigation in controlled airspace will enhance safety and awareness when using GPS for combat operations. GPS training should be developed, with assistance from Naval Air Systems Command PMA-170, by the respective aviation TYCOM/FRS/Type Wing. The NATOPS Instrument Flight Manual (NAVAIR 00-80-112) should be reviewed prior to using GPS for guidance in controlled airspace.

1. Aircrew shall successfully complete aviation TYCOM or Type Wing approved training prior to flying GPS based approaches in weather below 1000' and 3 nmi visibility.
2. The navigation system may or may not display the Minimum Descent Altitude (MDA). The aircrew is responsible for compliance with all vertical restrictions.
3. The GPS navigation system used for the approach shall be using scaling and alerting criteria no less restrictive than RNP-.3 prior to continuing past the final approach fix. The RNP criteria shall remain for the entire approach.
4. Only GPS approaches based on WGS-84 datum reference may be flown using GPS for guidance. The aircrew shall ensure all approaches flown outside the U.S. and Canada using GPS for primary navigation are based on the WGS-84 datum.
5. Two independent GPS systems are required to use GPS for primary navigation in Oceanic controlled airspace if the aircraft is not equipped with an inertial navigation system.
6. If the GPS is giving guidance contrary to anticipated flight path, the aircrew shall disregard GPS guidance, immediately disconnect autopilot (if applicable), and climb to the Minimum Safe Altitude (MSA) until proper flight path is confirmed and established.
7. During pre-flight planning, when an alternate is required, aircraft equipped with conventional non-WAAS receivers (TSO-C129/C196) may plan to use GPS as a substitute means of navigation (required NAVAID OTS or not installed in aircraft) at the alternate or destination, but not both provided pre-flight RAIM prediction has been completed. Acceptable RAIM pre-flight prediction methods may be found in FAA Advisory Circular 90-108 par. 11.a.2. When pre-flight RAIM prediction is not available, all underlying conventional NAVAIDS at the alternate shall be installed and operational. Aircraft utilizing GPS systems with WAAS (TSO-C145/C146) are exempt from this requirement and may use GPS as a substitute means of navigation at both the destination and alternate.
8. RNAV Localizer Performance Vertical (LPV) approaches do not meet ground based precision approach installation criteria and are not monitored by ATC. LPV capability is based on a geo-synchronous satellite GPS position correction that may be subject to outages or space weather. When an alternate is required, aircrew with certified RNAV LPV capability may only use the lowest of the LNAV or LNAV/VNAV published minima and add 300-1. LPV approaches, with a DA of 300' AGL and less, may be logged to

demonstrate pilot precision approach proficiency as LPV provides an electronic glideslope/glidepath. See [Paragraph 10.3.3](#) (Aircrew Data Section).

9. On aircraft equipped with multiple GPS receivers the aircrew shall use the integrity function for the GPS receiver being used for navigation. The integrity function of other installed GPS (SPS or PPS) receivers shall not be used to indicate the integrity of the GPS receiver being used for navigation.

5.3.4 Instrument Departures

5.3.4.1 Takeoff Minimums

1. Special instrument rating — No takeoff ceiling or visibility minimums apply. Takeoff shall depend on the judgment of the pilot and urgency of flights.

Note

Only an Aircraft Commander with a special instrument rating, who is also on the flight controls, is authorized to make departures from an airfield when weather conditions are below minimum.

2. Standard instrument rating — Published minimums for the available non-precision approach, but not less than 300-foot ceiling and 1-statute mile visibility. When a precision approach compatible with installed and operable aircraft equipment is available, takeoff is authorized provided the weather is at least equal to the precision approach minimums for the landing runway in use, but in no case when the weather is less than 200-foot ceiling and 1/2-statute-mile visibility/2,400-foot runway visual range (RVR).

5.3.4.2 Departure Procedure (DP)

At locations where DPs are available, pilots are encouraged to utilize them for each IFR departure, provided no unacceptable flight degradation will ensue. An appropriate DP procedure should be selected during preflight planning for pilots to realize the greatest benefit from standardization of instrument departures and to have a clear course of action to follow in the event of communication failure.

Note

For formation instrument departures and approach procedures, see [Paragraph 5.1.12](#).

5.3.5 Instrument Approaches and Landing Minimums

5.3.5.1 General

Approved instrument approach procedures for use at other than U.S. airports are published in DoD FLIPs (Terminal). For U.S. airports, approved instrument approach procedures are published in DoD FLIPs (Terminal) or other similar type publications. For straight-in approaches, pilots shall use RVR, if available, to determine if visibility meets the weather criteria for approaches, which are published in DoD FLIP Terminal Approach Procedures. Prevailing visibility shall be used for circling approach criteria. Helicopters and tiltrotor required visibility minimum may be reduced to one-half the published visibility minimum for Category A aircraft, but in no case may it be reduced to less than one-fourth mile or 1,200 feet RVR. Reducing Category A visibility recognizes the unique maneuvering capability of the helicopter and tiltrotor and is based on airspeeds not exceeding 90 knots on final approach. Published approach ceiling minima shall not be reduced. Helicopter procedures (“COPTER” approaches) ceiling and visibility minima shall not be reduced.

Note

Determination that existing weather/visibility/runway conditions are adequate for approach/landing is the responsibility of the pilot.

5.3.5.2 Approach Criteria for Multipiloted Aircraft

When reported weather is at or below published landing minimums for the approach to be conducted, an approach shall not be commenced in multipiloted aircraft unless the aircraft has the capability to proceed to a suitable alternate in the event of a missed approach.

5.3.5.3 Approach Criteria for Single-Piloted Aircraft

1. An instrument approach shall not be commenced if the reported weather is below published minimums for the type approach being conducted. When a turbojet en route descent is to be executed, the approach is considered to commence when the aircraft descends below the highest initial penetration altitude established in high altitude instrument approach procedures for the destination airport. Once an approach has been commenced, pilots may, at their discretion, continue the approach to the approved published landing minimums as shown in the appropriate FLIP for the type approach being conducted. Absolute minimums for a single-piloted fixed-wing aircraft executing an approach are 200-foot ceiling/height above touchdown and visibility of 1/2 statute-mile/2,400 feet RVR. Absolute minimums for single-piloted helicopter/tiltrotor aircraft executing an approach are 200-foot ceiling/height above touchdown. See [Paragraph 5.3.5.1](#) for helicopter/tiltrotor visibility minimums.
2. Single-piloted aircraft that are configured for and assigned all-weather missions with side-by-side seating occupied by the pilot in command and an assisting NFO may operate within the same filing, clearance, and approach criteria specified above for multipiloted aircraft provided:
 - a. The assisting NFO is instrument qualified in accordance with this instruction and NATOPS qualified in the model aircraft in which NFO duties are being performed.
 - b. Cockpit configuration is such that the assisting NFO can:
 - (1) Monitor the pilot flight instruments.
 - (2) Monitor and control communication.
 - (3) Assist the pilot in acquiring the runway visually.

5.3.5.4 Criteria for Continuing Instrument Approaches to a Landing

Pilots shall not descend below the prescribed minimum descent altitude (MDA) or continue an approach below the decision height (DH) unless they have the runway environment in sight and in their judgment a safe landing can be executed, either straight-in or from a circling approach, whichever is specified in their clearance.

1. Precision Approaches — A missed approach shall be executed immediately upon reaching the decision height unless the runway environment is in sight and a safe landing can be made. On precision radar approaches, the pilot may expect control instructions until over landing threshold; course and glidepath information given after decision height shall be considered advisory in nature.
2. Non-precision Approaches — A missed approach shall be executed immediately upon reaching the missed approach point if visual reference is not established and/or a landing cannot be accomplished. If visual reference is lost while circling to land from a published instrument approach, the missed approach specified for that particular procedure must be followed. To become established on the prescribed missed approach course, the pilot should make an initial climbing turn toward the landing runway then maneuver in the shortest direction to become established on the missed approach course.

5.3.5.5 Final Approach Abnormalities During Radar Approaches

The controller shall issue instructions to execute a missed approach or to climb and maintain a specific altitude and fly a specified course whenever the completion of a safe approach is questionable because one or more of the following conditions exist:

1. Safe limits are exceeded or radical aircraft deviations are observed.
2. Position or identification of the aircraft is in doubt.

3. Radar contact is lost or a malfunctioning radar is suspected.
4. Field conditions, conflicting traffic, or other unsafe conditions observed from the tower prevent approach completion.

5.3.5.6 Execution of the Missed Approach

1. Execution of the missed approach by the pilot is not necessary for [Paragraph 5.3.5.5, subparagraphs 1. through 3.](#) above if the pilot has the runway or approach/runway lights in sight. In these cases, controller phraseology shall be: “(reason). If runway/approach lights/runway lights are not in sight, execute missed approach (alternate instructions).” Reasons may include radar contact lost, too high/low for safe approach, or too far right/left for safe approach.
2. Execution of the missed approach is mandatory for [Paragraph 5.3.5.5, subparagraph 4.](#) above. Controller phraseology is “Execute missed approach,” and the reason for the order (i.e., Aircraft ahead of you has taken the arresting gear); or the controller may issue instructions to climb and maintain a specific altitude and fly a specified heading and the reason for such instructions.

Note

Pilots may execute a missed approach at their own discretion at any time.

5.3.5.7 Practice Approaches

The provisions of this section are not intended to preclude a single-piloted aircraft from executing practice approaches (no landing intended) at a facility where weather is reported below published minimums when operating with an appropriate ATC clearance. The facility in question must not be filed destination or alternate and the weather at the filed destination and alternate must meet the filing criteria for an instrument clearance as set forth in this instruction.

5.3.5.8 Tower/Approach Control Responsibilities

A Navy or Marine Corps tower/approach control facility serving an airport shall keep the pilot informed of the latest reported weather and actual field conditions. Every effort shall be made to inform the pilot as well as the controller (in case of radar approaches) of the most current ceiling, runway visibility, surface wind, and runway conditions. That is particularly important during periods of rapidly changing weather conditions such as fog, snow, and other phenomena that reduce visibility and braking action.

Note

Certain naval air traffic controllers certified in accordance with the guidance contained in NATOPS Air Traffic Control Manual are authorized to record and disseminate changing tower visibility observations directly to the pilot when prevailing visibility is less than 4 miles.

5.4 HELICOPTER/TILTROTOR OPERATIONS

5.4.1 Helicopter/Tiltrotor Operations in Class B, C, or D Airspace

5.4.1.1 Tower Clearance

When operating within class B, C, or D airspace, either tower frequency or an appropriate control frequency shall be monitored at all times.

5.4.1.2 Altitude

Helicopter/tiltrotor flights within class B, C, or D airspace shall be in accordance with the local Air Operations Manual. Where no other guidance is provided, pilots of helicopters and tiltrotors (which are operated in conversion mode) shall not exceed 500 feet AGL unless specifically cleared by the tower or other control agency. Pilots shall

CNAF M-3710.7

avoid flying over areas at altitudes where their rotor or prop-rotor wash could result in damage to aircraft, property, or personnel. Tiltrotors in airplane mode shall comply with fixed wing procedures.

5.4.1.3 Ground Operations

Air taxi/ground operations shall be conducted with sufficient horizontal separation to preclude damage to aircraft, property, or personnel. Pilots shall operate with the minimum required power while on the ground and shall be particularly alert to prevent foreign object damage (FOD) and/or gust damage to their own and other aircraft.

5.4.2 Practice Autorotations

Practice autorotations shall be conducted within the limits of the field boundary over a surface upon which a full autorotation can be safely completed and that is readily accessible to crash, rescue, and firefighting equipment. Practice autorotations shall require the specific approval of the tower when active.

At airfields without a control tower or during closed tower operations, practice autorotations are authorized provided:

1. Crash, rescue, and firefighting support is still available and monitoring the landing area visually, or through an RDO.
2. Sufficient separation exists in the landing pattern to conduct a stop-and-go without impeding other rotary or fixed wing traffic should a full autorotation or emergency landing be required, generally no more than two other aircraft per runway pattern.

5.4.3 Helicopter/Tiltrotor Terrain Flight Operations

Terrain flights (low level, contour, nap of the earth (NOE)) shall be conducted only as operational necessity dictates, in training scenarios executed within designated training areas, or as published procedures and clearances prescribe.

5.4.4 Helicopter/Tiltrotor Night Hover Operation Over Water

Night/low visibility hover operations over water shall be conducted using aircraft equipped with operable automatic hover systems (i.e., coupler/Doppler/Aircraft Flight Control System (AFCS) equipment) on all occasions when a natural horizon visible from the cockpit is not available to assist the pilot in establishing/maintaining a stable hover.

5.4.5 Helicopter Operations

All aircrew shall remain inside the aircraft cabin during all flight regimes unless deemed by the aircraft commander to be operationally necessary for safety of flight or mission accomplishment. Any acts conducted for thrill purposes are strictly prohibited.

5.5 REDUCING FLIGHT-RELATED DISTURBANCES

5.5.1 Annoyance to Civilians and Endangering Private Property

Flights of naval aircraft shall be conducted so that a minimum of annoyance is experienced by persons on the ground. It is not enough for the pilot to be satisfied that no person is actually endangered. Definite and particular effort shall be taken to fly in such a manner that individuals do not believe they or their property are endangered. The following specific restrictions apply in view of the particularly unfavorable effect of the fear, extreme annoyance, and damage that can be inflicted.

5.5.1.1 Noise Sensitive Areas

Breeding farms, resorts, beaches, and those areas designated by the U.S. Department of Interior as national parks, national monuments, and national recreational areas are examples of noise sensitive areas.

5.5.1.2 Noise Sensitive and Wilderness Areas

These areas shall be avoided when at altitudes of less than 3,000 feet AGL except when in compliance with an approved:

1. Traffic or approach pattern.
2. VR or IR route.
3. Special use airspace.

Noise sensitive areas shall be avoided in the development of IR and VR routes and additional special use airspace unless the 3,000-foot criteria can be observed.

5.5.1.3 Aerial Refueling

Aerial refueling over densely populated areas shall be avoided whenever possible.

5.5.1.4 External Stores/Cargo

Pilots carrying external stores/cargo shall avoid overflying populated areas whenever possible.

5.5.1.5 Temporary Flight Restrictions

Aircraft shall not be operated within an area designated by a NOTAM within which temporary flight restrictions apply except as permitted in FAR 91.137.

5.5.1.6 Flat Hatting

Flat hatting or any maneuvers conducted at low altitude and/or a high rate of speed for thrill purposes over land or water are prohibited. Any acts conducted for thrill purposes are strictly prohibited.

5.5.2 Disturbance of Wildlife

5.5.2.1 General

Commanding officers of aviation units shall take steps to prevent aircraft from frightening wild fowl or driving them from their feeding grounds. When it is necessary to fly over known wild fowl habitations, an altitude of at least 3,000 feet shall be maintained, conditions permitting. During hunting season, pilots shall avoid flying near wildlife haunts except as noted above.

5.5.2.2 Firing

Firing at large fish, whales, or any wildlife inhabiting the land or sea is prohibited.

5.5.3 Zooming of Vessels

Restrictions on zooming are not intended to hamper standardized shipping/ASW surveillance rigging and photography procedures as defined in appropriate fleet operating instructions.

5.5.4 Avoidance of Commercial Carriers and Aircraft of Civil Registry

At a minimum, such aircraft shall be avoided by a margin of at least 500 feet vertically or 1 mile laterally unless ordered otherwise by competent air traffic control authority. Under no circumstances shall aircraft be flown erratically or aerobatically in the close vicinity of civil aircraft. Civil aircraft carrying 10 or more passengers are equipped with Traffic Alert and Collision Avoidance System (TCAS). TCAS may activate when it detects an aircraft within 1,200 feet vertically, and 6 nm horizontally. If the passenger-carrying aircraft is not aware of the traffics intentions or does not have the traffic in sight, the passenger-carrying aircraft may take abrupt, evasive actions in response to a TCAS Resolution Advisory. This could cause injury to those on board the passenger-carrying aircraft. TCAS is activated by transponder when aircraft are squawking mode "S" or "C." TCAS provides a protected volume of airspace around an aircraft. The dimensions of this airspace are not based on actual distance but rather on the time to closest point of approach (CPA). Thus, the size of the protected volume depends on relative closure rate. Generally, the system begins to alert the flightcrew of a potential conflict when targeted aircraft are within 6 nm and 1,200 feet vertically of the TCAS-equipped aircraft. The system is designed to operate out to a maximum of 14 nm and identifies possible conflicting air traffic in three basic ways:

CNAF M-3710.7

1. Tracking TCAS alerts the crew to all targets (transponder equipped) within range of the TCAS equipment.
2. Traffic Advisory (TA) TCAS declares a targeted aircraft an intruder. The flightcrew is alerted that vertical separation will be less than 1,200 feet at CPA.
3. Resolution Advisory (RA) TCAS declares a targeted aircraft as a threat. The crew is commanded to change the altitude of their aircraft to provide vertical separation from the targeted aircraft.

5.5.5 Avoidance of Installations Important to Defense

Although a “special use airspace” designation has not been assigned to all ammunition depots, magazines, oil refineries, and other plants considered important to national defense, naval aircraft shall avoid flying over such areas when their location is known.

5.5.6 Jettisoning Fuel

Whenever practicable, fuel shall not be jettisoned (dumped) below an altitude of 6,000 feet above the terrain. Should weather or emergency conditions dictate jettisoning at a lower altitude, every effort shall be made to avoid populated areas. When under positive control, the pilot in command should advise the air traffic control facility that fuel will be jettisoned.

5.5.7 Air-to-Air Missile Training Flights

Aircraft carrying live missile components other than guidance and control heads are prohibited from utilizing piloted aircraft as targets for training unless all participants have been thoroughly briefed on the conduct of the flight.

5.5.8 Expenditure of Airborne Stores Through Extensive Cloud Cover

5.5.8.1 Naval Commands

Pilots of Navy and Marine Corps aircraft are only authorized to expend ordnance, fire missiles, or drop other airborne stores through cloud cover sufficiently extensive to preclude visual clearance of the air and surface area under the following conditions:

1. When operating over the high seas, provided area air and surface clearance can be ensured through radar surveillance or visual means. The operational commander conducting the exercise is responsible for the safeguarding of airborne and surface traffic. The fact that the firing is conducted in a warning area or that a NOTAM has been issued does not relieve the operational commander of that responsibility.
2. When operating over land (including over territorial waters), provided that the firing or drop is conducted within an activated restricted area and the impact is within a designated surface target/range. The restricted area controlling authority must specifically approve such usage and is responsible for coordination of airspace and target/range scheduling to ensure protection of other restricted area users and target/range personnel. The operational commander conducting the exercise is responsible for ensuring the firing or drops are conducted in the specified airspace and impact the scheduled surface target/range.

5.5.8.2 Non-Naval Commands

Non-naval commands may be authorized to expend ordnance in restricted or warning area airspace for which Navy or Marine Corps commands are designated controlling authority, provided the criteria specified above are observed and the using service, by written agreement, assumes complete responsibility for any damages resulting from such use.

5.5.8.3 Emergency Jettisoning

Nothing in the above precludes emergency jettisoning of external stores through extensive cloud cover; pilots are directly responsible for their actions and must take every possible precaution to minimize danger to other aircraft and persons/property on the surface.

5.6 FLAMEOUT APPROACHES

5.6.1 Actual Flameout Approaches

Actual flameout approaches shall not be attempted unless it is impossible/impractical to abandon the aircraft or it is specifically authorized by individual NATOPS manuals.

5.6.2 Simulated Flameout Approaches

Simulated flameout approaches are prohibited, unless specifically authorized by individual NATOPS manuals.

5.7 FLIGHT OPERATIONS WITH NIGHT VISION DEVICES

5.7.1 General

NVDs greatly expand the capability and survivability of night tactical flight profiles flown against modern threats. Flying with NVDs is authorized for units and types of aircraft for which a valid requirement exists. Appropriate commanders shall ensure issuance of and adherence to specific instructions and standard operating procedures for all aspects of NVD flying.

5.7.2 Operating Limitations

1. Use of NVD is compatible in both VMC and IMC flight. However, when flying with NVDs in IMC, the primary flight reference shall be an instrument scan (pilot flight and navigation instruments). Inadvertent IMC procedures shall be briefed and used as required for all NVD flights.
2. Aircraft interior lighting should be NVD compatible to the maximum extent possible.
3. Aircraft exterior lighting shall comply with applicable FAA regulations unless exemptions have been approved. However, the anti-collision lights need not be lighted when the pilot in command determines that, because of operating conditions, it would be in the interest of safety to turn the lights off. In restricted areas, position lights of multi-aircraft flights of up to four aircraft in a standard formation on NVDs may fly with lead through dash threes navigation and anti-collision lights off. If applicable, formation and blade tip lights shall be on at the highest intensity consistent with NVD compatibility. The last aircraft in each flight shall have navigation lights on at the highest intensity consistent with NVD compatibility and anti-collision lights on.
4. Low light level is light level less than 0.0022 lux. High light level is light level greater than or equal to 0.0022 lux. Illumination levels affect NVD performance and must be tempered with sound judgment with the effects of cloud cover, humidity, haze, dust, low moon angles, etc. considered.
5. The approved methods of deriving illumination levels are as follows:
 - a. Solar/Lunar Almanac Program (SLAP) application located on government computer systems via the Software Center. Search for SLAP 1.5 app and download on government computer.
 - b. Solar/Lunar Almanac Core (SLAC) program used in aviation training management systems, SHARP and M-SHARP.
 - c. Sun Moon (SUMO) program used on Joint Mission Planning System (JMPS) computers.
 - d. SLAP application used on the Marine Air Ground Tablet (MAGTAB).
6. NVD aircrews shall complete an approved NVD training syllabus and be certified by the commanding officer with a NATOPS flight qualification jacket entry for NVD operations. Training should include demonstrations of the limits to NVD capabilities imposed by environmental conditions and human factors. A Night Imaging and Threat Evaluation (NITE) Lab shall be completed for initial qualification and is strongly recommended for refresher training. During transition from one NVD system to another, a NITE Lab transition course shall be completed prior to first flight.

CNAF M-3710.7

7. NVD instructors shall complete an approved NVD IUT training syllabus and be certified by the commanding officer with a NATOPS flight qualification jacket entry for NVD instructional flights.
8. NVD-designated aircrew shall meet currency requirements as specified in the individual aircraft NATOPS manual, functional wing directives, and/or the USMC Aviation Training and Readiness manual (MCO 3500.14 and/or NAVMC 3500.14 (as applicable)). Qualification/currency requirements may vary for different mission areas, (i.e., shipboard operations, overland navigation, NOE navigation, strike rescue, etc.) and should be identified in the appropriate manual/instruction. Simulators may be used to support the training program, but shall not replace aircraft flight hour requirements.
9. For NVD training syllabus flights, the pilot in command (PIC) shall be current for the mission. For all other flights, both the PIC and copilot shall meet appropriate currency requirements.
10. Mixing different types of NVDs between aircrew within individual aircraft is not authorized with the exception that AN/AVS-9 NVGs may be mixed with Mini-Quadeye Night Vision Cueing Displays (NVCDs) in JHMCS equipped or partially equipped aircraft.
11. Shipboard and ground operation involving groundcrews using NVDs shall be dictated by the General Series NATOPS manual (e.g., CV, LHA/LHD, Aircraft Operating Procedures for Air Capable Ships).

CHAPTER 6

Air Traffic Control

6.1 APPLICABILITY

This chapter supplements the sources listed in [Paragraph 1.3](#) and provides additional rules and procedures of particular importance for the operation and control of naval aircraft.

6.2 AIR TRAFFIC CONTROL PROCEDURES

6.2.1 Authorized Personnel

Only personnel properly FAA credentialed and qualified in accordance with the NAVAIR 00-80T-114, NATOPS Air Traffic Control Manual and/or NAVAIR 00-80T-125, Air Traffic Control Afloat NATOPS Manual shall provide air traffic control services.

6.2.2 Control Tower

At airfields with an operating control tower, the control tower shall exercise control of all aircraft operating to, from, or on the airfield and within class B, C, or D surface area. Prior approval from the tower shall be obtained for all taxi, takeoff, landing, towing, and related operations. Preventive control may be provided to eliminate repetitious, routine approval of pilot action; in that case, the controller will issue instructions or advice only if a situation develops that needs corrective action. Prior to preventive control service being provided, appropriate directives shall be issued to ensure that affected ATC personnel and aircraft operators being afforded preventive control are aware of the procedures being used.

6.2.3 Control of Formation Flights

1. Formation flights shall be controlled/cleared as a single aircraft unless the formation leader requests otherwise.
2. Responsibility for landing interval between elements of a formation flight rests with the pilots in the formation.

6.2.4 Taxi Instructions

1. Taxi Clearance. Taxi clearance shall be obtained prior to taxiing. Formation leaders may obtain taxi clearance for their entire flight. Pilots shall read back all hold/hold short instructions and shall remain on ground control frequency until cleared to change frequency or until ready for takeoff clearance.
2. Overtaking. No taxiing aircraft shall overtake or pass another aircraft except with tower approval.
3. Taxi Speed. All aircraft shall be taxied at a safe rate of speed and under positive control of the pilot at all times.
4. Emergencies. When the tower is controlling an aircraft in an emergency, aircraft on the ground shall taxi clear of the runway. Those on the taxiway shall hold until authorized to proceed. All aircraft shall exercise radio discipline for the duration of the emergency. Pilots of taxiing aircraft sighting emergency vehicles displaying the flashing red light on the field shall stop and hold their positions until authorized to proceed by radio or light signals from the tower.

6.2.5 Departure Instructions

1. **ATC Clearance.** Aircraft departing on IFR flight plans will receive their ATC clearance on ground control or designated clearance delivery frequency. Departing pilots shall read back clearances differing from the filed flight plan.
2. **Takeoff Clearance.** Aircraft shall hold well clear of the duty runway until cleared by the tower for takeoff or line up and wait, and the aircrew has ensured that there is no conflicting traffic for runway use. Pilots shall read back “line up and wait” and hold short instructions. When cleared for takeoff, aircraft shall take off without undue delay or clear the duty runway.
3. **Unrestricted Climb.** An unrestricted climb may be authorized for such reasons as noise abatement, fuel conservation, reduction of icing, or elimination of traffic conflicts. An unrestricted climb is authorized to climb directly to a cruise/en route altitude without an interim stop. It does not relieve the pilot of the responsibility to comply with applicable FARs, aircraft NATOPS and wing/squadron doctrine. Clearance for an unrestricted climb is not authorization for an aerobatic flight maneuver.
4. **Frequency Changes.** Single-piloted aircraft shall not be required to change radio frequency and/or transponder code settings until reaching an altitude of 2,500 feet above surface except when the aircraft is to level off and operate at an altitude below 2,500 feet. In that event, changes will be made after level off.
5. **Intersection Departure.** Pilots may be cleared either at controller discretion or at pilot request for an intersection departure to expedite air traffic and reduce delays unless local directives (i.e., Air Operations Manual) prohibit use of the applicable intersection. When clearing an aircraft for an intersection departure, controllers shall issue the measured distance from the intersection to the runway end. Issuance of the measured usable runway remaining may be omitted if appropriate directives (i.e., Air Operations Manual, letter of agreement, etc.) are issued to ensure that pilots and controllers are thoroughly familiar with these procedures, including usable runway length from the applicable intersection. Pilots still retain the prerogative to use the full runway length, provided they inform the tower of their intentions. It is the pilot's responsibility to determine that sufficient runway length is available to permit a safe takeoff under existing conditions.

6.2.6 Minimum Fuel

Minimum fuel is an advisory term indicating that in the judgment of the pilot the fuel state is such that no undue delay can be accepted en route to the destination. It is not an emergency situation, but undue delay may result in an emergency. If at any time the remaining usable fuel supply suggests the need for traffic priority to ensure a safe landing, the pilot shall declare an emergency and report fuel remaining in minutes. Both minimum fuel advisories and emergency fuel state shall be reported each time control is transferred to a new controller.

Note

Pilots declaring minimum fuel should not expect special handling from controllers.

6.2.7 Handling of VIP Aircraft

1. **Priority.** Although priority is not normally given to VIP aircraft, controllers may give consideration to such aircraft provided safety of other aircraft is not affected. Controllers shall not request priority from FAA for VIP flights.
2. **Estimated Time of Arrival.** Persons charged with meeting and making arrangements for VIP flights may be embarrassed if such a flight arrives prior to the ETA. Every effort should be made to provide updated ETAs to interested parties. Except in unusual circumstances, pilots of VIP flights should not arrive prior to the ETA.

6.2.8 Approach Instructions

Single-piloted aircraft arriving on an IFR flight plan shall be provided single frequency approach (SFA) to the maximum extent that communications capabilities and traffic will permit. Those activities without SFA capabilities shall keep frequency and/or transponder code shifts to an absolute minimum below 2,500 feet above the surface.

6.3 LANDING INSTRUCTIONS

1. VFR Arrivals. Contact the appropriate controlling agency (e.g., approach control, tower, etc.) prior to entering Class B, C, or D airspace. Notify the controlling agency as soon as possible after initial contact of special handling requirements (e.g., hung ordnance, etc.).
2. Waveoff. A waveoff is mandatory when ordered by the control tower, runway duty officer, or wheels watch unless the pilot is experiencing an emergency. The waveoff may be given by radio, light signals, red flares, or hand/flag signals.
3. Wheels Down Report. Remind aircraft to check wheels down on each approach unless the pilot has previously reported wheels down for that approach.

Note

The intent is solely to remind the pilot to lower the wheels, not to place responsibility on the controller.

- a. Tower shall issue the wheels down check at an appropriate place in the pattern. PHRASEOLOGY "CHECK WHEELS DOWN".
- b. Approach, arrival, or final control shall issue the wheels down check as follows:
 - (1) To aircraft conducting ASR or PAR approaches, before the aircraft starts descent on final approach.
 - (2) To aircraft conducting instrument approaches and remaining on the radar facility's frequency, before the aircraft passes the outer marker/final approach fix. PHRASEOLOGY "WHEELS SHOULD BE DOWN".
4. Lost Communication. If unable to establish radio communication, comply with the procedures contained in the Flight Information Handbook. Flashing of the landing/taxi lights is recommended in addition to the wing rock procedure.

6.3.1 Reduced Same Runway Separation

Strict adherence to the separation criteria for arriving and departing aircraft set forth in FAA Order JO 7110.65 may, in some circumstances, cause operational/training delays and airport congestion. Factors such as mission of the facility, airfield design, and aircraft models being supported may indicate that reduced separation standards are feasible and can be applied while maintaining adequate margins of safety. Subject to prior approval by CNAF/CMC, naval aviation shore facility commanders are authorized to establish and apply reduced separation criteria for Navy and Marine Corps aircraft at the airfields under their command with the following stipulations:

1. Such action is necessary to meet operational/training requirements.
2. In the case of formation instrument approaches, ceiling and visibility minimums stated in [Paragraph 5.1.12.6](#) apply.
3. Reduced separation criteria are applied only between aircraft of similar performance characteristics or when the preceding aircraft has higher performance than the following.
4. Prior to application of reduced separation criteria, appropriate directives are issued delineating the specific standards to be applied (i.e., distance between aircraft using alternate sides of the runway, distance between aircraft using centerline, aircraft model/classes to which reduced standards apply, etc.).
5. Appropriate measures have been instituted to ensure that affected ATC personnel and aircraft operators are aware of the criteria being applied.

6.3.1.1 Aircraft of Other Military Services

The conditions of [Paragraph 6.3.1](#) may also apply to aircraft of other military services when such conditions are agreed to in writing by the cognizant operational commander of the other service and the Navy or Marine Corps shore facility commander.

6.3.2 Procedure for Checking Wheels Down and Locked

When a pilot has any doubt as to the gear being down and locked, the pilot shall promptly notify the controlling agency. Further, the pilot should request an airborne visual check, preferably by a similar model aircraft if one is available and such a procedure is considered practicable and safe. If not possible, the pilot should request a ground visual check by the most qualified personnel available (e.g., LSO, RDO, etc.). If doubt exists as to gear being down and locked, the pilot shall notify the control tower, which will in turn direct the pilot to perform a low pass in front of the tower for the purpose of a visual check. Pilots should be aware, however, that air traffic control personnel may only comment on the appearance of the landing gear (e.g., wheels appear down). Should doubt exist after a visual check, crash and rescue equipment shall be available for precautionary landing. After a landing rollout, the aircraft shall not turn off the runway until ground personnel have made a visual check of the gear and gear pins have been installed. If a known not locked or up condition exists, normal crash alert procedures shall be instituted.

6.3.3 Runway Braking Action Advisory/Condition Readings

ATC facilities shall issue runway braking action advisories when braking action reports received from pilots or authorized airport operations personnel indicate braking action is poor or nil. The Flight Information Handbook contains the necessary information for converting the numerical runway condition readings (included in the remarks portion of the weather sequence) to descriptive terms used in braking action advisories.

6.4 LETTERS OF AGREEMENT

The NATOPS Air Traffic Control Manual (NA 00-80T-114) contains procedures for executing letters of agreement between FAA/USN air traffic control facilities concerning the control of air traffic. This guidance may also be used by wings/squadrons in effecting local letters of agreement with FAA facilities. The Navy Representative to the FAA Regional Headquarters (NAVREP) should be consulted in these cases. Information copies of local letters of agreement not specifically addressed in the NATOPS Air Traffic Control Manual shall be forwarded to CNO (N980A) and the appropriate aviation type commander.

6.5 VITAL MILITARY OPERATIONS

6.5.1 Priority

DoDI 5030.36 (Emergency Security Control of Air Traffic (ESCAT)) states policies and procedures for ESCAT will be in compliance with Title 32 CFR Part 245, which defines the jointly developed and agreed upon responsibilities of the Department of Transportation/Federal Aviation Administration (DOT/FAA), Department of Homeland Security/Transportation Security Administration (DHS/TSA), and Department of Defense (DoD) authorities for the security control of civil and military air traffic. Part 245 applies to all U.S. territorial airspace and other airspace over which the FAA has air traffic control jurisdiction by international agreement, defining the authorities, responsibilities, and procedures to identify and control air traffic within a specified air defense area during air defense emergencies, defense emergencies, or national emergency conditions. When ESCAT is implemented, a system of traffic priorities may be required to make optimum use of airspace, consistent with air defense requirements. The ESCAT Air Traffic Priority List (EATPL) is a list of priorities that may be used for the movement of air traffic in a defined area. Priorities shall take precedence in the order listed and subdivisions within priorities are equal. Flight operations vital to national defense, as determined by appropriate military commanders, will be given priority over all other military and civil aircraft. To ensure implementation actions can be taken expeditiously, ESCAT tests will be conducted periodically, but at least annually. Letters of Agreement (LOAs) between naval commands and FAA become the coordinating and implementing communications specified in ESCAT.

Refer to FAA Advisory Circular 99-1 for additional details.

6.5.2 Letters of Agreement

Each naval aviation shore activity from which active alert missions are conducted shall develop and implement a joint LOA with the appropriate FAA or host nation agency to prevent air traffic control delays for active missions. Wing/squadrons that routinely stand alert status at non-U.S. Navy airfields should execute an appropriate LOA at those airfields. Items that must be addressed in LOAs include but are not limited to:

1. Procedures to notify ATC at least 5 minutes prior to the flight to allow for clearing of traffic from the departure corridor.
2. Provision for ATC release of the active mission aircraft to an appropriate tactical control agency upon request with due regard for safety of flight.
3. Provision of Military Assumes Responsibility for Separation of Aircraft (MARSA) within the same mission. Refer to FAAO JO 7610.4 Special Operations.

Prior to signing and implementing any agreement, the proposed LOA shall be forwarded to the cognizant force commander for review and approval. NAVREPs should be consulted for assistance and advice in developing or revising joint LOAs and shall be provided copies of such agreements.

This Page Intentionally Left Blank.

CHAPTER 7

Safety

7.1 FLIGHT PRECAUTION

7.1.1 General Precautions

Per Department of Defense Directive (DoDD) 5030.61, all aircraft and air systems owned, leased, operated, used, designed, or modified by DoD must have completed an airworthiness assessment in accordance with Military Department policy. The airworthiness assessment provides DoD personnel (to include Service members and DoD civilians) and DoD contractors the appropriate level of safety of flight and risk management adapted to DoD-unique mission requirements. The Commander, Naval Air Systems Command is responsible for conducting all airworthiness assessments for the Department of the Navy.

All USN/USMC owned or leased aircraft, both manned and unmanned, (including pre-accepted and contracted air services conducting public aircraft operations supporting the Department of the Navy) shall have an airworthiness certification in the form of a flight clearance document promulgated/issued by COMNAVAIRSYSCOM or airworthiness assessment as determined by ACO (per NAVAIRINST 13034.1). Permanent flight clearances are issued for standardized configurations for DON aircraft in the form of a NATOPS and NATIP (when applicable). Aircraft operated in a nonstandard configuration, outside of the normal usage flight envelope, outside the limits/procedures of an existing promulgated NATOPS/NATIP, or utilizing non-standard flight operating or test techniques (e.g., operating outside of the intent of existing flight clearance documents) require a modified flight clearance. These modified flight clearances may be in the form of a NATOPS/NATIP change/update or Interim Flight Clearance letter/message, as determined by the ACO. An airworthiness assessment, if deemed appropriate by ACO, may be provided as a technical evaluation of data against specific airworthiness criteria and determination of residual risk. The waiver authority for airworthiness for the DON rests with COMNAVAIRSYSCOM. COMNAVAIRSYSCOM retains sole authority within the Navy and Marine Corps to issue declarations of PAO to contractor operations. Day-to-day execution of this authority is delegated to the ACO.

Flight Demonstrations (see [Paragraph 3.5](#)) introduce unique technical (and programmatic) challenges and as such, the Approval Authorities (see [Paragraph 3.5.2](#)) should engage ACO to analyze critical parameters for Flight Demonstration maneuvers (e.g., assess expected aircraft response to deviations, critical flight failures, emergency procedures, and ejection envelopes (if applicable)) in order to determine if the planned Flight Demonstration requires a modified flight clearance to be issued by the ACO.

7.1.1.1 Conduct of Flight

Pilots shall conduct their flights in such a manner as to avoid all unacceptable risks as determined by following the ORM process. Each pilot must exercise prudent judgment and take proper action (including modifying NATOPS procedures) when dictated by emergencies that endanger life or property. The decision to abandon aircraft should be tempered by the pilot's responsibility for the safety of lives that may be endangered by subsequent flight of a pilotless but controllable aircraft. It is the responsibility of the pilot/crew to aviate, navigate, and communicate, in that priority, throughout all aspects of both routine and unusual circumstances. The aircraft commander shall ensure that a current NATOPS Flight manual and/or NATOPS Pocket Checklist is carried onboard aircraft and readily available during ground and flight operations. If digital flight manual equivalent is utilized, a suitable back-up shall be available. A suitable back up may consist of printed material or digital flight manuals on an additional approved device sufficient to ensure consistent availability and readability of NATOPS content.

7.1.1.2 Liferafts

On overwater flights the number of persons in an aircraft shall not exceed capacity of the liferafts carried except as dictated by operational necessity.

CNAF M-3710.7

7.1.1.3 Feathering or Securing Engines

During simulated emergency operations and functional checkflights of multiengine aircraft, no propeller shall be fully feathered or engine secured at an altitude below 4,000 feet AGL except as follows:

1. Aircraft undergoing test and trials as required by COMNAVAIRSYSCOM.
2. Aircraft whose design characteristics include normal operations with propellers feathered or engines secured below 4,000 feet AGL.

Four-engine aircraft may operate with one propeller feathered or with one engine secured at altitudes of 1,500 feet AGL or higher when required for checkflights or training purposes subject to restrictions contained in the applicable NATOPS Flight manual.

7.1.1.4 Conduct of Passengers

Passengers embarked in transport aircraft shall remain in its passenger compartments and shall not enter the pilot or crew compartments except on specific invitation of the aircraft pilot in command.

7.1.1.5 General Flight Personnel/Passenger Restrictions

Except for emergency or operational necessity, the number of persons aboard naval aircraft engaged in flight operations such as pilot checkout, night familiarization, carrier qualifications, instrument flying in single-piloted aircraft, or functional check-flight and evaluation shall be limited to those required to properly operate the aircraft and accomplish the assigned mission. When applicable, special precautions shall be observed in the weight and balance of the aircraft.

Note

Simulated emergencies that may affect aircraft controllability shall not be conducted anytime passengers are aboard the aircraft.

7.1.1.6 Operation of Battery Powered Devices

Crew/passengers shall not operate electronic equipment/battery powered devices such as radios, tape players, razors, calculators, etc., without approval of the pilot in command while the aircraft is in flight. Cellular telephones shall not be operated in naval aircraft while airborne.

7.1.1.7 Loading/Offloading

Whenever a fixed-wing aircraft is engaged in loading or offloading of passengers, the engine(s) on the side of the aircraft from which loading or offloading is taking place shall normally be shut down. When the engine(s) cannot be secured during loading/offloading evolutions without adversely affecting the successful completion of the mission, care shall be taken to ensure that passengers are properly briefed and appropriate safety precautions are observed.

7.1.1.8 Adequate Cockpit Visual Lookout

The pilot in command of a naval aircraft with side-by-side cockpit seating arrangement shall be responsible for both seats being occupied at all times. On occasions when either pilots or copilots are absent from their seats, they should be relieved by another pilot or qualified crewmember who will carry out the responsibilities expected of a lookout. Functional checkflights of single-piloted aircraft may be exempt from this provision when deemed advisable by the commanding officer.

7.1.2 Starting, Turning, and Taxiing

7.1.2.1 Authorized Personnel

Engines shall not be started without a pilot or designated mechanic in the pilot seat. See [Paragraph 7.1.2.4](#) concerning helicopters/tiltrotors.

7.1.2.2 General Prestart Precautions

1. Before starting an engine, the wheels of the aircraft shall be chocked and the parking brake set unless a deviation from this requirement is specifically authorized by the applicable model NATOPS manual.
2. Where applicable, intake screens shall be installed on jet aircraft.
3. Prior to starting jet engines, intakes and surrounding ground/deck shall be inspected to eliminate the possibility of FOD.
4. When an engine is started by nonpilot personnel for testing and warm-up purposes on aircraft other than transport and patrol class equipped with parking brakes, the plane shall be tied down.
5. Whenever an engine is started, personnel with adequate fire extinguishing equipment, if available, shall be stationed in the immediate vicinity of the engine but safely clear of intakes or propellers.

7.1.2.3 Starting Procedures

In starting an aircraft, all challenges and signals between the person operating the starting device and the person at the engine controls shall be clearly understood and so indicated by repetition before action is taken by either person. Where the engines are started entirely from the cockpit, the person at the engine controls shall exchange signals with a person observing the engine from outside the aircraft. In all cases, the propeller or jet intake duct and engine outlet, as applicable, shall be declared all clear prior to starting. Similarly, the rotor(s) of helicopters and prop-rotors of a tiltrotor shall not be engaged unless the individual in the cockpit is ensured by positive signal that the area swept by the rotor(s) or prop-rotors is "all clear."

7.1.2.4 Helicopters/Tiltrotors

When the engine of a helicopter/tiltrotor is started, the controls should be manned by a qualified helicopter/tiltrotor pilot. Commanding officers may authorize certain specially qualified personnel, other than pilots, to ground test helicopter/tiltrotor engines and avionics when a pilot is not available; however, prop-rotors and rotors of a tiltrotor shall not be engaged except by a qualified pilot. Commanding officers of Fleet Readiness Centers, and Waiver Authorities defined in NAVAIRINST 3710.1 Series may authorize qualified civilian employees to start engines and engage rotors or prop-rotors for ground system checks. Aircraft security requirements (e.g., tiedowns, chocks, parking brakes, etc.) shall be in accordance with applicable NATOPS.

7.1.2.5 Turnup

Before starting an engine for a high power turnup, aircraft other than transport and patrol class aircraft shall be tied down and placed in such a manner that the propeller or jet blast will not cause damage to other aircraft, equipment, or property. During any ground runup, an outside observer shall be stationed in such a location as to be in view of the person at the controls at all times.

7.1.2.6 Taxiing

1. When taxiing in the close vicinity of obstructions or other aircraft, a qualified taxi director shall attend the taxiing aircraft as well as other ground personnel necessary to ensure safe taxiing.

Note

The pilot in command is responsible for safe taxi clearance from obstacles and other aircraft. When uncertain of safe taxi clearances, stop and utilize appropriate ground personnel prior to continuing to taxi.

2. Instructions and use of plane handling signals appear in NAVAIR 00-80T-113, and in posters and pamphlets issued by CNO. All naval activities are directed to comply with these instructions.

7.1.3 Takeoff

7.1.3.1 Flight Personnel and Passenger Briefing

The pilot in command of a naval aircraft shall ensure that prior to takeoff, flight personnel and passengers are adequately instructed on personal safety and survival equipment and procedures required for the particular aircraft in which they embark. Pilots of helicopters and tiltrotors that embark passengers are released from briefing responsibilities while engaged in:

1. SAR missions.
2. Transporting large troop contingents, reconnaissance parties, patrols, and outposts during field problems or when no opportunity is provided for the aircraft to be shutdown after embarkation.
3. Shipboard operations when landings are precluded.

Under such circumstances, the briefing shall be the responsibility of the cognizant local commander(s).

7.1.3.2 Loose Articles

Prior to aircraft takeoff, an inspection shall be made to ensure that no loose articles, such as rags, waste, tools, etc., are present that might foul the controls. Articles shall be properly stowed to prevent their coming adrift and being lost overboard or damaging the aircraft during maneuvers. Care shall be taken to ensure proper load-balance distribution of all weights.

7.1.4 Takeoff and Landing Checklists

NATOPS checklists shall be provided in each aircraft for mandatory use by pilots to assist them in preparing the aircraft for takeoff and landing. They shall be followed carefully and in their given order to ensure that all steps are performed.

Note

In compliance with aircraft military design specifications, most aircraft are provided with abbreviated takeoff and landing checklists placarded (or etched) on instrument panels. The checklists are an additional reminder to flight personnel to complete required NATOPS manual checklists and serve as a double check on the proper positioning and status of major aircraft systems.

7.1.4.1 Reclining Seats

Personnel embarked in aircraft equipped with seats that have a reclining back shall be instructed to lock the seat in the erect position for all takeoffs, landings, and emergencies.

WARNING

Reclining seats that will not lock in the erect position shall not be used for passenger transport.

7.1.5 Engine Malfunctions on Multiengine Aircraft

In the event of a single power loss, engine failure or emergency involving the precautionary shutdown of an engine on multiengine aircraft, the PIC shall refer to T/M/S NATOPS guidance and apply risk management decisions to determine landing criteria. If specific T/M/S procedures authorize continued flight, the PIC should only proceed to a selected destination after considering the following:

1. The nature of the malfunction and the possible mechanical difficulties that may occur if flight is continued.

2. The altitude, weight, and usable fuel at the time of engine stoppage.
3. The terrain and weather conditions en route and at suitable landing points.
4. Possible air traffic congestion at suitable landing points.
5. Pilot familiarity with the airport to be used.
6. Power on remaining engine(s) is sufficient for en route conditions and available landing sites.

7.1.5.1 Reports

Pilots in command shall report in-flight power failures and/or precautionary engine stoppages that affect safety of flight to the appropriate ground station as soon as practicable and shall keep appropriate operational control centers and/or traffic control facilities advised of their intentions and flight progress.

7.1.6 Distress and Emergency

7.1.6.1 Distress Procedures

Distress frequencies, procedures, signals, and call signs may vary among theaters of operations and are contained in various directives such as Joint Pub 3-50, DoD FLIPS, and ICAO publications. A copy of the applicable procedures and signals shall be carried in the cockpit of all naval aircraft and may be used in time of peace regardless of the degree of radio silence that may be imposed during tactical exercises. They will be used in time of war when prescribed by the officer in tactical command and may be amplified as necessary to cover local conditions or specific military operations.

7.1.6.2 Emergency Procedures

Forced landing, lost aircraft, and search and rescue procedures applicable to aircraft are contained in various directives such as NWPs; Joint Army, Navy, Air Force Publications (JANAPs); and ICAO publications. Commanding officers shall ensure that each pilot under their command is thoroughly cognizant of applicable directives.

7.1.7 Ditching and Bailout

7.1.7.1 Ditching Precautions

When an aircraft must be crash landed on either land or water, the sudden shifting of cargo, equipment, and other heavy items may cause injury or loss of life. All units shall arrange and secure equipment in their aircraft to guard against such dangers. Emergency gear such as liferafts should be properly stowed for quick availability. Responsibility for proper security of cargo and equipment lies with the pilot in command of each aircraft.

7.1.7.2 Procedures

Ditching and bailout bills shall be prominently displayed in all multipiloted aircraft having embarked flight personnel and/or passengers. Frequent drills shall be held to familiarize flight personnel with these instructions. Ditching and bailout signals shall be accompanied by simultaneous parallel announcements on the ICS or public address system whenever practicable.

Note

Bailout bills shall not be required in helicopters; however, strict compliance with the provisions of [Paragraph 7.1.3](#) is mandatory.

7.1.8 Command and Control Communication

Change in the control of aircraft shall be effected in a positive manner. As a minimum, a simple voice procedure (ICS or oral) shall be used to effect transfer of control responsibility. Pilots exercising control are responsible until they acknowledge verbally the relieving pilots acceptance of control of the aircraft. Where noise level, cockpit configuration, or other conditions prevent a positive verbal exchange, the following procedure shall be used:

CNAF M-3710.7

1. The pilot desiring to be relieved or pilot desiring to take control shall shake control stick or column.
2. Pilots taking control shall shake control stick or column.
3. Pilot being relieved shall hold both hands overhead and observe the relieving pilot.
4. Pilots who have taken control shall signify this fact definitely by placing their hand on their head when the other pilot is looking at them. The pilot originally in control shall not be considered relieved until the foregoing has been executed, and responsibility for control of the aircraft rests upon the pilot until that has occurred.
5. In aircraft where visual contact between the two control positions is impossible or unsatisfactory, shift of control shall be attempted only when an operative interphone system is provided.
6. In high-performance multicrew jet aircraft, the pilot ICS shall be selected to the "Hot Mic" position in aircraft so equipped for all takeoffs and landings, and when taxiing on an aircraft carrier deck. Below 2,500 feet AGL, "Hot Mic" shall always be selected unless the use of "Hot Mic" would significantly detract from the safety or mission effectiveness of the flight. Further use of "Hot Mic" should be prescribed in the individual flight manuals as appropriate to the installed system, mission requirements, and emergency capabilities.

7.1.9 Tobacco Products in Aircraft

1. The use of tobacco products or electronic cigarettes in naval aircraft is prohibited.
2. Lighter Prohibition. Lighters with plastic liquid reservoirs and/or containers for refilling any lighter are prohibited in naval aircraft. Lighters with butane, propane, or methyl alcohol as a fuel are also prohibited.

7.2 SAFETY BELTS AND SHOULDER HARNESES

Each person's safety belt and shoulder harness shall be worn and tightened prior to takeoff and shall be worn until completion of the flight except when necessary activities require temporary removal. Inertia reels, where provided, shall be manually locked for all takeoffs and landings and at all other times when high g forces may be encountered except where the procedure is detrimental to safe operation. The number of persons over 2 years of age embarked in a naval aircraft for flight shall be restricted to the number for which there are adequate seats and safety belts. During takeoffs, landings, and at other times as specified by the pilot in command, each person over 2 years of age on board transport aircraft shall occupy a seat or berth and be secured with the safety belt provided for that purpose. Cabin seating requirement for C-2/COD aircraft, helicopters and tiltrotors may be eliminated when operational environment or aircraft configuration/load requirements dictate for the accomplishment of essential training and operations with the following guidelines:

1. Applies to SPECOPS training and missions.
2. Applies to dedicated lifesaving efforts, including humanitarian and SAR operations.
3. Not to be used for routine operational training or personnel transfers. Applies only when tactical or procedural requirements exist for a specific mission or exercise.
4. When seats are removed, passengers will be restrained by an appropriate alternate means.
5. If mission profile requires removal of seats/seatbelts/restraints for one part of the mission, then passengers will, if possible, use seats/seatbelts/restraints for all other phases of the mission.

WARNING

Walkaround belts do not provide impact protection; therefore, use of those belts shall be restricted to only those occurrences when mission accomplishment requires persons to be out of their seat. Such belts shall not be worn when strapped into a seat.

Note

Flight personnel leaving their seats to open a hatch or work in the vicinity of an open hatch shall wear an approved crewman aircraft belt (walkaround) during time spent out of the seat.

7.3 UNUSUAL PERFORMANCE OF AIRCRAFT

Any abnormal, erratic, or other kind of unusual performance of an aircraft or its powerplant, including material failures, shall be reported in accordance with OPNAVINST 3750.6 and COMNAVAIRFORINST 4790.2.

This Page Intentionally Left Blank.

CHAPTER 8

Aeromedical and Survival

8.1 GENERAL

To improve the survivability of flight personnel, CNO (N98) has implemented the aircrew survivability enhancement program (ASEP). Sub-elements of this program are aviation life support systems (ALSS), CBRND, safety, human performance, and training. Guidelines and requirements contained here are considered minimum. Recommendations for changes or improvement in equipment, procedures, or training shall be addressed via the chain of command to COMNAVAIRFOR (N455) for evaluation and, if appropriate, implementation.

8.2 AVIATION LIFE SUPPORT SYSTEMS

The safety and survival equipment/requirements specified in [Paragraphs 8.2.1, 8.2.2, 8.2.3, and 8.2.4](#) of this manual are minimum requirements. The latest equipment for use by aircrew personnel and passengers for flight in all naval aircraft is listed in the Aircrew Systems NATOPS Manual (NAVAIR 00-80T-123), Aviation Crew Systems manuals (NAVAIR 13-1-6.1 through NAVAIR 13-1-6.10), Interim Flight Clearances (IFCs), NATOPS Flight Manuals for specific T/M/S aircraft, and other NAVAIR Publications (NA 16-30PRC90-2, NA 16-30PRC149-1, NA 16-35PRC112-1, NA 16-35PRC112-1-1, NA 16-30URT140-1, and NA 16-35AVS9-4).

8.2.1 Aircrew Personal Protective Equipment Requirements

8.2.1.1 Aircrew

All aircrew shall perform pre-flight and post-flight inspections of their aircrew personal protective equipment IAW procedures in the Aircrew Systems NATOPS Manual (NA 00-80T-123). Annually, aircrew shall ensure personal-issue flight clothing is free of damage or wear affecting its protective ability. Personal-issue flight clothing may include but is not limited to: flight suits, gloves, boots, jackets, all-weather and cold-weather clothing, and sun glasses. Damaged or worn items shall be turned in for replacement.

Note

- Items below marked * may be omitted by flight personnel flying in rotary wing/tilt-rotor executive transport aircraft, maritime patrol aircraft and fixed-wing cargo/transport class aircraft if such flight does not involve shipboard operations and omission is approved by the commanding officer.
- Helmet taping requirements identified in item (1) and the requirements of item (13) below may be omitted by naval flight demonstration squadron aircrew with commanding officer approval.
- The Type Wing, Marine Aircraft Group, or in the case of DCMA, NAVAIR ACCO may authorize aircrew ALSS managers to omit items prohibited by commercial air carriers when aircrew are conducting one way, daytime, overland delivery flights, which require the use of public transportation by the aircrew on the return to originating location.

*1. Protective helmet — The helmet shall be 100 percent covered with white reflective tape except as modified by approved aircrew system changes. Up to 30 square inches of light-colored reflective tape may be applied so long as the white tape remains visible from all directions. The use of reflective tape may degrade night vision device (NVD) performance. Temporary, nonreflective cloth covers may be worn over the reflective tape.

*2. Aircrew safety/flyer boots.

CNAF M-3710.7

- *3. Fire-resistant (aramid) flight gloves.
- *4. Fire-resistant flight suit (aramid) — Aramid or cotton-type undergarments shall be worn. Suitable fire-resistant unit issue clothing (aramid) may be substituted for the flight suit for flight personnel in non-ejection seat aircraft.
- *5. Survival knife — Do not wear exposed or attached to the life preserver.
- *6. Individual aircrewman's survival kit — Appropriate to the area of operations.
- *7. Signal device — Required for all night flights and flights over water or sparsely populated areas.
- *8. Survival Vest — The incorporation of inflatable life preservers shall be worn in accordance with items 13. and *14.
- 9. Survival radios and beacons.
 - a. Survival radios.
 - (1) An approved voice-capable survival radio shall be carried by each aircrewman on all flights, unless otherwise directed by aircraft NATOPS manuals.
 - (2) A voice-capable radio shall be packed with all multiplace rafts.
 - b. Emergency beacons.
 - (1) An approved automatically actuated line-of-sight emergency beacon shall be installed in all ejection seats. Emergency beacon shall remain automatically actuated unless the aircraft will be operated in hostile fire areas.
 - (2) Beyond-the-line-of-sight, emergency beacon shall be packed with all multiplace rafts carried on board aircraft when performing extended overwater flights outside of normal oceanic air traffic routes.
- 10. Flashlight — Required for all night flights.
- 11. Anti-exposure suits — Only combinations of anti-exposure suits and thermal layers authorized by NAVAIR 00-80T-123 or IFC shall be worn. Wearing of the complete anti-exposure ensemble as authorized is the only configuration that ensures adequate thermal protection with water temperatures below 60 °F. Refer to NAVAIR 00-80T-123 for the recommended thermal layers based on water temperature.

WARNING

- In water temperatures below 50 °F, failure to wear appropriate anti-exposure ensembles can result in death from lethal cold shock within 2 minutes following immersion.
- Without appropriate anti-exposure suits and thermal underlayers, immersion in water with a temperature of between 50 °F and 60 °F for as little as 2 hours can result in unconsciousness from hypothermia.

Note

- Wearing thermal underlayers can significantly improve survivability in a cold dry environment (e.g., survival situation resulting from overland mountainous flight profile).
- Without the anti-exposure suit, thermal underlayers are of very little or no practical value for thermal protection during water immersion situations.
- The wearing of anti-exposure ensembles during flight can result in accelerated human performance degradation due to fatigue, dehydration and thermal load. Since fatigue is more prevalent with the wearing of anti-exposure suits, the rest, sleep, and flight time requirements of [Paragraph 8.3.2](#) may not be sufficient.

a. Continuous-wear anti-exposure suits.

- (1) Individually issued, appropriately sized & fitted, and properly maintained anti-exposure suits and associated thermal underlayers shall be provided when in the event of a mishap there would be a significant risk of water entry and when either of the following two conditions prevail:
 - (a) The water temperature in the planned flight area is 50 °F or below.
 - (b) The outside air temperature (OAT) on the surface in the planned flight area is 32 °F or below (based on the wind chill factor corrected temperature (see [Figure 8-1](#)).

WARNING

- In water temperatures below 50 °F, failure to wear appropriate anti-exposure ensembles can result in death from lethal cold shock within 2 minutes following immersion.
 - Failure to fully close the zipper after donning may result in water intrusion, increasing risk of death due to hypothermia and/or drowning.
- (2) The commanding officer (CO) or officer in charge (OIC) of the aviation unit bears the responsibility to mandate the wear of continuous wear anti-exposure suits using ORM analysis based on [Figure 8-2](#) and SAR factors as follows:
 - (a) Assess maximum probable rescue time (which is a function of multiple factors including, but not limited to, mission distance, SAR equipment, and SAR location).
 - (b) Determine the lowest water temperature in the planned flight area during the time of flight.
 - (3) When not mandated by the CO or OIC, flight personnel have the option to wear the provided anti-exposure suits whenever they deem circumstances merit their use.
- b. Rescue Swimmer anti-exposure suits. Rescue swimmers shall not be deployed unless equipped with anti-exposure protection when water temperature is 60 °F or below or OAT is wind chill factor corrected at 32 °F or below.
- c. Quick-donning anti-exposure suits. For aircraft in which the use of quick-donning suits is authorized IAW NAVAIR 00-80T-123, platform NATOPS, or IFC (i.e., large helicopters and patrol class aircraft) such suits shall be carried for each aircrew member as part of the aircraft survival equipment on flights conducted under the temperature conditions stated in [Paragraph 11.a \(1\)](#) above. Fleet tactical support squadrons and other commands operating transport class aircraft in routine transport operations are exempt from the requirement to carry quick-donning anti-exposure suits. Examples of non-routine operations that require anti-exposure suits include, but are not limited to, functional check flights, flights for airlift of hazardous cargo, and flights in combat zones.

12. Antiblackout suits (G-suits) shall be worn and connected on all flights in aircraft equipped for their use.

Figure 8-1. Wind Chill Index

WHAT THE THERMOMETER READS (degrees F.)												
WIND SPEED MPH	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
	WHAT IT EQUALS IN ITS EFFECT ON EXPOSED FLESH											
CALM	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
5	48	37	27	16	6	-5	-15	-26	-36	-47	-57	-68
10	40	28	16	4	-9	-21	-33	-46	-58	-70	-83	-95
15	36	22	9	-5	-18	-36	-45	-58	-72	-85	-99	-112
20	32	18	8	-10	-25	-39	-53	-67	-82	-96	-110	-121
25	30	16	0	-15	-29	-44	-59	-74	-88	-104	-118	-133
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109	-125	-140
35	27	11	-4	-20	-35	-49	-67	-82	-98	-113	-129	-145
40	26	10	-6	-21	-37	-53	-69	-85	-100	-116	-137	-148
<div> <div>Little danger if properly clothed</div> <div>Danger of freezing exposed flesh</div> <div>Great danger of freezing exposed flesh</div> </div>												

3710-F05

Figure 8-2. Anti-Exposure Assembly Requirements

COLD WATER IMMERSED FUNCTIONAL EXPOSURE LIMITS BY TYPE OF EXPOSURE PROTECTION										
		CWU-86, -87/P ANTI-EXPOSURE COVERALL ¹							OTS-600 ²	
CWU-86 or 87/P Dry Suit		X	X	X	X	X	X	X		
OTS-600 Dry Suit									X	X
MCP Ltwt Underwr			X		X		X			X
MCP Mdwrt Underwr				X	X			X		
MCP Hvywt Liner						X	X	X		
Aircrew Safety Boot		X	X	X	X	X	X	X	X	X
Std Wool Socks		X	X	X	X	X	X	X	X	X
	Water Temp °F									
8% Body Fat	35	≤ 30	≤ 60	≤ 90	≤ 105	≤ 135	≤ 150	≤ 240	≤ 60	≤ 165
	40	≤ 30	≤ 75	≤ 120	≤ 135	≤ 165	≤ 180	≤ 300	≤ 75	≤ 195
	45	≤ 30	≤ 90	≤ 150	≤ 180	≤ 210	≤ 225	≤ 360	≤ 90	≤ 225
	50	≤ 45	≤ 120	≤ 210	≤ 240	≤ 270	≤ 285	> 360	≤ 120	≤ 285
	55	≤ 60	≤ 180	≤ 300	≤ 315	≤ 300	> 360	> 360	≤ 150	≤ 345
	60	≤ 105	≤ 255	> 360	> 360	≤ 360	> 360	> 360	≤ 225	> 360
	68	≤ 225	> 360	> 360	> 360	> 360	> 360	> 360	> 360	> 360
11 to 14% Body Fat	35	≤ 45	≤ 75	≤ 105	≤ 120	≤ 135	≤ 150	≤ 240	≤ 75	≤ 165
	40	≤ 45	≤ 90	≤ 135	≤ 150	≤ 165	≤ 180	≤ 315	≤ 90	≤ 195
	45	≤ 60	≤ 105	≤ 180	≤ 195	≤ 225	≤ 240	> 360	≤ 105	≤ 240
	50	≤ 75	≤ 150	≤ 240	≤ 255	≤ 300	≤ 315	> 360	≤ 135	≤ 300
	55	≤ 105	≤ 210	≤ 330	≤ 345	≤ 360	> 360	> 360	≤ 195	> 360
	60	≤ 150	≤ 300	> 360	> 360	> 360	> 360	> 360	≤ 270	> 360
	68	≤ 315	> 360	> 360	> 360	> 360	> 360	> 360	> 360	> 360
15 to 18% Body Fat	35	≤ 60	≤ 90	≤ 135	≤ 135	≤ 165	≤ 180	≤ 270	≤ 90	≤ 195
	40	≤ 60	≤ 105	≤ 165	≤ 180	≤ 210	≤ 225	≤ 345	≤ 105	≤ 225
	45	≤ 90	≤ 150	≤ 210	≤ 225	≤ 270	≤ 285	> 360	≤ 135	≤ 285
	50	≤ 105	≤ 195	≤ 285	≤ 300	≤ 345	≤ 345	> 360	≤ 180	≤ 345
	55	≤ 150	≤ 270	≤ 360	> 360	> 360	> 360	> 360	≤ 240	> 360
	60	≤ 210	≤ 360	> 360	> 360	> 360	> 360	> 360	≤ 330	> 360
	68	≤ 360	> 360	> 360	> 360	> 360	> 360	> 360	> 360	> 360
19 to 26% Body Fat	35	≤ 105	≤ 150	≤ 195	≤ 210	≤ 225	≤ 240	≤ 330	≤ 135	≤ 255
	40	≤ 120	≤ 180	≤ 255	≤ 255	≤ 285	≤ 300	≤ 360	≤ 165	≤ 300
	45	≤ 150	≤ 225	≤ 300	≤ 300	≤ 315	≤ 330	> 360	≤ 225	≤ 330
	50	≤ 210	≤ 285	≤ 330	≤ 345	> 360	> 360	> 360	≤ 285	> 360
	55	≤ 270	≤ 330	> 360	> 360	> 360	> 360	> 360	≤ 315	> 360
	60	≤ 315	> 360	> 360	> 360	> 360	> 360	> 360	> 360	> 360
	68	> 360	> 360	> 360	> 360	> 360	> 360	> 360	> 360	> 360

Figure 8-2. Anti-Exposure Assembly Requirements (cont.)

COLD WATER IMMERSED FUNCTIONAL EXPOSURE LIMITS BY TYPE OF EXPOSURE PROTECTION										
		CWU-86, -87/P ANTI-EXPOSURE COVERALL ¹							OTS-600 ²	
≥ 27% Body Fat	35	≤ 180	≤ 240	≤ 300	≤ 315	≤ 345	≤ 360	> 360	≤ 225	≤ 360
	40	≤ 210	≤ 300	≤ 360	≤ 360	≤ 360	> 360	> 360	≤ 285	> 360
	45	≤ 270	≤ 360	> 360	> 360	> 360	> 360	> 360	≤ 360	> 360
	50	≤ 360	> 360	> 360	> 360	> 360	> 360	> 360	> 360	> 360
	55	> 360	> 360	> 360	> 360	> 360	> 360	> 360	> 360	> 360
	60	> 360	> 360	> 360	> 360	> 360	> 360	> 360	> 360	> 360
	68	> 360	> 360	> 360	> 360	> 360	> 360	> 360	> 360	> 360
Key:	High Risk	Safest								
NOTES										
<div>1. All CWU-86/-87/P assemblies include Aircrew Safety Boots, standard wool socks, HGU-84/P helmet, CWU-27/P flight suit.</div> <div>2. All OTS assemblies, in addition to the above, include PCU-78/P Harness and CSU-13B/P, -15A/P G-suit.</div>										
<div><div>CAUTION</div><p>This table shows estimated Immersed Functional Exposure Limits Based on laboratory tests and simulations. Actual functional Exposure limits will vary based on the individual personal fitness (e.g., rest, meals, activity level, injuries, and mental attitude) and factors such as sea state, ambient air temperature, and total immersed time.</p><p>Note</p><ul style="list-style-type: none">This table depicts predicted Functional Exposure Limits in minutes and represents the elapsed time to reach a body core temperature associated with mental and physical impairment where, for example, one is no longer able to keep their mouth closed, keep their face above water, float on one's back, or perform other basic survival actions. This differs from Survival Time, the time to reach a core body temperature associated with clinical death.Predictions are based on body fat/weight combinations of 8%@155 lbs, 11-14%@166 lbs, 15-18%@177 lbs, 19-26%@193 lbs, 27%@216 lbs.<p>USING TABLE TO MAKE OPERATIONAL DECISIONS</p><ol style="list-style-type: none">Consult with operations to determine likely alert-to-rescue time. Allow for rescue of all aircrew.Determine the coldest water temperature (rounding down) of which you will be flyingChoose the body fat range that most closely resembles you, underestimating rather than overestimating.Determine functional exposure limit by matching the water temperature row with the type of individual exposure protection available.<p>Example:</p><p>Aircrew with 18% body fat is scheduled for an unescorted night flight with a total of five personnel that will depart NAS Norfolk and terminate approximately three hours later on a carrier at sea. The coldest water temperature over which the crew will fly is predicted to be 53 degrees. Operations estimates the time for SAR to arrive at their approximate location to be 1 hour and 30 minutes. Taking into account 1 hour to locate the survivors and an additional 1 hour and 15 minutes to rescue all five crew members, the total in water time would be 225 minutes for the last crewmember to be retrieved. Thus, the aircrew needs need to select clothing that will protect them for no less than 225 minutes. The CWU-86/P, Lightweight MCP, and Midweight MCP undergarments are available to the aircrew. The aircrew consults the "15–18%" body fat data range and 50 °F water temperature (rounding down). Based on the table, the aircrew determines that they can wear just the Lightweight MCP under the CWU-86/P to endure the estimated 225 minutes it will take to be rescued.</p></div>										

13. Inflatable life preservers shall be worn during all flights originating from or terminating on ships or landing platforms.
- *14. Life preservers shall be worn when operating from aerodromes in the vicinity of coastal waters or when operating from inland aerodromes where takeoff, route of flight, or approach path is over water. Occupants of ejection seat aircraft shall wear the appropriate life preserver at all times. Auto inflating devices shall not be worn in aircraft where ditching is a recommended procedure, such as in helicopters, or on COD flights.

WARNING

- Wearing a life preserver under any item of clothing or equipment may cause serious injury or death. Life preservers should never be worn under any garment or equipment unless the equipment is specifically designed to be worn in that configuration.
 - The life preserver automatic inflation devices are designed for use in ejection seat aircraft only. Wearing an auto inflating device in aircraft where ditching is a recommended procedure will result in inflation upon water entry and impeded egress.
15. Laser eye protection (LEP) — LEP shall be worn IAW OPNAVINST 5100.27/MCO 5104.1 series in a known or suspected laser threat environment (e.g., rangefinder, designator, etc.) either in a single or multi-aircraft scenario. Laser threats from the surface or air, can come from friendly, neutral, or enemy forces. Appropriate LEP should be selected to protect against the specific wavelengths of the threat environment. LEP may cause decreased overall light transmission and alter color perception. LEP should be compatible with night vision systems and cockpit instruments/displays.

WARNING

Failure to wear the correct LEP may cause operationally significant glare, temporary blind spots, or permanent vision damage.

16. Supplemental Emergency Breathing Devices (SEBD) — SEBD shall be carried by all helicopter, tiltrotor, E-2, and C-2 aircrew during overwater flight. Aircrew must complete applicable NASTP SEBD training elements prior to being issued personal SEBD equipment. The flight-approving authority may provide SEBD or similar approved equipment to any non-aircrew who has successfully completed applicable training.
17. Appropriate aircrew CBRND protective equipment shall be worn or available for immediate use when operating in identified chemical, biological (CB) threat areas.
18. Urinary Relief System — An approved system selected by individual aircrew shall be made available to aircrew.

8.2.1.2 Rescue Aircrewmembers Equipment

The minimum personnel equipment to be carried by the rescue swimmer shall be in accordance with applicable aircraft type NATOPS manual and NTTP 3-50.1.

8.2.1.3 Passengers

Passengers shall comply with the provisions of [Paragraph 8.2.1.1 subparagraph 13](#).

1. Passengers in COD aircraft during shipboard launch and recovery and passengers in helicopters/tiltrotors shall wear an approved protective helmet with reflective tape. The combat/parachutist helmet may be worn

CNAF M-3710.7

in lieu of the protective helmet with reflective tape, provided hearing protection is worn by all passengers. Waivers of this requirement may be granted by CMC/COMNAVAIRFOR only.

2. During shipboard logistic, nontactical operations, passengers in aircraft (excluding Fleet Marine Force (FMF) helicopters, tiltrotors and COD/VOD aircraft) shall wear appropriate anti-exposure protection whenever antiexposure suits are required for aircrew. Competent authority is authorized to waive this requirement based on an ORM analysis, which considers rescue distance, expected rescue times, personal health factors, and other pertinent aircraft egress factors.
3. For all other aircraft carrying passengers, minimum safety and survival gear shall be as defined by the NATOPS manual for the specific aircraft.

8.2.2 Liferrafts

Liferrafts of sufficient capacity to accommodate passengers and crew shall be provided in all aircraft when there would be a significant risk of water entry in the event of a mishap. Officers in tactical command may waive this provision during troop movements between sea and shore when they deem it appropriate and adequate SAR resources are available. Waiver decision will be based on ORM analysis.

8.2.3 Parachutes

8.2.3.1 Requirements

Parachutes shall be provided as dictated by T/M/S NATOPS manuals or applicable interim flight clearance.

8.2.3.2 Responsibility of the Pilot in Command

The pilot in command of a naval aircraft in which parachutes are required shall ensure the following:

1. A parachute is available to all flight personnel and passengers in a location convenient to the intended user.
2. All flight personnel and passengers are familiar with the location, use of the type parachute provided, and bailout procedures for the aircraft in which embarked.

8.2.3.3 Parachute Equipped Aircraft and High Winds

Commanding Officers shall ensure that appropriate ORM is conducted prior to commencing flight operations when steady state surface winds exceed 25 knots (refer to [Figure 8-3](#) below regarding historical injury data). Refer to T/M/S NATOPS for guidance/warnings on specific parachute and occupancy restrictions.

WARNING

High surface winds contribute to total landing velocity. An increased risk of severe injury or death during parachute landing fall (PLF) exists as surface winds increase, with a significant increase in risk above 25 knots.

8.2.4 Aircraft Oxygen System and Cabin Pressurization

Oxygen is essential for life; a lack of adequate oxygen delivered to the tissues, referred to as hypoxia, can have serious, even life-threatening consequences (refer to [Paragraph 8.2.4.6.3](#)). Therefore, oxygen and cabin pressurization systems are provided to offset the physiological effects of the reduced barometric pressure in the cabin during high altitude flight in Class 1, 2 and 4 aircraft (see [Paragraph 8.4](#) and [Appendix E, Figure E-3](#) for aircraft class descriptions). Regardless of altitude, atmospheric air by volume is approximately 21% oxygen, 78% nitrogen, and 1% other trace compounds (e.g., argon, carbon dioxide, neon, helium). Although the fractional content (gas percentages) of atmospheric air stays constant as altitude increases, the partial pressure of oxygen decreases, making it more difficult for humans to obtain the required amount of oxygen (see [Figure 8-3](#)). This can lead to serious consequences if not mitigated. Noticeable physiological deficits begin to occur above 10,000 feet if supplemental oxygen and/or cabin pressurization are not available. Therefore, except as stated in

Paragraphs 8.2.4.1 and 8.2.4.2, all occupants aboard naval aircraft shall use supplemental oxygen on flights in which the cabin altitude exceeds 10,000 feet.

Note

Facial hair interferes with the proper oxygen and CBR mask seal during routine (e.g. tactical aviation) and emergency (e.g. quick-don masks or walk around bottles) use. Other facial dermatological conditions that may interfere with mask function shall be referred to a flight surgeon for evaluation. If a proper oxygen mask fit is not possible, the member shall be found Not Physically Qualified (NPQ) for flight duties.

In Figure 8-4, although the ratio of oxygen molecules to other atmospheric gases remains constant throughout the flight envelope of naval aircraft, the decrease in atmospheric pressure (atm) with increasing altitude results in a lower total pressure of air. This means that at increasing elevations, each breath contains less molecules of all gases, including oxygen. Therefore, a larger volume of air must be inspired to meet physiological requirements. For example, at 18,000 feet twice the volume of air needs to be inspired to get the equivalent amount of oxygen at sea level.

Figure 8-3. Occurrence of Major Injury Resulting from Parachute Landing on Land or Ship in Ejections Between 1969 and 1998 in High Winds

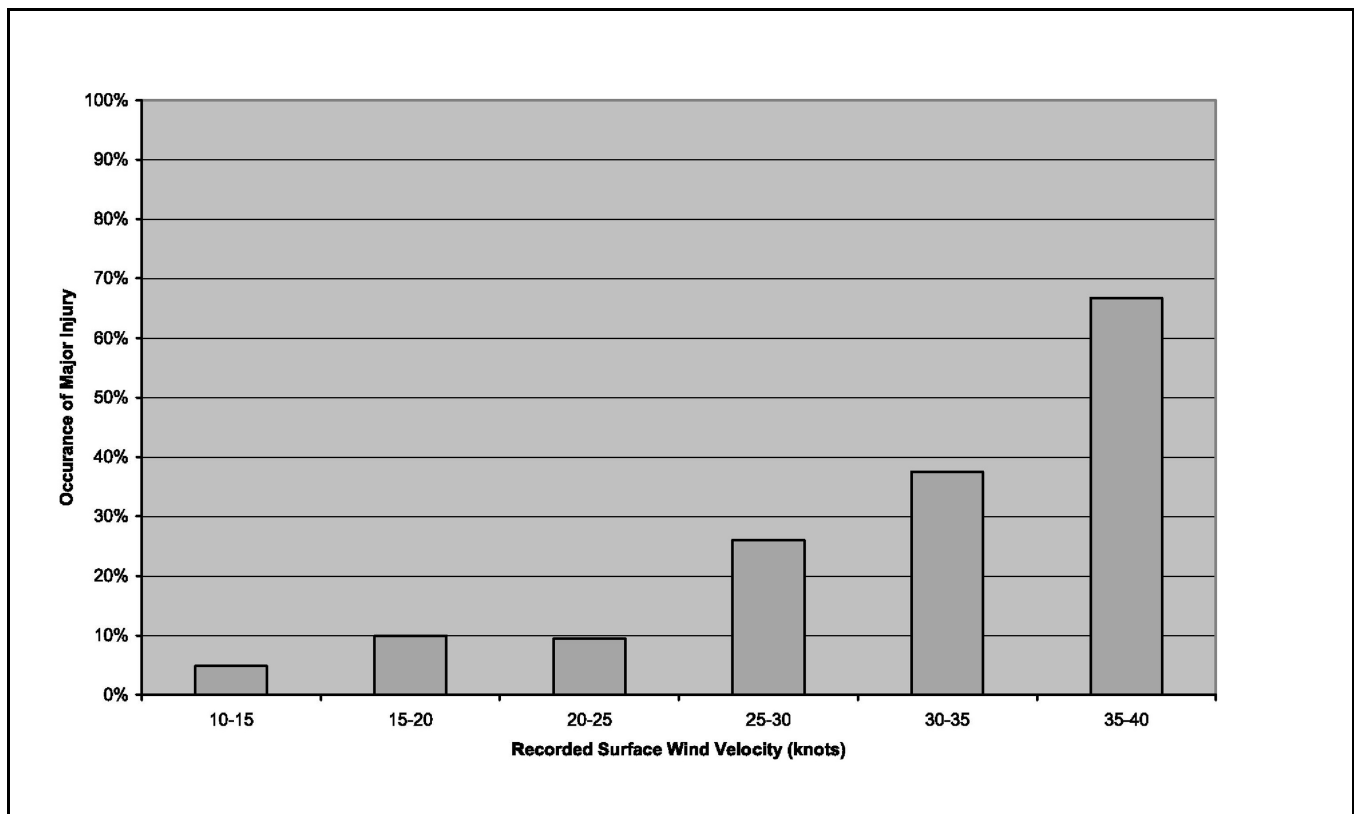
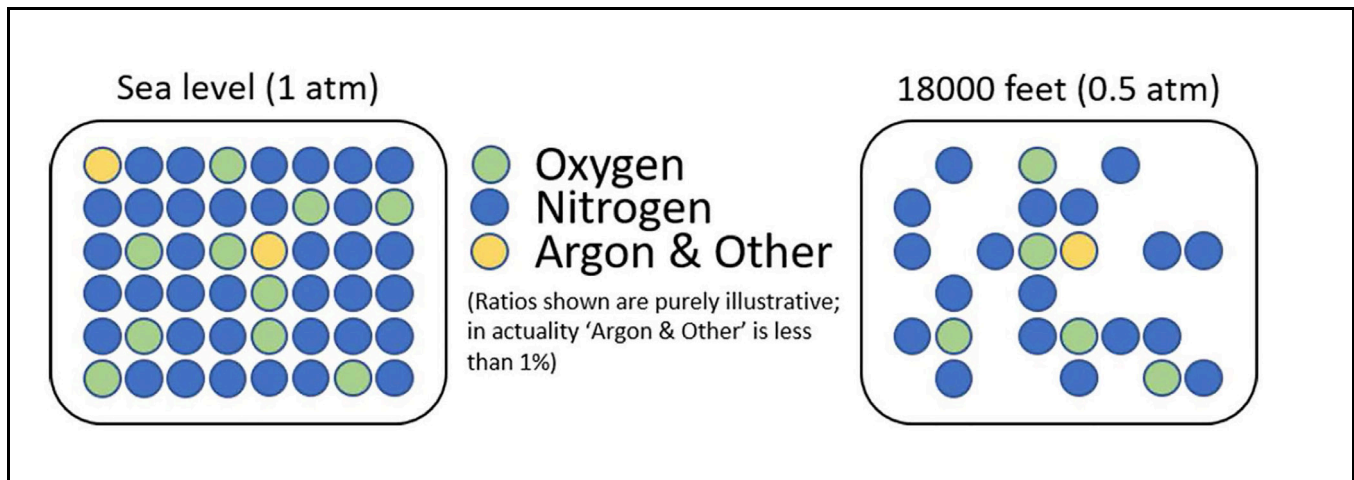


Figure 8-4. Fractional Gas Concentration Versus Partial Pressure



8.2.4.1 Unpressurized Aircraft Oxygen Usage

Figure 8-5 governs the use of oxygen equipment in unpressurized aircraft with oxygen systems. In unpressurized aircraft with oxygen systems, the pilot at the controls and aircrew (e.g., loadmasters or crewchiefs) shall use supplemental oxygen continuously when altitude exceeds 10,000 feet. When oxygen is not available to other occupants, flight between 10,000 and 13,000 feet shall not exceed 3 hours duration, and flight above 13,000 feet is prohibited. In aircraft where oxygen systems are not available (such as helicopters), it shall be determined that it is mission essential by the CO/OIC or mission commander for flight altitude to exceed 10,000 feet. Time above 10,000 feet without supplemental oxygen shall not exceed one hour and altitude shall not exceed 13,000 feet.

Note

Unpressurized aircraft flying above 18,000 feet should refer to Figures 8-5 and 8-6 to determine the risk of Decompression Sickness (DCS). There is great individual DCS variation to altitude exposure and it is very difficult to predict with accuracy who might experience DCS symptoms. Factors that increase one's susceptibility to DCS are rapid ascents to altitude above 18,000 feet, length of time above 18,000 feet, dehydration, and physical exertion at altitudes 18,000 feet or above. To mitigate the risk of DCS when flying in an unpressurized aircraft above 18,000 feet, it is recommended that all flight participants pre-oxygenate for 30 minutes with 100 percent oxygen if available (Figure 8-7), and if 100% is not available, still pre-oxygenate for 30 minutes with the oxygen system that is available.

8.2.4.2 Pressurized Aircraft Oxygen Usage

Figure 8-8 governs the use of oxygen equipment in pressurized aircraft, other than ejection seat aircraft (refer to Figure E-3 for aircraft class types), flown above 10,000 feet aircraft altitude. In addition to the Figure 8-8 requirements, oxygen shall be used when cabin altitude exceeds 10,000 feet.

Figure 8-5. Unpressurized Aircraft with Oxygen Systems Available

AIRCRAFT ALTITUDE	SINGLE-PILOTED AIRCRAFT	PILOT	COPILOT	CREW	OTHER OCCUPANTS
10,000 and below	NA	NA	NA	NA	NA
Above 10,000 through 13,000	O	O, H	O, H	O, H	3 hr limit O – no limit
Above 13,000 through FL 180	O	O	O	O	O
Above FL 180 through FL 250	O	O	O	O	O
Above FL250	No Flight	No Flight	No Flight	No Flight	No Flight

LEGEND
O — Oxygen shall be used.
H — For mission essential flights in RW aircraft, time above 10,000 feet shall not exceed one hour and altitude shall not exceed 13,000 feet, if oxygen systems are not utilized.

Note

- Oxygen use improves night vision performance at altitudes above 5,000 ft.
- Smoking has been shown to impair night vision, dark adaptation, and increase susceptibility to hypoxia.
- To determine risk of DCS at altitude see [Figure 8-6](#), [Figure 8-7](#), or the AFRL DCS Risk Assessment Model.

Figure 8-6. AFRL DCS Risk Assessment Model (No Pre-Oxygenation and Mild Activity)

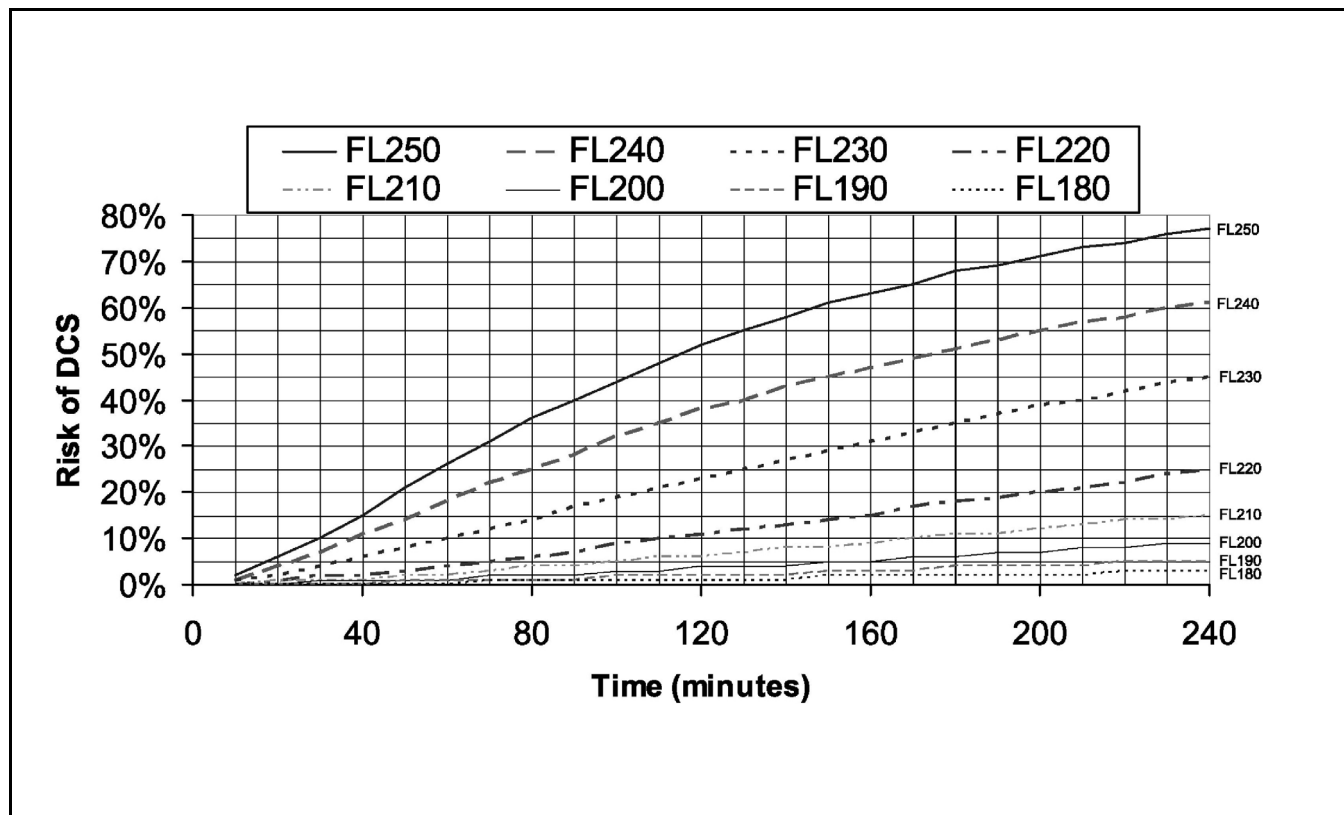


Figure 8-7. AFRL DCS Risk Assessment Model (100% Pre-Oxygenation and Mild Activity)

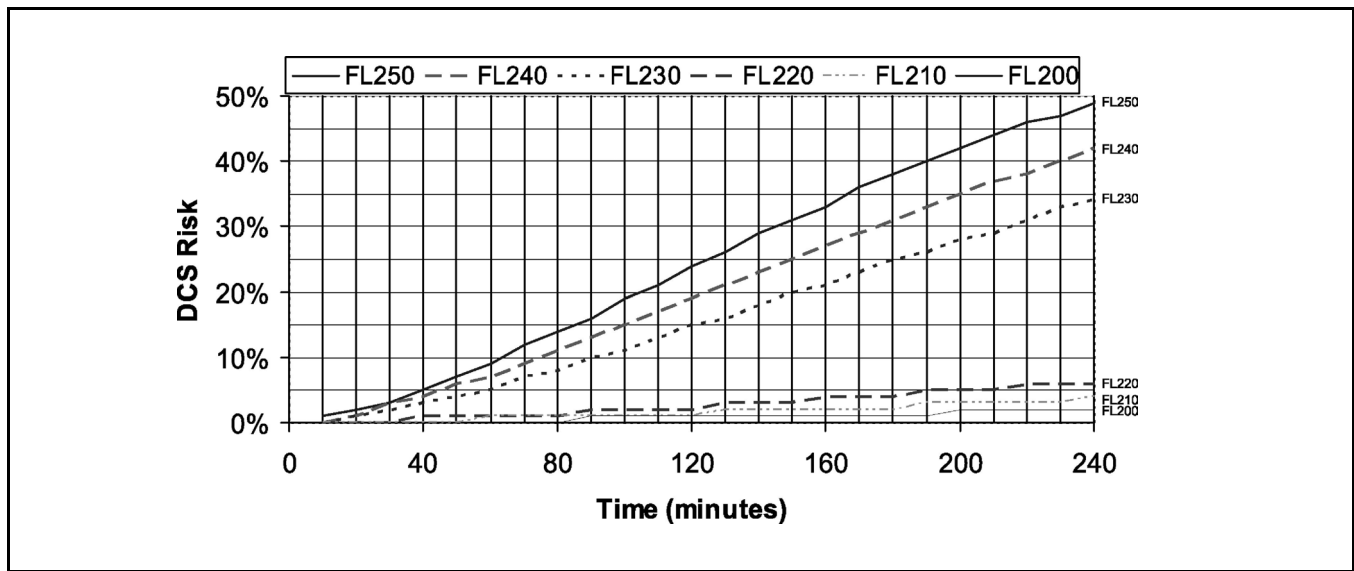


Figure 8-8. Oxygen Requirement for Pressurized Aircraft Other Than Ejection Seat Aircraft

AIRCRAFT ALTITUDE	SINGLE-PILOTED AIRCRAFT	PILOT	COPILOT	CREW	OTHER OCCUPANTS
FL 250 and below	O	R	R	R	N/A
Above FL 250 through FL 350	O	I	R	R	R
Above FL 350 through FL 400	O	I or O	I or R	R	R
Above FL 400 through FL 450	O	O	I	I	R
Above FL 450 through FL 500	O	O	I	I	I

LEGEND

R — Oxygen shall be readily available.

I — Oxygen shall be immediately available. Helmets shall be worn with an oxygen mask attached to one side or an approved quick-donning or sweep-on mask properly adjusted and positioned for immediate use. Set regulators to the "ON" position (except CRU-121) and in the 100 percent setting. All CRU-121 regulators (regulator is labeled "positive pressure oxygen regulator") must be in the "OFF" position when not being utilized. The CRU-121 is a positive pressure regulator and if left on when not in use will free flow causing a decrease in the oxygen stores.

O — Oxygen shall be used.

Note

In multi-piloted pressurized aircraft if above FL 250, the pilot at the controls must be using 100 percent oxygen if the other seat is occupied by other than a qualified pilot, except for aircraft equipped with quick-donning masks at both pilot stations where the above rule shall apply above FL 350.

8.2.4.3 Ejection Seat (Class 1) Aircraft Oxygen Mask Usage

All occupants, except as noted below for Naval Flight Demonstration Squadron (NFDS), shall wear oxygen masks:

1. From 30 seconds prior to take-off (e.g., crossing the runway hold short) until top of climb.
2. From top of descent until landing.
3. During flight above 10,000 feet cabin altitude.
4. During tactical maneuvering.
5. During low-level maneuvering.
6. During air-to-air refueling.
7. When not chocked and chained on the aircraft carrier.
8. During rapid changes in altitude.

When necessary, the mask may be removed briefly in order to perform mask adjustments or intake water/food. The mask may also be removed to conduct a Strategic Air Break (SAB) when below 10,000 feet cabin altitude. For more information on Strategic Air Breaks, see [Paragraph 8.2.4.7](#). NFDS aircrew shall use supplemental oxygen in accordance with this chapter except during demonstrations and practice demonstrations; cockpit altitudes shall be less than 10,000 feet during these demonstrations. Oxygen masks shall be carried in NFDS aircraft at all times.

WARNING

- Ejection with the oxygen mask off or visor up may result in significant injury or death.
- Cabin altitude must be checked to ensure aircraft is following pressurization schedule prior to removing the mask at flight altitudes above 10,000 feet MSL.
- Removing the mask above 10,000 feet cabin altitude significantly increases the risk of hypoxia.
- Without supplemental oxygen, Time of Useful Consciousness (TUC) decreases steadily at cabin altitudes above 18,000 feet. At cabin altitudes above 35,000 feet, TUC is reduced from minutes to seconds.

Note

In OBOGS equipped aircraft, dropping the mask for long periods of time without securing the oxygen flow may cause a degraded condition.

8.2.4.4 Quantity of Oxygen

The quantity of oxygen aboard an aircraft before takeoff must be sufficient to accomplish the planned mission. In aircraft carrying passengers, there shall be an adequate quantity of oxygen to protect all occupants through normal descent to 10,000 feet.

Note

For LOX equipped aircraft, if mission duration exceeds LOX availability, aircrew may secure the oxygen system as necessary, at aircraft altitudes below FL 250 and when the cabin altitude is below 10,000 feet.

8.2.4.5 Mask Breathing Dynamics

The two types of oxygen systems employed in naval aviation, OBOGS and LOX. Both systems are robust and reliable sources of contaminant free, high quality breathing gas. However, breathing through a mask during flight operations is unlike normal breathing. Even when operating properly, a mask delivery system can induce subtle alterations to respiratory patterns due to oxygen system safety pressures, increased breathing resistance over normal breathing, mask breathing in a high-G performance environment, etc.

When working improperly due to malfunctioning valves in the mask, low mask flow, a kinked mask hose, or malfunctioning regulator, mask breathing systems can create physiological conditions other than hypoxia, such as, hypocapnia (decreased carbon dioxide [CO₂] in blood), or less likely, hypercapnia (excess CO₂ in the blood). These conditions have common symptoms similar to other adverse physiological conditions (refer to [Figure 8-9](#)) making it difficult to discern the root cause of physiological symptoms during flight. Often these symptoms may resolve by simply removing the mask and controlling rate and depth of breathing, preferably at a cabin altitude less than 10,000 feet.

WARNING

- Ejection without the visor down or oxygen mask connected to the helmet may result in significant injury or death.
- Cabin altitude must be checked to ensure aircraft is following pressurization schedule prior to removing the mask at flight altitudes exceeding 10,000 feet MSL.
- Removing the mask above 10,000 feet cabin altitude significantly increases the risk of hypoxia.
- Without supplemental oxygen, Time of Useful Consciousness (TUC) decreases steadily at cabin altitudes above 18,000 feet. At cabin altitudes above 35,000 feet, TUC is reduced from minutes to seconds.

Note

In OBOGS equipped aircraft, dropping the mask for long periods of time without securing the oxygen flow may cause a degraded condition.

8.2.4.6 Adverse Physiological Conditions

Adverse physiological conditions can be transient in nature and triggered by a number of different causal factors. These can range from environmental stressors (e.g. elevated temperatures, increasing altitudes, seated aircrew position, flight gear, adverse weather); external factors, (e.g. aircraft warning or caution, high tempo operations); or human factors (i.e. inadequate rest, lack of proper hydration and/or nourishment, intake of certain supplements, etc.). These conditions have common symptoms similar to other adverse physiological conditions (refer to [Figure 8-9](#)) making it difficult to discern the root cause of physiological symptoms during flight. Aircrew should follow their applicable platform NATOPS procedures and be mindful of the fact that supplemental oxygen may not improve or alleviate these symptoms under certain conditions. For example, dizziness, a symptom of hypoxia, is also a symptom of dehydration, hypoglycemia, or hypocapnia, and may not respond to supplemental oxygen usage if the symptom was not initially caused by a lack of oxygen.

For reporting purposes, adverse physiological conditions are classified as either a Physiological Episode (PHYSEP) or a Physiological Event (PE). A PHYSEP occurs when aircrew experience adverse physiological, psychological, pathological or physical problems that manifest during or after flight, but that are not caused by the operation of the aircraft. A PE occurs when aircrew experience adverse physiological symptoms during or after flight attributed to a known or suspected aircraft and/or aircrew systems malfunction. Based on the malfunction, PEs can be divided into two categories, either pressure related or non-pressure related. Pressure related PEs are due to environmental control system malfunctions, while non-pressure related PEs are due to aircraft oxygen system or aircrew life support

system malfunctions. Refer to OPNAVINST 3750.6S and Physiological Event (PE) Investigations and Reporting Operating Guide for more information on PHYSEP/PE reporting.

The following sections describe the following adverse physiological conditions: hypoxia, hypocapnia, and hypercapnia. Fatigue, hypoglycemia, and dehydration are discussed in more detail in [Paragraph 8.3.2 Factors Affecting Aircrew Performance](#).

[Figure 8-9](#) is not a comprehensive listing of all adverse physiological symptoms, just those reported symptoms common to the conditions listed. Cells with an “X” indicate that the symptom has been previously reported with the associated physiological condition.

Note

Euphoria has only been reported during hypoxia.

Figure 8-9. Adverse Physiological Conditions and Related Common Symptoms

ADVERSE PHYSIOLOGICAL CONDITIONS						
COMMON SYMPTOMS	HYPOXIA	HYPOCAPNIA/ HYPERVENTILATION	HYPERCAPNIA	FATIGUE	HYPOGLYCEMIA	DEHYDRATION
COGNITIVE IMPAIRMENT / DISORIENTATION	X	X	X	X	X	X
DIZZINESS	X	X	X	X	X	X
FATIGUE / SLEEP DEFICIT	X	X	X	X	X	X
HEADACHE	X	X	X	X	X	X
TINGLING / COLD EXTREMITIES	X	X	X	X	X	X
LIGHTHEADEDNESS	X	X		X	X	X
NAUSEA	X		X	X	X	X
VISUAL DISTURBANCE – HAZY/BLURRY/FUZZY/OTHER	X	X	X	X	X	
EUPHORIA	X					

8.2.4.6.1 Acid-Base Physiology

The human body produces substantial amounts of acid as a byproduct of normal metabolism. This acid must be constantly removed since the body's normal physiological functions occur optimally in a very limited pH range. The lungs and kidneys work to keep blood gases and blood pH in dynamic equilibrium, but the external stressors of flight can create a normal autonomic (involuntary) response that may lead to a pH imbalance. For example, if an increase in cockpit temperature leads to an increase in breathing rate, more CO₂ will be exhaled than normal (hypocapnia), decreasing the concentration of CO₂ in the blood and increasing the pH. Minor changes in the acid/base component of the blood can drastically change overall pH within a matter of seconds or minutes. To counteract this, the body compensates with multiple complex buffer solutions. If the body is unable to adequately compensate, the pH will rise above the normal physiological range, causing adverse physiological symptoms similar to hypoxia (i.e. dizziness, light-headedness, cognitive impairment). Furthermore, if the buffering ability is acutely overwhelmed, it may take up to 2-3 days to fully recover. Recovery will occur faster with proper rest, nutrition, and most importantly, hydration. Maintenance of aircrew optimum health must be continually emphasized and is the best way to mitigate this type of physiological event.

8.2.4.6.2 Physiological Margin Degradors

It is important to note that multiple factors (e.g., operational, environmental, physiological) degrade pulmonary function, increase work of breathing, and predisposition aircrew to physiological stress in the flight environment. These conditions place considerable stress on aircrew prior to the additional rigors of tactical flight and inflight emergencies.

Emphasis must be placed on optimum fitness, continuous hydration, and awareness of respiration. The following paragraphs look at factors that may contribute to physiological stress leading to degraded pulmonary function:

1. **Altitude:** A common misconception amongst aircrew is that there is a lower concentration of oxygen with an increase in altitude. O₂ concentration is 21% throughout the atmosphere, but an increase in altitude decreases O₂ partial pressure. This decreased partial pressure requires a larger volume of inhaled air for equivalent oxygenation and a higher inhalation pressure for proper lung function (see [Figure 8-4](#), Fractional Gas Concentration Versus Partial Pressure).
2. **Dehydration:** Mild dehydration decreases G-tolerance by up to 40%. Additionally, dehydration places a pH strain (see [Paragraph 8.2.4.6.1](#), Acid-Base Physiology) on the body that may lead to adverse physiological symptoms. Severe dehydration may not be easily corrected in flight.
3. **Mask Breathing:** Breathing through a mask requires more physical work than breathing without one due to the resistance in the system. This increased work of breathing places additional demand on the cardiovascular system, which further increases respiration rate. A higher sustained respiratory rate when breathing through a mask lowers CO₂ levels in the blood, which may lead to adverse physiological symptoms.
4. **Dry Breathing Gas:** Breathing dehumidified oxygen contributes progressively to dehydration, which elevates blood pH and may lead to adverse physiological symptoms. Proper preparatory and long-term hydration is critical to preventing dehydration during flight, especially on consecutive or prolonged flights.
5. **Atelectasis:** Alveoli are small sacs in lung tissue that help to introduce oxygen into and remove carbon dioxide from the body. Atmospheric nitrogen normally found in the lungs helps keep the lungs inflated. O₂ concentrations over 40% wash nitrogen out of the lungs, which can cause alveoli to collapse. This results in decreased total lung capacity and efficiency, leading to increases in work of breathing.
6. **Flight gear and Body Position:** Sitting in flight gear increases the work of breathing; flight gear restricts maximum chest expansion and sitting decreases functional lung capacity. Properly fitted flight gear especially chest strap positioning and tension, is essential to optimize lung function. Good physical fitness with an emphasis on core strength also contributes to breathing efficiency while seated.
7. **G-Forces:** High g-forces cause compressive atelectasis by physically crushing the lungs. High g-forces physically separate lighter air from heavier blood in the lungs, reducing blood oxygenation efficiency due to a poor ventilation perfusion ratio. This requires an increase in the work of breathing to maintain equivalent oxygen levels.

8.2.4.6.3 Hypoxia

Hypoxia is a general term that describes a state of oxygen deficiency in the tissues. Oxygen deficiency can be caused by the reduced partial pressures of oxygen at higher cabin altitudes. Hypoxia is particularly dangerous because signs and symptoms do not usually cause discomfort or pain, and the onset can be insidious. Serious oxygen deficiency can be life threatening, therefore, it is essential to be able to recognize the symptoms and treat hypoxia quickly. See [Figure 8-9](#) for a list of possible symptoms and can result in incapacitation or unconsciousness in extreme cases.

Although certain circumstances may cause aircrew to be more susceptible to subtle decreases in the partial pressure of oxygen (e.g., taking certain medications and/or nutritional supplements, dehydration, anemia, G-forces), they are unlikely to become hypoxic in an environment below 10,000 MSL. This is true for both unpressurized aircraft as well as pressurized aircraft indicating a cabin altitude below 10,000 feet MSL.

Due to the decreased partial pressure of oxygen and increased hypoxia risk at higher cabin altitudes, it is vital that aircrew become intimately familiar with the following Time of Useful Consciousness (TUC) table. [Figure 8-10](#) displays the TUC in the event of supplemental oxygen loss at higher cabin altitudes. This is the period of time from interruption of the oxygen supply, or exposure to an oxygen-poor environment, to the time when an individual is no longer capable of taking proper corrective and protective action. The higher the initial altitude, or the faster the rate of ascent, the more quickly impairment occurs.

Without supplemental oxygen, TUC decreases steadily at cabin altitudes above 18,000 feet. At cabin altitudes above 35,000 feet, TUC is reduced from minutes to seconds. In the event of a rapid decompression, TUC may be reduced by over 50%.

WARNING

Without supplemental oxygen, Time of Useful Consciousness (TUC) decreases steadily at cabin altitudes above 18,000 feet. At cabin altitudes above 35,000 feet, TUC is reduced from minutes to seconds.

8.2.4.6.4 Hypocapnia

Hypocapnia is low CO₂ in the blood resulting from hyperventilation. Hypocapnia can be caused by excessive cabin temperature, increased work of breathing due to a variety of factors, or physiological responses to stress, such as an aircraft emergency. In extreme cases, hypocapnia can result in incapacitation or unconsciousness. See [Figure 8-9](#) for a list of possible symptoms.

8.2.4.6.5 Hypercapnia

Hypercapnia is high CO₂ in the blood resulting from hypoventilation. Hypercapnia may be caused by mask valve malfunction, significant physical activity prior to flight, or some medical conditions. In extreme cases, hypercapnia can result in incapacitation or unconsciousness. See [Figure 8-9](#) for a list of possible symptoms.

Figure 8-10. Times of Useful Consciousness (TUC) without Supplemental Oxygen

ALTITUDE	TIME OF USEFUL CONSCIOUSNESS	FOLLOWING RAPID DECOMPRESSION
18,000	20 — 30 min	10 — 15 min
22,000	10 min	5 — 6 min
25,000	3 — 5 min	1.5 — 2.5 min
28,000	2.5 — 3 min	1 — 1.5 min
30,000	1 — 2 min	30 sec — 1 min
35,000	30 sec — 1 min	15 — 30 sec
40,000	15 — 20 sec	7 — 10 sec
43,000	9 — 12 sec	5 seconds or less
50,000	9 — 12 sec	5 seconds or less

8.2.4.7 Ejection Seat Aircraft Strategic Air Breaks

Atelectasis and work of breathing fatigue can be mitigated by conducting a Strategic Air Break (SAB). A SAB is intended to improve ventilation and air exchange by removing the mask and breathing cabin air without restriction, reintroducing nitrogen into the lungs and fully inflating the lung alveoli.

Before conducting a SAB, aircrew shall confirm that cabin altitude is at or below 10,000 feet and notify other crewmembers, if applicable. Once masks are removed, aircrew shall secure mask flow in order to preserve LOX capacity or prevent OBOGS performance degradation from free flow. Performing the Aircrew Controlled Breathing Cycle (ACBC) during a SAB will assist to maintain open alveoli and may reverse some atelectasis that has already occurred.

It is recommended that the SAB be conducted at the following times (preferably performing the ACBC):

1. Pre-G. Prior to entering a high-G engagement (not necessary if breathing from the mask for less than 30 minutes prior to the engagement).
2. Post-G. At the completion of the high-G engagement.
3. Post-Flight. After removing the chest restraint harness.
4. Transit. Every hour during long transits.
5. As Required. Anytime aircrew feel 'washed out', 'not 100%' or overly fatigued during or after flight.

The ACBC steps are:

1. Confirm — Confirm cabin altitude is below 10,000 feet, drop mask and secure oxygen system.
2. Breathe in — Take a slow, deliberate deep inhalation over approximately 5 seconds.
3. Hold — Hold the breath for approximately 3-5 seconds.
4. Breathe out — Slowly exhale over approximately 5 seconds.
5. Rest — Take 5 normal breaths.
6. Repeat — Repeat up to 5 times, as time permits.
7. Don — Don mask and resume using oxygen system.

WARNING

- Ejection with the oxygen mask off or visor up may result in significant injury or death.
- Removing the mask above 10,000 feet cabin altitude significantly increases the risk of hypoxia.
- Without supplemental oxygen, Time of Useful Consciousness (TUC) decreases steadily at cabin altitudes above 18,000 feet. At cabin altitudes above 35,000 feet, TUC is reduced from minutes to seconds.

Note

In OBOGS equipped aircraft, dropping the mask for long periods of time without securing the oxygen flow, may cause a degraded condition.

8.2.4.8 Loss of Cabin Pressurization

If loss of cabin pressurization occurs and oxygen systems are suspect, an immediate descent shall be made to a cabin altitude at or below 10,000 feet. If oxygen systems are not suspect, immediate descent shall be made to a cabin altitude at or below 18,000 feet. During loss of pressurization, all occupants shall use oxygen.

8.2.4.9 Decompression Sickness/Arterial Gas Embolism

Decompression sickness (DCS) and/or Arterial Gas Embolism (AGE) is highly unlikely to occur when flying below 18,000 feet cabin altitude unless there is a sudden loss of cabin pressure. It is extremely important to be able to recognize serious symptoms and convey this and the flight altitude/profile to medical support. Some symptoms such as joint and muscle pain are recognized non-serious symptoms but can be precursors to worsening symptoms.

The following are serious DCS/AGE signs and symptoms and are considered red flags:

- Chest pain, labored, painful, or shallow breathing, shortness of breath, fluttering in the chest, irregular heartbeat.
- Slurred speech, facial droop, impaired mental status and or coordination, fainting, paralysis.
- Severe itching or painful red-bluish skin discolorations when combined with any symptoms listed above.

If DCS/AGE red flags are present and DCS/AGE is suspected, call emergency medical personnel and the flight surgeon. Signs and symptoms associated with the above occurrences require rapid treatment.

The signs and symptoms of DCS/AGE are not always present during or immediately after a flight. Most signs and symptoms will develop within 72 hours after a flight.

If an occupant of any aircraft is observed or suspected to be suffering from the effects of DCS/AGE, 100 percent oxygen or available aircraft oxygen shall be started and the pilot shall immediately descend to the lowest possible altitude and land at the nearest civilian or military installation suitable for safe landing and obtain qualified medical assistance. Consideration shall be given to whether the installation is in proximity to a hyperbaric chamber.

Upon landing, all aircrew from any flight that results in DCS/AGE symptoms shall be initially evaluated, preferably by an aviation medicine provider/flight surgeon, to identify red flags and any medical emergencies. If any medical emergency is identified, call 911 or facilitate transport to the highest level of care available.

WARNING

Under normal circumstances, flight personnel shall not fly or participate in low-pressure chamber flights within 24 hours following scuba diving, compressed air dives, or high-pressure chamber evolutions. Refer to [Paragraph 8.3.2.13](#) Hyperbaric Exposure for more guidance.

Note

Transport aircraft conveying suspected DCS/AGE patients to hyperbaric chambers shall transport patient(s) on 100 percent oxygen at the lowest practical altitude.

8.2.5 Chemical, Biological, Radiological, Nuclear, Defense (CBRND) Protective Equipment

Appropriate CBRND protective equipment (to include theater/regionally prescribed medical counter-measures) shall be available for all flight personnel on flights into, from, or in the vicinity of identified CB threat and/or CB weapons use. Refer to NAVAIR 00-80T-123, Aircrew Systems NATOPS Manual for additional guidance on Aircrew CBRND Protective Equipment and aircraft compatibility issues. CBRND training is a Level B — Recommended Deployment Work-Up Training found in [Appendix E](#).

8.3 HUMAN PERFORMANCE AND AEROMEDICAL QUALIFICATIONS FOR FLIGHT, FLIGHT SUPPORT, AND SAILORS

8.3.1 General

Operational readiness and aviation safety are enhanced by assuring that flight crew, flight support personnel, and all Commander, Naval Air Forces (CNAF) Sailors achieve and maintain an optimal state of physical and emotional health. It is important that personnel are adequately rested and that conditions which contribute to fatigue, impair health, decrease performance and increase mishap potential are reduced or eliminated. This section outlines basic guidelines that individuals and all levels of supervision and command can use to attain and monitor personnel performance.

Note

- The senior aviation commander responsible for conduct of air operations may exceed these guidelines, should operational necessity dictate. Exceeding the guidelines increases the probability of crew fatigue, causing impaired judgment and reduced performance. When exceeding the guidelines, commanders shall manage the increased risk created by crew fatigue. Consultation with the Flight Surgeon (FS), Aerospace Physician Assistant (APA), or Aeromedical Safety Officer (AMSO) is strongly recommended in the development and implementation of appropriate risk controls.
- Landing signal officers (LSOs) shall meet the physiological standards required for aircrew in a flight status to perform the duties of a controlling or backup LSO. Maladies or injuries that do not impair mental acuity (such as minor sprains, etc.), but that preclude normal flight status may be waived by the FS or APA on a case-by-case basis.
- Commanding officers, FSs, and APAs shall comply with applicable directives pertaining to mental health evaluation of servicemembers. (See DoD Directive 6490.1, Mental Health Evaluations of Members of the Armed Forces that is implemented by SECNAVINST 6320.24). Individuals who fall under “Military Whistleblower Protection” guidelines per SECNAVINST 5370.7 may require additional administrative procedures in conjunction with evaluation. Commanding officers are encouraged to consult with local FSs or APAs and legal officers.
- UAS flightcrews should comply with all sections of [Paragraph 8.3](#).

8.3.2 Factors Affecting Aircrew, Sailor, and Watch Stander Performance

Numerous complex factors affect the performance of flight, flight support personnel, and CNAF Sailors. Commanders and mission planners must assess the impact of factors that contribute to operational fatigue and reduce Sailor, aircrew, and watch stander performance. The principle factors include: weather, extremes of temperature, nighttime operations, use of vision imaging systems, mission delays, personal equipment and ALSS, duration of the duty period, quality and duration of sleep (prior to duty), number of hours flown during the previous several duty periods, time of day relative to the body's internal circadian clock, degree of circadian desynchrony (jet lag), physical health, additional duties, misuse of alcohol, caffeine, tobacco, or dietary supplements and adequacy of crew rest facilities. These factors must be understood by all concerned and appropriate countermeasures established to ensure they do not reduce personnel readiness. FSs, APAs, and AMSOs shall proactively establish an aeromedical adjunctive training program appropriate to their unit's human factors risks. [Appendix E](#) provides minimum requirements for aeromedical adjunctive training. All personnel should report any physical indisposition to superiors and assume duty or watch only when fit to do so. Since an individual may frequently be the poorest judge of personal fitness for duty, commanding officers shall ensure all personnel are adequately observed and appropriate temporary grounding or removal from watch or duty is taken when necessary. The following guidelines and requirements should be considered for all aspects of naval aviation.

8.3.2.1 Crew Rest and Sleep

8.3.2.1.1 Crew Rest for Flight Crew and Flight Support Personnel

Crew rest is the non-duty time before a duty day, watch, or flight period begins. Crew rest includes free time for meals, transportation, rest and shall include an opportunity for eight hours of uninterrupted sleep for every 24-hour period. Crew rest does not begin until after termination of official duties and is required prior to reporting for duty, to assume the watch, and preflight preparations. Flight support personnel and flight crew shall not be scheduled for continuous watch, duty, alert, and/or flight duty (required awake) in excess of 18 hours. However, if it becomes operationally necessary to exceed the 18-hour rule, 15 hours of continuous off-duty time shall be provided prior to scheduling the member for any duties. Schedules for flight crew and flight support personnel shall be made with due consideration for watch standing, collateral duties, training, and off-duty activities. Crew rest can be reduced to

less than 12 hours in order to maintain a 24-hour work/rest schedule, but a shortened crew rest period (for example to maintain circadian rhythm) shall always include an opportunity for eight hours of uninterrupted sleep.

Note

If continuous awake duty time exceeds 16 hours, performance efficiency begins to drop. After 18 hours, performance efficiency rapidly declines to 75 percent of effectiveness or less. The loss of effectiveness is manifested by lapses in attention, slower reaction time, slowed information processing, decreased vigilance, and increased error frequency. Accident rates for just about every type of human activity increase after 18 hours of wakefulness, particularly during the night “circadian trough” when sleep would normally occur.

8.3.2.1.2 Circadian Rhythm

Circadian rhythms are cyclic fluctuations of numerous body functions that are set like a “biological clock” by daylight exposure and sleep/awake periods. Changing local sleep/awake periods or rapidly crossing more than three time zones disrupts circadian rhythms and can cause a marked decrease in performance. This condition, called “jet lag, is compounded by illness, fatigue, dehydration, alcohol use, poor nutrition, or drugs, and is resolved only by accommodation to the new local time or sleep/awake period. The accommodation period can be estimated by allowing 1 day for every time zone crossed in excess of 3. Accommodation begins when a new daily routine is established. During that period, aircrew are not grounded but can be expected to perform at a less than optimal level. Less intense flight profiles and close observation by the FS or APA during the accommodation period may be desirable. Shift work, where individuals are required to work during the night for extended periods, requires even longer times for adaptation (up to 4 weeks). Individuals may never fully adapt to night shift work unless completely isolated from daylight exposure, and additional controls may be necessary for safe operations. All Sailor’s work and rest time must take into consideration a stable circadian rhythm. As such, a Sailor’s work, maintenance, watch standing, training and administrative duty time should be kept consistent for a period of at least two weeks. When a Sailor’s schedule is changed due to operational requirements, the change must be gradual to minimize negative impacts to circadian rhythm.

8.3.2.2 Flight Time

Precise delineation of flight time limitations is impractical in view of the varied conditions encountered in flight operations. Required preflight/postflight crew duty time shall be given due consideration. The following guidelines are provided to assist commanding officers:

1. Daily flight time should not normally exceed three flights or 6.5 total hours flight time for flight personnel of single-piloted aircraft. Individual flight time for flight personnel of other aircraft should not normally exceed 12 hours. Flight times listed do not include ground time for pre-flight and post-flight duties.
2. Weekly maximum flight time for flight personnel of single-piloted aircraft should not normally exceed 30 hours. Total individual flight time for flight personnel of other aircraft should not exceed 50 hours. When practicable, flight personnel should not be assigned flight duties on more than 6 consecutive days.
3. Accumulated individual flight time should not exceed the number of hours indicated in [Figure 8-11](#).
4. When the tempo of operations requires individual flight time to exceed the guidelines in [Figure 8-11](#) or [Paragraph 8.3.2.2 subparagraphs 1 and 2](#), flight personnel shall be closely monitored and specifically cleared by the commanding officer with the advice of a FS or APA. Aviation-capable ships that do not have access to a FS or APA for recommendations to exceed flight time limitations should follow procedures outlined in BUMEDINST 6410.9 series. Commanding officers should ensure equitable distribution of flight time commitments among assigned flight personnel, commensurate with additional ground duties that each may be assigned.

Note

Flight operations involving contour, nap of the earth, chemical defense gear, night and night vision devices, and adverse environmental factors (dust, cloud cover, precipitation, etc.) are inherently more stressful and demanding than flying day VFR. The resultant fatigue may have a profound physiological effect upon mission capability. Mission planners should take this physiological threat into account in making modifications to normal crew rest/crew day guidelines.

8.3.2.3 Nutrition

All flight and ground support personnel should be provided a positive program of information for the establishment and maintenance of good dietary habits. Failure to eat within 4 hours preceding end of flight may impair performance and ability to adequately control aircraft. Reducing diets should be under the supervision of a FS or APA. Nutrition and diet information is also available as NASTP Adjunctive Training ([Appendix E](#)) and can be provided by a Naval Aerospace and Operational Physiologist (NAOP), AMSO, FS, or APA.

8.3.2.3.1 Nutritional Supplements

A nutritional supplement is a product taken by mouth that contains a “dietary ingredient” intended to supplement the diet. The ingredients in these products may include vitamins, minerals, herbs or other botanicals, amino acids, protein, and substances such as enzymes, organ tissues, glandular extracts, and metabolites. Dietary supplements can also be extracts or concentrates, and may be found in many forms such as tablets, capsules, softgels, gelcaps, liquids, or powders, and food bars. Use of nutritional/dietary and other OTC supplements/products by flight personnel, except those approved by BUMED, is prohibited. Harmful effects are often associated when used in very high doses or in non-standard manner and virtually none are tested or ensured safe in the aviation environment. The term “natural” does not mean it is safe. FSs or APAs shall be consulted to assist with making informed decisions regarding nutritional supplements. The use of nutritional supplements of all types shall be reported to the FS or APA and recorded during every periodic physical examination or physical health assessment. See also policy in [Paragraph 8.3.2.5 subparagraph 1.f.](#) for further information.

8.3.2.4 Exercise

Planned physical fitness programs promote health. All levels of command are encouraged to establish approved physical fitness programs for all personnel in accordance with OPNAVINST 6110.1. Aircrew shall ORM their recreational physical activities for risk of injury and/or fatigue and plan for adequate recovery time prior to resuming flying duties.

Figure 8-11. Maximum Recommended Flight Time

PERIOD (DAYS)	SINGLE PILOTED AIRCRAFT	MULTI-PILOTED (PRESSURIZED) EJECTION SEAT AIRCRAFT	MULTI-PILOTED NON-PRESSURIZED AIRCRAFT	MULTI-PILOTED PRESSURIZED AIRCRAFT
1	6.5	12	12	12
7	30	50	50	50
30	65	80	100	120
90	165	200	265	320
365	595	720	960	1120
Note Multi-piloted aircraft maxima shall be used even if the copilot is not NATOPS qualified and the crew is not considered multi-piloted for approach requirements.				

8.3.2.5 Drugs

Drugs are defined as any chemical that when taken into the body causes a physiological response. All flight and support personnel shall be provided appropriate information by a command drug abuse education program.

1. Legal drugs are those medically prescribed or legally purchased for treatment of illness. Guidance and flight restrictions are provided in the Naval Aerospace Medical Institute's (NAMI) on-line Aeromedical Reference and Waiver Guide.
 - a. Prescription drugs — Taking drugs prescribed by competent medical authority shall be considered sufficient cause for recommendation of grounding unless their use is specifically approved by a FS or APA, or a waiver for specific drug use has been granted by CHNAVPERS or the CMC. Consideration shall be given to the removal of ground support personnel from critical duties for the duration of the drug effects, if appropriate. Medicines such as antihistamines, antibiotics, narcotic pain relievers, etc., obtained by prescription for short term use to treat a self-limited condition shall be discarded if all are not used during the period of medication. Unused quantities of performance maintenance drugs (amphetamines or sleeping pills) shall be returned to the FS, APA or medical clinic for purposes of strict accountability.
 - b. Over-the-counter drugs — Because of the possibility of adverse side effects and unpredictable reactions, the use of over-the-counter drugs by flight personnel is prohibited unless specifically approved by a FS or APA. Ground support personnel shall be briefed on the hazards of self-medication and should be discouraged from using such drugs.
 - c. Alcohol — The well-recognized effects of excessive alcohol consumption are detrimental to safe operations (i.e., intoxication and hangover). Consumption of any type of alcohol is prohibited within 12 hours of any mission brief or flight planning. Adherence to the letter of this rule does not guarantee a crewmember will be free from the effects of alcohol after a period of 12 hours. Alcohol can adversely affect the vestibular system for as long as 48 hours even when blood-alcohol content is zero. Special caution should be exercised when flying at night, over water, or in IMC. In addition to abstaining from alcohol for 12 hours prior to mission brief or flight planning, flightcrews shall ensure that they are free of hangover effects prior to flight. Detectable blood alcohol or symptomatic hangover shall be cause for grounding of flight personnel and the restriction of the activities of aviation ground personnel.
 - d. Tobacco — Smoking has been shown to impair night vision, dark adaptation, and increase susceptibility to hypoxia. Smoking is hazardous to nonsmokers, as the effects occur whether smoke is inhaled directly or secondarily. Further guidance on smoking is contained in [Paragraph 7.1.9](#) of this instruction.
 - e. Caffeine — Excessive intake of caffeine from coffee, tea, cola, etc., can cause excitability, sleeplessness, loss of concentration, decreased awareness, and dehydration. Caffeine intake of 450 mg per day (3 to 4 cups of drip coffee) is the recommended maximum intake. Caffeine use when managed appropriately, can aid in maximizing performance during long sorties or periods of sustained operations, however, the caffeine effect is maximized in individuals who are not habituated to its effects as regular users.
 - f. Nutritional/Dietary and other Over-The-Counter (OTC) Supplements and Products — The use of nutritional/dietary and other OTC supplements/products by flight personnel except those approved by BUMED is prohibited. Guidance and restrictions are provided in the Naval Aerospace Medical Institute's (NAMI) on-line Aeromedical Reference and Waiver Guide.
2. The use of illicit drugs is prohibited.

8.3.2.6 Illness

Acute minor illnesses, such as upper respiratory infections, vomiting, or diarrhea can produce serious impairment of flight personnel. All illnesses shall be evaluated by competent medical authority. The submission of DD 2992 (Medical Recommendation for Flying or Special Operational Duty) shall be accomplished placing flight personnel in a down status when the individual has been found disqualified by medical authority. While any medical authority may place flight personnel in a down status utilizing the DD 2992, returning flight personnel to an up status utilizing the DD 2992 shall be issued only by a FS or APA; APAs may issue a DD 2992 without a FS co-signature. Where a FS or APA is not available, DD 2992 shall be handled in accordance with BUMEDINST 6410.9. Flight personnel

who are hospitalized shall be evaluated in accordance with MANMED and current BUMED directives and have a DD 2992 issued prior to flight. Ground support personnel should be similarly monitored. Aircrew shall not fly for at least 48 hours after general, spinal, or epidural anesthetic. Return to flying status thereafter shall be upon the recommendation of a FS or APA and at the discretion of the commanding officer.

8.3.2.7 Dental Care

Dental procedures that involve the use of local injectable drugs (e.g., Novocaine) shall be cause for grounding for a period of 12 hours. Use of intravenous sedatives shall require grounding for 24 hours. Dental Class III except for asymptomatic third molars is generally considered cause grounding except on the advice of a Dental officer.

8.3.2.8 Pregnancy

1. Because of the real and unknown physiological hazards of flight, flight personnel shall consult with their FS or APA when they first suspect they are pregnant. Pregnancy is considered temporarily disqualifying for flying duties and aircrew are to be grounded when first confirmed pregnant. Grounding notification shall be submitted to the aviation unit commanding officer via a DD 2992. After the aircrew is evaluated by their obstetric care provider and a FS or APA, and if the pregnancy is determined to be uncomplicated, they may request a temporary waiver from a local board of flight surgeons (LBFS) to continue flying duties while pregnant. A LBFS may issue a temporary aeromedical clearance notice with the restrictions mandated in the following sections. The LBFS shall submit an aeromedical summary to NAVMEDOPTRNCMD DET NAVAEROMEDINST (Code 53HN) (NAMI). The LBFS procedures and waiver submission requirements are contained in MANMED Chapter 15 and NAMI's Aeromedical Reference and Waiver Guide website: <https://www.med.navy.mil/Navy-Medicine-Operational-Training-Command/Naval-Aerospace-Medical-Institute/Aeromedical-Reference-and-Waiver-Guide/>. Aircrew in receipt of an aeromedical clearance during pregnancy shall continue care with their obstetric provider and update their FS or APA of any changes associated with their pregnancy or physiologic status. Aircrew who decide not to request a temporary waiver while pregnant shall inform the evaluating FS, APA, or AME who will submit a temporary grounding physical to NAMI (Code 53HN) with an abbreviated aeromedical summary conveying any pregnancy complications.
2. The grounding physical evaluation shall not include the reason for requesting/not requesting a temporary waiver.
3. Pregnant aircrew shall not be required to fly and the decision to request a waiver is solely at their discretion.
4. Designated Naval Aviators who are authorized to fly during pregnancy shall perform flight duties in a Medical Service Group 3 capacity only.
5. Shipboard operations are prohibited after the 20th week of gestation. Flights should limit maneuvers to 2gs or less and cabin pressure altitudes should not exceed 10,000 feet for any duration beyond a few minutes if necessary for safe aircraft operation.
6. Clearance will be valid only until the start of the 30th week of gestation. Participation in NASTP or other survival programs is not permitted. If NASTP qualifications expire during the pregnancy, clearance for continued flying shall be granted beyond the date of expiration until the 30th week of gestation for those qualifications.
7. Following the end of pregnancy and return to full duty, a post-grounding physical shall be submitted to NAMI (Code 53HN) for endorsement. This submission shall include information regarding any complications encountered during pregnancy as well as the health of the child and mother following delivery (as applicable).
8. Any student in aviation training who becomes pregnant during training and prior to designation shall be grounded until after end of the pregnancy and return to normal full duty.
9. Normal uncomplicated pregnancy in designated or student air traffic controllers and unmanned aircraft system crewmembers is not considered physically disqualifying in itself. Specific duty modifications during the pregnancy should be managed locally as required.

CNAF M-3710.7

10. Additional guidance that applies is provided in OPNAVINST 6000.1 Guidelines Concerning Pregnant Service members.

8.3.2.9 Emotional Upset/Excessive Stress

Stress is a component of normal living, but excessive stress levels can manifest as mood and behavior changes and lead to deteriorating performance and chronic health effects. Commanding officers must remain alert to the emotional and physical status of assigned personnel and take corrective action as may be necessary either for individuals or particular groups (i.e., referral for professional evaluation, short standdown from flight duties, rest and recreation, leave, etc.).

Note

Commanding officers, FSs, and APAs shall comply with applicable directives pertaining to mental health evaluation of servicemembers (see SECNAVINST 6320.24, Mental Health Evaluations of Members of the Armed Forces). Individuals who fall under “Military Whistleblower Protection” guidelines (SECNAVINST 5370.7) may require additional administrative procedures in conjunction with evaluation. Commanding officers are encouraged to consult with local FSs or APAs and legal officers.

8.3.2.10 Immunizations and Injections

Flight personnel shall not participate in flight duties for 12 hours after receiving an immunization or injection unless cleared sooner by a FS or APA. Those showing protracted or delayed reaction shall be grounded until cleared by a FS or APA. Further guidance and policy for restrictions are provided in NAMI's on-line Aeromedical Reference and Waiver Guide.

8.3.2.11 Blood Donation

Although blood donated in small quantities is quickly replaced and does not adversely affect ground activities, the hazards of hypoxia and reduced barometric pressure make it desirable to limit such donations by flight personnel in accordance with the following:

1. Flight personnel may donate blood occasionally. The minimum interval for all donors shall be 4 months.
2. Flight personnel in combat, flying in a shipboard environment, or flying operational missions shall not donate blood within 4 weeks prior to such flying.
3. Flight personnel shall not participate in flight duties or perform low-pressure chamber runs for 4 days following donation of 450 cc of blood (1 pint).
4. If subject to flying duties within 4 days of a blood donation, an aviator must obtain command approval prior to donating.

8.3.2.12 Hypobaric Exposure

The following restrictions to flight apply following low-pressure chamber flights or accidental hypobaric exposure (e.g., rapid decompression in flight).

1. Flight personnel shall not perform flight duties for 12 hours after exposure to low-pressure chamber flight in excess of 30,000 feet. They may fly during the 12 hours as passengers in aircraft where cabin altitude does not exceed 10,000 feet.
2. Individuals who have experienced a reaction to decompression (vasomotor collapse, unconsciousness, decompression sickness (e.g., bends), etc.) in flight shall be immediately referred to a FS or APA. Grounding and clearance shall be in accordance with [Paragraph 8.3.2.6](#) of this instruction.

8.3.2.13 Hyperbaric Exposure

Under normal circumstances, flight personnel shall not fly or participate in low-pressure chamber flights within 24 hours following scuba diving, compressed air dives, or high-pressure chamber evolutions. Where an urgent operational requirement dictates, flight personnel may fly within 12 hours of scuba diving, provided no symptoms of pulmonary overinflation syndrome or decompression sickness develop following surfacing and the subject is examined and cleared by a FS or APA. Personnel participating in dynamic SEBD (or equivalent egress device) training may fly as passengers without restriction. Participation in flight duties is prohibited for 12 hours following dynamic SEBD (or equivalent egress device) training. The hyperbaric exposure flight restriction is not applicable to routine ground pressurization checks conducted in P-3 and C-130 aircraft when completed without incident.

8.3.2.14 Corrective Lenses for Vision

Corrective lenses or soft contact lenses shall be worn as prescribed. The requirement to wear corrective lenses will be annotated on DD 2992.

8.3.2.15 Dehydration

Of all causes of fatigue, one of the most treatable is dehydration. Early stages of dehydration can lead to emotional alterations and impaired judgment. Ingestion of plain water throughout the day will reduce probability of dehydration and resultant fatigue. Heat and dehydration information is available as NASTP Adjunctive Training ([Appendix E](#)) and can be provided by an NAOP, AMSO, FS, or APA.

8.3.2.16 Simulator Sickness

Simulator exposure can cause perceptual sensory changes that may compromise safety. The experience of symptoms such as nausea, disorientation, and sweating has occurred in fighter, attack, patrol, and helicopter simulators. Symptoms of simulator sickness may occur during simulator flight and last several hours after exposure. In some cases, the onset of symptoms has been delayed as much as 18 hours. The symptoms have occurred in both full motion and fixed simulators to pilots and other aircrew as well as instructors. Preliminary data suggest that more experienced flight personnel may be at greater risk, as well as individuals who are new to the simulator. Flight personnel exhibiting symptoms of simulator sickness should consult with a FS or APA prior to returning to flight duties.

8.3.2.17 Anthropometric Requirements

Applicants and designated flight personnel shall meet the anthropometric standards per OPNAVINST 3710.37 series and be within the minimum and maximum nude weight range of 103 and 245 lbs, inclusive. Refer to NAVAIRINST 3710.9 series for specific aircraft cockpit anthropometric measurement limitations.

WARNING

Any person flying in an aircraft whose nude body weight is outside of the COMNAVAIRSYSCOM-certified crew member weight range is at increased risk of serious injury or death during ejection or hard/crash landing.

8.3.3 Performance Maintenance During Continuous and Sustained Operations

Operational commitments may necessitate continuous and/or sustained operations in which sleep and circadian rhythms are disrupted, leading to potentially hazardous fatigue. NAVMED P-6410 (01 Jan 2000), Performance Maintenance During Continuous Flight Operations, A Guide for Flight Surgeons, provides background on the subject, strategies for fatigue reduction, and guidance in the use of sleep-inducing and anti-fatigue medications (“no-go pills” and “go-pills”) in aircrew. Commanding officers, in consultation with their FSs and APAs, are authorized to use any of the strategies described in the guide when mission requirements and operational risk management indicate use would be appropriate. The use of stimulants and/or sedatives shall only be authorized following the commanding officer's consultation with the Navy wing commander or equivalent Marine Aircraft Group Commander, and the FS or APA. The FS or APA, furthermore, shall have consulted with his/her supervisor in

the aeromedical chain of command. See also [Paragraph 8.3.2.1](#) and [8.3.2.2](#). Optimally, aircrew should be pre-tested using specific medications to determine any idiosyncratic or persistent effects on alertness or performance after awakening. If pre-testing is not possible, formal grounding and return to flight notices should be issued by the medical officer. Further guidance, policies, restrictions and reporting procedures are provided and should be followed as outlined in the NAMI on-line Aeromedical Reference and Waiver Guide.

8.4 NAVAL AVIATION SURVIVAL TRAINING PROGRAM

1. The Naval Aviation Survival Training Program (NASTP) includes four general categories of survival training courses.
 - a. Aircrew Indoctrination NASTP Training.
 - b. Aircrew Refresher NASTP Training.
 - c. Non-aircrew NASTP Training.
 - d. Non-aircraft Specific NASTP Training.
2. The NASTP includes four general classes of aircraft based upon common platform characteristics. Specific aircraft for each class is found in [Figure E-3](#).
 - a. Class 1 — Ejection Seat Aircraft.
 - b. Class 2 — Non-Ejection Seat, Parachute Equipped Aircraft.
 - c. Class 3 — Helicopters/Tilt-rotor Aircraft.
 - d. Class 4 — Pressurized, Non-Parachute Equipped Aircraft.
3. Commanding officers shall ensure that all of the requirements are met and that all NASTP training is documented in the OPNAV 3760/32 (NATOPS Flight Personnel Training/Qualification Jacket — Report Covers and Divider Tabs). Generally for all training categories listed above, course completion letters will indicate which qualification was received and for which specific aircraft the qualification is valid.

8.4.1 Training Requirements

The NASTP shall prepare personnel authorized to fly in naval aircraft by providing training in the areas of aeromedical aspects of flight, water survival skills, the proper use of ALSS, and other general personal mission enhancement and survival procedures. Re-qualification is required every 4 years unless otherwise specified in this instruction. Expiration date shall be on the last day of the month in which training was originally completed. Specific expiration dates will be annotated on course completion letters/documents.

1. Appropriate courses for aircrew and non-aircrew are specified in [Appendix E](#), [Paragraph E.2](#) and [E.3](#) and this chapter.
2. All U.S. Military services and foreign military aviators and aircrew flying in USN/USMC aircraft shall meet U.S. Navy quadrennial aircrew refresher training requirements prior to flight, unless flying as an orientee in which case [Figure E-1](#) note and [Paragraph 3.3.4](#) apply.
3. The NASTP qualifications of personnel who do not fly in a crew position for a period of 18 consecutive months are considered expired; appropriate refresher training is required prior to the return to flight status.
4. Personnel who transition to a different class aircraft or will be performing duties in a different class of aircraft may require additional training prior to flight in that new aircraft class in addition to their current qualification. If Aircrew Indoctrination NASTP Training has been completed only the refresher course for the transition aircraft needs to be completed. The date of the first qualification will be used to calculate the expiration date of the new qualification. Modules in the new course that are identical to those in the first course do not need to be repeated. Consult Naval Survival Training Institute (NSTI) for specifics.
5. Flight personnel being assigned to an OCONUS duty station shall complete applicable NASTP training prior to leaving CONUS. Commanding officers of detaching personnel shall ensure that requirements are

met prior to detachment or ensure that the individual is scheduled for NASTP completion in route. Training must be completed to ensure that NASTP currency will not expire during assigned OCONUS tour.

6. Personnel shall complete their training prior to commencement of a deployment if their qualifications will expire during that deployment or within 60 days following redeployment.
7. Exceptions and additional requirements:
 - a. Aircrew in a DIFDEN status are not required to maintain currency in NASTP training. Personnel with DIFDEN waivers are required to be current in NASTP.
 - b. USAF flight students and instructors assigned to CNATRA or FRS commands who are trained and current in USAF Physiology and Water Survival are recognized as having sufficient physiology and water survival training to operate safely in CNATRA or FRS aircraft for the length of their tours or to the refresher date, whichever occurs sooner. Additionally, they shall receive appropriate Level A briefs prior to first flight and annually (see [Appendix E, Paragraph E.7](#)). Upon expiration of physiology and water survival training, these aircrew shall complete USAF Physiology and Water Survival or complete Aircrew Refresher NASTP training for the appropriate class of aircraft.
 - c. Aeronautically designated personnel trained and current in USAF Physiology and Water Survival assigned to fly in Class 1, 2 or 4 naval aircraft outside of CNATRA or the FRS shall complete the following non-common elements of Aircrew Refresher NASTP for the appropriate class of aircraft: A, G, H, I, J, K, L, M, N, O, P, Q, and S. Expiration of qualification will be four years from the current USAF training date. The appropriate Level A training shall also be completed prior to first flight and annually (see [Appendix E, Paragraph E.7](#)). Upon expiration of physiology and water survival training, these aircrew shall complete Aircrew Refresher NASTP training for the appropriate class of aircraft.
 - d. Aeronautically designated personnel trained and current in USAF Physiology and Water Survival assigned to fly in Class 3 naval aircraft outside of CNATRA or the FRS shall complete Aircrew Refresher NASTP for Class 3 aircraft. The appropriate Level A training shall also be completed prior to first flight and annually (see [Appendix E, Paragraph E.7](#)). Upon expiration of physiology and water survival training, these aircrew shall complete Aircrew Refresher NASTP training for Class 3 aircraft.
 - e. Aeronautically designated personnel trained and current in US Army Aviation Physiology training assigned to fly in naval aircraft shall complete the following non-common elements of Aircrew Refresher NASTP training for the appropriate class of aircraft: A, F, G, H, I, J, K, L, M, N, O, P, Q, and S. Expiration of qualification will be four years from the current US Army training date. Appropriate Level A training shall also be completed prior to first flight and annually (see [Appendix E, Paragraph E.7](#)). Upon expiration of physiology and water survival training, these aircrew shall complete Aircrew Refresher NASTP training for the appropriate class of aircraft.
 - f. Aeronautically designated personnel trained and current in aviation survival training by military from the countries listed below and assigned to fly in naval aircraft shall complete these non-common elements of Aircrew Refresher NASTP for the appropriate class of aircraft: A, G, H, I, J, K, L, M, N, O, P, Q, and S. Foreign militaries to which this applies are: Australia, Belgium, Canada, Denmark, France, Germany, Greece, Italy, Netherlands, New Zealand, Norway, Portugal, Turkey, and United Kingdom. Expiration of qualification will be four years from the current foreign military training date. Appropriate Level A training shall also be completed prior to first flight and annually (see [Appendix E, Paragraph E.7](#)). Upon expiration of physiology and water survival training, these aircrew shall complete Aircrew Refresher NASTP training for the appropriate class of aircraft. Aeronautically designated personnel from countries not listed above shall complete Aircrew Refresher NASTP training for the appropriate class of aircraft.
 - g. Non-aeronautically designated personnel:
 - (1) Staff (excluding Flag officer, or civilian equivalent, airborne strategic communication battle staff) whose duties require inflight observation (Warfare Centers of Excellence, Warfighting Development Centers, Task Forces, et al.) shall complete appropriate aircrew or non-aircrew NASTP training for each class of aircraft in which they intend to embark. Joint service personnel (excluding Flag officer, or civilian equivalent, airborne strategic communication battle staff) conducting airborne strategic communication missions in Class 4 aircraft ([Figure E-3](#)) shall

complete USAF Physiology Training and Water Survival course S-V90-A, or non-aircrew NASTP training for Class 4 aircraft, prior to flight duties in naval aircraft. Flag or general officers or SES should complete NASTP training. All personnel shall complete [Appendix E, Paragraph E.7](#) egress training as appropriate for each aircraft on which embarked.

- (2) Other USAF and US Army trained non-aircrew:
 - (a) USAF Officer Cadet Initial Training and USAF Passenger Training is not recognized as meeting any NASTP requirements.
 - (b) For other USAF or US Army aviation survival training, common elements B through E of [Figure E-2](#) are recognized as meeting either service's requirements. The appropriate NASTP training course less the common elements shall be completed prior to flight.
- h. Civilian contractor DoD flight operations are governed by this document, NAVAIRINST 3710.1 and must also comply with US Title Code, Office of Management and Budget (OMB), DoD, SECNAVINST and other OPNAV instructions concerning reimbursement to the Navy for training provided.
- i. DoD civilians are authorized training per [Figure E-1](#) if duties require flight aboard USN/USMC, other U.S. Military, USCG, NASA owned or DoD contracted aircraft (including pre-accepted DoD aircraft).
- j. Non-DoD civilians and Non-DoD uniformed services personnel are authorized training if authorized flight is conducted aboard USN/USMC, other U.S. Military, USCG, NASA owned aircraft or DoD contracted aircraft (including pre-accepted DoD aircraft) (reimbursement may be required).

8.4.2 Records

All training documentation forms are to be retained as a permanent part of the NATOPS jacket. Personnel completing required annual Adjunctive training shall have the training documented on the OPNAV Form 3760/32F (NATOPS Flight Personnel Training/Qualification Jacket Section IIIB — Operational Physiology & Survival Training) and kept in their NATOPS jacket. For aircraft specific training (Aircrew Indoctrination NASTP Training, Aircrew Refresher NASTP Training, and Non-aircrew NASTP Training) every attempt to list the specific aircraft qualified shall be made. If an aircraft is not listed in [Figure E-3](#) (i.e. experimental aircraft), the student shall be trained based on which aircraft class is most applicable. Use [Appendix E, Paragraphs E.2](#) and [E.3](#) to determine training requirements. For detailed information on aircraft specific requirements contact the ASTC or NSTI.

8.4.3 Physical and Training Prerequisites for Participation in NASTP Training

1. All students reporting for NASTP training shall provide proof of current physical examination and qualifications as described in [Section 8.8](#) or as noted below.
 - a. Fleet Marine Force (FMF) Medical Officers, Diving Medical Officers (DMO) and Undersea Medical Officers (UMO) are authorized to provide medical clearance letters for personnel participating in basic/advanced water survival/underwater egress training (i.e., SEBD, Survival Swimming, Remedial Swim, Non-aircrew Underwater Emergency Egress, CBR In-water Egress & Survival, USMC Underwater Egress Familiarization).
 - b. DMOs and UMOs are authorized to provide medical clearance letters for military personnel (e.g., Special Operations Forces (SOF)) participating in High Altitude Parachutist (HAP) Physiology or Advanced Underwater Egress Training and Survival Procedures.
 - c. Enlisted Personnel (e.g., Independent Duty Corpsman (IDC) or other Hospital Corpsman (HM)) are not authorized to provide (or sign) medical clearance for FMF or other personnel with the following exception: IDC or HM may issue an aeromedical clearance after consultation with a credentialed FS, APA, or aeromedical provider. The record must include specific identifying information of the provider consulted as well as summarize the information discussed.
 - d. Personnel participating in NASTP lectures only do not require medical clearance.

- e. With regard to naval aviator and enlisted aircrew candidates entering initial training through either the CNATRA or USAF Air Education and Training Command (AETC) pipeline, exceptions to [Paragraph 8.4.3 subparagraph 1.](#) are authorized as determined by NAVMEDOPTRNCMD as follow:
 - For cases where NAMI has a completed flight physical but cannot issue an DD 2992 pending administrative processing, NAMI may certify the candidate physically qualified to commence initial training by annotating on an updated DD form 2807-1 (Report of Medical History).
 - Naval aviator candidates and enlisted aircrew candidates awaiting waiver approval for a physical defect may be transferred from NAVAVSCOLSCOM to further aviation pipeline training only upon recommendation from NAMI and NAVAVSCOLSCOM.
 - In no case shall a student (naval aviator candidates and enlisted aircrew candidates) be allowed to commence actual flight training until all required waivers are approved by NAVPERSCOM or CMC (ACP) and a DD 2992 is issued by a FS or APA; APAs may issue a DD 2992 without a FS co-signature.
 - f. Appropriate medical clearances for other U.S. military, USCG, or NASA personnel participating in the NASTP may be signed by those services' or agencies' medical officers, signifying that the individual is physically qualified for participation in high-risk NASTP training.
 - g. Physical prerequisites for other personnel not identified above shall be determined on a case-by-case basis by COMNAVAIRFOR (N455) or CMC (ACP).
2. Requirements per [Paragraph 8.3.2](#) shall apply for participation in NASTP training (e.g., rest and sleep, drugs, and alcohol restrictions).
 3. Additional Prerequisites:
 - a. The NASTP swimming ability prerequisite for USN/USMC students is U.S. Navy 3rd Class swimmer, USMC WS, or better. All prospective students should be able to demonstrate the following minimum skills:
 - The breast stroke in aircraft-specific flight equipment for at least 75 yards.
 - Drown proofing for a minimum of 7 minutes in aircraft-specific flight equipment.
 - Tread water for a minimum of 2 minutes in aircraft-specific flight equipment.
 - Accomplish oral inflation of LPU after treading water or survival floating (drown proofing) in aircraft specific flight equipment.
 - b. For USMC assault troops participating in NASTP USMC “Non-Aircrew” Personnel Underwater Egress Familiarization/Orientation Course, USMC WS-B (to include survival flotation instruction) or better is required.
 - c. Officer and enlisted aircrew receiving pre-flight training at Naval Aviation Schools Command (NASC) shall pass the intermediate swim course (CIN Q-050-0605) prior to enrolling in Aircrew Indoctrination NASTP Training. Officers and enlisted aircrew students shall complete Cardiopulmonary Resuscitation (CPR)/Basic First Aid prior to completion of NASC training.
 - d. Specific details of requirements are provided in the front matter of each CNO/COMNAVAIRFOR approved NASTP curriculum.

8.4.4 Training Waivers/Qualification Extensions

Personnel delinquent in the NASTP training requirements shall not be scheduled to fly unless a qualification extension has been granted by the appropriate aviation TYCOM or in accordance with this instruction as follows:

1. Training waivers for required Aircrew and Non-aircrew Indoctrination NASTP Training shall be submitted to COMNAVAIRFOR (N455) or CMC (ACP) as appropriate. Waivers for individuals participating in orientation/indoctrination flights will be handled per [Paragraph 3.3](#). If a waiver is granted, the pilot in command shall ensure that the individual(s) are thoroughly briefed on installed life support systems (i.e.,

oxygen systems, parachutes, life vests, exposure suits), emergency egress systems (i.e., ejection seats, canopy jettison system), and ditching, crash landing and bailout procedures. NASTP requirements are waived for passengers in aircraft not equipped with ejection seats or personal oxygen systems used for primary life support.

2. Training waivers and qualification extensions for Aircrew Refresher NASTP training shall be submitted to the appropriate aviation TYCOM. If device unavailability or malfunction is the reason for a grade of Conditionally Qualified (CQ) and the individual is unable to return to the ASTC for completion of the deficient training module prior to a deployment, an extension of the CQ until 30 days post-deployment may be requested. Extension approval authority in this case is the aviation TYCOM, CMC, COMNAVAIRFOR, or command delegated this authority by TYCOM, CMC, or COMNAVAIRFOR, for their assigned units.
3. COMNAVAIRFOR or CMC may grant a waiver/qualification extension if the previously designated waiver authorities are not in the chain of command.
4. Commanding officers may extend the expiration date of all Level A NASTP Adjunctive Training that would otherwise expire during the period of a long deployment or within 90 days of return. The expiration date for the extension shall not be later than 90 days after return from deployment.
5. COMNAVAIRFOR (N455) shall be an information addressee on all Navy waiver/qualification extension requests. HQMC (ASM) shall be an information addressee for USMC requests following MCO 3710.8.

8.4.5 Coordination

8.4.5.1 Curriculum Management

Aviation type commanders, commanding officers, aerospace physiologists, and training and safety officers shall monitor the NASTP to ensure that the curricula support their requirements. COMNAVAIRFOR (N45) shall serve as the Requirements Sponsor for all NASTP training. BUMED shall serve as the Resource Sponsor for all NASTP training, and shall assign an appropriate subordinate activity to serve as the Curriculum Control Authority (CCA). The Naval Survival Training Institute shall serve as the Course Curriculum Model Manager (CCMM) for all NASTP training. Aviation Survival Training Centers (ASTCs) attached to NSTI shall serve as Learning Sites (LSs) and provide applicable NASTP training. Curricula shall be developed with the technical advice of other naval activities as necessary. Changes shall be routed to BUMED (M35) and forwarded to COMNAVAIRFOR (N45) for final approval.

8.4.6 Aircrew Indoctrination NASTP Training

Required initial training for all prospective USN and USMC aeronautically designated personnel, DoD civilian aircrew, contract aircrew, and for USAF and USCG personnel in the Navy pipeline. Training is aircraft specific in accordance with [Appendix E, Paragraph E.2](#) and [E.3](#) and the CNO/COMNAVAIRFOR approved curricula. Unless otherwise specified in this instruction, all unique module versions must be completed in accordance with [Figure E-2](#) and the CNO/COMNAVAIRFOR approved curricula in order to qualify for a particular aircraft. In the situation of qualifying for multiple classes of aircraft, identical course enabling objectives do not need to be repeated. Aircraft/Class-specific requirements are detailed in the CNO/COMNAVAIRFOR approved curricula. NASTP Training is valid for 4 years.

1. Aircrew Indoctrination NASTP Training for Class 1 aircraft.
2. Aircrew Indoctrination NASTP Training for Class 2 aircraft.
3. Aircrew Indoctrination NASTP Training for Class 3 aircraft.
4. Aircrew Indoctrination NASTP Training for Class 4 aircraft.

8.4.7 Aircrew Refresher NASTP Training

Required refresher training for all aeronautically designated personnel, DoD civilian aircrew, contract aircrew, and for USAF and USCG aircrew in the Navy pipeline. Prerequisite is completion of one of the Aircrew Indoctrination

NASTP Training courses. Training requirements per [Paragraph 8.4.1](#) apply for USAF, other U.S. Military and foreign military. Training is aircraft specific in accordance with [Appendix E, Paragraph E.2](#) and [E.3](#) and the CNO/COMNAVAIRFOR approved curricula. Unless otherwise specified in this instruction, all unique modules must be completed in accordance with [Appendix E, Paragraph E.2](#) and the CNO/COMNAVAIRFOR approved curricula in order to qualify for a particular aircraft. In the situation of qualifying for multiple aircraft/classes of aircraft, common modules do not need to be repeated. NASTP Training is valid for 4 years. Aircraft/Class-specific requirements are detailed in the CNO/COMNAVAIRFOR approved curricula.

1. Aircrew Refresher NASTP Training for Class 1 aircraft.
2. Aircrew Refresher NASTP Training for Class 2 aircraft.
3. Aircrew Refresher NASTP Training for Class 3 aircraft.
4. Aircrew Refresher NASTP Training for Class 4 aircraft.

8.4.8 Non-Aircrew NASTP Training

Training for all non-aeronautically designated personnel who require aircraft-specific NASTP training prior to flight. Students include individuals on DIFTECH or DIFTEM orders, individuals receiving orientation flights, Project Specialists, and Midshipmen (see glossary for definitions). Training is aircraft specific in accordance with [Appendix E, Paragraph E.2](#) and [E.3](#) and the CNO/COMNAVAIRFOR approved curricula. Unless otherwise specified in this instruction, all unique modules must be completed in accordance with [Appendix E, Paragraph E.2](#) and the CNO/COMNAVAIRFOR approved curricula in order to qualify for a particular aircraft. In the situation of qualifying for multiple aircraft/classes of aircraft, common modules do not need to be repeated. Non-aircrew NASTP Training is valid for 4 years for non-aeronautically designated personnel that routinely fly in performance of their duties, such as project specialist. Training is valid for 180 days for Midshipmen orientation flights, and valid for 90 days for VIP and all other orientation flights. Aircraft/Class-specific requirements are detailed in the CNO/COMNAVAIRFOR approved curricula. The specific aircraft qualification(s) shall be listed in the course completion letter. Upon expiration of the NASTP qualification, the course shall be repeated to retain/regain currency.

1. Non-aircrew NASTP Training for Class 1 aircraft.
2. Non-aircrew NASTP Training for Class 2 aircraft.
3. Non-aircrew NASTP Training for Class 3 aircraft.
4. Non-aircrew NASTP Training for Class 4 aircraft.

8.4.9 Non-Aircraft Specific NASTP Training

Mission Specific required specialized, supplemental or continuation training for aircrew and non-aircrew personnel. Training elements required are specific in accordance with [Appendix E, Paragraph E.2](#) and the CNO/COMNAVAIRFOR approved curricula. The specific qualification(s) completed shall be listed in the course completion letter. Upon expiration of the NASTP qualification, if applicable, the course shall be repeated to retain/regain currency.

1. CFET. Centrifuge-based Flight Environment Training (CFET). Required initial training for all tactical jet aircrew prior to reporting for FRS training (ideally CFET should be completed prior to reporting for the advanced strike syllabus). Documented dynamic centrifuge training completed as a student at ASTC Lemoore, Naval Air Development Center (NADC) Warminster, Holloman Air Force Base (AFB), Brooks AFB, Wright Patterson AFB, through CNATRA contracted training, or foreign centrifuge training facilities that meet the NATO Standardization Agreement (STANAG) is recognized as meeting CFET requirements. Failure to meet this NASTP requirement shall result in grounding until successful participation is completed or CFET is waived. CFET is required only once during an aviation career, but can be repeated upon written request by the aviator's parent command. Naval Aviators and Naval Flight Officers who have completed over 20 years of tactical jet flying are waived from this requirement.

Note

It is recommended that aviators who have experienced significant in-flight light loss, G-induced Loss of Consciousness, or significant change in their G-tolerance receive additional CFET.

2. HAP Physiology. High Altitude Parachutist (HAP) Physiology. Physiological training for military personnel (e.g., special operations forces (SOF)) conducting HAP operations. The training is valid for 5 years and meets USAF/USA HAP Initial physiology training requirements. Upon expiration of qualification, this course is to be repeated in its entirety.
3. Supplemental Emergency Breathing Device (SEBD). Advanced underwater egress training for personnel authorized to use the SEBD, HABD, or similar underwater egress breathing devices. Prerequisites for training are per CNO/COMNAVAIRFOR approved curriculum guidance. Training is valid for 4 years. More frequent training may be given when requested in writing by the student's parent command.
4. Survival Swimming. Basic Aviation Water Survival Skills, Remedial and Adjunctive Training provides supplemental training in water survival skills and equipment usage and shall be used for remediation in specific water survival training elements. Training available upon request or as required.
5. Non-aircrew Underwater Emergency Egress. Provides Underwater emergency egress training using training devices 9D6 and/or other CNO/COMNAVAIRFOR approved underwater egress trainers for authorized personnel whose duty assignments necessitates frequent overwater helicopter or tiltrotor aircraft flights. Training is valid for 4 years. More frequent training may be provided when requested in writing by the student's parent command.
6. CBR Ensemble In-water Egress and Survival. Advanced water survival training for aircrew using CBR ensembles. Prerequisite training is successful completion of Aircrew Indoctrination NASTP Training for Class 1, 2, 3, or 4 aircraft and/or as stated in the CNO/COMNAVAIRFOR approved curriculum. Training is valid for 4 years. More frequent training may be provided when requested in writing by the student's parent command.
7. USMC "Non-Aircrew" Personnel Underwater Egress Familiarization/Orientation Course. This course is authorized only for USMC non-aircrew personnel. The course is designed specifically to provide USMC Expeditionary Forces familiarization with underwater egress procedures from a multi-place underwater egress trainer. This course is not a substitute for the Non-aircrew Underwater Emergency Egress course (listed above). Prerequisites are completion of WS-B or higher. Training is valid for 4 years. More frequent training may be provided at the request of the USMC student's parent command. This training should be requested through coordination between Marine Expeditionary Force training divisions, NSTI, and local ASTCs.
8. Advanced Underwater Egress Training. This course provides advanced training in underwater emergency egress (from various platforms) that is specific to the equipment worn or carried by personnel. Course prerequisites are available from the ASTC or NSTI. No time limit is established for this course. Training may be provided whenever requested by the student's parent command.
9. Dynamic Altitude Breathing Threats Training. This course is to provide didactic and dynamic training focusing on experiencing the symptoms of acute altitude-induced hypoxia and hypocapnia and performing corrective actions via a normobaric multi-crew or single crew altitude threats systems trainer or other NASTP approved training device. This course is intended to be used as supplemental or adjunctive aircrew training. If completed by designated aircrew within 90 days of attending Aircrew Refresher NASTP Training, the dynamic portion of the applicable curriculum does not need to be repeated (in this situation, the completion of the Dynamic Altitude Breathing Threats Training course shall be used to calculate the ensuing Requalification intervals). No time limit is established for this course. Training may be provided whenever requested by the student or student's command.

8.4.10 Adjunctive Training

See [Appendix E](#) for required Mission Readiness Training for all aeronautically designated personnel.

8.4.11 Grading

1. With the exception of CFET, personnel who meet all training objectives and complete all modules of the required Aircrew Indoctrination NASTP Training, Non-aircrew NASTP Training, or any of the Non-aircraft Specific NASTP Training courses using approved equipment per COMNAVAIRFOR (N45) approved curriculum shall be classified as Qualified (Q). Personnel who do not successfully complete all modules of the course per CNO/COMNAVAIRFOR approved curricula requirements shall be classified as Unqualified (UQ).
2. Aircrew Refresher NASTP Training shall be graded as follows:
 - a. Qualified (Q) — Individuals who successfully meet all training objectives and complete all modules of required training using approved equipment per COMNAVAIRFOR (N45) approved curriculum shall be classified as Qualified (Q).
 - b. Conditionally Qualified (CQ) — Individuals who fail to successfully complete all training objectives within any one of the required modules in [Appendix E, Paragraph E.2](#) (including lecture only modules), shall be classified as Conditionally Qualified. Failure to successfully complete the deficient module within 90 days will result in a grade of Unqualified (UQ) and the individual shall repeat the entire curriculum. Consecutive grades of CQ are not permitted within the current refresher cycle. Personnel designated as CQ may continue on flight status for this 90-day period. Qualification letters will indicate which module was not successfully completed and the reason not completed (i.e., device unavailability/malfunction, graded element not passed, etc.). Refer to [Paragraph 8.4.4](#) regarding training waivers and extensions.
 - c. Unqualified (UQ) — Individuals who fail to successfully complete the training objectives within two or more of the modules in [Appendix E, Paragraph E.2](#) (including lecture only modules), or fail to qualify within 90 days, or time period specified in an approved extension, after receiving a grade of CQ, shall be classified as Unqualified (UQ). Failure to successfully complete all deficient modules within 90 days will result in the individual repeating the entire curriculum. Personnel in a UQ status shall be grounded until they successfully achieve a grade of Q or CQ. Qualification letters will indicate which modules were not successfully completed and the reason not completed (i.e., device unavailability/malfunction, graded element not passed, etc.).
 - d. No Grade (NG) — If a refresher student begins NASTP training, but due to unforeseen circumstances is unable to complete the course, an entry in the record of NG shall be made. Those items not completed shall also be listed in the record. If any training element was attempted and failed, NG shall not be used, a grade of Unqualified (UQ) shall be entered. Personnel designated as NG may continue on flight status until their original qualification expires. Qualification letters will indicate which modules were not successfully completed.
3. Remediation and completion of training elements may take place at any NSTI ASTC (as listed in [Appendix E, Paragraph E.4](#)). Upon successful completion of training, the ASTC providing remediation shall generate an updated qualification letter.
4. CFET training is documented based on completion of specific CFET profiles. The qualification letter or NATOPS Jacket stamp will document whether or not the aircraft profiles were satisfactorily completed (e.g., completed profiles A, B, C; non-completed profiles D, E). Additional training is highly recommended for those who failed to complete all profiles. Grades of “Q”, “CQ”, and “UQ” are not used for CFET training.
5. Adjunctive Training is required in some cases and elective in others and is not graded. Squadron NATOPS or training officers shall ensure that the required specific annual training is documented with a completion date in the Individual's NATOPS Training/Qualification jacket (Form 3760/32F).

8.4.12 Environmental Exposure

Flight personnel shall not participate in flight duties for 12 hours after completion of the following NASTP training or training devices: 9D6 (METS), CFET, MSDD, dynamic SEBD (or equivalent egress device) training.

CNAF M-3710.7

Personnel on flight status shall not perform flight duties for 24 hours after participation in dynamic training on the devices listed below. This is a self-expiring change in duty status and does not require a medical evaluation or new DD 2992 “up-chit” to return to flight status. Individuals who have experienced an abnormal reaction to the training listed below shall be immediately referred to a flight surgeon.

1. Reduced Oxygen Breathing Device (ROBD) training.
2. Multi-crew Normobaric Hypoxia Trainer (NHT) training.
3. Other approved NASTP devices requiring aircrew to experience hypoxia, hypocapnia, or hyperventilation to the point of adverse physiological symptoms.

8.5 FLEET AIR INTRODUCTION/LIAISON OF SURVIVAL AIRCREW FLIGHT EQUIPMENT (FAILSAFE) PROGRAM

Commanding officers shall ensure that aircrews receive indoctrination whenever new or modified ALSS is introduced to the fleet by a designated member of the FAILSAFE Team or program comprised of Aeromedical Safety Officers, Aeromedical Safety Corpsman and Regional Tiger Team Survival Equipmentmen. ALSS technical data indoctrination packages (TDIPs) provided by Naval Air Systems Command (NAVAIRSYSCOM) to AMSOs and ASTCs should be used to satisfy training requirements. NAVAIRSYSCOM is responsible for initial training assets (to include NASTP) for new and/or significantly modified ALSS items, these required training assets are to be identified and provided for during development and introduction.

8.6 NVD TRAINING PROGRAM

NITE Lab Indoctrination training is required and refresher training is recommended for all aircrew involved in NVD operations. Refer to [Paragraph 5.7](#) for further information.

1. Indoctrination training is defined as the student's first attendance at a NITE Lab training facility and shall be system specific.
2. Transition training is defined as any new NVD training that is not Indoctrination training (examples include NVCDs, NDM or AN/AVS-9 White Phosphor training) and shall be taught at a NITE Lab training facility.
3. Refresher training is defined as subsequent training provided at NITE Lab facilities, as required by the applicable USMC Training and Readiness Manual, USN aviation TYCOM/Type Wing instruction or as requested by unit commanders.
4. Personnel participating in initial/transition/refresher NITE Lab training shall be graded as follows:
 - a. Qualified (Q) — Scoring 80 percent or higher on the indoctrination course exams and completion of all modules of training outlined in the MAWTS-1 NITE Lab SOP.
 - b. Unqualified (U) — Failing to score at least 80 percent on indoctrination course exams or missing any modules of training outlined in the MAWTS-1 NITE Lab SOP. Disposition of students in this status will be at the discretion of the local command.
5. NITE Lab instructors are NVD experienced personnel specifically designated by MAWTS-1. These members have completed the MAWTS-1 NITE Lab Instructor Course (NLIC) and are considered subject matter experts in the NVD utilized at their command. To maintain knowledge and experience on NVDs, each active NITE Lab instructor shall retain instructor currency in accordance with the MAWTS-1 NITE Lab SOP.

8.7 SEARCH AND RESCUE PILOT/RESCUE SWIMMER TRAINING

1. The purpose of this program is to promote standardization of SAR procedures and to establish a minimum SAR training program for personnel assigned search and rescue duties aboard aircraft. Units involved are those that are established primarily to fulfill search and rescue mission responsibilities or that may be assigned search and rescue responsibilities in conjunction with other mission areas. The search and rescue model manager (SARMM), Helicopter Sea Combat Support Squadron THREE (HELSEACOMBATRON

THREE/HSC-3) establishes SAR procedures and ensures standardization. Aviation type commanders shall designate SAR evaluation units within their command to train, evaluate, and assist individual units/commands in developing and implementing search and rescue programs.

2. Requirements for SAR training, proficiency, and requalifications are presented in OPNAVINST 3130.6 and shall be considered minimum standards. Commands are encouraged to supplement those listed requirements with additional training pertinent to local mission requirements.
3. The Rescue Swimmer School Training Program (RSSTP) shall prepare designated aircrew and selected aircrew candidates for SAR swimmer duties. This is accomplished through lectures, demonstration, practical experience in CNO-approved rescue procedures/techniques and hands-on training using aviation life support and rescue equipment.
4. The NAVAVSCOLSCOM is designated the Rescue Swimmer School Model Manager (RSSMM). The RSSMM establishes RSSTP procedures for approval by COMNAVAIRFOR (N455), provides oversight of the RSSTP, and ensures standardization through the following:
 - a. Instructor Training — The RSSMM shall conduct the Rescue Swimmer Instructor Course and issue the RSSTP Core Unique Instructor Training Program.
 - b. Curricula Management — MPT&E CoE shall coordinate the training requirements of CMC, aviation TYCOMs, CNATRA, and the USCG; the RSSMM shall chair curricula conferences. The RSSMM shall develop and revise RSSTP curricula for COMNAVAIRFOR (N455) approval via CNATRA and MPT&E CoE based upon the needs of the commands noted above, utilizing the procedures established by the SARMM, and employing the technical advice of BUMED.
 - c. Training Analysis — The RSSMM shall monitor the attrition, rollback, and mishap trends of the RSSTP.
 - d. Site Evaluations — The RSSMM shall conduct annual evaluations of CNO-approved training sites at HSC-3; COMHSWINGLANT; Fleet Training Center, San Diego; and NAVAVSCOLSCOM, Pensacola.

8.7.1 Definitions

The following terms contained in the Glossary are relevant: designations, DIFCREW, enlisted crewmember (USMC), naval aircrewman (NAC).

8.7.2 Training Requirements

RSSTP includes initial and refresher training programs. All Category I aviation rescue swimmer school training shall be conducted at Naval Aviation Schools Command, NAS Pensacola. Category II aviation RSS training shall be conducted at HSC-3, NAS North Island and COMHSWINGLANT, NAS Jacksonville.

8.7.3 Prerequisites

1. Initial Training — Satisfactory completion of NACCS within the preceding 6 months or be designated a naval aircrewman. Must have a current flight physical, DD 2992, and be current in all Aircrew Indoctrination NASTP training in accordance with the provisions of this chapter.
2. Refresher Training — Be a graduate of a CNO-approved rescue swimmer school. Must be designated a NAC, have a current flight physical and DD 2992, and be current in all Aircrew NASTP training in accordance with the provisions of this chapter.

8.8 AVIATION PHYSICAL EXAMINATIONS AND QUALIFICATIONS

8.8.1 General Requirements

Specific guidance to be followed for aviation physical exams, evaluations and qualifications is provided in MANMED Chapter 15 for military and Government Service civilian flight personnel. Contractor requirements are governed by NAVAIRINST 3710.1F, Contractor's Flight and Ground Operations. Physical standards as established by BUMED are to be met as a continuing requirement, not solely at the time of the required physical examination.

CNAF M-3710.7

Physical qualification as certified by an appropriate physical examination is a prerequisite for flight for all aircrew personnel. Commanding officers shall suspend from flight duties all aircrew personnel who have not met annual flight physical qualifications. It is preferred that the physical be accomplished starting the first day of the month preceding the birth month. Flight personnel who have not initiated an aviation physical examination by the last day of their birth month shall be considered not to have met annual flight physical qualifications. Flight personnel delinquent in receiving an aviation physical examination shall not be scheduled to fly unless a waiver has been granted by BUPERS/CMC. UAS flightcrew shall follow provisions of this section. Specific medical screening requirements for personnel operating UAS can be found in MANMED.

Note

Commanding officers may extend the expiration date of a DD 2992 that would otherwise expire during the last 90 days of a long deployment or within 90 days of return in consultation with flight medicine or with NAMI (Code 342) if local medicine support is not available. When possible, NATOPS aeromedical qualifications that are due to expire prior to the last 90 days of a long deployment should be renewed prior to deployment. The expiration date for the extension shall not be later than 90 days after return from deployment. For aircrew with annual submission requirements, a request for extension shall be forwarded to NAMI for coordination and review 30 days or more before the DD 2992 is due to expire.

8.8.2 Required Evaluations

FSs and APAs shall keep in close contact with flight personnel in order to maintain an open dialog and proactively detect physical illness, fatigue, and emotional upset. Commanding officers shall establish administrative procedures to ensure that all flight personnel report to a FS or APA whenever their fitness to fly is questionable. Flight surgeons shall conduct interviews and/or physical examinations of aircrew personnel and make recommendations to the member's commanding officer as follows.

Note

Commanding officers, FSs and APAs shall comply with applicable directives pertaining to mental health evaluations of servicemembers (see SECNAVINST 6320.24, Mental Health Evaluations of Members of the Armed Forces). Individuals who fall under "Military Whistleblower Protection" guidelines (SECNAVINST 5370.7) may require additional administrative procedures in conjunction with evaluation. Commanding officers are encouraged to consult with local, FSs, APAs and legal officers.

8.8.2.1 Periodic Flight Physical Examination

All aircrew and personnel assigned to duty involving flight (also includes those DIFDEN) shall be evaluated annually in accordance with Manual of the Medical Department (MANMED) Chapter 15. Exams should be conducted within the interval from the first day of the month preceding their birth month until the last day of their birth month. Exams may be started up to three months prior to expiration IAW MANMED but in no case will a DD 2992 be written for a period longer than 15 months, ending on the last day of their birth month (i.e. signed no sooner than the 1st of the month, 2 months prior to the birth month). The DD 2992 may subsequently need to be synchronized with the birth month which may require more than one exam in a 12-month period to return to birth month cycle. DD 2992 may be issued for a shorter period to ensure compliance with provisions for close follow-up. A DD 2992 issued by a local board of flight surgeons (LBFS) is limited to 90 days from the date of the LBFS.

Note

Physical examinations that have been conducted but are not completed because of additional consultation or administrative reasons shall be considered to have met the requirements for annual certification, unless the individual is found to be not physically qualified during the examination, or the determination of physically qualified must be held in abeyance awaiting consultation. A time-limited DD 2992 shall be issued while awaiting completion of the physical requirements that the FS or APA is reasonably confident will be PQ or NPQ with existing waiver requirements met.

8.8.2.2 Check-In

Upon reporting (including TAD for flying only) to a new unit or base.

8.8.2.3 Postgrounding

Following grounding for medical reasons. BUMEDINST 6410.9 also applies.

8.8.2.4 Post Hospitalization

Following return to duty after any admission to the sick list or hospital (including medical evaluation boards as defined in MANMED, Chapter 18 Medical Evaluation Boards), a DD 2992 placing the aircrew personnel in a down status shall be issued for all admissions and a DD 2992 returning the aircrew personnel to an up status shall be issued when aircrew personnel are returned to flight duties.

8.8.2.5 Postmishap

As necessary to meet the requirements of OPNAVINST 3750.6. Results of the post-mishap examination shall be forwarded to NAMI (Code 342) within 14 days of the mishap.

8.8.2.6 As Directed by Higher Authority

When required of competence for duty, follow-up for waivers, etc.

8.8.2.7 Physical Examination Requirements for Non-aeronautically Designated Individuals

Non-aeronautically designated individuals authorized to embark naval aircraft (e.g., orientees, project specialists) occupying a crew position shall complete a physical examination to determine if they have the high degree of physical and psychological stamina to endure the physiological stressors of actual flight in military aircraft and high-risk NASTP training. See MANMED Chapter 15 for more exam details.

Note

Crew position for the purposes of medical examination include backseat or cabin positions normally reserved for aircrew but does not include seats configured for passengers.

Unless otherwise specified in MANMED or NAVAIRINST 3710.1, project specialists and other non-aeronautically designated individuals on flight orders (e.g., DIFTECH/DIFTEM) require a DD 2992. Contract pilots will receive an administrative DD 2992 from a Naval Aerospace Medicine Provider following presentation of their FAA Class I or II certificate. The expiration of the DD 2992 will be based on the FAA certificate expiration.

Unless otherwise specified in MANMED or NAVAIRINST 3710.1, all non-aeronautically designated individuals not on flight orders (e.g., orientees) will complete the OPNAV 3710/18 and have it co-signed by a Naval Aerospace Medicine Provider if not performed by the former. A DD 2992 will be issued following completion of the OPNAV 3710/18 with an expiration determined by the aeromedical provider but not to exceed one year.

8.8.3 Scope of Examinations

The extent of these examinations shall be determined by the FS or APA, as directed by MANMED or OPNAVINST 3750.6. APAs may perform these examinations and issue a DD 2992 without FS co-signature. Notation of such examinations shall be entered in the individual's health record and reported to the commanding officer and, as required, via NAVMEDOPTRNCMD DET NAVAEROMEDINST (Code 53 HN) to BUPERS/Deputy Commandant for Aviation (DC AVN).

Note

- Aeronautically designated personnel assigned to U.S. Air Force commands may be administratively processed per host service guidelines regarding periodicity of evaluations (e.g., Physical Health Assessments (PHA) in lieu of Navy flight physicals are authorized), but are subject to MANMED medical standards for any identified potentially disqualifying medical conditions. Waiver requests for Naval/Marine personnel shall be submitted to NAMI for referral to the waiver authority of the parent service.
- In the case where spectacles are worn, if the current spectacles do not correct to 20/20 or better in each eye, the aviator is grounded until a current eye examination and prescription can be obtained. In the case where spectacles had not previously been required, the aviator is grounded until spectacles are obtained to correct the visual acuity to 20/20 or better in each eye. When practicable, eye examinations should be performed by a Navy Aerospace Optometrist.

8.8.4 Disposition of Aircrew Found Not Physically Qualified (NPQ)**8.8.4.1 Physical Standards**

Aircrew personnel are expected to maintain appropriate physical standards at all times. However, medical conditions may preclude such physical qualifications for short or long periods. When aircrew personnel are unable to meet required physical standards for periods exceeding 60 days, a grounding physical shall be completed IAW MANMED. If the member is within his/her physical exam vulnerability window, the appropriate long or short form physical should be completed. Otherwise procedures in MANMED shall be followed. Appropriate consultations and FS or APA recommendations shall be forwarded to NAVMEDOPTRNCMD DET NAVAEROMEDINST (Code 53 HN). NAVMEDOPTRNCMD DET NAVAEROMEDINST (Code 53 HN) shall review and make a recommendation to BUPERS or CMC as appropriate. Further guidance and policy are provided in MANMED and on the NAMI on-line Aeromedical Reference and Waiver Guide.

Note

For details on eligibility for flight pay in cases of medical incapacitation, refer to DoD 7730.67 Aviator Incentive Pays and Bonus Program and chapter 22 of DoD 7000.14-R, Volume 7A, DoD Financial Management Regulation, Volume 7A: Military Pay Policy — Active Duty And Reserve Pay.

8.8.4.2 Waiver of Physical Standards

Aircrew personnel who do not meet physical standards may be considered for a waiver of such standards. Such a waiver may be granted on the need of the service, consistent with training, experience, performance, and proven safety of the aircrew personnel.

1. To be considered for waiver, any disqualifying condition: must be acceptable for unrestricted general military duty; cannot jeopardize successful completion of a mission; cannot pose a risk of sudden incapacitation; cannot pose any potential risk for subtle incapacitation that might not be detected by the individual but would affect alertness, special senses, or information processing; cannot be subject to aggravation by military service or continued flying and must be resolved or stable at the time of the waiver (i.e., non-progressive). If the possibility of progression or recurrence exists, the first signs or symptoms must be easily detectable and cannot constitute an undue hazard to the individual or to others; not require

uncommonly available tests, regular invasive procedures, non-routine medications or frequent absences to monitor stability or progression especially during deployment or assignment to austere areas and must not involve unconventional medical treatments (i.e., outside of medically defined standards of care).

2. UAS flightcrew shall follow provisions of this section. Specific medical screening requirements for personnel operating UAS can be found in MANMED.
3. USN/USMC Aircrew may monitor the status of their individual Flight Physicals and Waiver requests by accessing the Aeromedical Electronic Resource Office (AERO) website at: <https://vfso.rucker.amedd.army.mil/pls/airportal/airportal.main.welcome>

8.8.4.2.1 Conditions Considered for Waiver

If condition is considered for waiver, the following procedures shall be followed for initial, continuation, or renewal of waivers:

1. A request for initial waiver of physical standards may be initiated by the member, commanding officer or by a FS or APA. The request shall contain recommendations as to the operational advisability of the waiver, including limitations as to aircraft type, in-flight duties, etc. A statement reflecting the commanding officer's recommendation or endorsement shall accompany all waivers. Included in this initial waiver request shall be an appropriate aeromedical evaluation by the supporting medical treatment facility. The evaluation shall be presented on a typed Aeromedical Summary, with appropriate consultations. The most recent age-appropriate physical exam shall be attached unless the member is within the three-month vulnerability window, in which case the age-appropriate long or short form shall be completed as part of the submission package. A FS or APA shall include medical recommendations as outlined in the MANMED. Waivers may be requested for an indefinite period or may have specific expiration dates appropriate to the condition for which the waiver is requested. The waiver request shall be forwarded via the appropriate chain of command and NAVMEDOPTRNCMD DET NAVAEROMEDINST (Code 53 HN) to BUPERS, or DC AVN, as appropriate.
2. A request for continuation or renewal of an existing waiver must comply with the submission frequency and any additional provisions specified in the original waiver recommendation letter from NAMI (Code 342) as well as provisions specified in the NAMI Aeromedical Reference and Waiver Guide (at <http://www.nomi.med.navy.mil/index.htm>). APAs may request continuation or renewal of an existing waiver. The waiver continuation request may be accomplished as part of the age-appropriate periodic exam including details of any significant interval history as well as focused history and detailed exam relevant to the disqualifying condition. Waivers may be requested for an indefinite period or may have specific expiration dates appropriate to the condition for which the waiver is requested.
3. NAVMEDOPTRNCMD DET NAVAEROMEDINST (Code 53 HN) shall review the medical evaluation and forward a recommendation to BUPERS, or DC AVN, as appropriate.
4. BUPERS, or DC AVN, as appropriate, shall review the request and recommendations and take appropriate action. In general, one of the following dispositions shall be made and filed in the individual's NATOPS Flight Personnel Training/Qualifications Jacket (OPNAV 3760/32) Section I, Part C:
 - a. Grant a waiver of standards to permit continued unrestricted flight status.
 - b. Grant a waiver of standards to a restricted flight status that may include limitations in service group, aircraft type, mission type, in-flight duties, duty location, operational tempo, or other requirements.
 - c. Restrict from all duties involving flight with a statement concerning whether the disqualifying defects are considered temporary or permanent.
5. Further guidance and policy are provided in MANMED and in the NAMI on-line Aeromedical Reference and Waiver Guide at <http://www.nomi.med.navy.mil/index.htm>.

8.8.4.3 Flight Status

In cases where flight status is terminated, BUPERS, or DC AVN, as applicable, shall determine if the individual is to be retained within the aeronautical organization or assigned to duty outside the aeronautical organization.

8.8.4.4 Disposition

For aircrew personnel whose aeromedical disposition is considered uncertain by the examining FS or APA, consideration shall be given to appearance before an appropriate special or senior board of flight surgeons (see MANMED).

8.8.4.5 Limited Duty (LIMDU)

Aircrew personnel placed on LIMDU status by medical board action shall be considered to be physically incapacitated for all duty involving flight and all related training until such time as returned to flight status by medical board action and endorsement of a current flight physical by NAVMEDOPTRNCMD DET NAVAEROMEDINST (Code 53 HN). The LIMDU board report and a typed DD Form 2808 (Report of Medical Examination) and DD Form 2807-1 (Report of Medical History) shall be forwarded to NAMI (Code 53HN) for appropriate action as soon as possible. Flight personnel placed in a LIMDU status strictly for geographical constraints (i.e., remain in or near proximity to a naval medical treatment facility for specialized treatment or follow-up treatment) and who are otherwise physically qualified and aeronautically adapted, may request a waiver to remain in a flight status. Waivers of geographical LIMDU will be considered on a case-by-case basis and may be granted by BUPERS/CMC (ACP) upon written request with supporting medical documentation submitted via NAVMEDOPTRNCMD DET NAVAEROMEDINST (Code 53 HN).

8.8.4.6 Temporary Medical Waivers

Temporary waivers for disqualifying conditions specified in the NAMI Aeromedical Reference and Waiver Guide may be granted by the local board of flight surgeons (LBFS) based on type aircraft, mission, and patient review, pending final approval/disapproval by BUPERS/CMC (ACP). Disqualifying conditions not addressed in the NAMI Aeromedical Reference and Waiver Guide may not be waived by a LBFS and must be forwarded to NAMI Code 342 for a recommendation prior to issuing a DD 2992.

8.8.5 Medical Service Groups

The physical standards for aviation personnel in each of the following medical service groups are outlined in MANMED Chapter 15. The medically-related definitions and policies that shall, in general, be employed in this assignment of aviators to flight duties, are as follows.

8.8.5.1 Medical Service Group 1

Aviators who meet the physical standards specified in MANMED shall be classified as Medical Service Group 1. Those aviators may be assigned to flight duties of an unlimited or unrestricted nature.

8.8.5.2 Medical Service Group 2

Those aviators who meet the physical standards outlined in MANMED, and those aviators of Service Group 1 who temporarily meet the physical standards of Service Group 2. All aviators in Service Group 2 are restricted from shipboard aircrew duties (including V/STOL aircraft) except in helicopters.

8.8.5.3 Medical Service Group 3

Those aviators who meet the physical standards outlined in MANMED. Medical Service Group 3 aviators shall only operate aircraft equipped with dual controls and be accompanied on all flights by a pilot or copilot of Medical Service Group 1 or 2, capable of safely recovering the aircraft in the event of incapacitation of the Medical Service Group 3 aviator. This does not preclude Medical Service Group 3 from flying with students provided the student has progressed to an appropriate stage of the syllabus as defined by the T/M/S NATOPS or Type Wing, Carrier Air Wing, Training Wing, or Marine Aircraft Group SOP as appropriate.

Note

A waiver to Medical Service Group 3 includes Pilot in Command (PIC) Authority unless PIC authority is specifically restricted. Restriction of PIC authority (essentially co-pilot only authority) may be appropriate when in the opinion of medical or line authorities the risk of sudden or subtle incapacitation cannot be quantified or where background, recent experience or competing responsibilities require PIC authority to reside in a Medical Service Group 1 or Medical Service Group 2 aviator.

8.8.6 Medical Requirements for Contract Civilians Operating Naval Aircraft

Contract Civilian pilots under contract to operate naval aircraft shall hold a current FAA Medical Certificate, in accordance with NAVAIRINST 3710.1 Series, Contractor's Flight and Ground Operations. As a minimum, all contract civilian pilots shall have a FAA CLASS II Medical Certificate with currency requirements equivalent to those set forth by the FAA for commercial flight operations. Reserve aircrew who also fly as contract civilian personnel do not need an FAA Medical Certificate if they possess a current DD 2992.

8.8.6.1 Navy Flight Surgeon Review of Contract Civilian Pilot FAA Medical Evaluations

FSs or APAs shall have no responsibility for reviewing contract civilian pilot FAA medical evaluations and shall not issue DD 2992s to civilian contractor pilots.

This Page Intentionally Left Blank.

CHAPTER 9

Miscellaneous

9.1 PARACHUTE JUMPS

9.1.1 General

Practice parachute jumps other than those required in the necessary and normal course of training or experimentation shall not be made unless expressly authorized by CNO. Authority to conduct parachute jumps required by training syllabuses or experimental projects is delegated to the commands assigned cognizance of the training or the experimental project.

9.1.2 Delayed Release Jumps

Delayed release parachute jumps shall not be made except as authorized by CNO. Any jump where no attempt is made to open the parachute immediately upon clearing the aircraft is considered a delayed release jump. Authority to conduct delayed release parachute jumps for test or evaluation is hereby delegated to commands assigned cognizance of test or experimental projects.

9.1.3 Jump Precautions

When authorized parachute jumps are to be made in the vicinity of bodies of water, personnel making the jumps shall wear life preservers. Adequate provisions for rescue of the jumper should be made beforehand.

9.1.4 Federal Aviation Regulations

FAR, Part 105, details information that must be provided the FAA and delineates strict communication requirements that must be complied with prior to and during parachute operations. Aircraft commanders shall be thoroughly familiar with the procedures prior to conducting parachute operations from naval aircraft.

9.1.5 Demonstrations

[Paragraph 3.3](#) provides information on flight demonstrations.

9.2 SECURITY OF AIRCRAFT AWAY FROM BASE

9.2.1 General

When it is necessary to leave an aircraft on a field, airport, beach, body of water, or other area where military or naval personnel cannot take custody of the aircraft, the pilot in command shall take proper measures to ensure the safety of the aircraft and any classified equipment. When naval aircraft operating in company have landed away from home base, the senior naval aviator/naval flight officer shall be responsible for all of the aircraft as if a detached unit operation were being conducted under their cognizance.

9.2.2 Aircraft Mishap

In case of mishap to an aircraft, the pilot in command is responsible for its safe custody until the aircraft has been taken into custody by proper authority in accordance with the provisions of OPNAVINST 3750.6 series.

9.3 AIRCRAFT FUEL PURCHASE

Because the cost of fuel from non-contract commercial sources is considerably higher than that from military or contract sources, unit commanders and pilots in command shall make every effort to purchase fuel from military

CNAF M-3710.7

or government contract sources. Navy and Marine Corps flight personnel are not authorized to purchase aircraft fuel/oil from other than military or government contract sources except when one of the following apply:

1. Mission requirements dictated stopping at a facility without military or contract fuel sources.
2. The flight terminated as the result of an emergency.
3. The flight terminated at an alternate airport in lieu of filed destination.

9.4 AIRCRAFT NOISE ABATEMENT

Aircraft noise creates a major public relations problem. All commands shall review their operating practices on a continuing basis with a view toward minimizing this nuisance to the public. CNO (N98) should be informed of complaints that are considered serious by the commanding officer.

9.5 CLAIMS FOR PERSONAL PROPERTY IN MARITIME DISASTERS OF AIRCRAFT

1. During aircraft operations over open water, a forced landing is an ever present possibility. The probability of damage to the personal property aboard any aircraft exists. The condition is known to all personnel.
2. In view of the existing hazard to personal property in such operations, it is incumbent upon the personnel so engaged to use good judgment regarding the articles of personal property that are carried on such flights. They shall not needlessly jeopardize personal property that does not serve the personnel in the performance of the military missions of the aircraft in which they are embarked. When aircraft are in the execution of transfer flights from shore station to embarkation on ships and vice versa and in other similar cases, the transportation in the aircraft of articles of clothing not specifically required in the flight operation is considered to be justifiable.
3. The latest information concerning submission and payment of these claims is contained in the MILPERSMAN.

9.6 U.S. CUSTOMS, HEALTH, IMMIGRATION, AND AGRICULTURAL CLEARANCE

9.6.1 Naval Aircraft

Every effort should be made to arrive at the entry airport during those periods of time when customs/health/immigration/agriculture services are available. Official working hours within the U.S. are usually 0800 to 1700 local, Monday through Friday. Overtime charges accrue for services performed after official working hours.

9.6.2 Military Aircraft Arriving in the Continental U.S. From Overseas

Military departments that operate aircraft arriving in the CONUS from overseas shall provide timely advance notice of the aircraft's point of departure and expected arrival time at a U.S. airport of entry.

9.6.3 Discharging of Passengers/Cargo

The aircraft commander/mission commander shall not permit any cargo, baggage, or equipment to be removed from the aircraft without permission from customs officials. Passengers or crewmembers shall not depart from the landing site prior to release by the customs official. Removal of cargo and/or departure of personnel may be allowed should such be necessary for the safety or preservation of life and property. Violations of customs regulations could result in a fine for which the aircraft commander/mission commander may be personally responsible.

9.6.4 Foreign Military Aircraft

Commanding officers are advised to inform the pilot in command of visiting foreign military aircraft that the aforementioned formalities must be complied with before the aircraft and crew may be given clearance through customs. Additionally, commanding officers of all naval air activities whose facilities are used by foreign aircraft are directed to advise appropriate local government officials of the intended movements into or out of the United States by such aircraft.

9.6.5 Medical or Economic Insect Pests

When notified by competent authority of a potential hazard from medical or economic insect pests, such as disease carrying mosquitoes, Mediterranean fruit fly, Japanese beetle, etc., commanding officers shall in cooperation with the cognizant Governmental agency institute appropriate inspection and/or quarantine procedures for the control of such pests. Technical assistance may be obtained from the Naval Environmental Health Center; Environmental and Preventive Medicine Unit; or disease, vector, ecology, and control centers.

9.7 DISPERSAL OF PESTICIDES

Pesticides shall not be dispersed from naval aircraft in the continental U.S. or possessions without approval of the Navy Regional Commander, Commander Marine Corps Air Bases, or delegated authority. In areas where there is danger of spray contamination to civilian property, all property owners must be contacted and their permission obtained. Where State statutory authority permits release by boards of county commissioners and/or other authorized agencies against claims and damages resulting from aerial dispersal of pesticides, such release may be obtained in lieu of individual property owner permission. The use of aircraft in the dispersal of a pesticide shall not be approved unless the application is recommended by a BUMED medical entomologist or a Naval Facilities Engineering Command (NAVFACENGCOM) applied biologist who is certified as a DoD pesticide applicator in Category 11, Aerial Application.

9.8 AIRCRAFT TAIL LETTERS AND SIDE NUMBERS

Assignment of aircraft tail letters and identification markings is the responsibility of CNO (N88H). Aircraft side numbers are assigned by force, wing, group, and squadron commanders, as appropriate. [Appendix B](#) delineates the visual identification system for naval aircraft and provides procedures and guidelines for assignment of the markings and side numbers that uniquely identify each aircraft.

This Page Intentionally Left Blank.

CHAPTER 10

Flight Records, Reports, and Forms

10.1 NAVAL FLIGHT RECORD SUBSYSTEM

The Naval Flight Record Subsystem (NAVFLIRS) serves as a single, integrated source of flight data for the Aviation Maintenance and Material Management (AV-3M) of the Maintenance Data System (MDS), the Aviation Data Warehouse (ADW), the Marine Corps Sierra Hotel Aviation Reporting Program (M-SHARP) and all other existing up-line reporting systems.

10.2 OPNAV 4790/141 (AIRCRAFT INSPECTION AND ACCEPTANCE RECORD)

The AIA Record, OPNAV 4790/141 (Aircraft Inspection and Acceptance Record), provides for:

1. Pilot acceptance of the aircraft in its present condition.
2. Identifies aircraft by Bureau Number (BUNO), Type/Model/Series (T/M/S), and reporting custodian.
3. Certification of aircraft readiness for flight by maintenance personnel. This provides a record of fuel, oxygen, and expendable ordnance on board and the quantity of engine oil added since last flight.
4. The AIA record shall remain at the place of first takeoff. If the aircraft is away from home and qualified maintenance personnel are not available, the pilot in command shall sign the AIA record in the safe for flight certification block. The form will be maintained by the transient/host activity until safe completion of the flight.

10.2.1 Pilot in Command

1. The pilot in command shall review a record of aircraft discrepancies and corrective actions for the 10 previous flights.
2. The pilot in command shall sign the AIA record, assuming full responsibility for the safe operation of the aircraft and the safety of the other individuals aboard.

10.2.2 "Limitations/Remarks" Section

This section informs the pilot of uncorrected discrepancies or unique characteristics of this particular aircraft. Local instructions will always govern the specific content of this space.

10.3 OPNAV 3710/4 (NAVAL AIRCRAFT FLIGHT RECORD (NAVFLIRS))

The NAVFLIR, OPNAV 3710/4, provides a standardized Department of the Navy/Marine Corps flight activity data collection system. The NAVFLIR is the single-source document for recording flight data and is applicable in specific areas to aircraft simulators. The form or electronic facsimile shall be prepared for each attempt at flight of naval aircraft or training evolution for simulators. The authorized document formats are the preprinted multi-copy form, S/N 0107-LF-037-1020, and the computer generated form from the Marine Corps Sierra Hotel Aviation Reporting Program (M-SHARP), Naval Maintenance, Repair, and Overhaul (NMRO), or Naval Aviation Logistics Command Management Information System (NALCOMIS) Organizational Maintenance Activity (OMA) Legacy or Optimized program.

1. The NAVFLIR collects flight activity data in support of the MDS, ADW, M-SHARP, and JALIS. Types of data collected are as follows:
 - a. A statistical description of the flight pertaining to the aircraft and crewmembers.

CNAF M-3710.7

- b. A record of all logistic actions performed during the flight.
 - c. A record of weapons proficiency.
 - d. A record of training areas utilized and other miscellaneous data.
2. The paper NAVFLIR consists of an original and two color-coded copies of no carbon required (NCR) paper. All copies contain identical information. Copy one is used for data entry and processing at the NALCOMIS Data Collections System Center (NDCSC), then is filed in operations department for retention in the master flight files. Copy two will be in the suspense file copy until copy one is returned to operations. Copy three is retained in the maintenance department and may be locally discarded after monthly reports are verified.

For units utilizing both SHARP and NALCOMIS/NMRO, only the SHARP flight record is required for retention in the operations department master flight file. Local procedures should be developed to ensure SHARP and NALCOMIS/NMRO records match.

Note

- Even when a SHARP flight log is detailed and accurate, missing data in NALCOMIS/NMRO may result in aircraft components exceeding limits. Planned maintenance or technical directives (TDs) may require maintenance action based on aircraft hours, landings, ordnance expenditure, or other parameters which must be logged accurately in NALCOMIS/NMRO as well as SHARP.
- For activities using SHARP, personnel can export a file containing flight information to NALCOMIS/NMRO. The NAVFLIR data diskette is forwarded to the supporting NDCSC for processing. For activities using NALCOMIS OMA or NMRO program, personnel shall print two hard copies of the computer-generated NAVFLIR form for local activity use. Hard copy one is filed in operations department for retention in the master flight files. Hard copy two is retained in the maintenance department for three months to facilitate local database corrections, verify monthly reports, and then may be locally discarded. For activities using SHARP or NALCOMIS/NMRO, no pilot or mission commander signature is required. The entry and approval process shall be controlled appropriately via computer login access.

10.3.1 Documentation of the Naval Aircraft Flight Record

1. The shaded portions of the naval aircraft flight record are mandatory fields and shall be filled out for every attempt at flight/simulator training where applicable. Although not shaded on the form, blocks 11 and 12 of the aircrew data section and block 11 of the logistics data section are mandatory fields.
2. The pilot or other designated crewmember shall maintain an accurate record of the flight. Activities operating without SHARP, NALCOMIS, NMRO, or NDCSC support shall have the NAVFLIR signed by the pilot, mission commander, or designated personnel authorized to fill out NAVFLIR. When reporting simulator usage, forward the NAVFLIR to the operations department of the crewmembers parent command.
3. In instances where the aircraft and crewmember are assigned to different activities and supported by different NDCSC, the crewmember shall provide their parent activity with a duplicate copy of the NAVFLIR for submission to the supporting NDCSC. That procedure is necessary to update the monthly individual flight activity report (NAVFLIRS-3) and fiscal year-to-date (FYTD) summary. Submission of the duplicate NAVFLIR (with same document number) at the NDCSC that is not the same NDCSC supporting the aircraft reporting custodian shall be batched with a 4 in the AWAY FROM HOME block on the accompanying document control form (DCF). The DCF will be completed and submitted in accordance with COMNAVAIRFORINST 4790.2. For submission of flight records out of the reporting period, an away code of Z shall be entered on the DCF to indicate late data and shall be completed and submitted in accordance with COMNAVAIRFORINST 4790.2.

4. The operations department is responsible for verifying the accuracy and completeness of NAVFLIR submitted for data processing, ensuring submission of aircrew gain and loss records, verifying the daily audit reports, and coordinating the correction of errors with the maintenance analyst.
5. The maintenance analyst is the NAVFLIRS coordinator and is responsible for accomplishing the daily submission of completed NAVFLIRS for processing, distributing daily audit and monthly reports to the operations and maintenance departments, and coordination of error corrections with operations and maintenance control.

Note

For Marine Corps activities, the operations NCOIC will perform those functions.

6. One NAVFLIR may be used for two or more flights under the following conditions:
 - a. The total mission requirement (TMR) codes do not exceed three and the pilot in command remains the same. TMRs are contained in [Appendix D](#).
 - b. No maintenance or servicing is performed at intermediate stops other than the addition of fuel, oil, or oxygen.
 - c. Ops code (i.e., shipboard or shore operations) remains the same.
7. The upper left corner of the NAVFLIR contains a preprinted alphanumeric number that uniquely identifies each document and is required for manual data entry processing. A NAVFLIR with this number obscured will be rejected by the NDCSC.

Note

For activities using the SHARP, NMRO, or NALCOMIS OMA program, the NAVFLIR document number will be automatically generated and assigned to the individual flight record.

8. The "PAGE__ OF __" will be used when an additional NAVFLIR is required to supplement the document of multiple-entry data fields cited above. The maximum allowable number of supplemental pages is five. The document numbers of the supplemental pages shall be obliterated and the document number assigned to page one shall be hand-scribed legibly on each supplemental page.
9. Supplemental NAVFLIRS may be attached to page one to provide additional space to document the following data elements:
 - a. Crewmember names.
 - b. Additional flight legs and their associated logistic records.
 - c. Weapons proficiency.
10. It is the responsibility of the aircraft or simulator reporting custodian to ensure that NAVFLIRS are available.
11. Exception codes ([Appendix F](#)) are provided for entries on the NAVFLIR that require processing for other than a routine flight such as the following:
 - a. Gaining or losing crewmembers to the squadron database.
 - b. Correcting, deleting, or revising previously submitted data.
 - c. Documenting CVW staff member flight time.
 - d. Documenting simulator time. Simulator time only refers to approved simulators capable of logging flight time.
 - e. Documenting canceled flights.
 - f. Documenting flights when the crewmember and the aircraft are assigned to different organizations.

Note

- Aircrew shall be placed on an appropriate organization Individual Master Roster (IMR). Organizations shall submit a RECTYP 7D Gain (exception code G) when aircrew report to a new organization and a RECTYP 7D Loss (exception code L) when aircrew depart an organization (refer to [Paragraph 10.3.6](#)). Aircrew shall be assigned to only one IMR per NDCSC, or reporting errors will result.
 - Only approved DIFOPS CVW staff billets shall use the S (staff) exception code. All other aircrew, including other DIFOPS-assigned staff officers, shall use the exception code E when flying in aircraft assigned to an organization (RECTYP 7B block 21 ORG code) different than one to which they are assigned (ORG code for the IMR to which the aircrew is assigned). DIFOPS-assigned station pilots should be placed on the stations IMR, requiring no exception codes when flying station aircraft.
12. The use of the code tables provided in [Appendices D, F, G, and I](#) is mandatory. Routine codes required for form completion are printed on the back of copy one. Abbreviated TMR codes are printed on the back of copy three. Training codes are available in the COMNAVAIRFOR joint training and readiness (T&R) manual (CNAF 3500 series), Marine Corps T&R manuals (MCO 3500 series), or other governing instructions as appropriate. Refer to [Paragraph 10.3.3](#). Weapon proficiency codes are located in [Appendix H](#). Commanding officers shall ensure that crewmembers and maintenance and operation personnel who enter or manipulate data derived from this form are familiar with the proper use of appropriate codes. It should be noted that although the NAVFLIR form allows for only three training codes, NALCOMIS Legacy OMA will provide for up to 10 training codes on one automated NAVFLIR. SHARP and NALCOMIS Optimized OMA do not limit the number of training codes per flight document, however, only three training codes will be recorded in NALCOMIS Legacy OMA when SHARP/M-SHARP data is brought over.
 13. The documentation for a routine flight consists of information from the following sections on the naval aircraft flight record:
 - a. Aircraft data RECTYP 7B.
 - b. Aircrew data RECTYP 7C.
 - c. Logistics depart data RECTYP 7E.
 - d. Logistics arrive data RECTYP 7F.

Note

Logistics arrive data, RECTYP 7F, is not completed in the submission of a cancellation. Weapon proficiency data, RECTYP 7G, is not mandatory for every flight but should be completed as applicable to document time spent in restricted air space, miscellaneous data, etc. Refer to [Paragraphs 10.3.2 through 10.3.5](#) for information required to complete the NAVFLIR for a routine flight. Refer to [Paragraph 10.3.6](#) for information required for personnel data, RECTYP 7D transactions.

10.3.1.1 Logging Simulator Time

Simulator events conducted in Navy simulators (or non-Navy simulators if used for the purpose of logging Navy/Marine aircrew flight time) shall be documented on a NAVFLIR and processed by the user's squadron/activity. The following data fields, as described in [Paragraphs 10.3.2 through 10.3.5](#), are required:

1. AIRCRAFT DATA SECTION.
 - a. BUREAU/SERIAL NO. (BUNO/SER). If assigned to device.
 - b. TYPE EQUIPMENT CODE (TEC). See [Appendix K](#).

- c. ORGANIZATION CODE (ORG). Use code “ZEZ” for simulators.
 - d. MISSION 1 (MSN1).
 - e. HOURS 1 (HRS1).
 - f. SUPPORT CODE (SUPTCD). Use appropriate code for user's activity. See [Appendix I](#).
2. AIRCREW DATA SECTION.
- a. EXCEPTION CODE. Enter the T exception code for simulators.
 - b. NAME (FSTINT and LSTINT).
 - c. DoD ID NUMBER
 - d. SPECIAL QUALIFICATIONS (SPQUAL).
 - e. SERVICE CODE (SVC).
 - f. FLIGHT TIME (FPT, CPT, or SCT).
 - g. SIMULATED INSTRUMENT TIME (SIM).
 - h. LANDINGS (TLNG1/2/3/4 AND NLNDG1/2/3/4). Optional when documenting simulator flights.
 - i. APPROACHES (TAPP1/2/3/4 and NAPP1/2/3/4). Simulated only.
 - j. TRAINING CODES (TRACD1/2/3). In accordance with T&R manual.
3. LOGISTICS DATA SECTION.
- a. TIME ZONE (TMZONE).
 - b. TIME DEPART/ARRIVE (TIMDEP-TIMARR). Enter the start and stop time of the event.
 - c. DATE DEPART/ARRIVE (DTEDEP-DTEARR). Enter the four-character Julian date (YYDD) for departure and arrival date of the event.
 - d. ICAO DEPART/ARRIVE (ICAODP-ICAOAR). Enter the appropriate ICAO codes (depart and arrive) for the simulator location.
4. REMARKS. If simulator is non-Navy, enter type aircraft simulated.
5. SIGNATURE. Of crewmember receiving training.

Note

- Logging night time or aircraft commander time is not authorized when reporting simulator time.
- Instructor time may be reported.

10.3.1.2 Approved Simulators

Approved simulators for logging pilot and special crew time are listed in [Appendix K](#). Simulators not currently listed can be added by submitting a change recommendation to [Appendix K](#) via AIRS located on the Airworthiness website. See [Chapter 2](#) for additional information on submitting change recommendations.

Simulators shall be approved based on their demonstrated ability to provide realistic flight dynamics and performance feedback. Aircraft model managers shall make the final determination that the simulator satisfies the minimum requirements necessary for the:

- 1. NATOPS evaluation (or portions thereof).
- 2. NATOPS instrument evaluation (or portions thereof).
- 3. Substitution of flight time.

CNAF M-3710.7

4. Completion of training events.

Additionally, it is recognized that other military services, industry, and foreign governments operate very capable military aircraft simulators that are not listed here. Generic type equipment codes, listed in [Appendix K](#), have been assigned to enable Navy aircrews to credit time gained in those devices using the naval aircraft flight record. However, the person signing the flight record shall ensure that the following criteria are met:

1. The device reasonably simulates a particular military aircraft, including cockpit layout, instrumentation, performance, and handling. The model being simulated shall be recorded in the remarks block.
2. Instrumentation and displays sufficient to conduct the desired military training mission (e.g., instrument approach, air intercept, weapon delivery, etc.) are provided, and are appropriate to the type of flight time to be logged (pilot or special crew time).
3. The device cockpit is isolated from outside distraction.

10.3.2 Aircraft Data Section

Complete the data blocks in aircraft data section, RECTYP 7B ([Figure 10-1](#)):

1. SIDE NO — Enter the side number of the aircraft. This data will not be processed at the NDCSC.
2. Block 10 — EXCEPTION CODE (EXCD): Enter the appropriate exception code if required. Exception code X documents the cancellation of a flight and is used only in the aircraft data section (see [Appendix F](#)).
3. Block 11 — BUREAU/SERIAL NO. (BUNO/SER): Enter the bureau number of the aircraft or the serial number of the simulator. Right justify if less than six characters.
4. Block 17 — TYPE EQUIPMENT CODE (TEC): Enter the four-character AV-3M type equipment code assigned to the aircraft or simulator. Refer to NALDA TEC Translator.
5. Block 21 — ORGANIZATION CODE (ORG): Enter the three-character AV-3M organization code for the aircraft reporting custodian or “ZEZ” for simulators. Refer to NALDA ORG Translator.
6. Block 24 — MISSION 1 (MSN1): Enter the three-character TMR code from [Appendix D](#) that most accurately describes the primary mission for the flight/simulator event or its reason for being canceled or aborted. Canceled or aborted flights must use a general purpose code (GPC) of N (maintenance) or O (operations) in the second position, as applicable.

Note

A canceled flight is one for which no flight time was obtained.

7. Block 27 — HOURS 1 (HRS1): Enter the hours and tenths dedicated to performance of MSN1. The block will be blank when documenting a cancellation.
8. Block 30 — MISSION 2 (MSN2): Enter the mission code from [Appendix D](#) that most accurately describes the secondary mission if applicable. The mission may not necessarily be assigned at takeoff.

Note

An aborted flight is one for which flight time is obtained but requires termination of the flight. If that occurs, MSN1 or MSN2 will indicate the mission that was in progress when the abort decision was made; and MSN2 or MSN3 (as applicable) will indicate the reason for the abort.

9. Block 33 — HOURS 2 (HRS2): Enter the hours and tenths dedicated to performance of MSN2.
10. Block 36 — MISSION 3 (MSN3): Enter the mission code from [Appendix D](#) that most accurately describes the tertiary mission if applicable. The mission may not necessarily be assigned at takeoff.

Figure 10-1. Aircraft Data Section (OPNAV 3710/4)

NO. AIRCRAFT DATA (RECORD TYPE 7B)															NAVAL AIRCRAFT FLIGHT RECORD															PAGE ____ OF ____																																																						
16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
SIDE NO.		BUH/NUMBER				TEC		ORG		MSN 1		HRS 1		MSN 2		HRS 2		MSN 3		HRS 3		SUPT CODE		TOT FLT		CAT/JATO		AIRLIFT MISSION NO.				REC TYP		ENGINE HRS				NO HOSTS																																														
TOTAL MISSION REQUIREMENT (TMR) DATA																																																																																				

3710-F011

11. Block 39 — HOURS 3 (HRS3): Enter the hours and tenths dedicated to performance of MSN3.

Note

The sum of the hours in HRS1, HRS2, and HRS3 represents total aircraft flight time.

12. Block 42 — SUPPORT CODE (SUPTCD): Enter the two-character support code from [Appendix I](#) that identifies the claimancy providing funding for mission accomplishment. The code will be used by CNO (N780) to monitor special-interest missions, operations, or exercises. For crewmembers within the personnel exchange program (PEP), insert NS in the field.
13. Block 44 — TOTAL FLIGHTS (TOTFLT): Enter the total number of flights.
14. Block 46 — OPERATIONS (OPS): Use one of the following codes, whichever is the most applicable to the operational scenario:
- A — Ship Operations (Non-deployed). For flights primarily involving carrier/ship operations ashore for a non-deployed unit.
 - 1 — Land Operations (Non-deployed). For flights primarily involving operations ashore for a non-deployed unit.
 - B — Ship Operations (Deployed). For flights primarily involving carrier/ship operations while unit is deployed.
 - 2 — Land Operations (Deployed). For flights primarily involving operations ashore for a deployed unit.
 - C — Fleet Replacement Squadron Overhead (Ship). For FRS flights involving carrier/ship operations primarily not for the purpose of training students.
 - 3 — Fleet Replacement Squadron Overhead (Land). For FRS flights ashore primarily not for the purpose of training students.

Note

For the purpose of this instruction, deployed time shall be defined as all time accumulated when units are under operational control of Commander SIXTH Fleet (COMSIXTHFLT), Commander SEVENTH Fleet (COMSEVENTHFLT), Commander FIFTH Fleet (COMFIFTHFLT), and/or Commander Task Force (CTF) 67, 84, 12, 72, or 57 only.

15. Block 47 — CATAPULT LAUNCH/JET ASSISTED TAKEOFF (CJ):
- Catapult Launch: Enter the number of catapult launches (ship-based or shore-based).
 - JATO Launch: Enter the total number of JATO launches executed during the flight.
16. Block 49 — AIRLIFT MISSION NO. (MISNUM): If applicable, enter the nine-character flight mission number from the flight advisory or number assigned by the scheduling authority. Refer to OPNAVINST 4631.2. MISNUMs may be locally used by any activity and structured as follows:

CNAF M-3710.7

- a. Positions 1 to 3 = ORG.
- b. Positions 4 to 6 = last three digits of the Julian Date.
- c. Positions 7 to 9 = 001-099 (sequentially assigned).

Note

MISNUM must be filled in to ensure proper organization of data on the monthly aircraft logistics data report (NAVFLIRS-4). If no cargo or passengers are transported during the accounting period, the NAVFLIRS-4 will only indicate flight hours by leg number for each BUNO.

17. ENGINE HRS: Enter the hours and tenths for each engine if different than the total flight hours. The engine hours are for maintenance control's use and are not processed at the NDCSC.
18. NUMBER OF HOISTS: Enter the total number of hoists accomplished during the flight. The data is for maintenance control's use and is not processed at the NDCSC.

10.3.3 Aircrew Data Section

The aircrew data section is designed for recording necessary information pertaining only to those individuals functioning as crewmembers during the flight. Complete the data blocks in the aircrew data section, RECTYP 7C (Figure 10-2).

1. Block 10 — EXCEPTION CODE (EXCD): Enter the appropriate exception code if required. Exception code E, S, or T is permitted in this block (see [Appendix F](#)).
2. Block 11 — FIRST INITIAL (FSTINT): Enter the crewmembers first initial.
3. Block 12 — LAST INITIAL (LSTINT): Enter the first letter of the last name in the space provided. Space for the individuals name is provided as a convenience; only the initials shall be entered (keypunched) as part of the flight data by the NDCSC.
4. Block 13 — DoD ID NUMBER: Enter the DoD ID number for each crewmember (allow no dashes).
5. Block 22 — SPECIAL QUALIFICATION (SPQUAL): Enter the special qualification code for each crewmember (see [Appendix F](#)).

Note

SPQUAL identifies the crewmember function during the flight.

6. Block 23 — SERVICE CODE (SVC): Enter the service code for each crewmember (see [Appendix F](#)).
7. Block 24 — FIRST PILOT TIME (FPT): Enter the hours and tenths logged as first pilot.

Note

First pilot, copilot, and special crew times are defined in the Glossary.

Figure 10-2. Aircrew Data Section (OPNAV 3710/4)

AIRCREW DATA (RECORD TYPE 7C; IF EXC CODE = G, L OR R; RECORD TYPE = 7D)																																																																																																			
NAME				SSN				FLIGHT TIME				INSTRUMENT				NIGHT TIME		LANDINGS				APPROACHES				TRAINING CODES				715																																																																					
10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100									
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

3710-F012

8. Block 27 — COPILOT TIME (CPT): Enter the hours and tenths logged as copilot.
9. Block 30 — SPECIAL CREW TIME (SCT): Enter the hours and tenths logged as special crew.

Note

The sum of FPT hours for entire document must equal the sum of HRS1, HRS2, and HRS3. The sum of hours in FPT, CPT, and SCT for each additional crewmember may equal but must not exceed the sum of HRS1, HRS2, and HRS3.

10. Block 33 — ACTUAL INSTRUMENT TIME (ACT): Enter the hours and tenths logged as actual in accordance with the Glossary.
11. Block 36 — SIMULATED INSTRUMENT TIME (SIM): Enter the hours and tenths logged as simulated in accordance with the glossary. If an actual or simulated approach is logged, actual or simulated instrument time must be logged.
12. Block 39 — NIGHT TIME (NIGHT): Enter the hours and tenths logged as night time in accordance with the glossary.
13. Blocks 42 to 50 — LANDINGS (TLNDG1/2/3/4 and NLNDG1/2/3/4): Enter the type and number of landings accomplished. If a type of landing was accomplished more than nine times, log the type in block 42 and the number beginning with block 43 (see [Appendix F](#)). Only the pilot or student pilot actually controlling the aircraft during the landing and documenting FPT shall log and be credited with the landing. Landings are not required when documenting simulator flights.

Note

Copilots, NFOs and student NFOs shall report day and night carrier landings only. To indicate those landings, Y will be entered in block 42 for day landings and Z for night landings and the number beginning with block 43. If both day and night landings are recorded on the same flight, utilize blocks 45 and 46 for night landings.

14. Blocks 51 to 58 — APPROACHES (TAPP1/2/3/4 and NAPP1/2/3/4): Enter the type and number of approaches performed beginning with block 51 (see [Appendix F](#)). If the number of a particular approach credited to an individual exceeds nine, record the overflow in the next type and number set.

Note

- Only the pilot exercising principal active control during the approach may be credited with that approach. However, when flying in actual instrument conditions, the instructor of a student pilot (a designated aviator is not considered a student pilot) shall also receive credit for an actual instrument approach. Actual and simulated instrument conditions are defined in the Glossary.
- Only that portion of the approach executed to a missed approach or landing shall be logged as an approach (i.e., a TACAN approach to a PAR/ILS/ALS final would be logged only as a precision approach).
- A precision approach is a standard instrument approach procedure in which an electronic glideslope/glidepath is provided, including but not limited to the following:
 - a. ALS (includes SPN-46, mode I or IA).
 - b. ILS (includes SPN-46, mode II).
 - c. PAR (includes SPN-46, mode III).
 - d. RNAV (GPS) LPV with a DA of 300' AGL or less.
- A nonprecision approach is a standard instrument approach procedure in which either no electronic glideslope/glidepath is provided, or the glideslope/glidepath provided is less precise than that required of a precision approach, including but not limited to the following:
 - a. VOR-VHF OMNI range.
 - b. VOR/DME.
 - c. TACAN-UHF.
 - d. NDB (ADF).
 - e. L/MF range.
 - f. Localizer.
 - g. ASR Airport surveillance radar (includes CCA when no glidepath information is provided).
 - h. ELVA (Helicopter Only).
 - i. SCA.
 - j. RNAV (GPS) LNAV, LNAV/VNAV, and LPV with a DA greater than 300' AGL.
- Coupled/automatic hover system approaches after official sunset or during actual instrument conditions in automatic or alternate modes shall use a 3 or 4 as appropriate. Simulated day instrument conditions in automatic or alternate modes shall use a C. Coupled approaches will not be used to fulfill approach requirements for instrument rating purposes.

15. Blocks 59 to 65. TRAINING CODES (TRACD1/2/3): Enter the appropriate training codes in accordance with local instructions.

Note

- Training codes enable recording of individual aviation training accomplished on each flight or simulator event.
- These codes are standardized and represent flight training from entry level to fully combat qualified, including syllabus maintenance. Training codes for COMNAVAIRFOR squadrons are assigned by the TYCOM joint training and readiness instruction, Squadron Training and Readiness Manuals (CNAF 3500 series), and are used to monitor the achievement of readiness qualifications in aircraft or simulators. The appropriate alphanumeric code shall be entered if the recorded flight or simulator event attains or renews a qualification listed in the appropriate T&R manual. Navy squadrons may specify and enter additional alphanumeric codes to capture training or cyclic events as long as they do not conflict with codes established by the appropriate T&R manual.
- Marine squadrons/units use training codes as daily input to each squadron aviation training data base to update individual and activity flight training progress, to aid in scheduling daily flight training, and to forecast monthly, quarterly, and annual flight time requirements. The Marine Corps T&R manual contains the appropriate syllabus training codes for each crewmember position by model aircraft. Marine Corps entries must be numeric.
- The NALCOMIS Legacy OMA programs allow for the entry of up to 10 training codes for the automated NAVFLIR. The SHARP/M-SHARP program, NMRO, and NALCOMIS Optimized OMA will allow unlimited training codes. The SHARP, M-SHARP, NMRO, and NALCOMIS OMA-produced, hard copy facsimile looks similar to the current NAVFLIR OPNAV 3710/4 form except that it will display the additional training code entries at the bottom of the printed facsimile.

10.3.4 Logistics Data Section

1. Logistics Data (blocks 37 to 70) shall be recorded for every flight that involves the movement of passengers/cargo, scheduled or unscheduled, in any type aircraft. Blocks 12 to 20 are mandatory entries for all flights.
2. Complete the data blocks in the logistics data sections, RECTYP 7E and 7F ([Figure 10-3](#)):
 - a. Block 10 — EXCEPTION CODE (EXCD): No exception codes are permitted for the initial entry. This block is used for corrections and deletions only.
 - b. Block 11 — TIME ZONE (TMZONE): Enter the time zone on page one, leg one only. The same time zone shall be used for all legs (see [Appendix G](#)). The time zone remains unchanged, even during daylight savings time.
 - c. Block 12 — TIME DEPART/ARRIVE (TIM-DEP-TIMARR): Enter the departure and arrival times, consistent with the time zone in block 11.
 - d. Block 16 — DATE DEPART/ARRIVE (DTE-DEP-DTEARR): Enter the four-character Julian date (YYDD) for departure and arrival.

Note

Record flight information for flights overlapping into a new day under month and date the flight originated.

Figure 10-3. Logistics Data Section (OPNAV 3710/4)

LOGISTICS DATA (DEPART — RECORD TYPE 7E; ARRIVE — RECORD TYPE 7F)																													
										DELAY				CONFIRMED PAYLOAD					OPPORTUNE PAYLOAD				CONFIG DATA						
SS	SS	SS	TIME	DATE (JULIAN)	ICAO OR SHIP I.D.	DIST	1ST HRS	1ST MINS	2ND HRS	2ND MINS	PRI 1 PAX NO.	PRI 2 PAX NO.	PRI 3 PAX NO.	PRI 4 PAX NO.	PRI 5 PAX NO.	CARGO (LBS)	PAX NO.	CARGO (LBS)	CODE 1	CODE 2	MAX PAX	MAX CARGO (LBS)	REC						
0	10	11	DEPART	10	20		20	30	23	34	37	40	43	46	49	52	57	60	65	66	67	70							
1		21	ARRIVE	10	20	24																	7F						
2		22	DEPART																				7E						
3		23	ARRIVE																				7F						
4		24	DEPART																				7E						
5		25	ARRIVE																				7F						
6		26	DEPART																				7E						
7		27	ARRIVE																				7F						

3710-F013

- e. Block 20 — ICAO DEPART/ARRIVE (ICAODP-ICAOAR): Enter the four-character ICAO code for departure and arrival. Obtain land-based ICAO codes from the current FLIP for the geographical area. For ship ID codes, use a four-character alphanumeric code identifying the ship (e.g., D963 for DD 963 (USS SPRUANCE), CV68 for CVN 68 (USS NIMITZ), or F084 for FF 1084 (USS MCCANDLESS). When no ICAO code is available, enter ZZZZ.
- f. Block 24 — SYSTEM STATUS (SS): Enter the appropriate SS code for the readiness condition of the aircraft upon landing (see [Appendix G](#)).
- g. Block 25 — DISTANCE (DIST): Enter the distance, in nautical miles, flown on each leg. It may be left blank if the flight begins and ends at the same location.
- h. Blocks 37, 40, 43, 46, and 49 — CONFIRMED PAYLOAD, PRIORITY 1-5, PASSENGER NUMBER (PRI1/2/3/4/5): Enter the number of passengers in each category for each leg of the flight (if none, leave blank) (see [Appendix G](#)).
- i. Block 52 — CONFIRMED PAYLOAD, CARGO IN POUNDS (CPCRG): Enter the pounds of confirmed cargo for each leg of the flight (if none, leave blank).
- j. Block 57 — OPPORTUNE PASSENGER NUMBER (OPPAX): Enter the number of unscheduled passengers (including space A) for each leg of the flight (if none, leave blank).
- k. Block 60 — OPPORTUNE CARGO (OPCRGO): Enter the pounds of unscheduled cargo for each leg of the flight (if none, leave blank).
- l. Blocks 65 and 66. OPPORTUNE CARGO CODES 1/2 (OPCCD1/2): Enter the first and second most significant types of opportune cargo for each leg of the flight (if none, leave blank) (see [Appendix G](#)).
- m. Block 67 — CONFIGURATION DATA, MAXIMUM PASSENGERS (MAXPAX): Enter the maximum number of seats available for each leg of the flight (if none, leave blank).
- n. Block 70 — CONFIGURATION DATA, MAXIMUM CARGO (MAXCGO): Enter the maximum cargo-carrying capability in pounds for each leg of the flight (if none, leave blank).

10.3.5 Weapons Proficiency Data Section

1. The weapons proficiency data section collects training area, weapons delivery, and miscellaneous data. The training area data fields allow for documenting the usage of two areas per line. The training area data section captures the use of targets, restricted areas, warning areas, alert areas, military operating areas (MOAs), ATCAA and MTRs as outlined in AP1A/AP1B area planning document. The weapons delivery data fields allow for documenting three types of delivery per line; each delivery is differentiated by the type ordnance delivered. The miscellaneous data fields allow for two entries per line, enabling the user to document

miscellaneous training and utilization that is of importance to the individual or the activity. Training area data entries are mandatory when special-use airspace (restricted areas, controlled firing areas, warning areas, alert areas, and MOAs) and areas for special use (ATCAAs) or military training routes have been scheduled. The cancellation of special-use airspace must be documented using the appropriate miscellaneous data codes (see [Appendix H](#)). The number of flight hours that were to be utilized within that airspace will be entered in miscellaneous data 1/2 block. Naval aviators and NFOs shall log image intensification device (night vision goggle) usage. Image intensification device usage shall be logged in the miscellaneous codes/data blocks.

2. Complete the data blocks in the weapons proficiency data section, RECTYP 7G, as applicable ([Figure 10-4](#)):
 - a. Block 10 — EXCEPTION CODE (EXCD): No exception codes are permitted for the initial entry. This block is used for corrections and deletions only.
 - b. Block 11 — LINE NUMBER (LINENR): Enter the line number from the aircrew data section corresponding to the crewmember whose activity is being described in the weapons proficiency data section. If more than two crewmembers are involved, attach additional naval aircraft flight records to page one, as described in [Paragraph 10.3.1](#), with only this section complete. All crewmembers documenting weapons proficiency must be entered on page one.
 - c. Blocks 12 and 21 — TRAINING AREA 1/2 (TNGAR1/2): Enter applicable training area codes. Training area codes may range from two to seven characters. The code must be entered from left to right and position one must be alpha when filled in. Complete MOA designations may exceed seven characters/digits. In such cases, enter the first seven letters of the MOA name. If a subdivision is involved (i.e., north, south, east, or west; a, b, c, etc.; high or low) then enter those in the last spaces, cutting short the MOA name if necessary. For example, Pecos east high MOA would be entered: PECOSEH; Randolph 2a would be entered as RANDO2A. Regional airspace coordinators should publish standard training area codes/abbreviations for use in the NAVFLIRS weapons proficiency data section.
 - d. Blocks 19 and 28 — TRAINING AREA HOURS 1/2 (TNGHR1/2): Enter the time, in hours and tenths, dedicated to TNGAR1/2. Their sum must not exceed total flight time.
 - e. Blocks 30, 41, and 52 — ORDNANCE 1/2/3 (ORD1/2/3): Enter the ordnance code (see [Appendix H](#)). For ordnance codes not listed in [Appendix H](#), refer to NAVAIR 11-1-116B series (Navy Ammunition Logistic Codes).
 - f. Blocks 34, 45, and 56 — DELIVERY 1/2/3 (DEL1/2/3): Enter the delivery data code. Position one must be alpha (see [Appendix H](#)).
 - g. Blocks 36, 47, and 58 — RUNS 1/2/3 (RUNS1/2/3): Enter the total number of runs associated with the respective delivery code.
 - h. Blocks 38, 49, and 60 — SCORE 1/2/3 (SCORE1/2/3): Enter the score awarded if applicable for DEL1/2/3 as follows: The aviator will manually calculate the score by dividing the number of runs into the sum of the target-miss distance in feet. A score in excess of 999 feet can be entered using a K in the first position (i.e., K11 equals 1,100 feet, K26 equals 2,600 feet).
 - i. Blocks 63 and 68 — MISCELLANEOUS DATA CODE 1/2 (CD1/2): Enter the miscellaneous data code if applicable (see [Appendix H](#)).
 - j. Blocks 65 and 70 — MISCELLANEOUS DATA 1/2 (DATA1/2): Enter the number of occurrences or time in hours and tenths (from right to left) for the data described in CD1/2.

Note

The data of miscellaneous codes with a first position of N, R, or 1 will be treated as hours and tenths with an implied decimal between positions two and three. Data for all other miscellaneous codes will be treated as whole numbers.

Figure 10-4. Weapons Proficiency Data Section (OPNAV 3710/4)

WEAPONS PROFICIENCY DATA (RECORD TYPE 7G)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
TRNG AREA DATA										DELIVERY DATA 1				DELIVERY DATA 2				DELIVERY DATA 3				MISC DATA 1		MISC DATA 2		TMS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
TRNG AREA 1			HRS 1		TRNG AREA 2			HRS 2		ORD 1		DEL 1		RUNS 1		SCORE 1		ORD 2		DEL 2		RUNS 2		SCORE 2			ORD 3		DEL 3		RUNS 3		SCORE 3		CD 1		DATA 1		CD 2		DATA 2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
0	1	10	11	12																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																

10.3.6 Personnel Data

1. Personnel data, RECTYPE 7D, is used to update the individual master roster (IMR) (NAVFLIRS-00). This RECTYP is submitted whenever a crewmember is gained, detached, or a revision to the IMR is required. RECTYP 7D is composed of data fields from the aircraft, aircrew, logistics, and name/grade/local use sections. [Figure 10-5](#) displays the RECTYP 7D data fields. RECTYP 7D entries shall be retained in a separate file until the data submitted can be verified on the IMR and then disposed of at the activities discretion.

Note

For activities with no NALCOMIS Legacy OMA or NDCSC support, the 7D requirement is waived.

- a. AIRCRAFT DATA SECTION, Block 17, ASSIGNED SYLLABUS (TEC): Mandatory entry for Marine Corps only. Enter the four-character numeric code identifying the syllabus assigned to the crewmember (see [Appendix J](#)).
- b. AIRCRAFT DATA SECTION, Block 21, ORGANIZATION CODE (ORG): Enter the three-character AV-3M organization code the crewmember is assigned. Refer to NALDA ORG Translator.
- c. AIRCREW DATA SECTION, Block 10, EXCEPTION CODE (EXCD): Enter G, L, or R, as appropriate (see [Appendix F](#)).
- d. AIRCREW DATA SECTION, Block 11, FIRST INITIAL (FSTINT): Enter the first initial of the crewmember requiring the transaction.
- e. AIRCREW DATA SECTION, Block 12, LAST INITIAL (LSTINT): Enter the first letter of the last name.

Note

The name element following the last initial is not entered (keypunched) and should be left blank.

- f. AIRCREW DATA SECTION, Block 13, DoD ID NUMBER: Enter the DoD ID number of the crewmember; allow no dashes.
- g. AIRCREW DATA SECTION, Block 23, SERVICE CODE (SVC): Enter the service code (see [Appendix F](#)).
- h. LOGISTICS DATA SECTION, Block 16, JULIAN DATE (DATE): Enter the Julian date of the transaction.
- i. LOGISTICS DATA SECTION, Block 29, AIRCREW STATUS CODE (ASC): This field is mandatory for the Marine Corps, optional for the Navy. Enter the appropriate ASC (see [Appendix J](#)).

Figure 10-5. Personnel Data Section (OPNAV 3710/4)

[illegible]

- j. LOGISTICS DATA SECTION, Block 33, SYLLABUS STATUS CODE (SSC): This field is mandatory for the Marine Corps, optional for the Navy. Enter the appropriate SSC (see [Appendix J](#)).
 - k. PERSONNEL DATA SECTION, Block 34, NAME/GRADE/LOCAL USE A-G: Enter the last name of the crewmember. If the last name exceeds 14 characters, print only the first 14.
 - l. PERSONNEL DATA SECTION, Block 48, NAME/GRADE/LOCAL USE H: Enter the paygrade of the crewmember, omitting dashes (i.e., O3, W2, E6, etc.).
 - m. PERSONNEL DATA SECTION, Block 50, FLIGHT QUALIFICATION EXPIRATION DATES, NATOPS, MEDICAL, INSTRUMENTS, WATER, PHYSIOLOGY (YYMM): Activities may enter the last two characters of the calendar year and the month when crewmember qualifications EXPIRE (must be four characters).
2. Privacy Act Statement for NAVFLIR:
- a. The authority for collecting this information is Title 10 U.S.C. 5013 for the Secretary of the Navy; Title 10 U.S.C. 5041 for Commandant, U.S. Marine Corps, and Executive Order 9397.
 - b. The purpose of this system is to consolidate the collection of flight data into a single, locally controlled, collection and correction system.
 - c. The information collected is used by commanding officers and other NAVFLIRS system users to compile a record of the individual's flight time, and to search and analyze for trends in order to improve aircraft maintenance and aviator readiness programs.
 - d. Disclosure of this information is voluntary. However, failure to disclose this information can result in flight data not being recorded in the 3M system and may result in loss of flight pay.

10.3.7 Personnel Exchange Program/DCMA/Any Aeronautically Designated Personnel Assigned to an Activity Where NDCSC Support Is Not Available

1. A completed NAVFLIR is required for each designated aviator who participates as a crewmember during the flight of military aircraft including foreign governments.
2. Naval flight surgeons, naval aerospace physician assistants, naval aerospace physiologists, naval aerospace optometrists and naval aerospace experimental psychologists are often ordered to DIFOPS at nonaviation activities (hospitals, etc.). These personnel are additionally assigned (under “Special Instructions” section

CNAF M-3710.7

of BUPERS orders) by BUPERS (PERS-4415) to aviation activities for flight purposes. Assigned aviation activities shall assist in obtaining minimum annual flight time requirements, issue, inspect and maintain flight gear, maintain the NATOPS flight personnel training and qualifications jacket, OPNAV 3760/32 and provide administrative support for documentation of flight time.

10.3.8 Civilian Crewmembers Flying Naval Aircraft (Active)

1. Civilian crewmembers gained to the IMR must use an equivalent military paygrade in block 48 of RECTYP 7D.
2. Civilians functioning as crewmembers shall follow the procedures outlined in [Paragraphs 10.3.2 through 10.3.6](#). Civilian crewmembers shall insert CIV in the first training code field in the aircrew data section (RECTYP 7C).

10.3.9 Fleet Readiness Centers

Fleet Readiness Centers (FRC) shall complete naval aircraft flight records as outlined in [Paragraphs 10.3.2 through 10.3.6](#) for flights involving aircraft where an FRC is designated as the reporting custodian. When an FRC has physical custody, but not reporting custody of an aircraft being flown, block 21 of RECTYP 7B (aircraft data) must be the ORG of the reporting custodian and block 10 of RECTYP 7C (aircrew data) must be E.

10.4 OPNAV 3760/37 (RECORD OF COMPLETED FLIGHT TIME)

Completion of the reporting custodian's OPNAV 3710/4 should provide the aircrew data for a flight to the crewmembers home units when other than that of the reporting custodian. However, such flight data occasionally becomes lost within the NAVFLIR system. Providing copies of the data directly to the aircrew members to carry back to their home units will ensure that the information reaches the crewmembers home unit if a reporting system glitch occurs.

10.5 MASTER FLIGHT FILES

The master flight files shall be the only official flight record of naval aircraft and shall be maintained in accordance with this instruction by every reporting custodian of naval aircraft as defined in COMNAVAIRFORINST 4790.2. Each Activity using NAVFLIRS for simulators may retain copy one for local record purposes and discard the other copies.

10.5.1 Specific Requirements

1. Only flights of aircraft of the aircraft reporting custodian shall be filed in the master files; however, all flights shall be accounted for and no flight shall be filed in more than one activity's master flight files.
2. Each detachment shall maintain separate master flight files for the period while deployed with CVWs or while otherwise remotely separated on detached duty from the parent activity.
3. Reporting custodians having aircraft of more than one controlling custodian may include all flights thereof in the activity's master flight files regardless of controlling custody (e.g., one DCMA may have COMNAVAIRSYSCOM FS, RDT & E, and STF aircraft and be a separate reporting custodian for each).
4. No master flight files need to be maintained for aircraft while in a bailment or loan status.
5. For aircraft being ferried, information concerning such flights shall be placed in the master flight files of the reporting custodian of the aircraft being ferried.
6. For new aircraft being accepted from contractors, reporting custodians (e.g., DCMA) shall include in their master flight files flights of new-production aircraft before Navy acceptance only if a naval aviator was aboard in a pilot or crew status. All flights after Navy acceptance shall be filed.

10.5.2 Procedures for Maintaining Master Flight Files

10.5.2.1 File Contents

Master flight files may consist of securely bound current OPNAV 3710/4 originals (refer to [Paragraph 10.3.1](#)), or NALCOMIS, NMRO, SHARP, or other service-approved electronic flight record produced facsimiles. For units utilizing both SHARP and NALCOMIS/NMRO, only the SHARP flight record is required for retention in the master flight file. Local procedures should be developed to ensure SHARP and NALCOMIS records match.

Note

Even when a SHARP flight log is detailed and accurate, missing data in NALCOMIS/NMRO may result in aircraft components exceeding limits. Planned maintenance or technical directives (TDs) may require maintenance action based on aircraft hours, landings, ordnance expenditure, or other parameters which must be logged accurately in NALCOMIS/NMRO as well as SHARP.

10.5.2.2 Binders

Binders used for the master flight files are nonspecific except that they must provide a durable cover and backing and allow for the secure fastening of their contents. For example, NAVFLIRS may be adequately filed in commonly used legal-size, vertical pressboard folders that allow for two stacks of forms.

10.5.2.3 Starting Files

Master flight files are started initially by a new activity.

10.5.2.4 Filing Procedures

When the activity's information requirements of the NAVFLIR are satisfied, this form shall be chronologically filed by date and time of departure, using prong fasteners or similar devices in a binder as compactly and securely as possible (i.e., two stacks per binder, if feasible). Though desirable, the requirement for chronology as to departure time is not absolute; reasonable variance is acceptable. The forms shall be logically arranged to permit easy access if flight data must be extracted at a later time. Each binder should contain records in one or more whole-month increments, be approximately 2 to 3 inches in thickness, and contain a transmittal letter. Each binder shall be externally labeled in indelible hand printing, clearly identifying the submitting activity/detachment, its location, and the monthly interval covered. For example, the label may read:

MASTER FLIGHT FILE
HSC-4
PERIOD 01/01/13 through 02/28/13
NAS NORTH ISLAND (01/01-01/24)
USS RONALD REAGAN (01/25-02/28)

10.5.2.5 Missing Data

In some cases, the duration and locale of flights performed in relation to the location of the master flight files will be such that the files cannot be kept current if exact date/time chronology is to be followed. In such isolated cases and in view of the annual retention period of the files, activities shall file all of the flight data that is available. Each reporting custodian is responsible for the continuity and consistency of the master flight files.

10.5.2.6 Classification

Completed master flight files will ordinarily be unclassified but classification may be assigned as warranted by the data. Activities should not include in the files any data that warrant a classification higher than Confidential unless the information is an important record not suitably provided for by other media.

10.5.3 Master Flight File Certification

Each master flight file binder shall contain a letter signed by the activity CO, OIC, or an officer designated in writing by the CO to do so. The following items shall be addressed:

1. Certification that attests to the accuracy, clarity, and completeness of the entries contained there for the time interval noted on the binder cover. Such certification, among other things, establishes a record of flights made by personnel who are in receipt of flight pay (Aviation Career Incentive Pay (AvIP), for aeronautically designated officers, Career Enlisted Flyer Incentive Pay (CEFIP), for career enlisted flyers, or Hazardous Duty Incentive Pay (HDIP) for flying duty, for other personnel).
2. A statement that items of historical interest (i.e., first, records, unique achievements, etc.) have been properly recorded for inclusion in the activity history in accordance with OPNAVINST 5750.12.
3. An itemization of unusual events that may lead to subsequent litigation or adverse public relations (i.e., inadvertent bomb drops, canopy blow-offs, etc.) shall be included identifying the flight during which such an event occurred. An objective (noninterpretive, nonsubjective) description of the event by any person aboard (especially if not listed on the NAVFLIR) who is a party to or observer of the event shall also be included.
4. Mishaps or combat incidents shall be noted to the extent of identifying the mishap/incident report containing the relevant information. Identifying the aircraft that was lost, missing, or damaged, and personnel aboard who were killed, missing, or wounded is also required.
5. Missing data shall be identified with an indication, if possible, of what future files will contain the information.
6. Identification of any nonstandard abbreviations, codes, or the like used on the NAVFLIR is required.
7. The time interval within the period covered by the file during which the activity was in an official combat status shall be specified.

10.5.4 Retention of Master Flight Files

Master flight file binders will be accumulated and stored in chronological sequence in annual calendar year record blocks and retained by the reporting custodian for a period of three years.

10.6 OPNAV 3760/31 (AVIATORS FLIGHT LOG BOOK)

10.6.1 General Policies

10.6.1.1 Requirements

1. All naval aviators/student naval aviators, naval flight officers/student naval flight officers, enlisted aircrew/student enlisted aircrew/aircrew under instruction, air vehicle pilots, and mission payload operators shall possess a currently maintained Aviators Flight Log Book, OPNAV 3760/31, as the primary individual flight activity record. Possession and maintenance of the log book is optional for other personnel on duty involving flying. The continued submission of flight data for all aeronautically designated naval officers is mandatory.
2. Each duly issued Aviators Flight Log Book is considered to be the personal property of the individual who currently is or in the past was required to possess it. Flight log books of missing or captured personnel shall be handled in accordance with instructions governing disposition of the service record.
 - a. Ensure that entries are legible, complete, and accurate.
 - b. Ensure compliance wherever provisions for use of the log book require entries by or signature of other personnel.
 - c. Keep the book(s) in good physical condition, guard against its loss, remove no pages from it (blank or otherwise), and use it as long as its capacity permits before requisitioning a new book.

10.6.1.2 Reconstructions of Log Books

The individual/aircraft flight information needed to reconstruct a lost or destroyed Aviators Flight Log Book can be regenerated from the NALDA database and may be obtained by emailing a request to NAVAIRSYSCOM, code AIR-6.8.4, at nav_helpdesk.fct@navy.mil.

10.6.2 Entries

Recording of information on the flight record, the accident and flight rule violation record and the mishap record is mandatory. Also, documentation of completion of annual NATOPS and instrument evaluations shall be recorded on the qualifications and achievements record. Recording of information in all other sections of the Aviators Flight Log Book is optional. When entries are made in optional sections, they shall be in accordance with procedures set forth here.

Note

For Marine Corps Activities, all sections of the Aviators Flight Log Book will be mandatory, with the exception of Personal Changes and Flight Clothing Record. All properly earned Qualifications and Designations will be entered into the Qualifications and Achievements record.

10.6.2.1 Qualifications and Achievements

1. These pages are to receive whatever entries are required or appropriate to record significant qualifications or achievements accredited the individual.
2. Make entries in chronological order.
3. Enter revocation of previously held qualifications showing the date of revocation and signature of the commanding officer or authorized deputy.

10.6.2.2 Summary of Total Flight Record

Use this page to record the total accumulated pilot time earned in each model of aircraft up to and no further than the date of opening the log book.

10.6.2.3 Personal Changes

Use of this section is at the discretion of the individual.

10.6.2.4 Flight Record Summary, Total and for 12 Months Preceding This Log

1. This page is to be filled in upon opening this log book and no entry should be made to it thereafter.
2. In the first column, show the total flying hours accumulated to date from the date military flying began for those items listed for which the record is available or a good estimate can be made; indicate which are estimates; leave unknowns blank.
3. For month columns, find the column for the month corresponding to the last month covered by the previous log book, enter the proper year of that month in the column heading, draw a heavy vertical line all the way down the right side of the column, and fill out the column. Then go to the next column to the left and, from data in the previous log book on the next to the last month covered by it, fill out that column. Proceed to the left in that manner until the January column is completed; then proceed to the December column and work to the left until all columns are completed.
4. Wherever appropriate, pen changes are authorized.

10.6.2.5 Summary of Pilot Time by Month, Model, Etc

1. This form is provided for monthly, quarterly, or annual summaries of data recorded in the flight-by-flight record section of this log book plus the same in the previous log book for those months back to the beginning of the year for which this log book was opened (or even further if the individual wishes).
2. It is suggested that the current year be entered on the first line. Then, on succeeding lines, enter the identity of that to be summarized (i.e., the T/M/S of aircraft (P-3C, F-18F, etc.)), the kind of flying time (FPT, CPT, SCT), instrument approaches, landings, or any other pertinent data. When the year is over, enter the number of the next year on the next line and start a new set of items to be summarized.

10.6.2.6 Flight-by-Flight Record

1. Space is provided in the flight-by-flight record section for 19 flights per page. If that number is exceeded for any month, sum the first 19 flights on the line "TOTAL THIS PAGE," post the totals on the first line of the next page, and continue entries. At the end of each month, all total spaces at the bottom of the page should be completed. Exception may be made for pilots who fly infrequently. In such cases, several months may be included on one page. The applicable month will be entered on the line preceding the first flight. Page totals will be entered at the bottom after each page is completed. Fill out pages and lines in chronological order as to year, month, day, and takeoff time. The date of a flight recorded in the Aviators Flight Log Book is the date upon which the flight started and not the date it ended. The number of flights will be entered in the "REMARKS" column. For months during which no flights were made, enter (on the first line of the page following the last month during which flights were made) the statement "No flights (month and year) through (month and year)," or equivalent. Simulator flights shall be logged as regular flights in the Aviators Flight Log Book starting from the rear of the month-by-month section of the log book and working forward. More than 1 month's entries may be entered per page.
2. Always show the full model designation (FA-18EF, not FA-18) and full aircraft bureau number. Whenever the reporting custodian of the aircraft is different from the activity to which the pilot is attached or from the activity whose aircraft the pilot normally flies, show the custodians identity in the columns for aircraft and serial number or remarks column.
3. Entries to "KIND OF FLIGHT" (TMR code) column shall always be the code entered on the flight record for the individual.
4. "A/C COMDR" column may also be utilized to record either FPT, CPT, or SCT.
5. Final approaches are entered into the Aviators Flight Log Book as precision or nonprecision, utilizing the approach codes described in [Appendix F](#).
6. The notation of pilot time report printed along the right-hand margin no longer applies.
7. Upon detachment and at the end of each month, the pilot shall sign all pages on which entries have been made. The commanding officer or an authorized deputy shall sign the page of the last entry at the end of each fiscal year and upon detachment of the individual. Spaces for those signatures are at the lower right corner of the form and are titled "CERTIFIED CORRECT RECORD" and "Approved." Signature of the commanding officer or authorized deputy signifies approval of all entries made for the time period. Approval means:
 - a. Apparent compliance in all respects with the provisions of this instruction on maintenance of the log book.
 - b. All applicable instances of accident and flight rule violations since last approval have been duly recorded in the log book.

10.6.2.7 Flight Clothing Record

1. Use of this form is self-evident; local practices in accordance with supply requirements shall be followed.
2. When opening a new log book, the last entry for each item appearing in the previous log book shall be carried forward.

10.6.2.8 Mishap and Flight Rule Violation Record

There are two forms for this section: a summary record (one page) and a mishap record (three pages). Use these records in accordance with [Paragraph 3.11](#). Care shall be exercised to avoid the use of information from aircraft mishap investigation reports and endorsements (including the Naval Safety Command endorsement) as a basis for the entries. Such use would be in violation of the privileged nature of this information. In the case of substantiated flight violations, jacket entries reflect an administrative finding and such entries shall not be considered punitive or as possessing any judicial character. Entries of mishaps and violations shall be signed by an officer authorized to sign the individual report of fitness or of enlisted evaluation.

1. Summary record.
 - a. This is a quantitative record of all substantiated violations of flying regulations and of all aircraft mishaps for which the individual has been assigned responsibility in any degree. Only those aircraft mishaps in which aircrew error was a factor shall be entered in the mishap column of the mishap and the flight rule violation records. Entries of mishaps or violations shall be authenticated by the commanding officer.
 - b. Negative reports are required; comply by entering 0 (zero). They shall be authenticated by the commanding officer or an authorized deputy.
2. Mishap record. The mishap record shall include all flight mishaps and violations.
 - a. Each substantiated violation of flying regulations or an aircraft mishap in which the reporting custodian considers the action of flight personnel to be a cause factor shall be entered.
 - b. Entries of mishaps and violations shall be signed by an officer authorized to sign the individual report of fitness or report of enlisted evaluation.

10.7 NATOPS FLIGHT PERSONNEL TRAINING/QUALIFICATION JACKET, OPNAV 3760/32

A NATOPS Flight Personnel Training/Qualification Jacket, OPNAV 3760/32, shall be prepared and maintained for each individual assigned to flying duties. The purpose of the jacket is to provide a consolidated record of the individual's training and readiness status, and to serve as a repository for the person's accumulated aviation records. The composition of the NATOPS training jacket and responsibilities and procedures for its preparation, maintenance, and disposition are contained in [Appendix A](#).

10.8 MONTHLY INDIVIDUAL FLIGHT ACTIVITY REPORT (NAVFLIRS-3)

The NAVFLIRS-3 details, by individual, specific flight activity that was performed during the reporting period (submitted on naval aircraft flight records). In addition, a summarization by aircraft bureau number of flight times (FPT, CPT, and SCT), including instrument (ACT and SIM) and night times, and a summarization of weapons proficiency, miscellaneous, and FYTD summary is also provided.

This Page Intentionally Left Blank.

CHAPTER 11

General Instructions on Duty Involving Flying and Annual Flight Performance Requirements

11.1 SCOPE, PURPOSE, AND APPLICABILITY

The purpose of this chapter is to:

1. Summarize the policies concerning the flying status of all active duty and reserve Navy and Marine Corps personnel holding aeronautical designations. Aeronautical designations include the following:

Navy Officers:

131X Naval Aviator (pilot)

132X Naval Flight Officer

150X Aerospace Engineering Duty Officer (pilot or NFM) — O6 or above

151X Aerospace Engineering Duty Officer (pilot or NFO)

210X Medical Corps (Flight Surgeon)

230X Medical Service Corps (Aerospace and Operational Physiologist, Aerospace Optometrist, Aerospace Experimental Psychologist, Aerospace Physician Assistant)

632X Aviation Operations Limited Duty Officer

732X Aviation Operations Technical (Chief Warrant Officer)

Note

The above list constitutes the only eight possible Navy officer aeronautical designators, without one of which a service member cannot be considered aeronautically designated. Possession of one of the above designators does not necessarily mean that the service member is aeronautically designated (for example, a Navy Medical Corps Officer will have designator 210X, whether or not a flight surgeon).

Marine Corps Officers: Naval Aviators and Naval Flight Officers.

Navy Enlisted Personnel: Warfare systems operators and those personnel assigned by PERS-4 under a distribution NEC of 82XX or 94XX are considered aeronautically designated enlisted crewmembers. Non-career crewmembers and non-crewmembers are not considered aeronautically designated.

Marine Corps Enlisted Personnel: See [Paragraph 11.4.2](#).

2. Prescribe criteria, standards, and regulations to ensure that the skill of all aeronautically designated personnel is maintained at acceptable levels of readiness and to enhance aviation safety.
3. Implement the logging and reporting of flight simulator time.

11.1.1 General Policies

11.1.1.1 Flying in Other Than Military Aircraft

Personnel assigned to operational flying billets may fly in other than military aircraft if such flying is inherent in the duty assignment of the individual concerned. Aeronautically designated personnel, when recommended by competent authority and approved by CNO or CMC (ACP), may perform operational flying in other than military aircraft of the Armed Services. When so directed, such flying shall be conducted only by personnel qualified to perform such duties and shall be approved by the authority controlling the aircraft. Individual flying time (first pilot, copilot, and special crew time) so acquired may be credited towards minimum annual and semiannual flying requirements.

11.1.1.2 Flying in a Leave Status

1. Individual flight time acquired in a leave status may be used to fulfill the minimum annual and semiannual flying requirements.

11.2 OPERATIONAL FLYING

1. Operational flying duty means flying performed under competent orders by designated (rated) personnel while in assignments in which basic flying skills are normally maintained in the performance of flight duties as determined by the Secretary of the Navy. It also includes flying performed by members in training leading to aeronautical designation (rating). For aeronautically designed Navy officers, operational flying positions are identified by a “1” or a “2” in the fourth position of the four-digit billet designator. These billets require the billet incumbent to possess DIFOPS orders. All other Navy officer billets will have a “0” in the fourth position of the billet designator, and are considered other than operational flying billets. Aeronautically designated Navy officers reporting to XXX0 billets shall be issued DIFDEN orders (“duty involving flying denied”, or in other words, duty in a flying status not involving flying). Navy enlisted operational flying assignments are determined by PERS-40. Marine Corps operational flying assignments are determined by CMC (ACP).
2. The following definitions apply to aeronautically designated (rated) Navy officers:
 - a. DIFOPS. Duty in a flying status involving operational or training flights. This term refers to the type of official duty orders issued by BUPERS/Navy Personnel Command to those aeronautically designated officers who are to report to billets requiring flying. DIFOPS orders must be issued to aviators reporting to billets designated XXX1 or XXX2. Officers under DIFOPS orders are required to maintain basic flying skills in the performance of their assigned duties and must be assigned to a billet designated XXX1 or XXX2. The exception to this requirement is officers undergoing flight training. Officers undergoing flight training will not normally occupy formally designated billets; however they must be under DIFOPS orders. PERS-43 will ensure that DIFOPS orders are issued appropriately to Navy officers.
 - b. Billet Designator XXX1 — Operational Flying. This billet category (Navy designator codes 1301, 1311, 1321, 1511, 6321, 7321) is derived from the application of crew ratios multiplied against unit equipment aircraft. It is a billet in which an aeronautically designated officer is required to participate as a crewmember in the operation of an aircraft or its weapon systems in support of specific aviation operational missions. Such operational missions include but are not limited to tactical air, ASW, SAR, fleet support, training, test and evaluation, and logistic or staff support.
 - c. Billet Designator XXX2 — Operational Flying. This billet category (Navy designator codes 1302, 1312, 1322, 1512, 2102, 2302, 2902, 6322, 7322) requires an aeronautically designated officer to fly frequently and regularly in the performance of their assigned duties, but the requirement is not derived from the application of crew ratios against unit equipment aircraft. Designated billets involve crewmember flight duties that vary from complete aircraft/weapon system utilization to those less demanding in airborne duties and frequency of flight. Such operational duties include but are not limited to pertinent flight functions involving the exercise of command and control of aircraft, mission support, flight safety, aircrew evaluation, operational readiness, maintenance programs, and weapon test evaluation.

11.2.1 Aeromedical Officer Flying Policy

1. This policy applies equally to student or designated flight surgeons, aerospace physician assistants, aerospace experimental psychologists, aerospace and operational physiologists, and aerospace optometrists.
2. An aeromedical officer who possesses an additional pilot designation and is assigned to an operational flying billet (2102/2302) will fly only as an aeromedical officer, and not as an aeromedical dual designator (AMDD), unless specifically designated and assigned as such. OPNAVINST 1542.4 governs selection, training and assignment of aeromedical dual designators. Exceptions will require individual authorization by CNO (N98) with complete justification forwarded through and endorsed by BUMED.
3. An aeromedical officer is only authorized to fly operationally when ordered DIFOPS, and assigned to a 2102/2302 billet, including when enrolled in aerospace medicine residency or advanced training programs in aerospace/preventive medicine, or a service school. Since the purpose of aeromedical officers flying includes the maintenance of intimate familiarity with the stressors of flight, exposure to all types of flying is essential, including but not limited to shipboard, overwater, operational, night, Basic Aircraft Maneuvering (BAM), and ACM flying commensurate with the officer's aeromedical and security clearances. Commanding officers play a vital role in ensuring the proper and ongoing training of these officers by approving and encouraging such flying.
4. An aeromedical officer who satisfies the requirements of preceding paragraph may fly in actual control of any dual-controlled naval aircraft, and log pilot and co-pilot time, subject to the same limitations as a pilot not qualified in model, including instructional syllabus dual or solo flights taken from a duly approved master curriculum guide. Additionally, an aeromedical officer who is also a rated pilot and satisfies the requirements of preceding paragraph, though not serving as an AMDD, may fly in control of any dual-controlled naval aircraft in all phases of flight, if a NATOPS-qualified pilot in command is occupying the other cockpit seat. An aeromedical officer who is also a rated naval flight officer may fly as a naval flight officer in any naval aircraft, in all phases of flight, commensurate with their qualifications. These privileges may be authorized by local commanders on the basis of the individual aeromedical officer's demonstrated interest and ability.
5. An AMDD who is a rated pilot, and is serving as such under the provisions of OPNAVINST 1542.4, is authorized to pilot any naval aircraft in all phases of flight, commensurate with their qualifications.
6. The following definitions apply:
 - (1) Officer Billet Designator Code 2102 — This is an operational flying billet for a designated flight surgeon (NOBC 0110 or 0163) and requires the incumbent to fly frequently and regularly in the performance of assigned duties.
 - (2) Officer Billet Designator Code 2302 — This is an operational flying billet for a designated naval aerospace experimental psychologist (NOBC 0852), naval aerospace physician assistant (NOBC 0113), aerospace physiologist (NOBC 0849), or aerospace optometrist (NOBC 0880, AQD 6AN) and requires incumbents to fly frequently and regularly in the performance of assigned duties.

11.2.2 Aviation Qualified Foreign Area Officer (AFAO) Policy

1. This policy applies to Foreign Area Officers (FAO) previously designated as naval aviators (pilots) and awarded the Aviation Qualified FAO AQD (FFQ).
2. AFAOs will only be detailed to flying assignments within the Defense Attaché System, to include required flight training. Prior to commencing flight training at CNATRA, AFAOs shall meet the basic standards of a student naval aviator. Upon completion of CNATRA training, the AFAO shall have a current instrument rating, a NATOPS qualification in a multi-engine fixed wing aircraft, valid NASTP qualification and flight physical. While assigned to DAS billet, AFAOs shall comply with all pertinent USN, DIA, and USAF aviation instructions and policies for pilot qualifications and aeromedical requirements.
3. An AFAO receiving flight pay must meet the requirements of BUPERSINST 7220.29A Aviation Career Incentive Pay (AvIP).

11.2.3 Aviation Operations Officer (AVOPS)

Aviation Operations (632X) Limited Duty Officers and Aviation Operations Technicians (732X) Chief Warrant Officers who are aeronautically designated per NAVPERS 158391 and wear Naval Aviation Observer wings are classified as Aviation Operation Officers (AVOPS). AVOPS shall meet the flight time requirements for NFOs, FSs, and APAs.

11.2.4 Additional Ratings

- 1. Pilots possessing additional aeronautical ratings (astronauts, NFO-to-Pilots) will comply with the flight time requirements for pilots (excluding flight surgeon).
- 2. Aeromedical dual designators who are pilots, and are serving as such under the provisions of OPNAVINST 1542.4, shall meet the flight time minimums for pilots as set forth in this instruction.

11.2.5 Minimum Flying Hours

The flight time minimum requirements contained in this chapter are established to ensure an acceptable minimum level of readiness and to enhance aviation safety. This manual does not govern entitlement status for flight pay (AvIP, CEFIP, and HDIP). Flight pay policy is established by DoD in DoD 7000.14-R, Volume 7A and DoD 7730.67 and by Navy in BUPERSINST 1326.4E and OPNAVINST 7220.18. First pilot time minimums are not required for training command/FRS instructor pilots due to the nature of the training mission.

- 1. All Naval Aviators with Less than 20 Years Aviation Service; all Naval Aviators Assigned to Billets Designated XXX1:

Fiscal Year Minimum Flying Hours

	Semiannual	Annual
Pilot Time	40	100
Night Time	6	12
Instrument Time	6	12

Note

- Pilot time includes time credited as first pilot and copilot. At least 50 percent of all the annual minimum pilot requirements must be gained through flying. Of that, 50 percent must be first pilot time. Copilot time may be credited toward the accomplishment of the remaining flying hour requirements. Special crew time does not count towards satisfaction of the annual pilot time requirements set forth in this instruction. [Paragraph 11.6](#) discusses logging of simulator time.
- Instrument time requirements are applicable to both fiscal year and an individual's instrument rating requalification.
- For example, an individual must meet instrument flight minimums for both the fiscal year (i.e., October through September) and, during the year, between the date of last instrument checkflight and subsequent instrument checkflight.

Note

- Night time requirements for Fighter Squadron Composite (VFC), Naval Test Pilot School (TPS), FRS, CNATRA, Wing Weapons Schools and Naval Strike and Air Warfare Center (NSAWC) instructors, and COMNAVAIRSYSCOM test squadron and Defense Contract Management Agency (DCMA) military and contractor aircrew, may be waived by the (test or type) Wing/Aviation TYCOM due to the restrictive nature of the course syllabi or operational constraints.
- Marine aviators undergoing phase I training as outlined by MCO 3500.14 (T&R Manual, Vol. I) and/or NAVMC 3500.14 (as applicable) shall not be accountable for meeting semiannual/ annual minimums as outlined in this instruction until they have received their primary aircraft military occupational specialist (MOS) designations, which are assigned upon completion of phase I training.
- Night and instrument time requirements for Naval Introductory Flight Evaluation (NIFE) personnel flying for NAVAVSCOLSCOM are not required due to the restrictive nature of the course syllabi.

2. Naval Aviators with more than 20 Years of Aviation Service who are Assigned to Billets Designated XXX2:

Fiscal Year Minimum Flying Hours

	Semiannual	Annual
Pilot Time	24	48
Night Time	3	6
Instrument Time	3	6

Note

- These are fiscal year minimum flying hours for designated naval aviators (pilots) who have completed 20 years of aviation service and are assigned to operational flying billets designated as 1302, 1312, or 1512 and USMC DIFOPS commands.
- Hours do not reduce prerequisite pilot or instrument hours required for NATOPS qualification and instrument ratings (refer to [Paragraph 13.2](#)).
- Individual aviation service entry dates (ASED) should be utilized to determine years of aviation service completed.
- Night and instrument time requirements for Naval Introductory Flight Evaluation (NIFE) personnel flying for NAVAVSCOLSCOM are not required due to the restrictive nature of the course syllabi.

3. NFO, Aeromedical Officer, Avops, Enlisted and Nondesignated Officers:

Fiscal Year Minimum Flying Hours

	Semiannual	Annual
Special Crew Time	24	48

11.2.6 Prorating Minimums

1. Minimum annual/semiannual flying hour requirements shall be prorated based on each full month an individual is attached to a DIFOPS/DIFCREW billet/command beginning when initially cleared to fly (i.e., an aviator in DIFOPS/DIFCREW status who is assigned to DIFDEN status and departs during July is required to obtain annual/semiannual flight minimums for the months of October through June. An aviator who detaches from DIFDEN status and joins a DIFOPS/DIFCREW command during April is required to obtain annual/semiannual flight minimums from May through September).
2. Minimum annual flight time requirements apply only when assigned to permanent duty stations on DIFOPS/DIFCREW orders. They do not apply while en route on permanent change of station (PCS) orders or on TAD assignments in excess of 3 weeks away from the parent command area where flight time activity is not available as determined by the individual's commanding officer.
3. Naval pilots/Naval flight officers undergoing replacement aircrew (RAC/FRS)/refresher training, as outlined by the respective service training manuals, shall not be accountable for meeting semiannual/annual pilot/special crew minimums as outlined in this instruction until they have completed aviation/refresher training as defined in the applicable training manuals or are transferred from their training squadron/element. The provisions of this paragraph do not preclude the requirement to meet the instrument rating requirements as outlined in [Figures 11-1, 11-2](#), and [Paragraph 13.2](#).

11.2.7 Aviation Qualification/Currency Requirements Summary

A summary of aviation qualification/currency requirements is shown in [Figure 11-1](#) for naval aviators, [Figure 11-2](#) for NFO/AVOPS/FS/APA, and [Figure 11-3](#) for naval aircrewmembers. Navy aircrew who have not flown in 12 months or more shall complete the appropriate category of FRS syllabus in accordance with OPNAVINST 3500.31G. Model Managers may waive this requirement for unique circumstances on a case by case basis. For aircraft without an FRS, a syllabus shall be approved by the Model Manager. Marine Corps FRS requirements are contained in MCO 3500.14 and/or NAVMC 3500.14 (as applicable).

11.2.8 Flying Activity Denied

1. Flying activity is denied when ordered under DIFDEN status.
2. DIFDEN is duty in a flying status not involving flying. Officers and enlisted personnel so designated are prohibited from performing operational crewmember duties except as modified in the following paragraphs. For policy governing flight pay entitlements while in DIFDEN status, see BUPERSINST 1326.4E, OPNAVINST 7220.18, DoD 7000.14-R, Volume 7A, and DoD 7730.67.

Figure 11-1. Aviation Qualification/Currency Requirements Summary (Naval Aviator)

Type Qualification	Initial Qualification Required	Renewal Interval	REQUIREMENTS BY BILLET DESIGNATOR				Waiver Authority
			DIFOPS			DIFDEN	
			1301/1311/ 1321/1501/ 1511	1302/1312/ 1322/1502/ 1512	USMC	1300/1310/ 1320/1510/ USMC	
NATOPS Qualification	N/A	Annually	Yes	Yes	Yes	No	None
Instrument Rating	Yes	Annually	Yes	Yes (1)	Yes	No	COMNAVAIRFOR/ CMC
Annual Pilot Hour Minimums	No	Annually	100 Hrs (5)	100 Hrs (5)	100 Hrs (5)	None	COMNAVAIRFOR/ MARFORCOM/ MARFORPAC/ COMNAVAIRFORES/ CG FOURTH MAW/ TYCOMS/CNATRA/ COMNAVAIRSYSCOM
Annual Instrument Hours	No	Annually	12 Hrs (5)	12 Hrs (5)	12 Hrs (5)	None	COMNAVAIRFOR/ MARFORCOM/ MARFORPAC COMNAVAIRFORES/ CG FOURTH MAW/ TYCOMS/CNATRA/ COMNAVAIRSYSCOM
Annual Night Hours (7)	No	Annually	12 Hrs (5)	12 Hrs (5)	12 Hrs (5)	None	COMNAVAIRFOR/ MARFORCOM/ MARFORPAC COMNAVAIRFORES/ CG FOURTH MAW/ TYCOMS/CNATRA/ COMNAVAIRSYSCOM
Physical Examination	Yes	Annually	Yes	Yes	Yes	Yes	BUMED/BUPERS/ CMC
NASTP	Yes	4 Years (2)	Yes	Yes	Yes	No (6)	TYCOMS (7)
Emergency Egress Training	Yes (3)	Annually (4)	Yes	Yes	Yes	No (6)	TYCOMS
NOTES: 1. As required to perform assigned duties. 2. Refer to Paragraph 8.4 . 3. Dynamic ejection seat training required prior to flight in aircraft equipped with ejection seat. 4. Static training required prior to flight in different type ejection seat. (Refer to Paragraph 8.4 .) 5. Annual minimums for naval aviators who have completed 20 years of aviation service are 48 pilot hours, 6 instrument hours and 6 night hours. 6. Required if in flying status with waiver. 7. Initial training requirements may be waived by COMNAVAIRFOR/CMC only.							

Figure 11-2. Aviation Qualification/Currency Requirements Summary (NFO/AVOPS/FS/APA)

Type Qualification	Initial Qualification Required	Renewal Interval	REQUIREMENTS BY BILLET DESIGNATOR					WAIVER AUTHORITY
			DIFOPS			DIFDEN	DIFTECH	
			6321/7321	2102/2302/6322/7322	USMC	2100/2300/6320/7320/USMC	18XX/210X/230X/290X	
NATOPS Qualification	Yes (1)	Annually	Yes	No	Yes	No	No	None
Instrument Qualification	Yes (6)	Annually	Yes (6)	No (1)	Yes	No	No	COMNAVAIRFOR/CMC
Annual Flight Hour Minimums	No	Annually	48 Hrs	48 Hrs	48 Hrs	No	4 hours/month average	COMNAVAIRFOR/MARFORCOM/MARFORPAC/COMNAVAIRFORES/CG FOURTH MAW/TYCOMS/CNATRA/COMNAVAIRSYSCOM
Physical Examination	Yes	Annually	Yes	Yes	Yes	Yes	Yes	BUMED/BUPERS/CMC
NASTP	Yes	4 Years (2)	Yes	Yes	Yes	No (5)	Yes	TYCOMS (7)
Emergency Egress Training	Yes (3)	Annually (4)	Yes	Yes	Yes	No (5)	Yes	TYCOMS
NOTES: 1. Required only for those Flight Surgeons holding dual qualification as Naval Aviator/Flight Surgeon and for NFOs. 2. Refer to Paragraph 8.4. 3. Dynamic ejection seat training required prior to flight in aircraft equipped with ejection seat. 4. Static training required prior to flight in different type ejection seat. (Refer to Paragraph 8.4.) 5. Required if in flying status with waiver. 6. Required for 6321/7321, holding qualification as a naval officer. 7. Initial training requirements may be waived by COMNAVAIRFOR/DC AVN only.								

Figure 11-3. Aviation Qualification/Currency Requirements Summary (Naval Aircrewman (NAC))

Type Qualification	Initial Qualification Required	Renewal Interval	Requirements By Billet Designator				Waiver Authority
			DIFCREW (Crewmember) 78XX 82XX	DIFTEM (Non-Crew)	Prior to Designation	DIFCREW (Mass. Comm. Spec. A18A)	
NATOPS Qualification	N/A	Annually	Yes	No	Yes	No	TYCOM (8)
Flight Hour Requirement	No	N/A	48/Year	4/Month	As Appropriate	48/Year	COMNAVAIRFOR/ MARFORCOM/ MARFORPAC/ COMNAVAIRFORES/ CG FOURTH MAW/ TYCOMS/CNATRA/ COMNAVAIRSYSCOM
Physical Examination	Yes	(6)	Yes	Yes	Yes	Yes	BUMED/BUPERS/CMC
NASTP	Yes (7)	4 Years (1)	Yes	Yes	Yes	Yes	TYCOMS (7)
Emergency Egress Training	Yes (2)	Annually (3)	Yes	Yes	Yes	Yes	TYCOMS
NEC Requirements	7801/8201	N/A	(4)	(5)	(4)	A18A	Commander, Naval Military Personnel Command (COMNAVMILPERSCOM)
MOS Requirements							

NOTES:

1. Refer to [Paragraph 8.4.](#)
2. Dynamic ejection seat training required prior to flight in aircraft equipped with ejection seat.
3. Static training required prior to flight in different type ejection seat. (Refer to [Paragraph 8.4.](#))
4. Must qualify for assigned Distribution NEC within 18 months. While undergoing training member must hold a 78XX or 82XX NEC. NEC qualification required prior to designation.
5. If a member is in training for a crewmember position, the crewmember must hold a 7801 or 8201 NEC. Members assigned under special mission categories do not require NEC identification. (BUPERSINST 1326.4 refers.)
6. Renewal requirements as stated in the Manual of the Medical Department, U.S. Navy, Chapter 15.
7. Initial training requirements may be waived by COMNAVAIRFOR/CMC only.
8. Annual NATOPS evaluation (flight and/or ground) may be waived by type commander (TYCOM) for DIFCREW whose command is not assigned the type aircraft in which individual is qualified. DIFCREW members not within TYCOM chain of command submit to COMNAVAIRFOR (N455) via chain of command.
9. Mass Communication Specialists (MCs) do not receive NATOPS Qualifications but shall qualify as Aircrew Aerial Cameramen via NAVEDTRA-43242-2.

11.2.8.1 Flying by Individuals in DIFDEN Status

Aeronautically designated officers in DIFDEN status may, on occasion, be required to perform operational flying on a temporary basis to accomplish specific tasks (for example, participation in flying exercises or test programs or to gain familiarity with selected operational weapon systems and procedures). Under such circumstances, the following will apply:

1. Approval is required for individuals to perform aircrew duties in a DIFDEN status. Waiver requests must be forwarded via chain of command to COMNAVAIRFOR (N455) or CMC (ACP), as appropriate. DIFDEN waiver request packages shall include endorsements by the chain of command for the applicant and aircraft involved. Flight waivers may be granted for a single flight, a series of flights involving an exercise or test program, or for gaining familiarity with selected operational weapons systems and procedures. Marine Corps personnel shall refer to MCO 3710.4 for guidance on the issuance of waivers. Flight waivers may also be granted on a tour basis where an aviators flight experience may be utilized periodically during the duty assignment. For personnel receiving flight waivers, minimum annual flight time requirements are not prescribed; however, appropriate NATOPS and other training qualifications apply for:
 - a. Officers in pay grade O-6 and above; a DIFDEN waiver is not required to perform temporary aircrew duties on flights involving exercises, test programs, or weapon system familiarity provided the individuals participation in such flights is required in the performance of assigned duties and responsibilities.
 - b. Personnel whose DIFDEN flight activity exceeds approximately five flights per month on a regular basis should consider requesting a DIFDEN waiver or conversion of the billet to DIFOPS status, as appropriate.
2. Commanders must approve the use of command aircraft resources for personnel outside their command. Such approval must be included in the appropriate endorsement on initial submission of the waiver request.
3. Flights in DIFDEN status do not constitute operational flying duty for entitlement purposes or accumulation of operational flying months.
4. Personnel requesting to participate in operational flights while in a DIFDEN status shall submit individual waiver requests (Figure 11-4) containing the following information:
 - a. Rank, name, designator/MOS.
 - b. Flight hours in requested aircraft T/M/S.
 - c. Total flight hours, including all T/M/S.
 - d. Qualifications and designations in requested aircraft T/M/S.
 - e. Date of last flight in most recent T/M/S and requested aircraft T/M/S.
 - f. NATOPS qualification expiration date for most recent T/M/S and requested aircraft T/M/S.
 - g. Instrument rating/qualification expiration date.
 - h. Naval Aviation Survival Training Program (NASTP), specific Class 1-4, Aviation Physiology Training expiration date.
 - i. Flight physical expiration date.
 - j. Justification for waiver identifying benefit to supporting squadron(s).
 - k. Plan to regain currency in requested T/M/S if lapse in currency has occurred.
 - l. Planned rotation date (PRD) from assignment in which request will be required.

Figure 11-4. DIFDEN Waiver Request

	Date
From: RANK First M. Last, USN, 1310	
To: Commander, Naval Air Force, Pacific (N455)	
Via: (Chain of Command)	
Subj: REQUEST FOR WAIVER TO PERFORM DUTIES INVOLVING OPERATIONAL FLIGHTS WHILE IN DUTY INVOLVING FLIGHT DENIED (DIFDEN) STATUS	
Ref: (a) CNAF M-3710.7	
<p>1. Per reference (a), the following request to perform duties involving operational flights while in DIFDEN status for the duration of my assignment at (command name) is submitted. Flight duties would include flights with (squadron, air wing, or type wing).</p> <ul style="list-style-type: none"> a. RANK First M. Last, USN, Designator/MOS b. Hours in requested aircraft T/M/S c. Total flight hours (all T/M/S) d. Qualifications and designations in requested aircraft T/M/S e. Date of last flight (most recent T/M/S and requested aircraft T/M/S) f. NATOPS qualification expiration (current T/M/S and requested aircraft T/M/S) g. Instrument rating/qualification expiration h. Naval Aviation Survival Training Program, Class _____ Aviation Physiology Training expiration i. Flight physical expiration <p>2. Justification for waiver</p> <p>3. Plan to regain currency in requested T/M/S if lapse in currency has occurred</p> <p>4. PRD from assignment requiring waiver</p> <p>5. Questions concerning this request can be directed to RANK First Last, USN: Commercial (phone), e-mail: _____.</p> <p style="text-align: right;">F. M. LAST</p>	

11.2.8.2 Policy Governing Management of DIFDEN Personnel

Competent authority will not be denied the services of aviation personnel assigned combat missions. All aeronautically designated personnel on DIFDEN orders serving under circumstances that qualify them for hostile fire pay, regardless of assigned billet, are permitted to perform mission or mission support flight duties if otherwise qualified to fly.

11.2.8.3 DIFOPS/DIFDEN Billet Review/Assignment (USN Only)

To ensure that manpower authorizations reflect current DIFOPS billet requirements, commanders shall annually review operational flight taskings and aircraft assignments to determine that individual command DIFOPS/DIFDEN billet requirements are accurately stated. Billet designator change requests are to be submitted in accordance with OPNAVINST 1000.16. Commanding officers will ensure (via ODCR validation) that only officers under DIFOPS orders are assigned to DIFOPS (XXX1, XXX2) billets. Particular attention must be given to the assignment of the proper aviation billet indicator (ABI) code (DIFOPS = A, DIFDEN = 0). The ABI is the data element that drives the MOF counter for aviators; erroneous ABI will create MOF errors, which in turn will create incentive pay problems. Commands desiring to assign individuals in a DIFOPS status to DIFDEN billets or vice versa must contact PERS-43 before doing so in accordance with OPNAV 7220.18. Failure to do so may cause improper crediting of MOFs and could result in possible AvIP recoupment to affected aviators. In addition to OPNAV 7220.18, refer to Volume II of the Manual of Navy Officer Manpower and Personnel Classifications, also known as “NOOCS”, available on Navy Personnel Command website, for more information on the ABI. Individual officers may view their present ABI code by viewing their Officer Data Card, available at BuPers Online.

11.2.9 Policy Governing Assignment of Inactive Reserve Personnel

Inactive duty Reserve personnel will be assigned DIFOPS when ordered to an active duty flying drill pay billet. Reservists will be assigned in a DIFDEN status when ordered to specifically identified, nonactive duty flying drill pay billets that require aeronautical experience but not the maintenance of basic flying skills. Determination of billet types will be made by the Commander, Naval Reserve Force or CMC, as appropriate.

11.3 FLIGHT PAY

“Flight pay” is a broad term used to denote any of the three monthly incentive pays associated with flying duty: AvIP, CEFIP, and HDIP. DoD policy governing these incentive pays is contained in Chapter 22 of DoD 7000.14-R Financial Management Regulation, as well as in 7730.67 DoD Aviator Incentive Pays and Bonus Program; Navy AvIP policy is governed by OPNAVINST 7220.18; and Navy CEFIP policy is governed by BUPERSINST 1326.4E. In some cases, entitlement to these incentive pays is determined by performance of prescribed flight hour minimums. It should be kept in mind that the various flight hour minimum requirements contained in this manual are established to ensure an acceptable minimum level of readiness and to enhance aviation safety. Policies in this manual do not determine entitlement status to any incentive pay. Minimum flight hour requirements for pay purposes, and all other flight pay policies, are contained in references BUPERSINST 1326.4E, OPNAVINST 7220.18, DoD 7000.14-R, and DoD 7730.67.

1. AvIP is a monthly flight pay for which aeronautically designated officers may be eligible. AvIP is governed by DoD 7730.67, Chapter 22 of DoD 7000.14-R, and OPNAVINST 7220.18.
2. CEFIP is a monthly flight pay for which career enlisted flyers (naval aircrewmen) may be eligible. CEFIP is governed by DoD 7730.67, Chapter 22 of DoD 7000.14-R, and BUPERSINST 1326.4E.
3. HDIP is a monthly flight pay for which non-aeronautically designated officers, non-career enlisted crewmembers, and enlisted non-crewmembers may be eligible, when they are required to perform in-flight duties in support of their command’s mission. Aeronautically designated officers and career enlisted flyers may also be eligible for HDIP for flying duty, if they are not eligible to receive AvIP/CEFIP. There are various types of HDIP for various types of hazardous duty; HDIP for flying duty is governed by DoD 7730.67 and by Chapter 22 of DoD 7000.14-R. HDIP for flying duty is also discussed in BUPERSINST 1326.4E and OPNAVINST 7220.18.

11.3.1 Definitions

11.3.1.1 Aviation Service

Aviation service is the active or inactive service performed by an officer who holds or is in training leading to an aeronautical rating or designation.

11.3.1.2 Officer Service

Officer service includes all service creditable under Title 37 U.S.C. 205 as a commissioned, warrant, and flight officer.

11.3.1.3 Aviation Service Career

An officer on extended active duty who holds an aeronautical designation shall be considered to be performing aviation service on a career basis, as prescribed in Title 37 U.S.C. 301a, so long as a member of the authorized rated inventory (i.e., commander and below, aeronautically designated) or is serving in pay grade O-6 or above and is qualified for aviation service.

11.3.2 Policy and Procedures

1. It is DoD policy that officers who are qualified to perform aviation service on a career basis shall receive credit for operational flying duty only during those periods when assigned to designated operational flying assignments. Credit shall not be granted for any period during which a member is under DIFDEN orders. Officers who were past the 12 or 18 years of aviation service points on 1 June 1974 will be presumed to have had sufficient credit to meet the requirements for those points.
2. Operational flying duty time shall be credited in months. So far as fractions of months are concerned, the 15th day of the month is the break-even point for crediting or not crediting a month. Detachment from operational flying duty after the 15th day of any month or assignment to operational flying duty on or before the 15th day of any month entitles a member to credit for the entire month. The date a member signs out or otherwise vacates an assignment will be used as the date of detachment. The next day will be used as the date of assignment.
3. The number of years of aviation service for computing the appropriate rate of pay is computed beginning with the effective date of the initial order to perform aviation service as an officer. Within the Department of the Navy, the effective date of the initial order to perform aviation service, hereafter referred to as the ASER, is the day, month, and year an individual first reports, on competent orders, to the aviation facility having aircraft in which members will receive their flight training leading directly to the award of an aeronautical designation and continues to accumulate from that date without exception as long as their flight designation remains in effect.
4. Officers medically incapacitated will be considered qualified for aviation service unless such incapacitation continues for more than 1 year. Disqualification for medical incapacity will be effected on the first day following a period of 365 days that commences on the date of incapacitation. Officers disqualified for medical reasons will not be requalified for aviation service until the condition resulting in incapacitation is reevaluated and the officer is certified as medically qualified for operational flying duty by appropriate medical authority. Aviation career incentive pay and operational flying duty credit may not be authorized for any period during which an officer is medically disqualified for aviation service.

11.3.3 Aviation Career Incentive Pay for Rated Members (Rated Members Include Aeronautically Designated Naval Aviators and Naval Flight Officers)

11.3.3.1 Entitlement Status

Aviation status indicators (ASIs) are one-character codes that are used in various documents such as JUMPS and ODCRs to indicate an aviation officer's AvIP entitlement status. [Figure 11-5](#) lists the ASI codes and their definitions.

11.4 ENLISTED CREWMEMBERS

11.4.1 Navy Crewmembers

1. Enlisted crewmembers are divided into three general categories: Career Crewmembers, Non-career Crewmembers, and Non-crewmembers.
 - a. Career Crewmember (also known as Career enlisted flyers). An enlisted crewmember who holds a 78XX, 82XX or 94XX NEC or is in an approved training pipeline leading to the award of one of those NECs. They are designated as Naval Aircrewmembers and are primarily detailed by PERS-404E or NAVRESPERS-417 throughout their career into flying billets (DIFCREW orders) and non-flying billets (DIFDEN orders). They are eligible for Career Enlisted Flyer Incentive Pay (CEFIP).
 - b. Non-career Crewmembers. Those individuals, not necessarily designated as Naval Aircrewmembers, physically qualified to fly, who participate regularly in aerial operations and are assigned duty involving flying under DIFCREW orders. They are not designated as career enlisted flyers and are not eligible for CEFIP. Non-career Crewmembers receive crew Hazardous Duty Incentive Pay (HDIP) for flying when assigned DIFCREW orders. Mass Communication Specialists, filling DIFCREW orders, with the A18A NEC, fall under the following category.
 - c. Non-crewmembers. Those personnel whose duties require frequent and regular participation in aerial flights to perform in-flight functions that cannot be performed by other members already under flight orders. These personnel receive special mission flight orders for duty involving flying (temporary) (DIFTEM) as authorized by the appropriate allocation manager.
2. Minimum flight requirements for enlisted DIFCREW, DIFDEN, and DIFTEM flyers are set forth in [Figure 11-3](#) to ensure an acceptable minimum level of readiness and to enhance aviation safety. Minimum requirements to obtain and maintain aircrew qualifications are covered in [Chapter 12](#) of this instruction and type/model/series aircraft NATOPS manuals. This instruction does not govern entitlement status for CEFIP or HDIP. Flight pay policy is established by DoD in DoD 7730.67 and in Chapter 22 of the DoD 7000.14-R; and by Navy in BUPERSINST 1326.4E and OPNAVINST 7220.18.
3. Warfare Systems Operators and those personnel assigned by BUPERS under a distribution NEC of 82XX or 94XX are considered aeronautically designated enlisted crewmembers. Non-career crewmembers and non-crew crewmembers are not aeronautically designated.

11.4.2 Marine Corps Crewmembers

1. Enlisted crewmembers are assigned to temporary indefinite flight status for periods of not less than 120 days. Crewmember flight orders are issued to the following personnel:
 - a. Personnel who are specifically assigned as regular full-time members of flightcrews, such as aircraft flight engineers and loadmasters.
 - b. Crewchiefs and assistant crewchiefs.
 - c. Instructors whose duties require that they give in-flight instruction as part of a formal school curriculum.
 - d. Personnel assigned to airborne command posts.
 - e. Communication system operator.
 - f. NATOPS evaluators/instructors.
2. Enlisted noncrewmembers are assigned to temporary indefinite or definite flight orders. Noncrewmembers flight orders are issued to the following personnel:
 - a. Personnel in an approved course that includes instruction in the curriculum.
 - b. Personnel assigned duties requiring participation in aerial flight for special purposes that cannot be performed by a person already in receipt of flight orders.
 - c. Personnel in an approved course of instruction to qualify as a helicopter aerial gunner/observer.

- d. Personnel assigned as qualified aerial gunners/observers.
 - e. Personnel whose duties require participation in aerial flight to perform test, research, or evaluation of airborne technical equipment that cannot be performed by crewmembers.
3. Minimum flight requirements for all Marine enlisted crewmembers are set forth in Chapter 22 of the DOD Financial Management Regulations, DoD 7000.14-R. Minimum requirements to be met in order to obtain/maintain aircrew qualifications/designations are covered in [Chapter 12](#) of this instruction and the aircraft NATOPS manuals.

Figure 11-5. Aviation Status Indicator Codes

CODE	DEFINITION
A	Not in use.
B	Not in use.
C	<p>Conditional AvIP (>12 years) — An aeronautically designated officer with greater than 12 years of aviation service who has not performed the required MOF outlined for code O. Only eligible for conditional AvIP beyond 12 years of aviation service.</p> <p style="text-align: center;">Note</p> <p>To be entitled to receive AvIP this officer must: (1) meet DOD Pay Manual flying requirements of 4 hours per month and (2) be under DIFOPS orders and (3) be in an operational flying billet (billet designator ending in 1 or 2).</p>
D	Not in use.
E	Not in use.
F	Conditional AvIP (>18 years) — An aeronautically designated officer with greater than 18 years of aviation service who has not performed the required MOF outlined for code P or Q. Only eligible for conditional AvIP beyond 18 years of aviation service. (Note under C applies).
G	Conditional AvIP (>22 years) — An aeronautically designated officer who met the MOF requirements of code P and have completed their 22 years of aviation service continuous entitlement. Only eligible for conditional AvIP beyond 22 years of aviation service. (Note under C applies).
H	O-7 or Above — An aeronautically designated officer who has been promoted to the paygrade of O-7 or above and has reached 25 years of commissioned service (Note under C applies).
I	Conditional AvIP (>25 years) — An aeronautically designated officer who met the MOF requirements of code Q and have completed their 25 years of aviation service continuous entitlement. Only eligible for conditional AvIP beyond 25 years of aviation service. (Note under C applies).
J	Conditional AvIP (Aeromedical) — Designated flight surgeons, aerospace medical physiologists, and aerospace and operational physiologists. These officers have completed a course of study in aerospace medicine and are entitled to conditional AvIP only. (Note under C applies).
K	AvIP Termination — An aeronautically designated officer who has had flight status temporarily terminated because of medical incapacitation lasting over 365 days but has not met the criteria of code M.
L	AvIP Permanent Termination — An aeronautically designated officer who has had flight status permanently terminated through attrition, voluntary termination, or naval aviator evaluation board.
M	AvIP Permanent Termination — An aeronautically designated officer who has had flight status permanently terminated because of medical incapacitation determined to be a permanent grounding status after review by NAMI.
N	Continuous AvIP (<12 years) — An aeronautically designated officer or aviation student with less than 12 years of aviation service. Entitled to continuous AvIP.
O	Continuous AvIP (12 to 18 years) — An aeronautically designated officers who has met all criteria for code N and has completed at least 96 MOF prior to 12 years of aviation service. Entitled to continuous AvIP.
P	Continuous AvIP (18 to 22 years) — An aeronautically designated officer who has met all criteria for codes N and O and has completed at least 120 but less than 144 MOF prior to 18 years of aviation service. Entitled to continuous AvIP.

CNAF M-3710.7

CODE	DEFINITION
Q	Continuous AvIP (18 to 25 years) — An aeronautically designated officer who has met all criteria for codes N and O and has completed at least 144 MOF prior to 18 years of aviation service. Entitled to continuous AvIP.
R	Conditional AvIP Termination (Aeromedical) — A designated flight surgeon, aerospace medical physiologist, or aerospace and operational physiologist whose conditional AvIP is terminated due to DIFDEN or no fly status.
S	Not in use.
T	AvIP Termination (Lateral Transfer) — Termination of AvIP entitlements due to Lateral Transfer to a non-aeronautical officer designation.
W	Continuous AvIP (12 year Flight Gate Waiver) — An aeronautically designated officer who had previously failed to meet the requirements of code O whose Flight Gate Waiver has been approved, waiving the requirements of code O. Entitled to continuous AvIP to 18 years of aviation service when they will be subject to the requirements of code P or Q.
X	Continuous AvIP (18 year Low Flight Gate Waiver) — An aeronautically designated aviator who had previously failed to meet the requirements of code P whose Flight Gate Waiver has been approved, waiving the requirements of code P. Entitled to continuous AvIP to 22 years of aviation service.
Y	Continuous AvIP (18 year High Flight Gate Waiver) — An aeronautically designated aviator who had previously failed to meet the requirements of code Q whose Flight Gate Waiver has been approved, waiving the requirements of code Q. Entitled to continuous AvIP to 25 years of aviation service.
Z	Not in use.

11.5 WAIVERS OF MINIMUM FLYING REQUIREMENTS

11.5.1 Authority to Waive

COMNAVAIRFOR, CMC, COMNAVAIRFORES, COMNAVAIRSYSCOM, MARFORCOM, MARFORPAC, CG FOURTH MAW, COMNAVEDTRACOM, and CNATRA may waive any or all of the minimum annual requirements specified in this chapter when it is determined that the assignment of ADP to a particular billet makes it impractical to fulfill the annual requirements. This waiver authority does not include flight pay eligibility of any kind. Waiver authorities relating to flight pay are established by BUPERSINST 1326.4E, OPNAVINST 7220.18, and DoD 7000.14-R.

11.5.2 Action Required

1. Commanding officers and administrative seniors shall review flight records of assigned aeronautically designated officers at the end of each fiscal year. Personnel who are deficient in the minimum flight time requirements stated in this chapter shall submit individual waiver requests (Figure 11-6) containing the following information (Report Symbol OPNAV 3710-19):
 - a. Rank, Name, and DoD ID number.
 - b. Designator/MOS.
 - c. ASED.
 - d. Instrument, night, simulator, and total flight time for the fiscal year by quarter.
 - e. Type of orders issued (DIFOPS or DIFDEN) and dates to determine months DIFOPS/DIFDEN during the fiscal year.
 - f. Significant temporary additional duties that prevented the achieving of required flight time, if applicable.
 - g. PCS en route delays and date of arrival at final DIFOPS duty station, if applicable.
 - h. Name(s) of command(s) and associated unit identification code(s)/reporting unit code (UIC/RUC) and dates assigned during the fiscal year.

- i. Billet title(s) assigned and associated billet sequence code(s) and designator code(s) as listed on the activities allowance or appropriate Marine Corps during the fiscal year.
 - j. Cause for the flight time delinquency.
 - k. If medically grounded during reporting period, attach a signed copy of the DD Form 2808 or waiver. If no DD 2808 or waiver was generated, a memo from a medical officer verifying the medical downing period is required. If no medical conditions are involved, this line should be omitted.
2. Waiver Requests shall be marked “For Official Use Only” and forwarded to the appropriate command listed in [Paragraph 11.5.1](#). Commanding officers and administrative seniors may forward a consolidated list of those individuals (name/rank/designator) that are recommended/endorsed for flight time waivers. Waivers endorsed as “not approved” shall be forwarded to COMNAVAIRFOR or CMC for final disposition. If aircraft availability or scheduling problems prevented accomplishment of flight minimums, the reporting custodian shall provide an appropriate endorsement for the waiver request fully outlining those circumstances that were beyond the control of the individual.
 3. Waiver requests shall be submitted within 30 days following the end of the reporting period or when it becomes apparent that the minimums will not be met. Any delay in submission must be satisfactorily explained by the individual and addressed in the forwarding endorsement.

Note

Administration of the semiannual minimum flying hour program for naval personnel is the responsibility of the individual concerned and command assigned. A waiver of semiannual minimums is not required.

4. Flight status selection board actions that may be taken in response to waiver request from Navy personnel include:
 - a. Granting waiver.
 - b. Conversion of billet to DIFDEN status.
 - c. Issuing letter of caution.
 - d. Direct convening of a locally constituted Field Naval Aviation Evaluation Board to consider the flight time deficiency.
 - e. Direct in the case of captains and above, via BUPERS, a specified case may be referred to the Navy Department Naval Aviation Evaluation Board.
5. Marine Corps Commanding Officers will review the flight performance of all personnel assigned to their commands on a quarterly basis. Any personnel whose performance becomes suspect for any reason shall be processed in accordance with paragraph 1215 of MCO 1000.6 (ACTS Manual).

11.5.3 Assignment of Other Than Permanently Designated Aeronautical Personnel

Flight status for technical observers, medical personnel, and enlisted personnel assigned as crew or noncrewmembers will be terminated when their assigned duties do not require regular and frequent flights. Commanding officers and administrative seniors shall continually review the requirements for temporary flight orders for enlisted or duty involved flying as a technical observer (DIFTECH) for officer personnel. Personnel shall be ordered to flight duties or recommendations made to competent authority for issuance of flight orders to meet only the essential flight requirements of the command. Whenever the duties assigned to an individual no longer require regular and frequent participation in aerial flights, the commanding officer shall terminate temporary flight orders immediately; and, in the case of officer personnel, recommend to BUPERS or CMC, or other competent authority, cancellation of orders to DIFTECH. A requirement that formerly resulted in assignment to flight duties and that is no longer current shall not be a basis for continuing a member on temporary flight order or DIFTECH. The assignment to flight duties shall not constitute a reward for accomplishment in a nonflying billet.

Figure 11-6. Minimum Flight Time Requirements Waiver Request

	Date																									
From: RANK First M. Last, USN, 1310																										
To: Commander, Naval Air Force, Pacific (N455)																										
Via: (Chain of Command)																										
Subj: REQUEST FOR WAIVER OF FY XX MINIMUM FLIGHT HOUR REQUIREMENTS																										
Ref: (a) CNAF M-3710.7																										
1. Per reference (a), the following request for waiver of minimum flight, night, and instrument hours is submitted:																										
a. RANK First M. Last, USN, DoD ID number																										
b. Designator/MOS																										
c. ASED																										
d.	<table border="0" style="width: 100%;"> <tr> <th style="text-align: left;">TYPE</th> <th style="text-align: center;">Q1</th> <th style="text-align: center;">Q2</th> <th style="text-align: center;">Q3</th> <th style="text-align: center;">Q4</th> </tr> <tr> <td>Instrument</td> <td style="text-align: center;">0.0</td> <td style="text-align: center;">0.0</td> <td style="text-align: center;">0.0</td> <td style="text-align: center;">0.0</td> </tr> <tr> <td>Night</td> <td style="text-align: center;">0.0</td> <td style="text-align: center;">0.0</td> <td style="text-align: center;">0.0</td> <td style="text-align: center;">0.0</td> </tr> <tr> <td>Simulator</td> <td style="text-align: center;">0.0</td> <td style="text-align: center;">0.0</td> <td style="text-align: center;">0.0</td> <td style="text-align: center;">0.0</td> </tr> <tr> <td>Total Flight Time</td> <td style="text-align: center;">0.0</td> <td style="text-align: center;">0.0</td> <td style="text-align: center;">0.0</td> <td style="text-align: center;">0.0</td> </tr> </table>	TYPE	Q1	Q2	Q3	Q4	Instrument	0.0	0.0	0.0	0.0	Night	0.0	0.0	0.0	0.0	Simulator	0.0	0.0	0.0	0.0	Total Flight Time	0.0	0.0	0.0	0.0
TYPE	Q1	Q2	Q3	Q4																						
Instrument	0.0	0.0	0.0	0.0																						
Night	0.0	0.0	0.0	0.0																						
Simulator	0.0	0.0	0.0	0.0																						
Total Flight Time	0.0	0.0	0.0	0.0																						
e.	Type of orders issued (DIFOPS/DIFDEN) and dates during FY																									
f.	Significant temporary additional duties																									
g.	PCS en route delays																									
h.	Command name, UIC/RUC dates during FY																									
i.	Billet title(s)																									
j.	Cause of flight time delinquency																									
k.	Attach DD 2808 (SF 88) or medical endorsement, as required.																									
2. Questions concerning this request can be directed to RANK First Last, USN: Commercial (phone), e-mail: _____.																										
F. M. LAST																										

11.6 POLICY GOVERNING LOGGING, REPORTING, AND USE OF SIMULATOR TIME

Procedures have been established to inaugurate the formal logging and reporting of aircraft simulator time. Time acquired in approved devices shall be logged on the naval aircraft flight record in the same manner as aircraft flight time. Detailed instructions for logging and reporting simulator time are contained in [Chapter 10](#). Substitution of simulator time to satisfy the minimum proficiency requirements of this instruction is allowable for pilots, NFOs, and aircrew members. Additionally, an individual record of simulator time shall be maintained in the Aviators Flight Log Book.

11.6.1 Policy Governing Flying Time Substitution

The Navy has examined appropriately configured and instrumented flight simulators to determine the suitability of substituting time accumulated in such simulators for a portion of the total annual minimum flying time requirements. The concept is cost effective and enhances maintenance of procedural competency.

1. Pilots, NFOs, and aircrewmembers who have access to any of the authorized flight simulators as approved by (CNAF/CMC) shall utilize them, as practicable, in maintaining basic aeronautical skills.
2. Aircrew utilizing simulators to facilitate the maintenance of basic aeronautical skills may log simulator time (first pilot/copilot/special crew) to satisfy up to 50 percent of any annual or semiannual flying hour minimums as delineated in [Paragraph 11.2.5](#) (except night time requirements).

Note

- Simulator time is intended to assist in satisfying annual or semiannual flight time requirements. It should not be used toward the attainment of specific currency requirements as it is not a substitute for proficiency gained through actual flight in aircraft.
- The use of simulator time may be used to meet proficiency requirements only, as described above. Simulator time does not count as flight time for purposes of entitlement to flight pay. Refer to BUPERSINST 1326.4E, OPNAVINST 7220.18, DoD 7000.14-R, and DoD 7730.67 for policies governing entitlement to flight pay.

11.6.2 Policy Governing NATOPS Evaluation Flight Substitution

At the discretion of the squadron or unit commander, the NATOPS evaluation or any portion thereof may be conducted in a simulator that will satisfy the requirements imposed in specific evaluation areas.

11.7 INDIVIDUAL AND COMMAND RESPONSIBILITIES

11.7.1 Supervision

Commanding officers and administrative seniors shall supervise and administer flights under their command to ensure maximum training effectiveness per flight hour. Commands shall verify that BUPERS/CMC orders indicate DIFOPS, DIFCREW, DIFTECH, DIFTEM, or DIFDEN status and Medical Service Group of aeronautically designated personnel reporting for duty in a flying status.

11.7.2 Responsibilities

Each individual and respective responsible senior (i.e., commanding officer or administrative senior) is accountable for compliance with these instructions. Responsible seniors shall ensure that sufficient opportunities are afforded all aeronautically designated personnel under their command to comply with the annual minimum individual flying time requirements set forth herein.

11.8 REVOCATION OF ORDERS TO DUTY INVOLVING FLYING

Matters concerning the revocation of flight status for Marine Corps Aeronautically Designated Personnel (ADP) should reference MCO 1000.6 (ACTS Manual). In addition to the procedures outlined in [Paragraph 11.7](#), orders to

CNAF M-3710.7

duty in a flying status will be revoked by competent authority in the case of those aeronautically designated personnel who:

1. Voluntarily request duty not involving flying.
2. Fail to meet aviation physical or psychological qualifications.
3. Fail to meet aeronautical standards or for other valid reasons are recommended for nonflying duties by a Field Naval Aviator Evaluation Board (FNAEB), or in the case of the Marine Corps, a Flight Status Selection Board (FSSB).
4. Have passed statutory retirement.

CHAPTER 12

Classification and Qualification of Flight Personnel

12.1 SCOPE

This chapter prescribes flight personnel classifications and establishes minimum requirements for various qualifications. Requirements prescribed here shall be used as the minimum when preparing aircraft NATOPS manuals or other amplifying directives.

12.2 MULTIPILOTED FIXED-WING AIRCRAFT (PILOT)**12.2.1 Pilot Classification****12.2.1.1 Classification**

The following classifications are established for pilots of multipiloted fixed-wing aircraft requiring a qualified copilot to ensure accomplishment of the mission. The requirement for qualification as third pilot is optional. All requirements set forth herein for qualification as third and second pilot shall be met prior to designation as second pilot.

1. Aircraft commander.
2. Second pilot.
3. Third pilot.

12.2.1.2 Descriptive Titles

The foregoing classifications do not prohibit the use of descriptive titles that are indicative of a distinct aircraft class or employment (i.e., patrol plane commander, transport plane commander, COD transport plane commander, patrol plane second pilot, etc.). A descriptive title must be compatible with a significant feature of both the aircraft and its employment. For example, a pilot who qualifies for aircraft commander in a patrol class aircraft transporting passengers and cargo would qualify as a plane commander, not as a patrol plane commander or transport plane commander.

12.2.2 Specific Requirements for Qualification

The requirements listed below shall be met by pilots qualifying in multipiloted fixed-wing aircraft requiring a qualified copilot to ensure accomplishment of the mission. Commanding officers and qualifying authorities, or higher authority, shall prescribe proficiency standards, detailed factors, and specific minimums based on this chapter, the class and model aircraft, and unit mission. Within each classification, the weight and emphasis on the factors enumerated must be determined by the activity. The hours specified are the minimum required and they may be increased in individual manuals as aircraft increase in size and/or complexity. Waivers of minimums may be granted by the appropriate immediate superior in command commensurate with demonstrated ability and only when deemed necessary to accomplish events of the unit mission.

12.2.2.1 Third Pilot

To be qualified as a third pilot an individual shall:

CNAF M-3710.7

1. Have pilot time in class and model as required by the commanding officer or higher authority and demonstrate a satisfactory level of skill in the following:
 - a. Ground handling.
 - b. Flight technique in normal and emergency procedures.
2. Demonstrate thorough knowledge through oral and/or written examination in the following:
 - a. Model aircraft and all associated equipment (flight manual).
 - b. Fuel weight, aircraft configuration, and store/cargo loading as they affect takeoff, mission, and landing performances.
 - c. Appropriate NATOPS manual or certified/approved civilian manuals for aircraft authorized to operate without a NATOPS manual.
 - d. Survival and first-aid.
 - e. Applicable technical orders and notes, COMNAVAIRSYSCOM instructions and technical directives, OPNAV instructions, Federal Aviation Regulations, ICAO procedures, and ESCAT plans.
 - f. Search and rescue procedures.
 - g. Communication.
 - h. Unit mission and tactics.
 - i. Flight planning.
 - j. Local and area flight rules.
 - k. Flight safety.
3. Possess a current instrument rating.

12.2.2.2 Second Pilot

To be qualified as a second pilot an individual shall:

1. Complete the requirements for and possess to an advanced degree the knowledge, level of skill, and capabilities required of a third pilot.
2. Have pilot time in class and model as required by the commanding officer or higher authority and demonstrate a high level of skill in the following:
 - a. Tactical employment of the aircraft and all associated equipment in all tasks of the unit mission.
 - b. Operation instrument flying and night tactical operations in model.
3. Possess a current instrument rating.
4. Demonstrate ability to direct and train officers and enlisted personnel of the flight crew.
5. Demonstrate thorough knowledge through oral and/or written examination of the following:
 - a. Unit mission and tactics.
 - b. Fleet and type tactical instructions and doctrine.
 - c. Applicable portions of NWPs, fleet exercise publications (FXPs), JANAPs, Allied communication publications (ACPs), and ATPs.
 - d. Recognition applicable to unit mission.
6. Satisfactorily complete a NATOPS evaluation or similar evaluation for aircraft authorized to operate without a NATOPS manual in model.

12.2.2.3 Aircraft Commander

To be qualified as an aircraft commander, the NATOPS manual (or applicable model manager directive for aircraft authorized to operate without a NATOPS manual) must establish the designation for the particular model and an individual shall:

1. Complete the requirements for and possess to an advanced degree the knowledge, skill, and capabilities of a second pilot.
2. Have a minimum of 700 hours total individual pilot time. Pilots may be designated as an aircraft commander of Maritime Patrol or TACAMO aircraft with a minimum of 600 hours total individual pilot time and 150 hours of simulator time in a simulator approved in [Paragraph K.3](#).
3. Have a minimum of 100 hours pilot time in class and be NATOPS-qualified (either via NATOPS or a model manager approved qualification process for aircraft authorized to operate without a NATOPS manual) in model.
4. Possess a current instrument rating.
5. Demonstrate positive ability to command and train the officers and enlisted of the flightcrew including enforcement of proper air discipline.
6. Demonstrate the qualities of leadership and mature judgment required to conduct advanced base or detached unit operations as officer in charge.

12.2.3 General Requirements for Qualification

12.2.3.1 Initial Qualification

On initial qualification for command, a pilot will normally be required to progress through third and second pilot classifications before being allowed to qualify for aircraft commander.

12.2.3.2 Requalification

1. After having gained initial qualification, requalification in model or qualification in another model of the same class will not require progression through lower classifications. Such requalification or qualification shall consist of an appropriate checkout, including a minimum flight-familiarization phase as established by the commanding officer or higher authority, and demonstration of the knowledge, proficiency, and capabilities commensurate with desired classification.
2. After having gained initial qualification in a type and class of aircraft, on subsequent qualification in another type or class, progression through any of the lower classifications may be required by the qualifying authority if such a course is considered necessary to ensure proper qualification. The same procedure may be required of pilots who report to a command, unit, or activity whose mission includes tasks or employment that demand operational and tactical knowledge or proficiency differing appreciably from that gained on initial qualification.

12.2.3.3 Time Limits

Under normal conditions, a pilot serving in a billet that requires eventual qualification as aircraft commander will gain initial qualification within 24 months after being cleared to fly in the command. Requalification after lapse of qualification should be attained within 6 months. Aviation type commanders, using these limits as a guide, shall establish specific maximum time limits for qualification and requalification based on the class aircraft and unit employment. Amplifying instructions shall prescribe procedures for the disposition of pilots who fail to qualify within the specified time limit.

12.3 MULTIPLOTTED ROTARY-WING AIRCRAFT (PILOT)

12.3.1 Pilot Classification

The following classifications are established for pilots of multipiloted rotary-wing aircraft that may or may not require a qualified copilot to ensure accomplishment of the mission.

1. Helicopter aircraft commander.
2. Helicopter second pilot.

12.3.2 Specific Requirements for Qualification

Requirements listed below are to be met by pilots qualifying in multipiloted rotary-wing aircraft. Commanding officers and qualifying authorities, or higher authority, shall prescribe proficiency standards, detailed factors, and specific minimums based on this chapter, class and model aircraft, and the unit mission. Within each classification, the weight and emphasis on the factors enumerated must be determined by the activity. Waivers of minimums may be granted by the appropriate immediate superior in command commensurate with demonstrated ability and only when deemed necessary to accomplishment of the unit mission.

12.3.2.1 Helicopter Second Pilot

In addition to being a designated helicopter pilot, a helicopter second pilot shall:

1. Have pilot hours in class and model as required by the commanding officer or higher authority and demonstrate satisfactory proficiency in the following:
 - a. Ground handling.
 - b. Flight technique in normal and emergency procedures for flight including autorotation and the use of flotation gear, if applicable.
 - c. Navigation (all types applicable to unit mission and model aircraft).
 - d. Tactical employment of the aircraft and associated equipment in all tasks of the unit mission.
 - e. Night tactical operations and operational instrument flying within the capability of the model.
2. Possess a current instrument rating.
3. Demonstrate knowledge through oral and/or written examination on the following:
 - a. Model aircraft and all associated equipment.
 - b. Operational performance in all flight maneuvers.
 - c. Weight and balance.
 - d. Appropriate NATOPS manual.
 - e. Survival and first-aid.
 - f. Applicable technical orders and notes, OPNAV instructions, FAR, ICAO procedures, ESCAT plans, and NAVAIRSYSCOM instructions and technical directives.
 - g. Search and rescue procedures.
 - h. Communication.
 - i. Unit mission and tactics.
 - j. Navigation.
 - k. Flight planning.
 - l. Local and area flight rules.

- m. Fleet and type tactical instructions and doctrine.
 - n. Applicable portions of NWP, FXP, JANAP, ACP, and ATP.
 - o. Recognition applicable to unit missions.
4. Satisfactorily complete a NATOPS evaluation in model.

12.3.2.2 Helicopter Aircraft Commander

To be qualified as a helicopter aircraft commander, the NATOPS manual shall establish the designation for the particular model, and an individual shall:

1. Have completed the requirements for and possess to an advanced degree the knowledge, proficiency, and capabilities of a second pilot.
2. Have a minimum of 500 total flight hours.
 - a. Simulator hours flown as part of a formal helicopter syllabus may be credited for up to 10 percent.
3. Have 150 flight hours in rotary-wing aircraft.
4. Have pilot hours in class and model required by the commanding officer or higher authority and demonstrate the proficiency and judgment required to ensure the successful accomplishment of all tasks of the unit mission.
5. Demonstrate ability to command and train the officers and enlisted members of the flightcrew.
6. Demonstrate the qualities of leadership required to conduct advanced base or detached unit operations as officer in charge when such duty is required as part of the unit's mission or method of operation.

12.3.3 General Requirements for Qualification

12.3.3.1 Initial Qualification

On initial qualification for command of multipiloted rotary-wing aircraft, a pilot will normally be required to progress through the second pilot category before being allowed to qualify for aircraft commander.

12.3.3.2 Requalification

1. After having gained initial qualification, requalification in model or qualification in another model of the same class will not require progression through lower classifications. Such requalification or qualification shall consist of an appropriate checkout including a minimum flight familiarization phase as established by the commanding officer or higher authority and demonstration of the knowledge, proficiency, and capabilities commensurate with desired classification.
2. After having gained initial qualification in a type and class aircraft, on subsequent qualification in another type or class, progression through any of the lower classifications may be required by the qualifying authority if such a course is considered necessary to ensure proper qualification. The same procedure may be required of pilots who report to a command, unit, or activity whose mission includes tasks or employment that demand operational and tactical knowledge or proficiency differing appreciably from that gained on initial qualification.
3. Waivers of minimums may be granted by the appropriate immediate superior in command commensurate with demonstrated ability and only when deemed necessary for the accomplishment of the unit mission.

12.3.3.3 Time Limits

Under normal conditions, a pilot serving in a billet that requires eventual qualification as aircraft commander will gain initial qualification as such within 24 months after being cleared to fly in the command. Requalification after lapse of qualification should be attained within 6 months. Aviation type commanders, using these limits as a guide, shall establish specific maximum time limits for qualification and requalification based on the class aircraft and the

CNAF M-3710.7

unit employment. Amplifying instructions shall prescribe procedures for the disposition of pilots who fail to qualify within the specified time limit.

12.4 MULTIPLOTTED TILTROTOR AIRCRAFT (PILOT)

12.4.1 Pilot Classification

The following classifications are established for pilots of multipiloted tiltrotor aircraft that may or may not require a qualified copilot to ensure accomplishment of the mission:

1. Tiltrotor aircraft commander.
2. Tiltrotor second pilot.

12.4.2 Specific Requirements for Qualifications

Requirements listed below are to be met by pilots qualifying in multipiloted tiltrotor aircraft. Commanding officers and qualifying authorities, or higher authority, shall prescribe proficiency standards, detailed factors, and specific minimums based on this chapter, class and model aircraft, and the unit mission. Within each classification, the weight and emphasis on the factors enumerated must be determined by the activity. Waivers of minimums may be granted by the appropriate immediate superior in command commensurate with demonstrated ability and only when deemed necessary to accomplishment of the unit mission.

12.4.2.1 Tiltrotor Second Pilot

A tiltrotor second pilot shall:

1. Have completed a formal fixed-wing syllabus administered by CNATRA or other established training activity.
 - a. Have a minimum of 200 total flight hours.
 - b. Have a minimum of 30 flight hours in helicopters.
 - c. Have a minimum of 30 flight hours in fixed-wing aircraft.
2. Have pilot hours in class and model as required by the commanding officer or higher authority and demonstrate satisfactory proficiency in the following:
 - a. Ground handling.
 - b. Flight technique in normal and emergency procedures for flight including dual engine failures and the use of flotation gear, if applicable.
 - c. Navigation (all types applicable to unit mission and model aircraft).
 - d. Tactical employment of the aircraft and associated equipment in all tasks of the unit mission.
 - e. Night tactical operations and operational instrument flying within the capability of the model.
3. Possess a current instrument rating.
4. Demonstrate knowledge through oral and/or written examination on the following:
 - a. Model aircraft and all associated equipment.
 - b. Operational performance in all flight maneuvers.
 - c. Weight and balance.
 - d. Appropriate NATOPS manual.
 - e. Survival and first-aid.

- f. Applicable technical orders and notes, OPNAV instructions, FAR, ICAO procedures, ESCAT plans, and NAVAIRSYSCOM instructions and technical directives.
 - g. Search and rescue procedures.
 - h. Communication.
 - i. Unit mission and tactics.
 - j. Navigation.
 - k. Flight planning.
 - l. Local and area flight rules.
 - m. Fleet and type tactical instructions and doctrine.
 - n. Applicable portion of NWP, FXP, JANAP, ACP, and ATP.
 - o. Recognition applicable to unit missions.
5. Satisfactorily complete a NATOPS evaluation in model.

12.4.2.2 Tiltrotor Aircraft Commander

To be qualified as a tiltrotor aircraft commander, the NATOPS manual shall establish the designation for the particular model, and an individual shall:

1. Have completed the requirements for and possess to an advanced degree the knowledge, proficiency, and capabilities of a second pilot.
2. Have a minimum of 500 total flight hours.
 - a. Simulator Hours flown as part of a formal tiltrotor syllabus may be credited for up to 10 percent.
3. Have 100 flight hours in tiltrotor aircraft.
4. Have pilot hours in class and model required by the commanding officer or higher authority and demonstrate the proficiency and judgment required to ensure the successful accomplishment of all tasks of the unit mission.
5. Demonstrate ability to command and train the officers and enlisted members of the flightcrew.
6. Demonstrate the qualities of leadership required to conduct advanced base or detached unit operations as officer in charge when such duty is required as part of the unit's mission or method of operation.

12.4.3 Initial Qualification

On initial qualification for command of multipiloted tiltrotor aircraft, a pilot will normally be required to progress through the second pilot category before being allowed to qualify for aircraft commander.

12.4.4 Requalification

1. After having gained initial qualification, requalification in model or qualification in another model of the same class will not require progression through lower classifications. Such requalification or qualification shall consist of an appropriate checkout including a minimum flight familiarization phase as established by the commanding officer or higher authority and demonstration of the knowledge, proficiency, and capabilities commensurate with the desired classification.
2. After having gained initial qualification in a type and class aircraft, on subsequent qualification in another type or class, progression through any of the lower classifications may be required by the qualifying authority if such a course is considered necessary to ensure proper qualification. The same procedure may be required of pilots who report to a command, unit, or activity whose mission includes tasks or

CNAF M-3710.7

employment that demand operational and tactical knowledge or proficiency differing appreciably from that gained on initial qualification.

3. Waivers of minimums may be granted by the appropriate immediate superior in command commensurate with demonstrated ability and only when deemed necessary for the accomplishment of the unit mission.

12.4.5 Time Limits

Under normal conditions, a pilot serving in a billet which requires eventual qualification as aircraft commander will gain initial qualification as such within 24 months after being cleared to fly in the command. Requalification after lapse of qualification should be attained within 6 months. Aviation type commanders, using these limits as a guide, shall establish specific maximum time limits for qualification and requalification based on the class aircraft and the unit employment. Amplifying instructions shall prescribe procedures for the disposition of pilots who fail to qualify within the specified time limit.

12.5 NAVAL FLIGHT OFFICERS

12.5.1 Naval Flight Officer Classification

12.5.1.1 Classification

The following classifications are established for NFO crewmembers of aircraft requiring a qualified NFO crewmember to ensure accomplishment of the mission.

1. Tactical coordinator (VP, VS).
2. Navigator (VR, VQ).
3. Weapon Systems Officer (VFA, VMFA).
4. Air Battle Manager (VAW).
5. Electronic warfare evaluation officer (VQ).
6. Electronic countermeasures officer (VAQ).
7. Airborne communication officer (VQ).

12.5.1.2 Intermediate Classification

The foregoing classifications do not prohibit the use of intermediate classifications that are indicative of a distinctive aircraft class or employment. Such classifications must serve to indicate progress and achievement levels prior to final qualifications (i.e., patrol plane navigator and patrol plane tactical navigator indicate progress toward designation as USW tactical coordinator for patrol class aircraft).

12.5.2 Specific Requirements for Qualification

The requirements listed below shall be met by NFOs qualifying in aircraft requiring a qualified NFO crewmember to ensure accomplishment of the mission. Commanding officers and qualifying authorities, or higher authority, shall prescribe proficiency standards, detailed factors, and specific minimums based on this chapter, the class and model aircraft, and the unit mission. Within each classification, the weight and emphasis on the factors enumerated must be determined by the activity. Waivers of minimums may be granted by the appropriate immediate superior in command commensurate with demonstrated ability and only when deemed necessary to accomplishment of the unit mission. To be qualified as an NFO crewmember for a specific class and model of aircraft, an individual shall:

1. Have flight hours in class and model as required by the commanding officer or higher authority and demonstrate a satisfactory level of skill in the following:
 - a. Tactical employment of the aircraft and all associated equipment in all tasks of the unit mission.
 - b. Flight technique during normal and emergency procedures.

- c. Navigation (all types applicable to unit mission and aircraft model).
- 2. Demonstrate thorough knowledge through oral and written examination on the following:
 - a. Model aircraft and all associated equipment (flight manual).
 - b. Unit mission and tactics.
 - c. Fleet and type tactical instructions and doctrine.
 - d. Applicable portions of NWP, FXP, JANAP, ACP, and ATP.
 - e. Recognition applicable to unit mission.
 - f. Communication.
 - g. Navigation.
 - h. Flight planning.
 - i. Local and area flying rule.
 - j. Flight safety.
 - k. Search and rescue procedures.
 - l. Survival and first-aid.
 - m. Fuel weight, aircraft configuration, and store/cargo as they effect takeoff, mission, and landing performance.
 - n. Applicable technical orders and notes, COMNAVAIRSYSCOM instructions and technical directives, OPNAV instructions, Federal Aviation Regulations, ICAO procedures, and ESCAT plans.
 - o. Appropriate NATOPS manual.
- 3. Satisfactorily complete a NATOPS evaluation in model.

12.5.3 General Requirements for Qualification

12.5.3.1 Initial Qualification

On initial qualification, an NFO will normally be required to progress through any prescribed intermediate classification levels before being qualified in class and model.

12.5.3.2 Requalification

- 1. After having gained initial qualification, requalification in model or qualification in another model of the same class will not require progression through intermediate classification levels. Such requalification or qualification shall consist of an appropriate checkout, including a minimum flight-familiarization phase as established by the commanding officer or higher authority, and demonstration of possession of the knowledge, proficiency, and capabilities commensurate with the classification.
- 2. After having gained initial qualification in a type and class of aircraft, on subsequent qualification in another type or class, progression through any intermediate classification may be required of NFOs who report to a command, unit, or activity whose mission includes tasks or employment that demand operational and tactical knowledge or proficiency differing appreciably from that gained on initial qualification.

12.5.3.3 Time Limits

Under normal conditions, an NFO serving in a billet that requires eventual qualification as an NFO crewmember will gain initial qualification as such within 24 months after being cleared to fly in the command. Requalification after lapse of qualification should be attained within 6 months. Aviation type commanders, using these limits as a guide, shall establish specific maximum time limits for qualification and requalification based on the class of aircraft

CNAF M-3710.7

and the unit employment. Amplifying instructions shall prescribe procedures for the disposition of NFOs who fail to qualify within the specified time limit.

12.6 QUALIFICATIONS OF UAS FLIGHTCREW

Training and qualification requirements for UAS shall be formally established by instruction to include medical qualifications and formal syllabus requirements for each operator position.

12.7 TRAINING OF ENLISTED FLIGHT PERSONNEL

12.7.1 General

This section amplifies the requirements for training enlisted personnel in a flight status contained in MILPERSMAN, articles 1220-010 and 1220-020, and in BUPERSINST 1326.4E and DoD 7000.14-R.

12.7.2 Flight Records

Commanding officers of units having allocations of enlisted flight orders shall ensure that all enlisted flightcrew are documented in accordance with [Chapter 10](#) of this instruction. MIFAR will be used as the individuals flying time record.

12.7.3 Auditing of Enlisted Flight Record

A Flight Order Audit Board shall be appointed by the commanding officer and consists of at least three officers. One shall be from the supply department (when as signed) and one from the operations department. The board shall audit enlisted flight records to ensure that all requirements for HDIP have been met in accordance with Chapter 22 of DoD 7000.14-R. The audit should be performed immediately following the end of each month in accordance with BUPERSINST 1326.4 (Navy) or MCO 1326.2 (USMC) and prior to the submission of flight certificates. All entries and documents pertaining to flight order administration shall be included.

12.7.4 Allocation of Temporary Flight Orders

Commanding officers shall submit their requirements for noncrewmember special mission flight orders as required by higher authority. When flight orders and monetary limitations are received, they allocate them within their command. Temporary flight orders (DIFTEM) shall only be allocated to individuals by BUPERS or NAVRESPERSCEN. Temporary flight orders as well as noncrewmember special mission aircrew orders shall be issued only to those personnel who have been found physically qualified in accordance with MANMED and have satisfied the requirements of applicable paragraphs of [Chapter 8](#) of this instruction.

12.8 CLASSIFICATION AND QUALIFICATION OF NAVAL AIRCREWMAN

12.8.1 Naval Aircrewman Classification

Classifications of naval aircrewmen are established in the Navy Enlisted Classification Code Manual (NAVPERS 18068), the Military Occupation Specialty Manual (MOS), aircraft NATOPS manuals, and other applicable naval directives.

12.8.2 General Requirements for Positional Qualification as a Naval Aircrewman

All naval aircrew shall meet the following requirements for qualification and requalification.

1. Comply with requirements of [Chapter 8](#).
2. Complete Type Wing Commander positional requirements. Mass Communication Specialists will complete positional requirements as a Aircrew Aerial Cameraman, NAVEDTRA 43242-2.
3. Complete a NATOPS evaluation in the crew position in accordance with the applicable NATOPS manual. Mass Communications Specialists qualified as Aircrew Aerial Cameramen are exempt from this requirement.

4. In lieu of [subparagraph 3](#), complete a prescribed operating/standardization evaluation in accordance with applicable model manager directives for aircraft authorized to operate without NATOPS manual.

12.8.3 Proficiency

A naval aircrew designation is valid only in the aircraft model (refer to Glossary) (P-3, H-46, SH-60, etc.) in which the qualification was achieved. Proficiency in all requirements for initial qualification must be maintained and demonstrated periodically. Regular performance of aircrew duties sufficient to satisfy the requirements for crewmember flight orders is the minimum proficiency standard to retain qualification.

12.8.4 Maximum Time Limit for Positional Qualification as Naval Aircrewman

1. Personnel under DIFCREW orders shall be allowed a maximum of 18 months from the date of reporting onboard for duty at a permanent duty station to achieve positional qualification. DIFCREW orders for personnel who fail to positionally qualify within the 18-month period shall be suspended in accordance with BUPERSINST 1326.4.
2. Personnel under DIFTEM flight orders shall be allowed a maximum of 18 months from the date of authorization. Personnel shall be in training for a valid billet, and requests for DNEC and DIFCREW status shall be submitted no later than 8 months prior to DIFCREW vacancy occurring. DIFTEM flight orders shall be suspended for DIFTEM personnel who fail to qualify within 18 months.

12.8.5 Time of Requalification for Naval Aircrewman

Requalification should be accomplished within the below time limit of reporting to a unit that has the same type of aircraft as that within which the aircrew designation was attained. Annual NATOPS evaluations are separate qualifications. For guidance on time limits for expired annual NATOPS evaluations, see [Chapter 2](#), "NATOPS Evaluation Procedures" [Paragraph 2.7](#).

1. Lapse of 2 years or less — 6 months.
2. Lapse of more than 2 years — 12 months.
3. Selected Air Reserves — 12 months.

12.8.6 Qualification Waivers for Naval Aircrewmen

Immediate seniors (wing, functional wing commanders) may waive initial and requalification time limits for aircrew personnel who fail to qualify within prescribed time limits. Justification for such waivers includes lack of appropriate security clearances, duty assignments, or periods of TAD. Appropriate documentation shall be made in the service record, NATOPS training jacket, and to BUPERS.

12.9 QUALIFYING AUTHORITIES

12.9.1 Aeronautical Organizations

Commanding officers or higher authority in the chain of command are empowered to qualify flight personnel in the classifications established here and to issue the certification thereof. The immediate superior in command to the commanding officer or higher authority may assume the function of approving the qualifications of aircraft commanders and issue the certifications of qualification. In such cases, amplifying instructions shall be specific in regard to the authority vested in the commanding officer.

12.9.2 Non-aeronautical Organizations

The senior aviation line officer attached to activities that are not a part of the aeronautical organization (naval missions, etc.) is empowered to qualify flight personnel in the appropriate classifications and to issue certification. Such activities may request checkout and examination assistance from the nearest naval aviation command with the required personnel and facilities. Non-aeronautical organizations without a billeted aviation line officer may qualify and designate non-career crewmembers (i.e. MC qualifying as Aircrew Aerial Cameraman, NAVEDTRA 43242-2).

12.9.3 Fleet Replacement Squadrons

Commanding officers of fleet replacement squadrons (FRS) or higher authority may, with respect to replacement flight personnel, determine initial qualification as flight personnel based on satisfactory completion of applicable NATOPS requirements.

12.9.4 Guidance for Qualifying Authorities

12.9.4.1 Qualification Opportunity

1. Flight personnel should be afforded ample opportunity to complete the necessary training to permit qualification without delay after minimum experience requisites are met.
2. Pilots shall be advanced commensurate with their experience and demonstrated ability.
3. Pilots should be ensured the opportunity to qualify for aircraft command during their first tour of duty.

12.9.4.2 Previous Experience

1. Flight experience acquired in previous commands in varied aircraft is important to overall qualification and due weight shall be given such experience in qualifying and requalifying flight personnel in accordance with this instruction. It is not the intention of this chapter to requalify pilots currently designated.
2. A pilot qualification shall remain effective as long as the pilot remains current in class and model and regularly performs missions required of the command unit or activity unless specifically revoked by the qualifying authority or appropriate superior. Commanding officers shall always retain the right to suspend a pilot's qualification for a serious breach of flight rules, demonstrated lack of ability, or serious errors of judgment. For guidance in respect to revocation or lengthy suspension of qualifications, attention is directed to MILPERSMAN, article 3410300, and MCO 1000.6 (ACTS Manual), paragraphs 2005 and 3005.

12.9.4.3 Additional Requirements

Nothing in this instruction is intended to curtail establishment of any additional or special requirements that may be considered necessary for the qualification of a pilot in the classifications previously listed. The provisions of this instruction are not to be interpreted as contrary to proficiency standards that have been or may be established by appropriate authority.

12.10 QUALIFICATION TO TRANSITION INTO JET, HELICOPTER, OR TILTROTOR AIRCRAFT

Requirements to transition into jet, helicopter, or tiltrotor aircraft (initial qualification) will normally be accomplished through a formal syllabus administered by CNATRA or other established training activity. Circumstances may occur where it is desirable or necessary that such transition training be administered by other commands. Commands capable of performing such transition training with no degradation of training quality or safety may do so providing they meet the requirements stated in [Paragraph 12.10.1](#).

12.10.1 Minimum Training Syllabus Requirements

Where the NATOPS manual does not specify a transition syllabus, the following minimum syllabus requirements for transition to jet, helicopter, and/or tiltrotor aircraft shall apply.

12.10.1.1 All Pilots

All pilots shall:

1. Successfully complete the approved OFT/WST and naval air maintenance trainer (NAMT) syllabus(es) or equivalent.
2. Satisfactorily complete a NATOPS evaluation in model.

12.10.1.2 Helicopter Transition Pilots

All helicopter transition pilots shall complete:

1. The prescribed CNATRA written examination on helicopter aerodynamics.
2. A minimum of 25 flight hours of dual instruction under the tutelage of a designated instructor.
3. A minimum of 5 additional flight hours of training that shall be solo when conducted in a helicopter model in which single-piloted flight is authorized.

12.10.1.3 Jet Transition Pilots

All jet transition pilots shall complete:

1. A minimum of 10 flight hours of dual instruction under the tutelage of a designated instructor.
2. A minimum of 5 additional flight hours of solo syllabus training.

12.10.1.4 All Fixed-Wing Multiengine Transition Pilots

All fixed-wing multiengine pilots shall complete:

1. A minimum of 10 flight hours of dual instruction with a designated instructor.
2. A minimum of 5 additional flight hours of syllabus training.

12.10.1.5 Tiltrotor Transition Pilots

All tiltrotor transition pilots shall complete:

1. The helicopter and tiltrotor aerodynamics and mechanical systems written examinations provided by an established training activity.
2. A minimum of 25 flight hours of dual instruction under the tutelage of a designated instructor.
3. A minimum of 5 additional flight hours of syllabus training.

12.10.2 Action

Commanding officers or their seniors in the chain of command desiring to initiate jet/helicopter/tiltrotor transition training shall comply with the following:

1. Prior to initiating training, submit the training syllabus to COMNAVAIRFOR (N455) for approval.

Note

Commands may implement the prescribed syllabus in the aircraft NATOPS manual or T&R manual without further approval of COMNAVAIRFOR.

2. Screen applicants to ensure that transition training is in the best interests of the naval establishment.
3. Administer ground and flight training, as necessary, in accordance with the approved syllabus.
4. Enter qualifications achieved in the flight personnel training/qualifications jacket.

12.10.3 Chief of Naval Air Training Responsibility

CNATRA shall:

1. Continue to provide transition training in accordance with approved quotas and syllabuses.
2. Provide a standard helicopter aerodynamics syllabus for use of requesting commands.

12.11 REPORTS

12.11.1 Navy Flight Personnel

Navy flight personnel who have qualified in one of the classifications shall have a certification signed by the qualifying authority placed in their officer service record (NavPers 3021) or enlisted service record (NavPers 601), as appropriate. Certifications shall indicate the class and model aircraft in which qualified, together with a concise statement of the type of operations in which qualified (i.e., mining, transport, utility, etc.). The reporting senior shall enter in the duties section of the report on the fitness of officers a statement indicating such qualification in the next regular report of fitness. A copy of the certification to command multipiloted aircraft shall be forwarded by the qualifying authority to CHNAVPERS each time a pilot qualifies for command in a separate class aircraft. No other distribution of copies of flight certification is required.

12.11.2 Marine Corps Flight Personnel

Marine Corps flight personnel who have qualified in one of the classifications shall have a certification signed by the qualifying authority placed in their NATOPS flight personnel training/qualification jacket (OPNAV 3760/32 (4-81)) and their officers qualification record (NAVMC 123A (Rev 9-95) (USMC Service Record Book Cover)) or enlisted service record book (NAVMC 118A (Rev 12-96) (USMC Service Record Book Cover)), as appropriate.

12.11.3 Revocation of Qualifications

When a commanding officer revokes a qualification for substandard performance, an entry to that effect shall be made in the individual's NATOPS jacket in accordance with [Appendix A, Paragraph A.2.2.1](#). This allows subsequent commands to have an accurate account of this individual's qualifications.

CHAPTER 13

Instrument Ratings and Qualifications

13.1 INSTRUMENT RATINGS AND QUALIFICATIONS

13.1.1 Pilots/Naval Flight Officers Required To Maintain Instrument Ratings/Qualifications

13.1.1.1 Requirement

All pilots in DIFOPS flying status except DIFOPS Code 2 aviators are required to maintain a valid instrument rating. NFOs in a DIFOPS status may not be required to maintain a valid instrument qualification at the discretion of their type wing/wing commander. Commanding officers shall use every means available to assist pilots/NFOs in meeting these requirements.

13.1.1.2 Period of Grace

1. Pilots/NFOs returning from DIFDEN status or duties where a valid instrument rating/qualification could not be maintained and who had requirements waived by COMNAVAIRFOR or CMC shall be granted a period of 6 months or completion of the FRS in which to requalify.
2. Newly assigned Navy/Marine Corps Reserve pilots/NFOs in a DIFOPS status shall be granted a period of 6 months from date of first reporting to requalify.

13.1.2 Renewal/Expiration of Instrument Ratings and Qualifications

13.1.2.1 Renewal/Expiration

Renewal instrument evaluations may be accomplished within 60 days preceding expiration of a current rating/qualification and will be valid for 12 months from the last day of the month in which the current rating/qualification expires. Otherwise, ratings/qualifications will be valid for 12 months from the last day of the month in which the evaluation is completed. Instrument rating/qualification expiration may be delayed until aircrew achieve a NATOPS qualification in model aircraft during a formal course of flight instruction which includes an instrument syllabus.

13.1.2.2 Instrument Ground Training, Examination, and Flight Evaluation

CNATRA, as CNAF deputy for training, shall review and standardize all formal instrument ground training courses and examinations. Commands with instrument ground training shall submit course materials and examinations to CNATRA every three years for periodic review. CNATRA shall ensure applicable courses satisfy the below requirements and will aid in development of any new instrument ground training courses and examinations. Unless extended in accordance with this instruction all naval aviators (and naval flight officers, if required in accordance with [Paragraph 13.1.1.1](#)) in DIFOPS status shall annually:

1. Attend a formal CNATRA-approved instrument ground school syllabus if available. In addition to the subject areas listed in [Paragraph 13.1.2.2, subparagraph 2](#) (items [a](#) through [d](#)), this syllabus shall include:
 - a. GPS Fundamentals to include RNAV (GPS) and (RNP) requirements.
 - b. RVSM procedures, requirements, and denial reports.
 - c. Use of non-DoD instrument approach/departure procedures.
 - d. Use of non-DoD GPS NOTAM systems (Jeppesen GPS NOTAMs and Databases).
2. Satisfactorily complete a written examination covering the following subject areas:

CNAF M-3710.7

- a. Federal Aviation Regulations as they apply to flight under instrument flight rules.
- b. Navigational systems and procedures, instrument approach procedures, and radio communication procedures.
- c. Meteorology, including the characteristics of air masses, fronts, thunderstorms, microbursts, and windshear; meteorological reports, elements of the DD-175-1, and pilot's responsibility for obtaining a thorough weather brief; and aviation severe weather hazards, to include pilot's responsibility to determine that the route of flight remains clear of aviation severe weather watch areas.
- d. Instrument procedures contained in pertinent military directives.

Note

The written instrument examination shall be administered incident to the formal instrument ground training syllabus. When such a syllabus is not available, the command to which the pilot/NFO is assigned for flight shall be responsible for ensuring completion of an approved instrument examination prior to flight evaluation.

3. Additionally, naval aviators delineated in [Paragraph 13.1.1.1](#) shall satisfactorily complete an instrument evaluation flight conducted by a designated military aviator, NFO (if authorized by individual aircraft NATOPS manual), or CSI in an aircraft or approved simulator. The conduct, content, and grading criteria of the flight shall be in accordance with the NATOPS Instrument Flight Manual.

Note

- The written examination must be completed with a grade of Qualified within 60 days prior to commencing the evaluation flight. The instrument evaluation flight may be combined with an aircraft NATOPS evaluation flight if all written examination requirements are satisfied prior to the flight.
- NFOs may at the discretion of their type wing/wing commander be required to complete an instrument flight evaluation. If an instrument flight evaluation is deemed necessary, it may be accomplished in conjunction with the NFO aircraft NATOPS evaluation flight. The written examination must be completed with a grade of Qualified prior to commencing the flight evaluation.

13.1.2.3 Extensions

The expiration date for instrument ratings/qualifications may be extended under the following conditions.

1. Commanding officers may extend the expiration date of instrument ratings that would otherwise expire during the period of a long deployment or within 90 days of return. The expiration date for the extension shall not be later than 90 days after return from deployment.
2. After thorough review, issuing authority may grant written extension not to exceed 6 months for original issue or renewal of instrument ratings/qualifications in those cases that so merit because of circumstances beyond the control of the individual. Such circumstances will normally be limited to hospitalization, temporary removal from flying status by competent authority, or assignment to a billet where certain flight requirements have been waived by COMNAVAIRFOR or CMC. An appropriate flight log book entry shall also be made, listing the new expiration date. Following expiration of a 6 month extension a local refresher syllabus is required to be completed.

In both cases, extension letters shall be filed permanently with OPNAV 3710/2 (NATOPS Instrument Rating Request) for which the extension is granted in section III, part E (instrument rating) of the NATOPS flight personnel training/qualification jacket. See [Paragraph A.2.3](#).

13.1.2.4 Issuing Authority

The commanding officer or reporting senior, as appropriate, is the issuing authority for instrument ratings/qualifications to naval aviators and NFOs.

13.1.3 Composition and Functions of Instrument Flight Boards

Each station, squadron, wing, ship, detachment or equivalent, or higher authority as appropriate, shall establish an instrument flight board composed of designated military aviators, NFOs, and designated civilian instrument evaluators, as applicable. Commanding officers of squadrons whose pilots are required to complete a formal instrument course at designated instrument training squadrons need not comply with this requirement. It shall be the function of those boards to conduct instrument evaluations of Naval Aviator/NFOs in accordance with the provisions of this instruction. It is desired, insofar as possible, that members of instrument flight boards hold a special instrument rating. Where it is not feasible for an activity to establish an instrument flight board, arrangements shall be made with neighboring boards to conduct instrument evaluations. Naval Aviators/NFOs on duty at isolated areas or at joint activities should normally obtain their evaluations from naval instrument flight boards. If this is not feasible, they may be evaluated by a rated military aviator holding a valid instrument rating.

13.2 REQUIREMENT FOR INSTRUMENT RATINGS

13.2.1 Standard Rating

Minimum requirements for a standard instrument rating are as follows:

1. Fifty hours of instrument pilot time under actual or simulated instrument conditions.
2. Successfully complete a NATOPS instrument evaluation in accordance with the NATOPS Instrument Flight Manual.
3. Within the 6 months preceding the date of the instrument evaluation flight obtain: (i.e., if the checkride occurs on 24 January 01, count all instrument hours and approaches after 24 July 00).
 - a. Six hours as pilot under actual or simulated instrument conditions.
 - b. Twelve final approaches under actual or simulated instrument conditions, six of which shall be precision approaches and six of which shall be nonprecision.
4. Within the 12 months preceding the date of the instrument evaluation flight obtain: (i.e., checkride occurs on 24 January 01, count all instrument hours and approaches after 24 January 00).

Note

Instrument hours and approaches may be obtained on the day of the instrument evaluation but must be accrued on a separate sortie prior to the evaluation.

- a. Twelve hours as pilot under actual or simulated instrument conditions.
 - b. A total of 18 final approaches under actual or simulated instrument conditions, 12 of which shall be precision and six of which shall be nonprecision.
5. Instrument hours and approaches conducted as part of a previous instrument evaluation flight may be applied to minimums if the checkride occurred within the period specified in [Paragraph 13.2.1 subparagraph 4](#).
6. Approved flight simulators listed in [Appendix K](#) may be utilized to meet one-half of the minimum instrument rating requirements.
7. CNATRA is authorized to issue an initial standard instrument pilot rating following successful completion of the naval air training command instrument training syllabus.
8. Renewal of an expired instrument rating for pilots returning to flying duty under provisions of [Paragraph 13.1.1.2](#) shall meet the requirements of [Paragraph 13.2.1 subparagraphs 2. and 3.](#)

CNAF M-3710.7

9. Renewal of an expired instrument rating for pilots returning from sustained combat operations ashore where facilities or threat did not allow for the required 12 months of instrument minimums shall only have to meet the requirements of [Paragraphs 13.2.1 subparagraphs 2. and 3.](#)

13.2.2 Special Rating

Minimum requirements for special instrument ratings include all of the requirements for a standard instrument rating plus the following:

1. Five years of military and nonmilitary flying experience.
2. Two thousand hours of military and/or civil time as a certificated commercial/airline transport pilot.
3. One hundred hours of military actual instrument time.
4. A special instrument rating is recognition of a pilot's experience, demonstrated flight ability, and judgment. Its issuance shall be made accordingly. CMC, COMNAVAIRFOR, MARFORCOM, MARFORPAC, COMNAVAIRFORES, CG FOURTH MAW, CNATRA, aviation type wing commanders, or their delegated representatives may reduce the above minimum requirements. A special instrument rating may be issued to pilots who display exceptional judgment and proficiency in instrument flying procedures if the pilot has at least 3 years military and/or nonmilitary flying experience, has a total of 1,500 hours pilot/copilot time, and meets the other requirements for issuance of a special instrument rating enumerated above.

13.2.3 Failure To Meet Requirements

13.2.3.1 Action

The following action is directed for cases of failure to meet requirements:

1. Board Action — Unless reasons in the case are sound and valid, commanding officers shall direct a pilot who fails to meet the foregoing requirements to appear before a field naval aviator evaluation board in accordance with the current MILPERSMAN, article 3410300 or MCO 1000.6, as appropriate.
2. Command Action — Naval Aviators/NFOs who are required to qualify for an instrument rating and have not done so shall not be detached from an activity unless a written extension is forwarded to their next duty station or compliance with [subparagraph 1](#) above has been accomplished.

13.2.3.2 Restrictions on Instrument Ratings

Under no conditions shall instrument ratings be issued when the requirements of this chapter have not been met. The endorsement of instrument ratings to limit their applicability or use in any way is not authorized without specific approval of COMNAVAIRFOR or CMC.

13.2.3.3 Revoking of Instrument Ratings

Any commanding officer authorized to issue an instrument rating is also authorized to revoke the instrument rating of any Naval Aviator/NFO attached or assigned to the command for flying when, in the commanding officers opinion, the Naval Aviator/NFO has displayed a lack of instrument flying proficiency.

13.3 INSTRUMENT RATING FORMS

A Naval Aviator and NFO (when applicable) shall make application for an instrument rating by submitting a NATOPS instrument rating request (OPNAV 3710/2) in accordance with the NAVAIR 00-80T-112, NATOPS Instrument Flight Manual. The completed OPNAV 3710/2 shall constitute issuance of an instrument rating.

13.4 AIRCRAFT CONSIDERATIONS

Instrument ratings shall be valid in all aircraft in which the Naval Aviator/NFO is NATOPS qualified regardless of the model in which the check was flown. A Naval Aviator/NFO may be considered to be instrument qualified in an aircraft after completing the evaluation as outlined in each respective NATOPS manual and has met the requirements

for an instrument rating as outlined in this chapter. In aircraft for which there is no NATOPS guidance, 10 first pilot hours in model may be substituted as a minimum requirement. In single-piloted aircraft, instrument ratings are valid regardless of the model in which the check was flown, prior to being NATOPS qualified, as long as operating within the confines of the FRS syllabus.

13.5 GPS NAVIGATION TRAINING

13.5.1 General

Pilots should practice GPS approaches under VFR until thoroughly proficient with all aspects of their equipment (receiver and installation) prior to attempting flight under IFR in IMC. Many GPS receivers provide a simulation mode which can be used to become familiar with receiver operations prior to actual flight operations. Proper training of GPS navigation in controlled airspace will enhance safety and awareness when using PPS for combat operations. GPS training should be developed, with assistance from Naval Air Systems Command PMA-170, by the respective aviation TYCOM/FRS/Type Wing.

13.5.2 Ground Instruction

The use of GPS for flight in controlled airspace requires a thorough knowledge of the terms and nomenclature used to describe and depict GPS navigation processes. The charting of GPS procedures does not follow the convention described by previous training. Some of the areas which the training should cover are:

1. The meaning and proper use of Aircraft Equipment/Navigation Suffixes.
2. Procedure characteristics as determined from chart depiction and textual description.
 - a. Depiction of waypoint types (fly-over and fly-by) and path terminators as well as associated aircraft flight paths.
 - b. Published material for RNAV routes, SIDs, STARs, and GPS approaches.
3. Utilizing the Receiver Autonomous Integrity Monitoring (RAIM) prediction function.
4. RNAV/GPS system-specific information:
 - a. Levels of automation, mode annunciations, changes, alerts, interactions, reversions, and degradation.
 - b. Functional integration with other aircraft systems.
 - c. The meaning and appropriateness of route discontinuities as well as related flight crew procedures.
 - d. Monitoring procedures for each phase of flight (for example, monitor PROG or LEGS page).
 - e. Types of navigation sensors (for example, IRU, EGI, GEM) utilized by the RNAV system and associated system prioritization/weighting/logic.
 - f. Turn anticipation with consideration to speed and altitude effects.
 - g. Interpretation of electronic displays and symbols.
 - h. Verify currency of aircraft navigation data.
 - i. Verify successful completion of RNAV system self-tests.
5. Crew coordination and FMS/GPS etiquette.
6. Using the FMS/GPS/displays to maximize situational awareness.
7. Using the FMS/GPS for visual approaches.
8. Extending a point for interception.
9. Intercepting a route between two points.
10. Conditional waypoints and FMS generated waypoints.

13.5.3 GPS Navigation Flight Training

The amount and type of flight training should be sufficient to expose the flight crew to the displays, autopilot use (if applicable), and aircraft performance when using GPS for navigation.

1. Proceeding direct to a waypoint in the flight plan and not in the flight plan.
2. Inserting an instrument departure procedure (DP) into the flight plan, including setting terminal course deviation indicator (CDI) sensitivity, if required, and the conditions under which terminal RAIM is available for departure.
3. Inserting the destination airport in a flight plan.
4. Determining the correct initial approach fix (IAF) to proceed to when entering a terminal arrival area (TAA) and determining the correct altitudes within a TAA.
5. Executing overlay approaches (especially procedure turns and arcs).
6. Changing to another approach after selecting an approach.
7. Executing “direct” missed approaches where the route is direct to the first waypoint after the missed approach waypoint (MAWP).
8. Executing “routed” missed approaches where the route is not direct to a waypoint from the MAWP, particularly where a course must be manually inserted and flown. This procedure may vary with installation of the receiver.
9. Entering, flying, and exiting holding patterns “manually” (e.g. non-charted holding, holding following a procedure turn, and holding with a second waypoint in the holding pattern).
10. Flying a “route” from a holding pattern to another waypoint.
11. Executing an approach with radar vectors to the final segment.
12. Actions required for RAIM failure both before and after the final approach waypoint (FAWP).
13. Programming a radial and distance from a VOR.
14. Recovering from sequencing past a waypoint at which holding was intended.
15. Operator-recommended levels of automation for phase of flight and workload, including methods to minimize crosstrack error to maintain procedure centerline.

CHAPTER 14

UAS Policies and Operations

14.1 PURPOSE AND SCOPE

This chapter addresses the NATOPS general flight and operating instructions that apply to Groups 3 through 5 of naval unmanned aircraft system (UAS) operations. Group 1 and 2 UAS policy is contained in CNAF M-3710.9 which contains flight rules and regulations in a manner more accessible for non-aviation units. For brevity, “UAS” is used throughout this manual to refer to Group 3 through 5 operations only. UAS personnel need not search elsewhere in this document for additional UAS information. However, a person reading this chapter will be directed to related information applicable to UAS, UAS Crewmember (UASC), and UAS support personnel located in a previous chapter of this publication. The paragraphs in this chapter are numbered such that the second level digit identifies the corresponding chapter of this instruction (e.g., [Paragraph 14.3](#) supplements pertinent subjects addressed in [Chapter 3](#)). UAS operators are responsible for all policy set forth in this chapter and, when directed, the corresponding policy of previous chapters.

14.1.1 Directives, Procedures and Terminology Applicable to UAS Operations

UAS operators shall be familiar with [Chapter 1](#) of this instruction. UAS operations will be conducted in accordance with [Chapter 1](#), and as supplemented by information provided in [Paragraph 14.1](#).

14.1.2 Military Reporting Procedures For UAS Flight Deviations

NATOPS Model Managers shall ensure that military reporting procedures are established for UAS flight deviations.

14.1.3 Federal Aviation Regulations (FAR)

Unmanned Aircraft System Commanders (UACs) shall make every effort to comply with all applicable portions of the Title 14 CFR Part 91 FAR except where exemptions or authorizations issued to the Department of the Navy/DoD by the FAA permit deviation from FAR, or where maintaining safety of flight takes precedence. UAS are currently unable to comply with all the provisions of Title 14 CFR, Part 91 (e.g., specifically the see and avoid requirements in Part 91.113).

14.1.3.1 Deviations from FAR

Intentional deviation from a flight rule is authorized only when:

1. An in-flight emergency requires immediate action.
2. Safety of flight dictates (e.g., avoidance of an in-flight collision).
3. An Operational Necessity is declared by competent authority.

Note

Intentional deviation from a flight rule is not authorized when the deviation will jeopardize the safety of manned aircraft or civilians.

14.1.4 Other UAS-Specific Publications

14.1.4.1 Federal Aviation Administration Order 8900.1 Flight Standards Information Management System

FAA Order 8900.1 contains information and policy guidance for UAS operations in the U.S. National Airspace System (NAS). This includes policy guidance and regulations applicable to the operation of DON Public UAS

CNAF M-3710.7

and UAS conducting DON Public Aircraft Operations in the NAS outside of Restricted Areas, Warning Areas, or Prohibited Areas.

14.1.4.2 Memorandum of Understanding between DoD and FAA for UAS Operations in the National Airspace System Dated 09 May 2019

The MOU between DoD and the FAA documents the policies, procedures and operations for DoD UAS Operations in the NAS outside of Restricted, Warning, or Prohibited Areas.

14.1.5 Certificates of Waiver or Authorization (COAs)

COA processes documenting in FAA Order 8900.1 establish mandatory provisions for operation of UAS in the NAS outside of Restricted Areas, Warning Areas, and Prohibited Areas to ensure that the level of safety for UAS flight operations is equivalent to that of manned aviation. A COA is unique to the intended mission, and specifies operating location/class of airspace, the time period, circumstances and operating conditions under which the UAS must be operated. As part of the COA application process, a statement of airworthiness in the form of an interim flight clearance or memorandum issued by NAVAIRSYSCOM (ACO) is to be forwarded to the FAA to support the COA application process. For those UAS that have a permanent flight clearance in the form of an approved NATOPS Flight Manual (NFM), NAVAIRSYSCOM (ACO) will determine if the NFM, with an accompanying statement of airworthiness memorandum, can be used as the statement of airworthiness. UAS operating outside Restricted Areas, and Warning Areas, shall comply with the operating conditions and limitations of the approved FAA COA.

14.1.6 Compliance with UAS-Related Directives

The Unmanned Aircraft Commander (UAC) responsible for the flight of an unmanned aircraft (UA) shall ensure compliance with pertinent UAS-related documents and directives to include the following:

1. This instruction.

Note

When this instruction provides more stringent requirements than the CFR Part 91 FAR or COA, this instruction shall take precedence.

2. System UAS-specific operating manuals.
3. FAR, when operating within the United States, including the airspace overlying the waters out to 12 miles from the US coast, unless the FAA has excluded military operations.
4. International Civil Aviation Organization (ICAO) Standards and Recommended Practices (SARP) when operating in international airspace over the high seas, mission permitting.
5. The specific rules of each individual nation as published in DoD Flight Information Publications (FLIP) planning documents and the DoD Clearance Manuals (CM, DoD 4500.54).
6. ICAO SARP when operating in the airspace of a nation whose rules are not published.
7. Procedures and special notices contained in the FLIP, Notices to Airmen/Notices to Air Missions (NOTAMs) (available at <https://www.notams.jcs.mil/>), aircraft technical orders, and Air Traffic Control (ATC) Instructions.
8. All provisions contained in the FAA issued COA under which the flight is being conducted.
9. Published local flying rules, restrictions and ATC instructions concerning UA operations.
10. Aviation-related state and local laws and ordinances.

14.1.7 Explanation of UAS Groups

All current and currently planned DOD UAS fall into one of the five UAS groups depicted in [Figure 14-1](#).

1. Group 1 UAS: Typically weigh less than 20 pounds and normally operate at altitudes below 1200 feet AGL and airspeeds less than 100 knots.
2. Group 2 UAS: Typically weigh 21 – 55 pounds and normally operate at altitudes below 3500 feet AGL at airspeeds less than 250 knots.
3. Group 3 UAS: Typically weigh greater than 55 pounds, but less than 1320 pounds and normally operate at altitudes below 18,000 feet MSL and airspeeds less than 250 knots.
4. Group 4 UAS: Typically weigh greater than 1320 pounds and normally operate below at altitudes 18,000 feet MSL at any airspeed.
5. Group 5 UAS: Typically weigh greater than 1320 pounds and normally operate at altitudes higher than 18,000 feet MSL at any airspeed.

These groups are based on UA gross weight, normal operating altitude and airspeed, and are independent of tasking authority, echelon of command and control authority, and type of payload. For example, a UA that weighs 10 pounds and is normally operated below 1200 feet AGL at speeds less than 100 knots, is categorized a Group 1 UAS. A UA possessing one attribute of the next higher numbered group is categorized in the higher numbered group. For example, a UA that weighs less than 20 pounds, and is normally operated above 1200 feet AGL at speeds less than 250 knots is a Group 2 UAS.

14.1.8 Waivers

Requests for waivers authorized by the provisions of this chapter shall be submitted via the administrative chain of command to the organization responsible for the requirements as listed in [Figure 1-1](#).

Situations in which compliance with established directives cannot be met or where compliance compromises UAS operational effectiveness should be submitted as Airworthiness Information Resolution System (AIRS) items via the NATOPS page of the NAVAIRSYSCOM (ACO) Airworthiness website at <https://airworthiness.navair.navy.mil>. Submitted AIRS items should include recommended solutions to the problems identified.

14.1.9 Non-Programs of Record (POR) Systems

Non-POR UAS may need to operate under deviations from the strict limitations of this instruction. The unit commander or a designated representative of the Non-POR system is required to inform their TYCOM of such deviations in writing, with information copy to COMNAVAIRFOR and COMNAVAIRSYSCOM. The letter will include the platform, timeframe, location(s), and intended deviations from this instruction. This shall be done in a timely manner so as to give the TYCOM the opportunity to process the informational letter. The TYCOM shall give written acknowledgement of the intended operation(s) and deviations before the respective flights occur.

Figure 14-1. UAS Groups

UAS GROUPS				
	Maximum Gross Takeoff Weight (lbs)	Normal Operating Altitude (ft)	Airspeed (KIAS)	Examples of Current & Future Representative UAS
Group 5	> 1320	> 18,000 MSL	Any Airspeed	MQ-9A, MQ-4C, Global Observer, MQ-25A
Group 4	>1320	< 18,000	Any Airspeed	MQ-5B, MQ1A/B/C, A-160
Group 3	< 1320	MSL	< 250	RQ-7B, RQ-15, STUAS, XPV-1, XPV-2
Group 2	21–55	< 3,500 AGL	< 250	Vehicle Craft Unmanned Aircraft System, ScanEagle, Silver Fox, Aerosonde
Group 1	0–20	< 1200 AGL	< 100	WASP III, Future Combat System Class I, TACMAV RQ-14A/B, BUSTER, BATCAM, RQ-11B/C, FPASS, RQ-16A, Pointer, Aqua/Terra Puma

14.2 UAS NATOPS PROGRAM

All Navy and Marine Corps commands operating UAS shall implement and utilize the NATOPS program as described in [Chapter 2](#) of this instruction.

14.2.1 UAS Qualification (BUQ) Levels

The Basic UAS Qualifications (BUQ) levels, described in [Appendix N](#) shall be utilized as standards for training and certifying UAS crewmembers. The BUQ levels are cumulative. Therefore, to meet BUQ Level II requirements, a UASC must complete all BUQ Level I tasks as well. Following successful completion of BUQ level training, or upon proof of skill equivalency for designated Naval Aviators (i.e. Instrument Rating, etc.), Commanding Officers may designate UASC with the appropriate BUQ level.

14.2.2 UAS NATOPS Program Implementation

The scale of the NATOPS Program will vary considerably over the range of UAS groups. A Group 5 UAS NATOPS program will closely parallel that of a [Chapter 2](#) NATOPS program for manned aircraft, whereas the NATOPS Program for a Group 3 UAS may be reduced from the level in the manned aircraft community. Although the size and sophistication of Type/Model/Series (T/M/S) UAS themselves vary from group to group, the level of effort required to administer flightcrew requirements and documentation will vary considerably. At a minimum, each T/M/S UAS program shall have a Cognizant Command, a NATOPS Model Manager Unit with NATOPS Model Manager, and NATOPS Program Manager assigned, with general NATOPS program responsibilities and duties as described in [Chapter 2](#). If it is determined that departures from the requirements described in [Chapter 2](#) are necessary, then the UAS NATOPS Model Manager shall recommend such adjustments be made via the NATOPS Cognizant Commander to the NATOPS Program Administrator (CNAF N455). The NATOPS Program Administrator (N455) may then authorize whatever variances are necessary to ensure the successful operation and efficient administration of that T/M/S UAS NATOPS program. Each UAS T/M/S NATOPS Model Manager that operates sea-based UAS will provide sufficient information to all applicable shipboard NATOPS model managers to ensure proper documentation to support successful UAS operations on each platform affected.

14.3 POLICY GUIDANCE FOR USE OF UAS

The policies contained in [Chapter 3](#) of this document are applicable to all UAS with the following additions and modifications.

14.3.1 Guidance for the Domestic Use of UAS

UAS operators shall be familiar with the guidance regarding the domestic use of UAS outlined in SECDEF Policy Memo 15-002. Key points are included below:

1. Unless permitted by law and approved by the Secretary of Defense, any DoD personnel using UAS for domestic operations, whether or not the DoD UAS use is related to an intelligence activity, may not conduct surveillance on U.S. persons.
2. In appropriate circumstances, UAS may be used in lieu of manned aircraft for domestic missions. Appropriate circumstances may include when:
 - a. Sustained endurance efforts are required;
 - b. Unmanned aircraft provide superior capabilities; or
 - c. Physical infrastructure limitations prohibit the use of manned rotary- or fixed-wing aircraft.
3. DoD UAS may not be used for Federal, State, or local immediate response.
4. Armed DoD UAS may not be used in the United States for other than training, exercises, and testing purposes.
5. The only exception to the requirement for approval by the Secretary of Defense for the use of DoD UAS for domestic operations are search and rescue (SAR) missions involving distress and potential loss of life

that are coordinated by the Air Force Rescue Coordination Center (AFRCC), Alaska Rescue Coordination Center (AKRCC), or Joint Rescue Coordination Center (JRCC)-Pacific.

6. DoD UAS used in training and exercises will not acquire or collect information (except for incidental collection) about specified U.S. persons or non-DoD controlled property or facilities located outside DoD-controlled installations without consent.

14.3.2 General Operating Precautions

NAVAIR issued airworthiness assessments have been established to accommodate a wide level of UAS and the inherent level of airworthiness that each system may exhibit. Where the level of airworthiness is less than the equivalent manned platform standards, the flight clearance will indicate additional limitations necessary for minimizing risk to third parties. In planning and conducting flights to, in, and from operating areas, activities operating UAS shall select and adhere to those tracks and altitudes that are consistent with the flight clearance limits. Whenever practicable, UAS shall be operated at altitudes and on flight paths that minimize danger to other aircraft in flight, and to personnel and property on the surface.

14.3.3 Prohibited Maneuvers

Aerobatic flight maneuvers shall not be performed.

14.3.4 Displays and Demonstrations

Participation of UAS aircraft in demonstrations except for static display is prohibited unless expressly authorized by COMNAVAIRFOR or delegated authority. COMNAVAIRSYSCOM is delegated the authority to approve demonstrations of unmanned aircraft operating under COMNAVAIRSYSCOM control; the CMC is the approval authority for USMC units.

Note

Flight demonstrations outside of special use airspace may require coordination with the FAA.

14.3.5 UAS Command Responsibilities

A naval UAS shall be flown under the command of a UAC so designated by the Unit commander or higher authority. In addition to the other requirements outlined in this chapter, the responsibilities of the UAC include, but are not limited to, the following:

14.3.5.1 Flight Plan Submission

1. Risk assessment.
2. UASC cargo manifest submission, when applicable.
3. Flight plan closure.
4. Visitor access to the Mission Control Station (MCS) when a UA is being operated.
5. Suitability of landing areas.
6. Security of the UA and the safe handling of classified material and equipment.
7. Reviewing UA maintenance discrepancies. When transfer of a UA occurs while in flight, the relieving UAC shall ascertain the current status of the UA.

Note

These responsibilities may, when appropriate, be delegated to the Air Vehicle Pilot (AVP). However, the UAC is ultimately responsible for the completion of these tasks.

14.3.5.2 UAS Commander (UAC)

The UAC shall be responsible for the safe, orderly flight as related to the physical control of one or more UAs. The UAC may direct the actions of an AVP. The positional authority of the UAC is analogous to that of an “Aircraft Commander” of a manned aircraft, yet the UAC need not be a winged aviator nor an officer.

As with manned aircraft, a single individual may act as both UAC and perform other UASC duties. Model Managers shall establish minimums and requirements for each T/M/S UAC qualification.

14.3.5.3 UAS Mission Commander (UMC)

The UMC shall be responsible for all phases of the assigned mission except those aspects of safety of flight that are related to the control of the UA and are within the prerogative of the UAC. The UMC may exercise command over a single or multiple UAS. The UMC shall be properly qualified and designated, but need not be a winged aviator nor a commissioned officer. Specific UMC qualification requirements shall be defined in the respective UAS T/M/S NATOPS manual. The UMC shall direct a coordinated plan of action and be responsible for effectiveness of the mission.

14.3.5.4 Officer in Tactical Command Present

The wing, group, squadron or unit commander, when present at the MCS for a mission involving a UAS under his or her command, retains full authority and responsibility regarding command, including the mission in which participating.

14.3.5.5 Flag or General Officers

The UAC or AVP retains full authority for the performance of the UAS and mission duties when a flag or general officer eligible for command at sea is present at the MCS, unless clearly informed by the flag or general officer of their desire to exercise command authority over the UAS, subject to the same limitations as described in [Paragraph 3.7.1.2](#) for manned aircraft.

14.3.6 Transfer of UAS Responsibilities During Flight

If, at the discretion of the unit commander or designated representative, the nature or length of the UAS mission requires changing crew positions, he or she may authorize crew position changes between qualified personnel, including UMCs. Every effort shall be made to avoid causing a UASC to leave a MCS without proper relief during UAS operations.

Note

Crew position changes during emergencies or aircraft-in-distress situations are discouraged.

14.3.6.1 UAS Crew Replacement Briefings

UAS NATOPS Model Managers shall establish procedures for crew replacement/relief. UAS crew replacement briefings shall address at a minimum the following information:

1. UAS location, airspeed, altitude, type of airspace, any active airspace restrictions and weather.
2. Flight time remaining in current configuration and operating conditions.
3. Mission considerations.
4. Status of systems including any UAS problems or discrepancies.
5. Communications (current and expected).
6. Supporting element information.

14.3.7 Non-Participating Personnel

All personnel regardless of rank or authority shall minimize interacting with and avoid distracting UASCs actively engaged in UAS flight operations. Every effort shall be made to avoid any UASC being directed to vacate the MCS during UAS operations without a proper relief.

14.3.8 Functional Checkflights (FCFs)

The requirements for FCFs are contained in NAVAIRFORINST 4790.2. Unit commanders shall ensure compliance with the following requirements for UAS FCFs.

14.3.8.1 FCF Crew Composition

FCF procedures may require that additional personnel monitor critical systems and evolutions. UACs/AVPs shall be qualified in accordance with the applicable UAS NATOPS T/M/S flight manual to conduct FCFs.

14.3.8.2 FCF Location and Weather Criteria

FCFs shall be conducted in flight conditions (weather, VMC/IMC, GPS availability, etc) appropriate with standard operation of the UA. All evolutions shall be conducted to maximize control links and onboard vehicle navigation capabilities (the intent is to avoid loss of link or losing critical navigation systems e.g., GPS). Those portions of the flights that are considered critical shall be conducted in the vicinity of the launch location or a suitable recovery area. Consideration should be given to performing the FCF in segregated airspace as defined by the appropriate controlling authority.

14.4 FLIGHT AUTHORIZATION AND PLANNING

14.4.1 Requirement for Flight Authorization

A Naval UAS shall not be operated by any person unless authorized by the reporting custodian, unit commander, or a delegated authority exercising control over the UAS concerned.

14.4.1.1 Authorization for UAS Flight Operations (Flight Schedule)

Authorization for a Naval UAS flight or a series of UAS flights shall be published by the unit commander on a flight schedule or other similar directive signed by the unit commander or their delegated authority.

1. Information published for each scheduled event shall include the following elements:
 - a. UAS T/M/S to be flown.
 - b. Designation of the UMC, UAC, and/or AVP as appropriate.
 - c. Names of UASC(s).
 - d. Planned operating areas/restricted operating areas as applicable.
 - e. Intended date(s) and time(s) of ETDs, and ETEs or ETAs.
 - f. Total Mission Requirement Code (TMR).
 - g. Place(s) of departure and intended landing.
 - h. Applicable COA with title and end date if required.

14.4.2 UAS Flightcrew Requirements

14.4.2.1 UAS Flightcrew Qualifications

Prior to authorizing a UAS flight, commanders shall ensure that person(s) designated to perform UASC duties are, in all respects, qualified to control the specific UAS T/M/S and that flightcrew currency requirements have been met.

14.4.2.2 Unmanned Aircraft System Commander Requirement

A designated UAC shall be present at the MCS from takeoff to landing for all UAS flights. The qualified UAC shall also be present at the MCS anytime there is intent for flight as defined in the T/M/S operating manual. Whenever a non-designated UAC (e.g., during initial training) is in physical control of the UAS during flight, the designated UAC shall be prepared to assume physical control of the UAS if necessary.

14.4.2.3 UAS Crewmember Requirements

The UAS T/M/S NATOPS Model Manager shall specify the minimum crewmember requirements for each UAS flight. Commanders shall ensure that each UAS flight has UASCs assigned who are qualified for both UAS model and mission. General requirements for specific crew duties can be found in [Paragraph 14.12](#) of this document. Standard UAS crewmember position titles that span all UAS groups and models include the following.

1. UAS Commander (UAC). See definition in [Paragraph 14.3.5.2](#).
2. Air Vehicle Pilot (AVP). The person who has been trained, qualified and properly designated as an AVP, is physically located at a UAS MCS, and in positive control of the UA.
3. Tactical Coordinator (TC). The person who has been trained, qualified and properly designated to coordinate all mission-related actions within the MCS and is responsible for the tactical employment of the air vehicle and sensors.
4. Mission Payload Operator (MPO). The person who has been trained, qualified, and properly designated to control the payload of a UAS. The payload may include a sensor package and/or a weapon system on the assigned UA(s).
5. UAS Mission Commander (UMC). See definition in [Paragraph 14.3.5.3](#).
6. Qualified DOD civilians or contractors may, at the unit commander's discretion, act as an UASC. Commanders are responsible for ensuring all respective T/M/S qualifications have been met prior to approving DOD civilian participation in UAS operations. Refer to NAVAIRINST 3710.1 for policy regarding civilian contractors operating naval aircraft.
7. UAS Crewmember (UASC). Generic term for any flightcrew member designated to employ UAs including those positions listed above in this paragraph.
8. Ground Maintenance Vehicle Operator (GMVO). Although not members of the flight crew per se, the GMVOs are considered UASCs and are required to qualify and be designated to operate the UAS during ground operations necessary for onboard equipment checks and ground maintenance. Specific qualification requirements for UAS T/M/S GMVOs shall be published in the respective NFM or equivalent operating publication, or issued by the NATOPS Model Manager via separate directive.

14.4.3 Positive Control Requirement

Any time intent for flight exists as defined in the T/M/S operating manual, a qualified UAC/AVP shall be present and in control of the UA, ready to expeditiously respond to system malfunctions, emergencies and ATC direction. A UAS with an autopilot or programmable mode capability can be considered under control with such mode engaged provided the responsible qualified UAC/AVP maintains continuous situational awareness, and can alter UA airspeed, altitude and heading by their specific actions.

14.4.4 UAS Preflight Planning

The UAC is responsible for preflight planning. Before commencing a flight, the UMC/UAC shall ensure that UASCs are familiar with all information relevant to the intended flight. Flight planning shall be conducted IAW [Paragraph 4.3](#) of this instruction.

14.4.4.1 UAS Preflight Planning

UACs shall ensure that they have associated information available to them for their intended operation. When applicable, this information shall include, but is not limited to:

1. Alternate airfields/landing zones if the flight cannot be completed as planned.
2. Departure, en route, destination, and alternate (if applicable) weather observations and forecasts.
3. Fuel/battery charge requirements per appropriate technical manual.
4. Maximum operating altitudes, minimum safe altitudes, visual and/or datalink line-of-sight considerations for the planned route of flight and area of operations.
5. Takeoff and landing limitations.
6. Spectrum/EMI considerations and frequency availability to prevent lost link during takeoff/landing.
7. Lost link procedures coordinated through ATC if entering the NAS, and Range Control agencies.
8. Appropriate sections of the aircraft technical order and operator's manual.
9. Notices to Airmen/Notices to Air Missions (NOTAMs).
10. FLIP appropriate to the specific UAS and mission, including appropriate aeronautical paper or digital charts with FAA/ICAO airspace and/or display of approved working area boundaries (whichever is more restrictive). Ensure digital charts are updated with the most current version.
11. Applicable airfield advisories, bird advisories and hazard information available through Automated Terminal Information System (ATIS), Internet, or as disseminated locally.

14.4.5 Airspace

14.4.5.1 Airspace Coordination

UACs and mission planners shall review the current airspace procedures and comply with the following directives:

1. FAR and FAA Documents (14 CFR Part 91 General Operating and Flight Rules).
2. The DOD FAA Memorandums of Agreement.
3. ICAO Standards and Recommended Practices (SARP).
4. DoD Foreign Clearance Guide and country regulations, laws, and rules.
5. DoD FLIP.
6. Local flight regulations and procedures.
7. Current and applicable OSD Memorandums, DoD Concept of Operations (CONOPS), and ATC Procedures for Non-Joint-Use Airfields with associated Class D Airspace.

14.4.5.2 ATC Liaison

Units should assist the local ATC facility to develop local procedures that incorporate the provisions contained in this manual and in the DoD/FAA agreement on Non-Joint Use Class D airspace.

14.4.5.3 Joint Forces Established Airspace OCONUS Operations

For combat or other contingency operations, refer to Joint Publication 3-52, which states, in part, that UAs may be operated in the airspace control area by each joint force command. The established principles of airspace management used in manned flight operations will normally apply to UAS operations.

14.4.6 Airfield Requirements

14.4.6.1 Authorized Airfields

Naval UAS should utilize non-joint use military airfields. Joint use (civil/military) airfields should be used only when such use is necessary to accomplish a mission assigned by higher authority. The UAC/AVP is responsible for ensuring that airfield facilities, servicing, and safety are adequate for the UAS involved.

Note

This does not preclude UAS from operating from non-traditional launch and recovery zones as described below.

14.4.6.2 Use of Closed Airfields

The restrictions and authorizations on the use of closed airfields in [Paragraph 4.4.4](#) are also applicable to UAS operations.

14.4.6.3 Airfield and Launch/Recovery Zone Considerations

When UAS are traditionally launched (e.g., runway take-off and landing), the UAC shall ensure that the proposed airfield is suitable for use. For those systems that are launched and recovered non-traditionally (e.g., catapult or hand-launched, net, hook, or water recovered), a thorough survey of the proposed launch and recovery zones shall be accomplished prior to flight. The following factors shall be considered for both launching methods:

1. Proposed runways shall meet length, width, and surface-type requirements in the specific UAS T/M/S operator's manual, UAS Model Manager's guidance, and unit Standing Operating Procedures (SOP).
2. Non-traditional launch and recovery zones shall meet all applicable requirements the UAS T/M/S operating manual, UAS Model Manager's guidance, and the unit SOP.
3. Sufficient obstacle clearance shall exist for takeoffs and landings (see applicable system specifications for obstacle clearance requirements).
4. UAS launch and recovery zones shall be suitably distanced from populated areas. Areas with high population densities and multiple high-tension powerlines shall be avoided whenever possible.
5. The availability of approach and departure corridors.
6. The distance and Line-of-Sight (LOS) to possible mission areas considering communication relays, beyond line-of-sight operations and MCS hand-over requirements.
7. Areas with high concentrations of communications equipment and transmitters emitting frequencies and bandwidths which may interfere with UAS control should be avoided.
8. Operations security (OPSEC) should be considered during site selection to minimize the possibility of detection and destruction by enemy forces.
9. When the UAS launch and recovery site is co-located with manned aircraft operations, the parking plans and flight traffic patterns should be deconflicted, if possible. This usually can be done by coordinating with the airfield manager.
10. The ready availability of ground support equipment (GSE) (e.g., generators). In addition to the physical limitations of cables and other GSE, personnel should also consider other factors such as security and noise abatement.
11. The UACs/AVPs are responsible for ensuring launch and recovery operations conform to all host airfield regulations applicable to UAS operations.

14.4.7 Weather Planning

1. UACs/AVPs are responsible for being thoroughly familiar with the weather conditions (i.e. icing, hail, etc.) for the area in which flight is contemplated and the effects of that weather on the UA. The UAC/AVP should

obtain current and forecast weather information for the flight whenever possible. In addition, the UAC/AVP shall be aware of local restrictions placed on UA operation during inclement weather.

Note

Naval UAS operating in Instrument Meteorological Conditions (IMC) in controlled airspace are required to obtain the appropriate clearance from the controlling authority.

14.4.7.1 Weather Planning Factors

UAS NATOPS Model Managers shall establish specific operating guidelines for each UAS T/M/S considering the weather and its effects on aircraft during flight operations. Particular attention should be paid to temperature, winds, precipitation, and hazardous weather phenomena. Factors to be considered when developing operating guidelines include:

1. Wind effects on launch, navigation legs, loiter, and landing. Operators must keep in mind that due to weight and power limitations, small UAs are especially susceptible to winds and turbulence which can degrade mission effectiveness (e.g., target designation).
2. Temperature extremes and its effects on aircraft, payloads, and batteries.
3. Effects of high humidity on internal and external payloads.
4. Effects of precipitation on payloads, batteries, and electronics.
5. Hazardous weather (e.g. thunderstorms, turbulence, icing, clouds, and precipitation) pose hazards to UAS operations. Many UAS design and payload limitations do not include weather avoidance system; UACs shall rely on forecast weather and personal observations.
6. Effects of operating elevation and temperature on flight characteristics of the vehicle. The vehicle should not be operated outside the published limitations of the system.

UACs shall ensure compliance to the maximum extent practicable with [Paragraph 4.8.3](#) of this instruction where any portion of the intended route of flight is forecast to be under IMC. IFR flight plans shall be filed and flown whenever practicable, otherwise [Paragraphs 4.8.4.1 to 4.8.4.3](#) including [Figure 4-1](#) of this instruction is not applicable for UAS with autonomous takeoff and landing capability.

14.4.8 Mission Essential Subsystem Matrix (MESM)

An equipment go/no-go matrix or MESM shall be developed by the NATOPS Model Manager of each UAS T/M/S. The MESM shall, at a minimum, determine the feasibility for using the scheduled UAS for the intended flight by addressing the following factors:

1. Flight conditions to include VMC, IMC, and winds.
2. Whether the UAS can accomplish the mission when flown with equipment not installed or not functioning.
3. For a non-standard operation, a UAS unit may request a onetime waiver of MESM requirements from COMNAVAIRFOR (N455) or COMNAVAIRSYSCOM via their NATOPS Model Manager in consultation with NAVAIR ACO.

14.4.9 Fuel and Propulsion Battery Charge Considerations

The UAC/AVP shall ensure sufficient fuel/propulsion/battery charge exists onboard the aircraft to successfully conduct the flight and comply with FAA regulations and the requirements of this instruction.

14.4.9.1 Minimum and Emergency Fuel/Propulsion Battery Charge States

Minimum fuel is an advisory term indicating that in the judgment of the UAC/AVP the fuel state is such that no undue delay can be accepted en route to the destination. It is not an emergency situation, but undue delay may result in an emergency. If at any time the remaining usable fuel supply suggests the need for traffic priority to ensure a

CNAF M-3710.7

safe landing, the UAC/AVP shall declare emergency fuel state and report fuel remaining in minutes. Once declared, both minimum fuel advisories or emergency fuel state declarations shall be reported each time control is transferred to a new ATC controller. UAS T/M/S minimum fuel and propulsion battery charge states shall be established by the unit commander or higher authority.

Note

UACs/AVPs declaring minimum fuel will not receive special handling from FAA controllers.

14.4.9.2 UAS Propulsion Battery Charge Reserves

Before takeoff, UAS shall have enough usable fuel/propulsion battery charge onboard to complete the flight to a final landing at the destination airport or landing zone, plus enough fuel/battery charge to fly to the alternate landing zone (if one is required), plus the UAS NATOPS specific fuel/battery charge reserves.

1. Each NATOPS manual shall establish minimum fuel and propulsion battery charge requirements. In no case shall the planned fuel and propulsion battery charge reserves after final landing be less than the minimum requirements prescribed in the respective UAS NATOPS.
2. When operating in controlled airspace, UAC/AVP shall declare minimum/emergency fuel/battery charge to the controlling agency when in their judgment the aircraft will land at the intended destination with less than the T/M/S NATOPS specified required minimum/emergency fuel/propulsion battery charge reserves.

14.4.10 Risk Assessment

UACs/AVPs shall conduct a risk assessment prior to each flight. The NATOPS Model Manager shall prepare a detailed list of risk factors to be incorporated into the UAS T/M/S NATOPS publications, operating manual or unit SOP. Risk to third parties on the ground shall be included.

14.4.11 UAS Preflight Briefings

The UMC/UAC shall ensure that each crewmember is briefed on items affecting safety or mission completion.

14.4.11.1 Briefing Requirements

Briefings shall be started in sufficient time to complete the briefing prior to commencing flight operations. Brief times should be noted on the flight schedule. Mission elements and events may be modified and briefed while the aircraft is airborne as long as changes do not compromise flight safety. Flying non-briefed missions and/or events is not recommended. The UMC/UAC shall ensure crewmembers acknowledge changes to mission briefings. Debriefs shall be conducted after each flight, whenever possible.

14.4.11.2 Briefing Items

Preflight briefings shall include the following items:

1. Crewmember assignments and responsibilities.
2. Airspace/working area and frequencies authorized for operations and method of complying with restrictions.
3. The flight/mission scenario along with the essential details of how it will be accomplished.
4. Special procedures and instructions for use during training, formation, or operational missions.
5. Precautions and restrictions, including minimum aircraft requirements and go/no-go criteria.
6. Current and forecasted weather (if available).
7. Alternative airfields (if applicable).
8. Emergency procedures.
9. Mission debrief time and location.

14.4.11.3 Preflight Briefing Guides

UAS NATOPS Model Managers shall develop preflight briefing checklists for their specific T/M/S to be used by UACs/AVPs when briefing each flight/mission. Use of briefing checklists is mandatory for crew-served UAS, and all applicable items in the briefing checklists shall be adequately briefed by the UMC/UAC/AVP or other members of the crew. Unit commanders may supplement these checklists locally as required for mission accomplishment, and establish additional briefing requirements in their unit SOPs.

14.4.11.4 Emergency/Contingency Considerations

The UAC/AVP shall plan and brief for other than normal circumstances, and shall brief procedures that comply with the operator's manual, unit SOP and locally established operating procedures. Emphasis should be placed on the use of sound judgment in place of rote adherence to procedures. At a minimum, the emergency portion of the preflight briefing shall address the following types of emergencies:

1. Ground emergencies.
2. In-flight emergencies, to include notification of controlling agencies, use of checklists, and the UAC/AVP intentions for managing the emergency.
3. Both ground and airborne aborts. Ground aborts should include a review of the takeoff abort and landing go-no go requirements and capabilities. Air aborts could include bird strike, uncommanded flight control inputs, engine/motor failure, loss of GPS or other navigation equipment or loss of link.
4. Armament system malfunctions, if applicable.
5. Sensor malfunctions which impact navigation, sense and avoid capabilities and flight operations.
6. Lost navigation/GPS procedures.
7. Lost link procedures.
8. Emergency divert and forced landing procedures.
9. Flight termination criteria and procedures. Review of criteria which may require termination of flight, procedures to initiate flight termination, and methodology to identify safe impact point for the air vehicle.

14.5 GENERAL FLIGHT RULES

14.5.1 Right-of-way Rules

Right-of-way rules for UAS aircraft are the same as for manned aircraft as stated in FAR 91.113 with the following clarifications.

14.5.1.1 General

When weather conditions permit, regardless of whether an operation is being conducted under IFR or VFR, vigilance shall be maintained by each person operating an aircraft so as to see and avoid the other aircraft. When a rule in this section gives another aircraft the right-of-way, the pilot shall give way to that aircraft and may not pass over, under, or ahead of it unless well clear. Due to its size and paint scheme, a UAS may not be easily seen by other aircraft. Therefore, the UAC/AVP should always be prepared to take evasive action, including possible termination of flight.

14.5.1.2 In Distress

An unmanned aircraft in distress has right of way over other air traffic except when doing so will jeopardize the safety of manned aircraft or ground personnel.

14.5.1.3 Converging

When aircraft of the same category are converging at approximately the same altitude (except head-on, or nearly so), the aircraft to the other's right has the right-of-way. Aircraft of different categories have the right-of-way in decreasing order of priority as follows.

CNAF M-3710.7

1. Balloons.
2. Gliders.
3. Aircraft towing or refueling other aircraft.
4. Airships.
5. Fixed-wing and rotary aircraft.

14.5.1.4 Approaching Head-on

When aircraft are approaching each other head-on, or nearly so, each pilot, UAC, or AVP of each aircraft shall alter course to the right.

14.5.1.5 Overtaking

Each aircraft that is being overtaken has the right of way, and each pilot, UAC, or AVP of an overtaking aircraft shall alter course to the right to pass well clear.

14.5.1.6 Landing

Aircraft, while on final approach to land or while landing, have the right-of-way over other aircraft in flight or on the surface, except that they shall not take advantage of this rule to force an aircraft off the runway surface which has already landed and is attempting to make way for an aircraft on final approach. When two or more aircraft are approaching an airport for the purpose of landing, the aircraft at the lower altitude has the right-of-way, but it shall not take advantage of this rule to cut in front of another aircraft which is on final approach to land or to overtake that aircraft.

14.5.1.7 Right-of-way Between Single Aircraft and Formations of Aircraft

The information in [Paragraph 5.1.2](#) addresses this circumstance.

14.5.2 Airspace

UAS operations in the NAS should, to the maximum extent practical, be conducted in either Restricted or Warning areas. Any UAS operation outside of these special use airspaces requires coordination with the FAA in accordance with the DoD/FAA Memorandum of Understanding for the Operation of UAS in the NAS and FAA Order 8900.1, Volume 16 9, or appropriate aviation authorities if operating OCONUS. UAS may operate in the NAS outside of Restricted areas and Warning areas in accordance with current regulations, memorandums of understanding, and directives.

14.5.2.1 Reporting Loss of Link (LOL)

If a LOL condition occurs, contact the airspace control authority as soon as possible and provide following information (at a minimum):

1. UAS type/size.
2. Last known location and time of LOL.
3. Heading, altitude, and estimated flight time remaining.
4. Pre-programmed LOL flight instructions.

14.5.3 UAS VFR Requirements

When operating in VMC, UASCs are required to see and avoid other traffic and ground obstacles. UAS do not have the traditional capability to see and avoid. When operating in VMC in the NAS, within restricted airspace, warning areas, or military controlled class D airspace UAS will be deconflicted with other traffic by the airspace controlling authority. When operating in VMC in other areas of the NAS the COA issued by the FAA for that operation will specify traffic avoidance procedures.

14.5.3.1 VFR Weather Requirements

When operating in VMC in the NAS outside of restricted airspace, warning areas, and military controlled class D airspace, FAR Part 91 weather requirements apply. Model Managers shall establish UAS T/M/S VMC weather requirements based on system limitations, aircraft equipment, level of autonomy, and flight crewmember qualifications.

14.5.3.2 VFR Operating Provisions

When not operating under positive control, the following provisions apply:

1. UAC (UAS Groups 3 through 5) shall request and utilize Radar Advisory Services (Flight Following) to the maximum extent practical.
2. Unless operational necessity dictates, IMC shall be avoided at all times. If inadvertent IMC is encountered, UAC shall make every effort to exit IMC as quickly and safely as possible.

14.5.4 UAS IFR Requirements

Instrument flight procedures cited in [Paragraphs 5.3.1](#) through [5.3.1.6](#) of this instruction also apply to Groups 3-5 UAS. Takeoff, approach, and landing ceiling and visibility minimums shall be established by each UAS T/M/S NATOPS Model Manager based upon specific UAS capabilities and equipment. Potential risks of UAS operation in degraded weather conditions shall be addressed to include, but not limited to: midair collision, impact on other air traffic in the vicinity of the airfield, ensuring that runways and taxiways are clear, and the safety of any chase or maintenance vehicles and personnel.

14.5.4.1 Instrument Flight Equipment Requirements

In order to fly under IFR, each UAS T/M/S shall be suitably equipped and certified to meet the IFR equipment and performance requirements of the intended airspace.

14.5.4.2 IFR Weather Filing Requirements

The NATOPS Model Manager shall establish UAS T/M/S weather filing requirements for IFR flight. At a minimum, the filing requirements shall address the following factors:

1. Maximum winds for the entire route of flight.
2. Any weather conditions that can degrade flight capabilities.
3. The weather filing requirements contained in [Paragraph 4.8.4](#) applies to those UAS that have no autonomous landing capability.
4. Destination airfield conditions (e.g., field closure, snow on runway, adverse weather, etc).

14.5.5 UAS Airport Operating Procedures

NATOPS Model Managers shall develop UAS-specific airport operating procedures. At a minimum these procedures shall address:

1. Ground operations.
2. Flight clearances.
3. Takeoff.
4. Departure.
5. Approach and landing.
6. Waveoffs and missed approaches.
7. Airport/airfield traffic patterns.

14.6 AIR TRAFFIC CONTROL

UASCs who intend to operate and communicate with ATC and/or operate in the NAS shall be familiar with [Chapter 6](#). The UAC/AVP shall use sound judgment in adhering to relevant ATC requirements and precautions.

14.7 SAFETY

UACs/UASCs shall be familiar with the safety precautions associated with general flight operations contained in [Chapter 7](#), and for those relevant to UAS operations, shall be adhered to the maximum extent practical.

Group 4 & 5 UAS (at a minimum) shall also follow the reporting procedures for Unusual Performance of Aircraft ([Paragraph 7.3](#)).

14.7.1 Conduct of Flight

UACs shall avoid unacceptable risks by utilizing the Operational Risk Management (ORM) analysis process when preparing for each flight. Each UAC/AVP shall exercise good judgment and take prudent action in applying NATOPS procedures to aircraft emergencies that endanger life or property. It is the responsibility of the UAC/AVP/UASC to aviate, navigate, and communicate, in that order, during both routine and challenging circumstances. UAS Groups 4-5 UMCs/UACs shall ensure that a current NATOPS Flight manual and/or a NATOPS Pocket Checklist is available during ground and flight operations. If a digital flight manual or the equivalent is utilized, a NAVAIRSYSCOM (ACO)-approved back-up flight manual and related checklists shall be available.

14.7.2 Starting, Turning, and Taxiing

14.7.2.1 Authorized Personnel

Engines shall not be started without a UAC/AVP or designated UASC in control of the UAS at the respective MCS or maintenance laptop with suitable shutdown capability and health and status feedback to the UASC.

14.7.2.2 General Prestart Precautions

The UAC shall ensure that the safety precautions outlined in [Paragraph 7.1.2.2](#) are adhered to the maximum extent practical.

14.7.2.3 Takeoff and Landing Checklists

NATOPS Model Managers for Group 3 shall ensure that takeoff and landing procedures are in place to ensure standardization during critical phases of flight.

NATOPS checklists shall be provided to each UAS Groups 4-5 UASC for mandatory use by UACs in preparing the aircraft for takeoff and landing. The checklist steps shall be followed in their given order to ensure that all steps are performed.

14.8 AEROMEDICAL REQUIREMENTS

Aircrew indoctrination and refresher NASTP training is not required for UASC. The following NASTP adjunctive training is required:

1. Sensory physiology/situational awareness.
2. Stress and human performance.

Personnel engaged in flight operations of both manned and unmanned aircraft shall meet the aeromedical requirements for both.

14.8.1 Aviation Physical Examinations and Qualifications

Specific medical screening requirements for personnel operating UAS can be found in MANMED.

14.8.1.1 Medical Waivers

Unit commanders may authorize a medical waiver after written endorsement is obtained from an aviation medical officer that states that the nature of the individual's medical limitations do not interfere with safe operation of the air vehicle. This waiver shall remain on file in unit training records until such time as full duty status has been regained or the operator is no longer serving in the unit. An aviation medical officer may also extend the time allowed for completion of the annual physical examination IAW MANMED.

Note

At no time shall a waiver be granted for UASCs to self-medicate while operating a UAS without the expressed written authorization of a flight surgeon or in accordance with NAVMEDINST 6410.9.

14.8.2 Human Performance and Aeromedical Qualifications For Flight and Flight Support Personnel

14.8.2.1 Flight Time Limits

UAS NATOPS Model Managers shall establish maximum flight time limits for their respective UAS operators. The crew duty time required to perform preflight and postflight checks shall be taken into consideration when establishing these standards. For those UAS T/M/S NATOPS without established maximum recommended flight time requirements, [Paragraph 8.3.2.2](#), [Figure 8-11](#), maximum flight times for aircrews of multi-piloted pressurized aircraft will apply.

When practicable, flight personnel should not be assigned flight duties on more than 6 consecutive days.

Flight duties are defined as participating in ground operations, preflight, flight, post flight, alert, or in a recallable status to support flight operations.

14.8.2.1.1 Exceeding Established Flight Time Guidelines

When the tempo of operations requires that individual flight time exceed the established maximum flight time guidelines, UAS personnel shall be closely monitored and specifically cleared by the unit commander with the advice of the flight surgeon. Units that do not have access to flight surgeons for recommendations to exceed flight time limitations should follow procedures outlined in BUMEDINST 6410.9. Commanders should ensure that flight time commitments are equitably distributed among the assigned flight personnel.

14.8.2.2 Pregnancy

Normal uncomplicated pregnancy for female UAS crewmembers is not considered physically disqualifying in itself. Specific duty modifications during the pregnancy, if required, should be managed locally.

14.8.2.3 Immunizations and Injections

Unless experiencing a reaction, UAS Crewmembers receiving an immunization or injection may participate in normal UAS operations. Those showing protracted or delayed reaction shall be grounded until cleared by a flight surgeon.

14.8.2.4 Blood Donation

UASCs who have donated blood may participate in normal UAS operations 24 hours after donating blood, unless experiencing side effects or a reaction. Unit Commanders shall establish guidelines on how often blood may be donated by UASCs without affecting crewmember readiness.

14.8.2.5 Hypobaric and Hyperbaric Exposure

Restrictions for hypobaric and hyperbaric exposure do not apply to UASCs unless such activity produces side effects that would otherwise impair their ability and/or judgment to conduct normal UAS operations.

14.8.2.6 Crew Rest, Sleep, and Shift Work

All requirements in [Chapter 8, Section 8.3.2.1](#) Crew Rest and Sleep applies to UAS. Rotations in a shift work schedule requiring a change in local sleep/awake periods greater than or equal to 10 hours should provide at least a 72-hour accommodation period prior to assuming flight duties.

14.8.2.7 Shift Work Limits

UAS operation may consist of shift work covering 24/7 operations to support global tasking. The following limitations are provided to assist commanding officers to create safe and sustainable shift work schedules.

14.8.2.7.1 Maximum Recommended Flight Time

Flight crew operating UAS platforms operating on persistent shift work schedules should not be scheduled for more than 50 hours of time on-shift per week. On-shift is defined as any time the crew is briefing, pre-flighting, post-flighting, flying the UA, on alert status, or on a recallable status to support flight operations as annotated on the flight schedule.

Flight crew should not be scheduled on shift for more than 6 consecutive days. At least one day per week should be a scheduled day off that does not include flight, watch standing, collateral, or training duties.

14.8.2.8 Chapter 8 Applicability

All information in [Sections 8.3.2.3](#) through [8.3.2.7](#), [8.3.2.9](#), and [8.3.2.15](#) of this instruction applies to UAS.

14.9 MISCELLANEOUS

The information contained in [Paragraphs 9.2](#) through [9.8](#) of this instruction also applies to UAS.

14.10 FLIGHT RECORDS, REPORTS AND FORMS

14.10.1 Naval Flight Record Subsystem (NAVFLIRS)

1. The NAVFLIRS serves as a single, integrated source of flight data for the aviation maintenance and material management (AV-3M) system, the Marine Corps flight readiness evaluation data system (FREDS), the Navy logistics information system (NALIS), and up-line reporting to all other existing systems. UAS Groups 3 through 5 shall utilize NAVFLIRS reporting forms and procedures whenever possible.
2. Some UAS T/M/S have been procured with material readiness systems other than NAVFLIRS. Refer to COMNAVAIRSYSCOM directives for instructions on tracking and reporting data for those aircraft.

14.10.2 UAS Flight Logs

UAS operators and flight crews shall document every UAS flight utilizing a flight log report system separate from that prepared for manned aviation documentation. This log shall contain the following data:

1. Reporting unit, address, and POC information.
2. The names of all UASCs involved in the flight and their flight times.
3. Flight duration time.
4. Flight location.
5. Systems utilized and their status (e.g., up, down, functional, mission capable, etc.).
6. Proficiency and training data.
7. All other information pertinent to the maintenance of UAS and training of UAS flight crews.

At least two hard or electronic copies of every flight log shall be made. One copy shall be kept with the maintenance documentation for the UAS airframe and one copy shall be kept by the operations department. These samples are

by no means all encompassing. Commands are encouraged to continue to develop reporting products as their needs change and to share these products with other UAS custodians.

14.11 GENERAL INSTRUCTIONS ON DUTY INVOLVING FLYING AND ANNUAL FLIGHT PERFORMANCE REQUIREMENTS

Aircraft operations of any type are inherently dangerous. Therefore, additional measures must be taken to ensure that proper levels of proficiency and readiness are established, achieved and maintained. The purpose of this paragraph is to:

1. Enhance UAS safety.
2. Establish training and readiness policies concerning the status of all active duty and reserve Navy and Marine Corps personnel operating UAS.
3. Prescribe guidance on criteria, standards, and regulations to ensure that the skills of all UAS personnel are maintained at acceptable levels of readiness.
4. Implement logging and reporting UAS simulator time.

For matters concerning Marine Corps UAS, operators should also consult Marine Corps Order (MCO) 1000.6 Assignment, Classification, and Travel System (ACTS) Manual for additional information.

14.11.1 Operating UAS While in a Leave Status

UAS operating time accumulated while in a leave status may be used to fulfill the annual UAS operator proficiency requirements.

14.11.2 Minimum Flying Hours

Flight time minimum requirements contained in this chapter are established to ensure an acceptable minimum level of readiness and to enhance aviation safety. Minimum flying hours, the usage of simulators to fulfill such requirements, and minimum crew requirements to regain currency shall be established by each UAS T/M/S NATOPS Model Manager to account for specific UAS capabilities. Failure to complete annual flight hour minimums requires a waiver (see [Paragraph 11.5](#)). UASCs dual-qualified in manned aircraft shall submit a waiver if they fail to achieve UAS annual flight hour minimums even if manned aircraft requirements are met.

14.11.3 Operating Proficiency

The unit NATOPS officer shall maintain the UAC/AVP log books and training records, and keep unit commanders informed of the currency of all assigned UASCs.

14.11.3.1 UAS Proficiency Requirements

To ensure that an acceptable level of readiness is maintained to enhance aviation safety, UAS NATOPS Model Managers shall establish annual proficiency standards for each T/M/S UAS. Simulator flight requirements for each UAS T/M/S shall be conducted in an approved simulator. The following standards shall be met by all applicable UASCs:

1. UASCs shall perform a minimum of one mission or simulator scenario every 90 days and six missions or simulator scenarios every 180 days to remain current. This scenario shall be completed in IAW T/M/S manuals/instructions. The operator must perform a mission scenario in all positions in which the operator is qualified. Each mission shall include a launch and recovery when those skills are required to complete the respective UAS T/M/S scenario.
2. UAC/AVP shall complete one launch and recovery or simulator flight every 90 days to remain current. UAC should complete classroom training to include, but not limited to, reviewing the operator's manual, emergency procedures and proper preparation of both the Ground Control Station (if applicable) and the aircraft. Use of approved UAS simulators in [Appendix K](#) to meet proficiency requirements shall be determined by T/M/S NATOPS Model Managers.

CNAF M-3710.7

3. UACs who deploy after having met all proficiency requirements should remain current during the duration of the deployment and for 45 days following their return from a deployment. Commanders shall make every attempt to maintain operator proficiency for UACs/AVPs throughout the deployment.
4. NATOPS Model Managers shall establish the minimum flight duration required for a flight to count toward UAC/AVP currency requirements.

14.11.3.2 Refresher Training

When a UAC/AVP has not maintained the required proficiency requirements, the UAC/AVP shall receive refresher training. Refresher training may vary from unit to unit, but shall include a review of exercising all core UAS tasks, a review of emergency procedures, setting up and tearing down the system (portable systems only) and at least one UAS or UAS T/M/S simulator flight. At the completion of refresher training the UAC/AVP will be considered current and qualified to perform UAS T/M/S operator duties. Specific requirements for refresher training shall be identified by the UAS T/M/S NATOPS Model Manager and should be administered locally by the unit commander. Satisfactory completion of the refresher training shall be recorded in the individual's training record.

14.11.3.3 Maintaining Proficiency

A UAC/AVP should be required to maintain proficiency from the date of initial qualification, refresher training, or re-qualification as recorded in the operator's logbook or training record.

Note

UAS operating time shall not count toward manned aircraft proficiency requirements, and manned aircraft flying time shall not count toward UAS proficiency requirements.

14.11.3.4 Non-Current UASC

UAC/AVP/MPO/UASC who fail to maintain proficiency requirements and have not completed refresher training shall be declared non-current and shall not be permitted to perform the duties of UAC/AVP until after refresher training has been completed.

14.11.4 UAS Simulators

UAS T/M/S NATOPS Model Managers shall determine the degree to which UAS flight simulators may be used to satisfy UAS proficiency requirements and establish standards for using simulators to maintain individual operator proficiency.

14.12 UASC CLASSIFICATIONS AND DESIGNATION OF UAS FLIGHT AND MAINTENANCE PERSONNEL

This paragraph establishes qualification requirements for each UASC classification. Requirements prescribed here shall be considered by NATOPS Model Managers as the minimum when preparing aircraft NATOPS manuals and other amplifying directives.

14.12.1 UASC Classifications

The following classifications are established for UASC to ensure accomplishment of the unit mission:

1. UAC.
2. AVP.
3. TC.
4. MPO.
5. GMVO.

14.12.1.1 Descriptive Titles for Additional Designations

The foregoing classifications do not prohibit the use of additional descriptive titles within the various UAS T/M/S communities. These titles shall be indicative of a distinct UAS class or employment (e.g., internal pilot, sensor operator, weapons operator, imagery analyst, aerial observer). A descriptive title must be compatible with a significant feature of both the aircraft and its employment. For example, a qualified Payload Operator does not necessarily qualify as a weapons operator or imagery analyst until additional unique training and qualification requirements have been completed and recorded.

14.12.2 Basic UAS Qualification (BUQ) Levels

Detailed qualification requirements for the above UASC classifications, initially developed in CJCSI 3255.01, are listed in [Appendix N](#). These BUQ levels are presented as minimum training standards that are to be utilized when developing requirements for specific UASCs. The diversities of UAS designs, missions, and vehicle technologies make it impossible to prescribe a standard set of training requirements applicable to all crewmembers. For example, highly automated systems may not include manual controls, but instead use keyboard or “point and click” entry methods. In such cases, training certification requirements for manual controls should not be imposed. Conversely, many UAS are limited to GPS navigation and are not capable of using legacy radio aids for navigation and approaches. As a result, the training certification requirements for navigation should reflect the use of GPS skills. Therefore not all knowledge, skills, abilities and training tasks listed in the BUQ levels will be applicable to all UASCs or UAS.

14.12.3 Specific Requirements for Qualification

14.12.3.1 UASC Designations

Regardless of the type of controls, UASCs must be capable of safely conducting UAS missions to include appropriate responses to emergency situations and hazard to other aircraft and personnel on the surface. These unique skills are especially critical when operating in conjunction with other manned and unmanned airborne systems. UASCs must also know how to coordinate with Air Traffic Control representatives when required.

14.12.3.2 UAC

To be qualified to perform the duties of a UAC, the NATOPS manual shall establish the position designation for the particular model UAS, and at a minimum the individual shall:

1. Complete the requirements for and possess the BUQ knowledge, skill, and capabilities required of an AVP.
2. Be NATOPS-qualified in UAS T/M/S and have the required minimum operator/simulator time for the T/M/S UAS.
3. Demonstrate the ability to successfully train UASC personnel in aircrew coordination and mission requirements.
4. Be designated in writing as a UAC by the unit commander.

Upon initial qualification, a candidate for UAC will normally be required to progress successfully through all training requirements for AVP before beginning the qualification requirements for UAC.

14.12.3.3 AVP

To be qualified to perform duties as an AVP an individual shall:

1. Satisfactorily complete a NATOPS evaluation.
2. Be familiar with the primary missions tasked to the AVPs assigned unit and the UAS's weapons system.
3. Complete the requirements for and possess the BUQ knowledge, level of skill, and capabilities required as set forth by the UAS T/M/S NATOPS Model Manager.

CNAF M-3710.7

4. Have achieved minimum operating time in UAS T/M/S as defined by the UAS T/M/S NATOPS Model Manager.
5. Be designated in writing as an AVP by the unit commander.

14.12.3.4 TC

1. Satisfactorily complete a NATOPS evaluation.
2. Have achieved minimum operator time in UAS T/M/S as defined by the UAS T/M/S NATOPS Model Manager.
3. Be designated in writing as a TC.

14.12.3.5 MPO

To be qualified to perform duties as a MPO an individual shall:

1. Satisfactorily complete a NATOPS evaluation.
2. Have achieved minimum operator time in UAS T/M/S as defined by the UAS T/M/S NATOPS Model Manager.
3. Be designated in writing as a MPO by the unit commander.

14.12.3.6 GMVO

To be qualified to perform duties as a GMVO, an individual shall:

1. Satisfactorily complete a NATOPS evaluation.
2. Have achieved a minimum operator time in UAS T/M/S as defined by the UAS T/M/S NATOPS Model Manager.
3. Be designated in writing as a GMVO by the unit commander.
4. GMVOs are not required to maintain a flight physical per NAVMED P-117.

14.12.4 General Requirements for Qualification

14.12.4.1 Initial Qualification

The requirements listed above shall be met by personnel qualifying in UAS to ensure accomplishment of the mission and safety of flight. In addition to the BUQ requirements, T/M/S NATOPS Model Managers shall prescribe additional knowledge and proficiency standards and flight hour minimums based on the class and model UAS and unit mission. The minimum hours specified are required to ensure operators are highly proficient before designation. UAS T/M/S NATOPS Model Managers shall establish time limits within which initial qualifications shall be completed. Waivers of flight hour minimums may be granted by the Unit commander commensurate with demonstrated ability and only when deemed necessary to accomplish events of the unit mission.

14.12.4.2 Transition Course Training

Operators with prior experience in a specific UAS T/M/S will require only a transition course of instruction for respective positional qualification on an updated UAS of the same T/M/S or a UAS of the same group that utilizes the same ground control station. In all other cases, the individual shall be required to undergo initial qualification training on the new UAS T/M/S. In case of any system similarity disputes, the Model Manager of the UAS being transitioned into shall serve as the final authority.

14.12.4.3 Requalification

UAS T/M/S NATOPS Model Managers shall establish requirements for requalification along with the time limits within which they are to be completed. [Appendix N](#) should be used as a reference when establishing these requirements.

14.12.5 Failure To Qualify

UAS T/M/S NATOPS Model Managers shall establish requirements and time limits for crew members who fail to qualify. At a minimum, the unit commander shall ensure the crew member has safely completed all failed requirements.

14.12.6 Revocation of Qualifications

When a commander revokes a qualification for substandard performance, an entry to that effect shall be made in the individual's NATOPS/training record.

14.13 UAS INSTRUMENT RATING

14.13.1 Requirement For UAS Instrument Ratings

Instrument ratings are required for UASCs who control UAs that are capable of instrument flight and operate under IFR. UAS T/M/S NATOPS Model Managers shall establish T/M/S standards for a UAS instrument rating based on the [Appendix N](#) BUQ level IV requirements for incorporation into their respective UAS NATOPS Flight Manuals or equivalent operating publications. Manned aircraft instrument training facilities and curricula may be utilized by UAS personnel to maintain UAS instrument rating requirements. A manned aircraft instrument rating satisfies the UAS instrument rating requirement. Instrument flight time and instrument approaches logged in manned aircraft may be used to satisfy UAS instrument rating requirements.

Note

- Chief of Naval Air Training (CNATRA) will issue or verify instrument ratings to UACs/AVPs following successful completion of an approved instrument training syllabus.
- UAS instrument time and approaches are not authorized toward qualification and currency requirements for manned aircraft instrument ratings.

14.13.2 UAS Instrument Rating Annual Qualification Requirements

A UAC/AVP shall satisfy the following minimum requirements for an UAS instrument rating:

1. Be NATOPS qualified in the UAS.

Note

In aircraft for which there is no NATOPS guidance, 10 hours as AVP in model may be substituted as a minimum time required to establish a NATOPS qualification.

2. Have a minimum of 25 hours of instrument operating time under instrument (actual or simulated) conditions.
3. Within the 6 months preceding the date of the instrument evaluation flight, have logged:
 - a. A minimum of 6 hours as UAC/AVP under instrument conditions.
 - b. A minimum of 6 final instrument approaches. Specific requirements may be established by T/M/S UAS NATOPS Model Managers to account for T/M/S capabilities and characteristics.
4. Within the 12 months preceding the date of the instrument evaluation flight, have logged:

Note

Instrument hours conducted as part of a previous instrument evaluation flight may be applied to minimum requirements if the checkflight occurred within 12 months of the date of the evaluation flight.

- a. A minimum of 12 hours as a UAC/AVP under instrument conditions (i.e. if the instrument checkflight occurs on 24 January 01, count all instrument hours and approaches after 24 January 00).
 - b. A minimum of 12 final instrument approaches. Specific requirements may be established by T/M/S UAS NATOPS Model Managers to account for T/M/S capabilities and characteristics.
5. Attend a CNAF-approved instrument ground school if one is available.
 6. Pass an approved written closed-book NATOPS instrument examination.
 7. Pass a NATOPS instrument flying evaluation that reflects the requirements contained in the T/M/S UAS NATOPS or the Instrument Flight Manual.

Note

Instrument flight time and instrument approaches accumulated in approved flight simulators may be used to fulfill instrument flight time and instrument approach requirements within T/M/S UAS NATOPS Model Manager guidance.

14.13.3 Instrument Rating Administration

14.13.3.1 Aircraft Considerations

UAS instrument ratings are valid for all UAS T/M/S in which the UAC/AVP is NATOPS qualified, regardless of the model with which the check was flown. A UAC/AVP is instrument qualified for any UA upon completing the qualification requirements as published in the respective NATOPS/operating manual, meeting the requirements for an instrument rating listed in [Paragraph 14.13.2](#), and being signed off as complete by the unit commander.

14.13.3.2 Issuing Authority

Unit commanders or reporting seniors, as appropriate, have the authority to issue instrument ratings to qualifying UACs/AVPs.

14.13.3.3 Restrictions on Instrument Ratings

Under no circumstances shall UAS instrument ratings be issued when the requirements of this chapter have not been met. The endorsement of instrument ratings to limit their applicability or use in any way is not authorized without specific approval of COMNAVAIRFOR or CMC.

Note

UAS instrument time and approaches are not authorized toward qualification and currency requirements for manned aircraft instrument ratings.

14.13.4 Initial Qualification For UAS Instrument Ratings

14.13.4.1 Initial Qualification For An Instrument Rating

Initial qualification for an UAS instrument rating will normally take place during the UASCs period of initial UAS familiarization and training.

14.13.4.2 Expiration of Instrument Flight Qualifications

Once conferred, the initial UAS instrument rating is valid for a period of one year from the last day of the month in which the qualification was attained.

14.13.5 UAS Instrument Rating Renewal Requirements

14.13.5.1 Period for Renewal/Expiration of Renewed Instrument Rating Qualifications

Renewal instrument evaluations may be accomplished within 60 days preceding expiration of a current rating/qualification and will be valid for 12 months from the last day of the month in which the current rating/qualification expires. Otherwise, ratings/qualifications will be valid for 12 months from the last day of the month in which the evaluation is completed ([Paragraph 13.1.2.1](#) applies).

14.13.5.2 Period of Grace For Requalification

1. Newly assigned Navy/Marine Corps Reserve AVPs shall be granted a period of 6 months from date of first reporting to requalify.
2. UACs/AVPs returning from duties where a valid instrument rating/qualification could not be maintained and who had requirements waived by COMNAVAIRFOR or CMC shall be granted a period of 6 months in which to requalify.
3. When a UAC/AVP is ordered to a formal course of flight instruction that involves an instrument syllabus, and the crewmember's instrument rating qualifications expire prior to or during the training period, renewal of the instrument rating may be delayed until the UAC achieves NATOPS qualification in the UAS T/M/S for which the crewmember is undergoing training.

14.13.5.3 Extensions

Extensions to instrument ratings beyond the expiration dates may be granted under the conditions listed in [Paragraph 13.1.2.3](#).

14.13.6 Failure To Meet Renewal Requirements

UACs who are required to qualify for an instrument rating and have not done so within the required time period shall be reassigned by their unit commander to duties not requiring an instrument rating.

14.13.7 Revoking of Instrument Ratings

A unit commander / unit commander authorized to issue an instrument rating is authorized to revoke the instrument rating of any UAC/AVP attached or assigned to the command when, in the unit commander/unit commander's opinion, the UAC has displayed a lack of instrument flying proficiency.

This Page Intentionally Left Blank.

APPENDIX A

NATOPS Flight Personnel Training/Qualification Jacket

A.1 INTRODUCTION

This appendix describes the composition of the NATOPS Flight Personnel Training/Qualification Jacket, required by [Chapter 10](#) for each individual assigned to flying duties, and provides procedures and responsibilities for its preparation, maintenance and disposition.

A.1.1 Purpose

The NATOPS Flight Personnel Training/Qualification Jacket, OPNAV 3760/32, provides a consolidated record of the training status and readiness of flight personnel and serve as a repository for certain aviation records accumulated by flight crewmembers during active aviation tours.

A.1.2 Scope

Subject jacket is intended to provide commanding officers with pertinent data to assist in assignment, utilization, and training of individuals. Properly maintained, it presents a cumulative history and concise summary of qualifications. It is not a forum for evaluating the performance of an officer or enlisted aircrew member. The jacket will not become part of the individuals personnel records within BUPERS except as noted in [Paragraph A.1.5](#).

A.1.3 Responsibility

Responsibilities pertaining to custody of NATOPS flight personnel training qualification jackets are as follows:

1. Commanding officers shall ensure that custody and maintenance of qualification jackets are in accordance with provisions of this instruction.
2. Ensure that jackets are maintained for all assigned flight personnel.
3. Flight personnel, when flying with a unit other than the one that regularly maintains their jacket, shall ensure that the unit with which they are flying is provided temporary custody of the jacket.

A.1.4 Security

The jacket is "For Official Use Only" in accordance with DoD 5400.11-R. No information may be divulged from it, except to persons possessing a need to know. Only the individual and personnel designated in writing by the commanding officer may have access to qualification jackets. In accordance with SECNAVINST 5211.5, attach OPNAV 5211/9, (Disclosure Accounting Form — Record of Disclosure), and the "Privacy Act Statement" ([Figure A-1](#)) inside the front cover of the NATOPS jacket.

A.1.5 Disposition

Upon detachment from a squadron/command, or from active duty service the jacket will be reviewed, certified by the commanding officer or a designated representative, and given to the individual. In the event of death, the jacket will be treated as personal effects.

Figure A-1. Privacy Act Statement

PRIVACY ACT STATEMENT

FOR

OPNAV 3760/32 (REV 4-81) — NATOPS FLIGHT PERSONNEL TRAINING/QUALIFICATION JACKET

THIS STATEMENT IS PROVIDED IN COMPLIANCE WITH THE PROVISIONS OF THE PRIVACY ACT OF 1974 (PL 92-579) WHICH REQUIRE THAT FEDERAL AGENCIES MUST INFORM INDIVIDUALS WHO ARE REQUESTED TO FURNISH INFORMATION ABOUT THEMSELVES AS TO THE FOLLOWING FACTS CONCERNING THE INFORMATION REQUESTED.

1. AUTHORITY :TITLE 10 & 37 USC
2. PRINCIPLE PURPOSE(S): TO ASSIST IN MAINTAINING A PERMANENT RECORD OF YOUR TRAINING, DESIGNATIONS, QUALIFICATIONS, CLEARANCES, FLIGHT RECORDS, AND NASTP REQUIREMENTS.
3. ROUTINE USE(S): THIS INFORMATION WILL BE USED ONLY BY THOSE PERSONNEL WHO ARE PROPERLY AND DIRECTLY CONCERNED ACCESS TO THIS RECORD MAY BE GRANTED ONLY AS PROVIDED BY THE CURRENT EDITION OF THE AUTHORIZING INSTRUCTION.
4. MANDATORY OR VOLUNTARY DISCLOSURE: VOLUNTARY FAILURE TO PROVIDE THIS ACCESS AUTHORIZATION MAY RESULT IN DELAYS TO PROPER ENTRIES BEING MADE TO YOUR RECORD AND/OR THE TIMELY SCHEDULING OF PERIODS TO COMPLETE REQUIRED ITEMS, (E.G., NASTP REQUIREMENTS).

SIGNATURE: _____

DATE: _____

A.1.6 Review

The individual's jacket will be periodically reviewed by the commanding officer or a designated representative to ensure accuracy and currency. The review shall be conducted:

1. Upon reporting to a unit.
2. Annually (within 30 days of date of birth).
3. Upon major change in flight status.

A.1.7 Design

The jacket is composed of a cover, standard sectional and topical dividers, and pertinent documents and records. It is divided into four sections. Each section is divided into topical parts with appropriate titles.

A.1.8 Maintenance

1. The jacket shall be maintained in accordance with the provisions of this appendix.
2. No records or documents will be inserted that do not provide pertinent data concerning the aviation status of the individual.
3. Individuals will not insert or remove records without approval of the commanding officer.

A.1.9 Forms

OPNAV 3760/32A (NATOPS Flight Personnel Training/Qualification Jacket Section IA — Review and Certification Record) through OPNAV 3760/32H (NATOPS Flight Personnel Training/Qualification Jacket Section IVB — Mishap/Flight Violation Record) may be obtained through normal supply channels in accordance with NAVICP PUB 2003 and NAVSUP PUB P409 or downloaded from the Naval Forms Online website at <https://navalforms.documentservices.dla.mil> website.

A.2 ASSEMBLY AND MAINTENANCE

A.2.1 General

Part A shall contain the NATOPS flight personnel training/qualification jacket review and certification record. OPNAV 3760/32A shall be utilized.

Part B shall contain a copy of only the most recent PCS orders showing the current authority for flying status. Letters from enlisted aircrew indicating their volunteer flight status shall be filed in this section. Letters of suspension and/or revocation of flying status shall be filed in this part for permanent retention.

Part C shall contain the signed original of the current standard DD Form 2992 (Medical Recommendation for Flying or Special Operational Duty); Naval Aviation Anthropometric Compatibility Assessment. Forms maintained include those covering annual flight physicals and most current up chits from any grounded period (the exception being a grounding notice that "expires automatically," in which case a clearance notice is not required). They will be retained until the succeeding years annual flight physical clearance notice is received.

Part D shall contain a record of flight equipment issued. OPNAV 3760/32B (NATOPS Flight Personnel Training/Qualification Jacket Section ID — Record of Flight Equipment Issue) shall be utilized.

A.2.2 Qualifications and Achievements

Part A shall contain a permanent record of all functional designations prescribed in [Chapters 12 and 13](#) and specific NATOPS manuals. Examples of qualifications to be recorded on OPNAV 3760/32C (NATOPS Flight Personnel Training/Qualification Jacket Section IIIA — Flight Personnel Designation Record) are aircraft commander, helicopter, second pilot, maintenance functional check pilot, and NATOPS evaluator/instructor. To maintain a historical record, copies of designation letters containing designation dates and approving authority signature shall be maintained following OPNAV 3760/32C.

Part B shall contain a permanent record of all other designations not included in Part A above. Tactical-oriented and mission-oriented designation shall be recorded on OPNAV 3760/32D (NATOPS Flight Personnel Training/Qualification Jacket Section IIB — Mission Qualification Record). Designation letters may also be retained in this part.

A.2.2.1 Revoked Qualifications

When a commanding officer revokes a qualification for substandard performance, a suitable entry shall be made in Section II, Part A or Part B as appropriate.

A.2.3 Training

Part A shall contain a record of all formal schools and courses attended. OPNAV 3760/32E (NATOPS Flight Personnel Training/Qualification Jacket Section IIIA — School/Course Attendance Record) shall be utilized. CRM training and flight evaluations shall be logged in the individual NATOPS Flight Personnel Training/Qualification Jacket in Section II, Part C on Enclosure (3) of CNAFINST 1542.7. Regular squadron and ground training lectures will not be included. Part A, Section 3 shall also include a copy of the training command student summary and all FRS summaries for training completed after 1 January 1988. Summaries for training completed prior to this date are desired but not mandatory.

Part B shall contain a permanent record of NASTP (formerly NAWSTP and NAPTP), SERE, NITE Lab and annual egress training. OPNAV 3760/32F shall be utilized. Qualification letters for NASTP are preferred. Training course description and signature are required as documentation. Type of sensor (e.g., AN/AVS-9, FLIR, etc.) is also required for NITE Lab training documentation. Annual egress training conducted locally for other than ejection seat equipped aircraft shall be recorded on OPNAV 3760/32F. Any and all competent, qualified and/or designated FS, APA, NAOP, Corpsmen, divers, PR, seat mechanics, aircrew, and other instructors providing training within their area of expertise may record and sign the entry to document completion of the training. No further documentation is necessary or desired.

Part C shall contain a record of all examinations (on a 4.0 scale) pertinent to the individual's aviation qualifications. OPNAV 3760/32G (NATOPS Flight Personnel Training/Qualification Jacket Section IIIC — Examination Record) shall be utilized. The most current open and closed book exam or answer sheet, if appropriate shall be included following OPNAV 3760/32G.

Part D shall contain all NATOPS evaluation records (OPNAV 3710/7). (Effective from the date of this instruction, Marine Corps commands shall include a NATOPS evaluation form with each OPNAV 3710/7. Samples may be found in MCO 3500.14 and/or NAVMC 3500.14 (as applicable) and individual NATOPS manuals.)

Part E shall contain all instrument rating requests (OPNAV 3710/2). If an extension has been granted, this section shall contain the approved waiver for the extension.

A.2.4 Flight Records

The Aviators Flight Log Book is the official document of pilot history. Copies of a SHARP/T-SHARP/M-SHARP/FIST summary for the current fiscal year should be maintained in Part A.

Part B shall contain a permanent record of all aircraft mishaps/flight violations involving an aircrew causal factor, and FNAEB results. In addition to those entries authorized by [Paragraph A.2.1](#), the FNAEB entry shall consist of the date of the FNAEB and comments by the commanding officer. The commanding officer may not delegate this responsibility. OPNAV 3760/32H shall be utilized.

A.2.5 Procurement

1. The basic jacket with dividers, OPNAV 3760/32I (Flight Jacket Divider Tabs), may be ordered using S/N 0107-LF-736-2112. Existing jackets, OPNAV 3760/32 (Rev. 11-73), may be adapted to this instruction by inserting tabs included with OPNAV 3760/32I.
2. Forms may be procured as stated in [Appendix L](#).

This Page Intentionally Left Blank.

APPENDIX B

Aircraft Visual Identification System

B.1 GENERAL

In response to the requirement in [Chapter 9](#) to establish a unique identity for each naval aircraft, this appendix establishes a visual identification system for naval aircraft and provides for assignment of aircraft markings and side numbers that identify aircraft of one unit from those of another. The system, provides a means of rapid identification of Navy and Marine aircraft that is simple, flexible, and readily adaptable to expansion in the event of mobilization. Requests for changes or recommendations for assignment of identification letters to new or activated reserve units issued aircraft for custody shall be made to CNO (N88H) via the chain of command. To expedite the request, submit via email to aviationhistory@navy.mil.

B.1.1 Unit Identification

CNO will assign unit identification letters for aircraft of air wings/groups and squadrons in accordance with the following guidelines.

B.1.1.1 Present Assignments

Identification letters presently assigned will be retained, permanently regardless of transfers of units between fleets.

B.1.1.2 Future Assignments

Future assignments will consist of either a single letter (CNATRA) or a combination of any two letters or numbers indicated below:

Command	First Character	Second Character
NAVAIRLANT	A through M	A through Z
NAVAIRPAC	N through Z	A through Z
CNATRA	A through G	None

Note

Upon decommissioning, the identification letter will revert to CNO for future use.

B.1.1.3 Additional Identification Characters

Expansion of this system will be accomplished by assigning the numerals 2 through 9 as the first character in place of a letter.

B.1.1.4 Exceptions

The letters I and O are too easily confused with numerals and shall not be used.

B.1.1.5 Listing

Assigned visual identification letters/numbers are posted on the Airworthiness website, <https://airworthiness.navair.navy.mil>.

CNAF M-3710.7

B.1.1.6 Other Aircraft

Aircraft assigned to units other than those provided for above shall be identified by spelling out the name of the station or unit (i.e., NORFOLK, NIMITZ, YUMA, etc.).

B.1.2 Aircraft Side Numbers

Aircraft side numbers are assigned by force, wing, group, or squadron commanders, as appropriate. To achieve correlation between the electronic (IFF/SIF) and visual identification of each aircraft, combat and combat support aircraft shall be numbered using octal numbers (i.e., only the numerals 0 through 7). CVW Commanders shall assign squadron aircraft identification side numbers. Squadrons and units of CNATRA shall number their aircraft as directed by the Chief of Naval Air Training. Fleet replacement squadrons with aircraft employing the automatic precision approach and landing system (PALS) shall number their aircraft with three-digit octal numerals. Activities and units other than those included above shall number their aircraft by utilizing the last three digits of the bureau number.

B.1.3 Marking of Aircraft

The provisions of the current version of Military Specification for Insignia and Markings for Naval Aircraft (MIL-STD-2161A (AS)) apply in the implementation of the visual identification system.

APPENDIX C

Directives Listed as References in this Manual

C.1 REFERENCES TO DIRECTIVES

Directive that appear as references in this manual are found in [Figure C-1](#) and websites on which they can be found are shown in [Figure C-2](#).

C.1.1 Directives Referenced in this Manual

The term directive as used in this appendix refers to instructions, notices, and other authoritative publications such as technical manuals. Directives listed in [Figure C-1](#) are in ascending numerical order, and each directive is marked with its current revision.

Note

Directives cited within the chapters and other appendixes of this manual are listed by series only (without current revision annotations).

Figure C-1. Directives Listed As References in this Manual

NUMBER	SOURCE	TITLE
None	DOD	DoD Flight Information Publication (FLIP) Documents
None	DOD	DoD Foreign Clearance Guides
00-80T-112	NAVAIR NATOPS Manual	NATOPS Instrument Flight Manual
00-80T-113	NAVAIR NATOPS Manual	Aircraft Signals NATOPS Manual
None	FAA	Aeronautical Information Manual
00-80T-114	NAVAIR NATOPS Manual	NATOPS Air Traffic Control Manual
00-80T-123	NAVAIR NATOPS Manual	Aircrew Systems NATOPS Manual
00-80T-124	NAVAIR NATOPS Manual	NATOPS Airfield Operations Manual
00-80T-125	NAVAIR NATOPS Manual	Air Traffic Control Afloat NATOPS Manual
00-80T-126	NAVAIR NATOPS Manual	Aircraft Operating Procedures for LPD/ESB Ships NATOPS Manual
01-1B-50	Joint Service Technical Manual	Organizational, Intermediate and Depot Maintenance Aircraft Weight and Balance
3-50.1 (Rev A)	NTTP	Search and Rescue (SAR) Manual
3-52	JP (Joint Pub)	Joint Airspace Control
11-301 Vol 1	USAF Instruction (AFI)	Aircrew Flight Equipment (AFE) Program

Figure C-1. Directives Listed As References in this Manual (cont.)

NUMBER	SOURCE	TITLE
13-1-6-series and 13-1-6.1 thru 13-1-6.10 (Various dates)	NAVAIR Maintenance Manuals	Aviation Crew Systems Manuals Series (Various Titles)
16-30PRC 90-2	NAVAIR Maintenance Manuals	Subject: AN/PRC-90 & AN/PRC-90-2 Radio Sets
16-30PRC 149-1	NAVAIR Maintenance Manuals	Subject: AN/PRC-149, -149A & -149A-T1 Radio Sets
16-30URT 140-1	NAVAIR Maintenance Manuals	Subject: AN/URT-140 & -140A T1 Radio Beacon Sets
16-35AVS 9-4	NAVAIR Maintenance Manuals	Subject: AN/AVS-9 Night Vision System Manual Image Set & Survival Night Vision Scope)
16-35PRC 112-1	NAVAIR Maintenance Manuals	Subject: AN/PRC-112 Radio Set and Program Loader Kit KY-913
16-35PRC 112-1-1	NAVAIR Maintenance Manuals	Subject: AN/PRC-112-1 Radio Set
Part 91	FAA (Regulations)	Federal Aviation Regulations
P-117	NAVMED	Manual of the Medical Department (MANMED)
119	JANAP	Joint Voice Call Sign Book
P-409	NAVSUP	MILSTRIP/MILSTRAP Desk Guide
P-505	NAVSUP	Preparing Hazardous Materials for Military Air Shipments
1000.16 series	OPNAV	Total Force Manpower Policies and Procedures
1000.6	MCO	Assignment, Classification, and Travel System (ACTS) Manual
1326.2 series	MCO	Administration of Temporary Flight Orders
1326.4 series	BUPERSINST	Administration of Enlisted Flight Orders, Career Enlisted Flyer Incentive Pay (CEFIP), and Hazardous Duty Incentive Pay (HDIP) for Aerial Flight
1542.4 series	OPNAV	Aeromedical Dual Designator Program
1542.7	COMNAVAIRFORINST	Crew Resource Management Program
2161A(AS)	MIL-STD	Military Specification for Insignia and Markings for Naval Aircraft
P-3050	NAVSO	Pay and Procedures for Military Personnel Manual (PAYPERSMAN)
3130.6 series	OPNAVINST	Naval Search & Rescue Standardization Program
3140.14 series	NAVMETOCOMINST	Procedures Governing Flight Weather Briefings and Preparing DD Form 175-1 and U.S. Navy Flight Forecast Folder
3255.01 w/Chg 1	CJCSINST	Joint Unmanned Aircraft Minimum Training Standards
3500 series	COMNAVAIRFORINST	Squadron Training and Readiness Manuals
3500.14 series	MCO	Aviation Training and Readiness (T&R) Manual

Figure C-1. Directives Listed As References in this Manual (cont.)

NUMBER	SOURCE	TITLE
3500.39 series	OPNAVINST	Operational Risk Management
3533	NATO STANAG	Safety Rules and Flying Displays
3564FS	NATO STANAG	Rules for Live Weapons Demonstrations
3710.1 series	NAVAIRINST	Contractor's Flight and Ground Operations
3710.7 series	OPNAVINST	Naval Air Training and Operating Procedures Standardization Program
3710.8	MCO	USMC Naval Air Training and Operating Procedures Standardization (NATOPS) Program
3710.9 series	NAVAIRINST	Anthropometric Accommodation in Naval Aviation
3710.37 series	OPNAVINST	Anthropometric Accommodation in Naval Aircraft
3722.33 series	OPNAVINST	Federal Aviation Administration Order JO 7610.4 Special Operations
3750.6 series	OPNAVINST	Naval Aviation Safety Management System
4500.54 series	DODD	DOD Foreign Clearance Program (FCP)
4540.01	DODDINST	Use of International Airspace by U.S. Military Aircraft and for Missile/Projectile Firings
4630.25 series	OPNAVINST	Air Transportation Eligibility
4631.2 series	OPNAVINST	Management of Department of the Navy (DON) Airlift Assets
4790.2 series	COMNAVAIRFORINST	The Naval Aviation Maintenance Program (NAMP)
4790.2 series	OPNAV	The Naval Aviation Maintenance Program (NAMP)
5030.36	DODINST	Emergency Security Control of Air Traffic (ESCAT)
5100.27 series/5104.1 series	OPNAVINST/MCO	Navy Laser Hazards Control Program
5154.29	DODD	DOD Pay and Allowances Policy and Procedures
5210.8 series	SECNAVINST	Department of the Navy Records Management Program
5210.16	SECNAVINST	Department of the Navy (DON) Forms Management and Information Requirements (Reports) Management Program
5211.5 series	SECNAVINST	Department of the Navy (DON) Privacy Program
5370.7 series	SECNAVINST	Military Whistleblower Reprisal Protection
5400.11 series	DODR	Department of Defense Privacy Program
5510.34 series	SECNAVINST	Disclosure of Department Classified of Military Information and Controlled Unclassified Information to Foreign Governments and International Organizations, and Foreign Representatives
5510.36 series	SECNAVINST	Department of Navy (DON) Information Security Program (ISP) Regulation Information

Figure C-1. Directives Listed As References in this Manual (cont.)

NUMBER	SOURCE	TITLE
5720.44 series	SECNAVINST	Department of the Navy Public Affairs Policy and Regulations
5750.12 series	OPNAVINST	Annual Command Operations Report
5800.7 series	JAGINST	Manual of the Judge Advocate General (JAGMAN)
5820.7 series	SECNAVINST	Cooperation with Civilian Law Enforcement Officials
6001.1	SECNAVINST	Guidelines Concerning Pregnant Servicewomen
6055.1	DODI	DOD Safety and Occupational Health (SOH) Program
6110.1 series	OPNAVINST	Physical Readiness Program
6320.24 series	SECNAVINST	Mental Health Evaluation of Members of the Armed Forces
P-6410	NAVMED	Performance Maintenance During Continuous Flight Operations
6410.9	BUMEDINST	Medical Monitoring of Flight Personnel in Locations Where Flight Surgeons Are Not Available
6490.1	DODD	Mental Health Evaluations of Members of the Armed Forces
7000.14R Vol 7 series	DOD	DoD Financial Management Regulation, Volume 7A: Military Pay Policy — Active Duty And Reserve Pay
7110.10 series	FAAO	Flight Services
7110.65 series	FAAO	Air Traffic Control
7220.18	OPNAVINST	Aviation Career Incentive Pay
7610.4 series	FAAO	Special Operations
7730.67	DOD	Aviator Incentive Pays and Bonus Program
8260.3	FAAO	U.S. Standard for Terminal Instrument Procedures (TERPS)
13034.1 series	NAVAIRINST	Flight Clearance Policy for Air Vehicles and Aircraft Systems
14887-07	DOD FAA UAS MOA	Memorandum for Agreement for the Operational of Unmanned Aircraft Systems in the National Airspace
15560 series	NAVPERS	Naval Military Personnel Manual (NAVMILPERMAN)
N/A	ACO NATOPS Style Guide	NATOPS Program Technical Publications and Products; Style, Format, and Common Technical Content

C.1.2 Websites for the Above Directives

Directives listed in [Figure C-1](#) can be accessed and downloaded from the following websites listed in [Figure C-2](#):

Figure C-2. Websites Hosting Directives Listed in this Manual

Type Directive		Website URL
BUMED	Instructions	http://www.med.navy.mil/directives/Pages/BUMEDInstructions.aspx
BUPERS	Instructions	http://www.public.navy.mil/bupers-npc/reference/instructions/BUPERSInstructions/Pages/default.aspx
CNAF	Instructions	
	4790.2 Only	http://www.navair.navy.mil/logistics/4790
	Other than 4790.2	http://www.gpo.gov/fdsys/browse/collectionCfr.action?collection-Code=CFR
CFR	Regulations	http://www.gpo.gov/fdsys/browse/collectionCfr.action?collection-Code=CFR
CJCS	Instructions	http://www.dtic.mil/cjcs_directives/cjcs/instructions.htm
	Joint Publications (JPs)	https://jdeis.js.mil/jdeis/index.jsp?pindex=2
DLA	MIL-STDs	http://quicksearch.dla.mil
DOD	Directives	http://www.dtic.mil/whs/directives/corres/dir.html
	Flight Information Publications	http://https://dbgia.geointel.nga.mil
	Instructions	http://www.dtic.mil/whs/directives/corres/ins1.html
	Publications	http://www.dtic.mil/whs/directives/corres/pub1.html
DOD/FAA	MOA	https://airworthiness.navair.navy.mil
FAA	Aeronautical Information Manuals	http://www.faa.gov/airtraffic/publications/ATpubs/AIM/aim.pdf
	Orders/JOs	http://www.faa.gov/regulations_policies/orders_notices
	Regulations	http://www.faa.gov/regulations_policies/faa_regulations
JAG	Instructions	http://www.jag.navy.mil/library/instructions.htm
NATO	STANAGs (Standardized Agreements)	http://nsa.nato.int/nsa/nsdd/listpromulg.html
NAVAIR	Instructions	http://mynavair.navair.navy.mil/portal/directives
	NATOPS Manuals	https://airworthiness.navair.navy.mil
	ACO NATOPS Style Guide	https://airworthiness.navair.navy.mil
	Maintenance Manuals	https://mynatec.navair.navy.mil
NAVMED	MANMED	http://www.med.navy.mil/directives/Pages/NAVMEDP-MANMED.aspx
NAVMED-OCCOM	Instructions	https://www.portal.navy.mil/cnmoc/instructions/default.aspx
NAVPERS	MILPERSMAN	http://www.public.navy.mil/bupers-npc/reference/milpersman/Pages/default.aspx

Figure C-2. Websites Hosting Directives Listed in this Manual (cont.)

Type Directive		Website URL
NAVSUP	Publications	https://nll2.ahf.nmci.navy.mil/nll/brow_nll_inst.cfm
OPNAV and SECNAV	Instructions	http://doni.documentservices.dla.mil/default.aspx
USAF	Instructions	http://www.e-publishing.af.mil
U.S. Gov't	U.S. Code	http://uscode.house.gov
USMC	MCOs	http://www.marines.mil/News/Publications/ELECTRONICLIBRARY.aspx
U.S. Navy	NTTPs	https://ndls.nwdc.navy.mil/default.aspx

APPENDIX D

Total Mission Requirement (TMR) Codes

D.1 PURPOSE

This appendix contains the Total Mission Requirement (TMR) Codes required for entry into the Naval Aircraft Flight Records (NAVFLIRS) and air crewmember's Aviators Flight Log Book addressed in [Chapter 10](#).

D.2 NAVAL AIRCRAFT/SIMULATOR FLIGHT CLASSIFICATION SYSTEM**D.2.1 Primary Source**

The TMR codes set forth in this appendix supersede the flight purpose codes (FPCs) of previous editions. TMR codes cover a full range of flight operations from training (including simulators) to combat. The TMR code is developed from a three-character code matrix with the first character representing the flight purpose, the second character representing the general purpose, and the third character representing the specific purpose. The definition of assigned TMR codes is outlined below. This instruction is the primary source of TMR codes and all personnel using these codes shall be made aware of the existence of this source. The naval aircraft flight record, OPNAV 3710/4, provides space to document as many as three missions and their associated times for one flight.

D.2.2 Deviation

No variations from the classifications specified herein are to be made without CNO (N98) approval.

D.3 APPLICABILITY OF THE TOTAL MISSION REQUIREMENT CODES

TMR codes apply to all flight personnel, aircraft, and approved simulators. They should reflect the primary purpose for the flight regardless of varying purposes particular individuals have for being aboard.

D.4 CLASSIFICATION OF TOTAL MISSION REQUIREMENT CODES**D.4.1 Purpose of Flight**

The purpose of flight by naval aviators/naval aircraft or approved simulators shall be described by a three-character code in the following sequence:

1. The first position of the TMR is the FPC and denotes the type of operation.
 - a. Training Flights conducted for the purpose of training (both individual and as a crew) to maintain or improve the readiness of the activity to perform its assigned mission.
 - b. Support Services. Flights conducted in support of an assigned mission including tests, logistics, search and rescue, troop transports, etc., either independently or as part of a squadron function.
 - c. Operations. Navy flights conducted in support of operational tasking not specifically designated as contingency operations.
 - d. FMF Operations. Marine flights conducted as part of an exercise while deployed with a battle group or task force.
 - e. Contingency Flights. Flights conducted in support of contingency operations as delineated by the type commander.
 - f. Combat Flights. Combat flights shall be used only for aircraft and by units specifically designated by competent authority as being in combat status. This rule shall be strictly followed even though a

combatant incident did occur or was likely to occur on the flight (i.e., fired upon by unfriendly forces, search for or detection of unfriendly submarine, flight over or near areas where it is prudent to anticipate hostile action against the aircraft, etc.).

- g. Exercise Flights. Flights conducted as part of an authorized fleet exercise as designated by the battle group or type commander.
2. The second position of the TMR is the GPC and denotes the general purpose of the flight. GPCs N and O will be used to document aborts and/or cancellations and may be used with FPCs 1 through 7.
 - a. FPC 1 only GPCs of A through I, P, or R can be used.
 - b. FPC 2 must be used with GPCs of J through R.
 - c. FPCs 3 through 7 must be used with GPCs S through Z.
3. The third position of the TMR is the specific purpose code (SPC) and denotes the specific purpose of the flight.

D.5 GENERAL/SPECIFIC PURPOSE OF FLIGHT CODE COMBINATIONS A THROUGH I (TRAINING FLIGHTS)

D.5.1 General Purpose Codes

GPCs for training flights (A through I) are used as follows:

1. Use code A if the flight is for training, exercises, or simulated operations conducted by a fleet/Fleet Marine Force (FMF)/air reserve squadron or unit (nontraining command) to which the pilot is attached when such flight maintains or advances the ability of the squadron or unit to perform the mission for which organized. May be used for flights by training command personnel that do not properly fall under codes C through I.
2. Use code B if flight is for syllabus training of a designated naval aviator undergoing formal instructor training (IUT).
3. Use code C within air commands for pilots assigned thereto when locally imposed requirements for a particular kind of flying are necessary to prepare for satisfactory performance within the command.

Note

When a pilot flies with a squadron or other unit whose primary mission is carried out by the flight of aircraft, the pilot may consider themselves an integral part of that unit. If the pilot makes a flight that maintains or advances the ability or readiness of the unit to perform its assigned mission, the purpose of the flight is unit training (code A), and the effect on individual proficiency is irrelevant.

4. Use code D, E, F, or G for flights by Navy and Marine Corps aircrew attached to units of CNATRA (excluding reserves) and Fleet Replacement Squadrons as required or provided by training command training syllabus.
 - a. Use code D if flight is for syllabus training of a student naval aviator undergoing formal training to become a designated naval aviator.
 - b. Use code E if flight is for syllabus training of a designated naval aviator undergoing formal training.
 - c. Use code F if flight is for syllabus training of a designated naval aviator when the purpose of the flight does not support a formal training syllabus (i.e., standardization evaluations, instrument checks, or attaining minimum annual flying requirements).
 - d. Use code G if flight is for special training (including crew training) for completion of a nonpilot training syllabus (i.e., NFO, AI, midshipmen, student flight surgeon training).
5. Use code H or I for training of nonnaval personnel.

- a. Use code H if flight is for the purpose of training, familiarization, or proficiency of personnel of other services of the United States (i.e., Air Force, Army, Coast Guard).
- b. Use code I if flight is for the purpose of training, familiarization, or proficiency of personnel of foreign countries.

D.5.2 Specific Purpose Codes

SPCs to be used with GPCs A through I are listed below. Codes A through I must always be followed by one of the number codes listed below, selecting the code denoting the primary type of training (if syllabus flight, the most advanced requirement being met; if nonsyllabus flight, that on which most effort was spent). In any case, the character following codes A through I shall always refer to the following list:

- 1 — Fundamentals — Familiarization, aerobatics, formation, cross-country, navigation, etc.
- 2 — Instrument — General instrument or all-weather, when principal objective of flight.
- 3 — Field carrier landing practice.
- 4 — Carrier qualification.
- 5 — Transition Jet, VP, VR, helicopter, etc.
- 6 — Air combat intercept, fighter escort, air-to-air gunnery, etc.
- 7 — Attack — Surface targets; bomb, rocket, torpedo, etc.; non-USW.
- 8 — Antisubmarine — Patrol, search, escort, attack, minelaying, etc.
- 9 — Special equipment — AEW, ECM, AMCM, photo, etc.
- 10 — Unsatisfactory syllabus.

D.6 GENERAL/SPECIFIC PURPOSE OF FLIGHT CODE COMBINATIONS J THROUGH R (SERVICE FLIGHTS)

D.6.1 SPCs To Be Used With GPCs J and K for Service Flights

- J1 — Those ferry flights funded from the fleet ferry fund managed by the respective TYCOM. Reporting custodians shall ascertain from the controlling custodian under what circumstances the flight categories apply.
- J2 — Those ferry flights funded from other sources (i.e., unit operating budgets, allotments, etc.).
- K1 — Those functional checkflights funded from the fleet ferry fund managed by the respective TYCOM. Reporting custodians shall ascertain from the controlling custodian under what circumstances the flight categories apply.
- K2 — Those functional checkflights funded from other sources (i.e., unit operating budgets, allotments, etc.).
- K3 — Functional checkflight observer.
- K4 — Bogey in support of other aircraft.
- K5 — Bogey in support of ground units.
- K6 — Bogey in support of ship operations.
- K7 — Flying qualities or performance evaluation of aircraft.
- K8 — Accelerated service test or propulsion system evaluation.
- K9 — Navigation, weapons, or electronic warfare evaluation.
- K0 — Carrier suitability or dynamic interface evaluation.

D.6.2 GPCs L, M, N, and O for Service Flights

1. Code L (Experimental/Evaluation) Experimental, developmental, or evaluation flights of aircraft, its equipment, or an individual (i.e., NATOPS check).
 - L1 — Operational test and evaluation (OT&E).
 - L2 — Operational readiness inspection (ORI).
 - L3 — Instrument check.
 - L4 — NATOPS check.
 - L5 — Instructor standardization, test pilot training, or qualification evaluation.
 - L6 — Special weapons evaluation.
 - L7 — Ordnance separation, conventional, or nuclear weapon evaluation.
 - L8 — Drone support or target towing.
 - L9 — Aircraft or survival system evaluation.
 - L0 — Project support or other.
2. Code M (Logistics Support) Use code M if flight is for the purpose of logistics support as follows:
 - M1 — MAG/CVW commitment: A logistics flight in support of the MAG/CVW.
 - M2 — MAW/functional/typewing commitment: A logistics flight scheduled for support of the wing.
 - M3 — NAS/MCAS commitment: A logistics flight in support of the air station.
 - M4 — FMF/CINC commitment: Flights flown in support of FMF/CINC units.
 - M5 — CMC/CNO commitment: Flights flown in support of CMC/CNO schools or units.
 - M6 — TYCOM/division commitment: Flights flown in support of the type commander or of a Marine division.
3. Code N (Maintenance) Use code N to document aborts or cancellations for maintenance reasons.
 - N1 — Engine or fuel system.
 - N2 — Hydraulics, flight controls, or airframe.
 - N3 — Avionics, communication.
 - N4 — Avionics, NAVAID.
 - N5 — Avionics, radar/systems.
 - N6 — Avionics, electronics/instruments.
 - N7 — Ordnance system.
 - N8 — Wingman's aircraft down.
 - N9 — Support equipment.
 - N0 — Safety of flight (initiated by higher authority, usually by message).
4. Code O (Operations) Use code O to document aborts or cancellations initiated by operations.
 - O1 — Weather.
 - O2 — Mission canceled by higher authority.
 - O3 — Mission canceled by supported or requesting unit.
 - O4 — Targets or range not available.
 - O5 — Required airfield services or navigational facilities not available (tacan, carrier, mirror, etc.).

- O6 — Controlled airspace not available.
- O7 — Required crewman incapacitated/unavailable.
- O8 — Aircraft accident.
- O9 — Mission canceled by projects.

D.6.3 SPCs Used With GPC P

SPCs to be used with GPC P for all search and/or rescue (includes any flight, scheduled or unscheduled, in support of a search and/or rescue effort) or tactical evacuation (includes any flight, scheduled or unscheduled, providing evacuation or other transport of hospitalized and/or medically stabilized personnel) flights are listed as follows:

- P1 — Search and/or rescue flight conducted over water in support of military personnel.
- P2 — Search and/or rescue flight conducted over land in support of military personnel.
- P3 — Search and/or rescue flight conducted over water in support of non-DOD personnel.
- P4 — Search and/or rescue flight conducted over land in support of non-DOD personnel.
- P5 — Tactical evacuation flown in support of military personnel.
- P6 — Tactical evacuation flown in support of non-DOD personnel.
- P7 — Search and/or rescue flight into, out of, or over an area where enemy fire is received or can reasonably be expected.
- P8 — Search and/or rescue flight into, out of, or over an area over water where enemy fire is received or can reasonably be expected.
- P9 — Search and/or rescue flight into, out of, or over an area over land where enemy fire is received or can reasonably be expected.
- P0 — Search and/or rescue training.

D.6.4 SPCs Used With GPC Q

SPCs to be used with GPC Q for miscellaneous nontraining service flights are listed as follows:

- Q1 — Aerological (including combat weather reconnaissance).
- Q2 — Noncombat patrol or search (other than survivor search, rescue, weather).
- Q3 — Noncombat photography or radar mapping.
- Q4 — Air shows and demonstrations not classified as tactical exercises.
- Q5 — Noncombat, nontraining flights not elsewhere classified.
- Q6 — Noncombat, nontraining air refueling flights.
- Q7 — AEW flights (carrier-based or land-based) in support of either fleet tactical exercises or fleet operations.
- Q8 — Pathfinder flights.
- Q9 — Drug interdiction flights.

D.6.5 SPCs Used With GPC R

SPCs to be used with GPC R for transport/troop support are as follows:

1. Logistics transport flights include transportation of military or civilian personnel (other than at points of contact with enemy or in training exercises) as incident to change in location of duty or civil employment or to the transfer of entire units as well as transport of cargo or mail (including guard mail with or without

CNAF M-3710.7

couriers) for other than troop support purposes. If the flight is required for any of the foregoing uses, it is a logistics transport flight even if it also served an administrative transport purpose.

R1 — Regularly scheduled flight for the purpose of transporting cargo, personnel (except hospitalized patients), or mail, as set forth above, whether anything was transported or not.

R2 — Special flight, not regularly scheduled, to transport cargo, personnel (except hospitalized patients), or mail, as set forth above.

2. Administrative transport flights include transportation of military or civilian personnel for inspection, conference, instruction, or other official business involving no PCS, and for other authorized purposes of a similar nature, whether or not under travel or temporary duty orders.

R3 — Special flight, not regularly scheduled, to provide administrative transport for the pilot or other persons aboard, and that would not be made were it not for the administrative purpose alone.

3. Troop support flights include transportation of troops and other personnel (including battle casualties) to or from points of contact with enemy as well as rescue of personnel or transport of liaison personnel to or from engaged units. Transport of cargo under equivalent circumstances also falls in this specific purpose category.

R4 — Troop lift into, out of, or over an area where enemy fire is received or can reasonably be expected.

R5 — Liaison flight into, out of, or over an area where enemy fire is received or can reasonably be expected.

R6 — Logistics flight into, out of, or over an area where enemy fire is received or can reasonably be expected.

D.7 GENERAL/SPECIFIC PURPOSE OF FLIGHT CODE COMBINATIONS S THROUGH Z (COMBAT FLIGHTS)

1. GPCs S through Z will be used with FPCs 3 through 7 (noted in [Paragraph D.4](#)). When in combat status, FPC 6 will be used with GPCs S through Z and will be the only TMR code entered for the flight.

2. SPCs to be used with GPC S for attacks on ground or surface targets designated by air support control:

S1 — Targets assigned before takeoff.

S2 — Targets assigned after takeoff.

S3 — Provision of illumination for attack of targets.

S9 — Escort or cover for above (VF or VFA not assigned to attack).

3. SPCs to be used with GPC T for attacks on ground or surface targets (excluding submarine and aircraft) not designated by air support control:

T1 — Targets assigned before takeoff.

T2 — Targets of opportunity: armed reconnaissance.

T3 — Provision of illumination for attack of targets.

T4 — Flak suppression.

T5 — Surface-to-air missile suppression.

T6 — Minelaying (all types).

T7 — Aerial refueling tanker supporting combat operations.

T8 — ECM support for attack operations against ground or surface targets.

T9 — Escort to cover for above (VF or VFA not assigned to attack).

4. SPCs to be used with GPC U for antiair warfare offensive missions (primary objective aircraft; any other target secondary):

- U1 — Fighter sweeps, intruder missions, night airfield heckling.
 - U2 — Combat air patrol over enemy airfields or other targets.
 - U3 — Offensive diversion and deception missions (other than attack sweep or intruder).
 - U4 — ECM support for attack operations against aircraft targets.
 - U5 — AMCM mine neutralization/mine sweep.
 - U8 — Escort or cover of Air Force bombers.
 - U9 — Escort or cover of transport aircraft.
5. SPCs to be used with GPC V for reconnaissance missions (except armed reconnaissance and USW search):
- V1 — Photographic reconnaissance.
 - V2 — Radar and ECM reconnaissance, radar mapping, etc.
 - V3 — Gunfire spotting, air support controller, and other visual reconnaissance of enemy areas. Exclude weather (Q1) and survivor search (P).
 - V4 — AMCM mine search/mine hunting.
 - V9 — Escort or cover for reconnaissance aircraft.
6. SPCs to be used with GPC W for air defense of own air base (carrier force or land base) from which aircraft departs:
- W1 — AEW or airborne CIC and its escort or cover.
 - W2 — Combat air patrol, local or advanced.
 - W7 — Intercept (scramble).
7. SPCs to be used with GPC X for air defense of other forces or bases:
- X1 — AEW or airborne CIC and its escort or cover.
 - X2 — Special combat air patrol to protect radar picket or aircraft.
 - X7 — Intercept (scramble).
8. SPCs to be used with GPC Y for offensive ASW missions:
- Y1 — Routine sector or area search.
 - Y2 — Barrier patrol.
 - Y3 — Offensive search.
 - Y4 — Holddown of located submarine.
 - Y5 — Attack on located submarine.
 - Y6 — Locate and attack submarine.
 - Y9 — Attack submarine facilities (including operational bases, shipyard, or other logistical facilities, etc.).
9. SPCs to be used with GPC Z for defensive ASW missions:
- Z1 — Protection of own force underway (by aircraft based on ships of same force).
 - Z2 — Escort of vessels not in own force (by ship-based or land-based aircraft).
 - Z4 — Defensive patrol of harbor or other limited area.

Note

Generally, the distinction between offensive ASW (Y codes) and defensive ASW (Z codes) is the primary mission of the force involved. If it is not primarily an ASW force, the ASW conducted to protect itself from attack by submarine is defensive ASW. But if it is primarily an ASW force (primary mission is ASW), all the ASW it conducts is offensive, including ASW conducted to protect itself.

D.8 CURRENTLY ASSIGNED TOTAL MISSION REQUIREMENT CODES

The currently assigned TMR codes are listed in [Figure D-1](#) with the description that will be displayed on the NAVFLIRS monthly reports.

Figure D-1. Total Mission Requirement (TMR) Codes

TMR CODE	DESCRIPTION
1A1	TRNG SYL/EXC F/FN
1A2	TRNG SYL/EXC INST
1A3	TRNG SYL/EXC FCLP/CAL
1A4	TRNG SYL/EXC CQ
1A5	TRNG SYL/EXC TRANS
1A6	TRNG SYL/EXC AIR CMBT
1A7	TRNG SYL/EXC ATCK
1A8	TRNG SYL/EXC ASW
1A9	TRNG SYL/EXC SP EQUIP
1A0	TRNG SYL/EXC UNSAT FLT
1B1	TRNG IUT F/F/N
1B2	TRNG IUT INST
1B3	TRNG IUT FCLP/CAL
1B4	TRNG IUT CQ
1B5	TRNG IUT TRANS
1B6	TRNG IUT AIR CMBT
1B7	TRNG IUT ATCK
1B8	TRNG IUT ASW
1B9	TRNG IUT SP EQUIP
1B0	TRNG IUT UNSAT FLT
1C1	TRNG NAV F/F/N
1C2	TRNG NAV INST
1C3	TRNG NAV FCLP/CAL
1C4	TRNG NAV CQ
1C5	TRNG NAV TRANS
1C6	TRNG NAV AIR CMBT
1C7	TRNG NAV ATCK

Figure D-1. Total Mission Requirement (TMR) Codes (cont.)

TMR CODE	DESCRIPTION
1C8	TRNG NAV ASW
1C9	TRNG NAV SP EQUIP
1C0	TRNG NAV UNSAT FLT
1D1	TRNG STU/AV F/F/N
1D2	TRNG STU/AV INST
1D3	TRNG STU/AV FCLP/CAL
1D4	TRNG STU/AV CQ
1D5	TRNG STU/AV TRANS
1D6	TRNG STU/AV AIR CMBT
1D7	TRNG STU/AV ATCK
1D8	TRNG STU/AV ASW
1D9	TRNG STU/AV SP EQUIP
1D0	TRNG STU/AV UNSAT FLT
1E1	TRNG NAV REF SYL F/F/N
1E2	TRNG NAV REF SYL INST
1E3	TRNG NAV REF SYL FCLP/CAL
1E4	TRNG NAV REF SYL CQ
1E5	TRNG NAV REF SYL TRANS
1E6	TRNG NAV REF SYL AIR CMBT
1E7	TRNG NAV REF SYL ATCK
1E8	TRNG NAV REF SYL ASW
1E9	TRNG NAV REF SYL SP EQUIP
1E0	TRNG NAV REF SYL UNSAT FLT
1F1	TRNG NAV N-SYL F/F/N
1F2	TRNG NAV N-SYL INST
1F3	TRNG NAV N-SYL FCLP/CAL
1F4	TRNG NAV N-SYL CQ
1F5	TRNG NAV N-SYL TRANS
1F6	TRNG NAV N-SYL AIR CMBT
1F7	TRNG NAV N-SYL ATCK
1F8	TRNG NAV N-SYL ASW
1F9	TRNG NAV N-SYL SP EQUIP
1F0	TRNG NAV N-SYL UNSAT FLT
1G1	TRNG NFO N-SYL F/F/N
1G2	TRNG NFO N-SYL INST
1G3	TRNG NFO N-SYL FCLP/CAL

Figure D-1. Total Mission Requirement (TMR) Codes (cont.)

TMR CODE	DESCRIPTION
1G4	TRNG NFO N-SYL CQ
1G5	TRNG NFO N-SYL TRANS
1G6	TRNG NFO N-SYL AIR CMBT
1G7	TRNG NFO N-SYL ATCK
1G8	TRNG NFO N-SYL ASW
1G9	TRNG NFO N-SYL SP EQUIP
1G0	TRNG NFO N-SYL UNSAT FLT
1H1	TRNG OT US MIL F/F/N
1H2	TRNG OT US MIL INST
1H3	TRNG OT US MIL FCLP/CAL
1H4	TRNG OT US MIL CQ
1H5	TRNG OT US MIL TRANS
1H6	TRNG OT US MIL AIR CMBT
1H7	TRNG OT US MIL ATCK
1H8	TRNG OT US MIL ASW
1H9	TRNG OT US MIL SP EQUIP
1H0	TRNG OT US MIL UNSAT FLT
1I1	TRNG FRGN F/F/N
1I2	TRNG FRGN INST
1I3	TRNG FRGN FCLP/CAL
1I4	TRNG FRGN CQ
1I5	TRNG FRGN TRANS
1I6	TRNG FRGN AIR CMBT
1I7	TRNG FRGN ATCK
1I8	TRNG FRGN ASW
1I9	TRNG FRGN SP EQUIP
1I0	TRNG FRGN UNSAT FLT
1N1	TRNG C/A MAINT ENG/FUEL
1N2	TRNG C/A MAINT HYD/FRAME
1N3	TRNG C/A MAINT RADIOS
1N4	TRNG C/A MAINT NAVAID
1N5	TRNG C/A MAINT RAD/SYS
1N6	TRNG C/A MAINT ELEC/INST
1N7	TRNG C/A MAINT ORDNANCE
1N8	TRNG C/A MAINT WGMAN DOWN
1N9	TRNG C/A MAINT SUPT EQUIP

Figure D-1. Total Mission Requirement (TMR) Codes (cont.)

TMR CODE	DESCRIPTION
1N0	TRNG C/A MAINT SAFETY
1O1	TRNG C/A OPS WEATHER
1O2	TRNG C/A OPS HIGHER AUTH
1O3	TRNG C/A OPS SUPT UNIT
1O4	TRNG C/A OPS NO TGT
1O5	TRNG C/A OPS FAC DOWN
1O6	TRNG C/A OPS AIR SPACE
1O7	TRNG C/A OPS NO CREW
1O8	TRNG C/A OPS ACCIDENT
1P1	TRNG SAR/WATER MIL SUPT
1P2	TRNG SAR/LAND MIL SUPT
1P3	TRNG SAR/WATER N-DOD
1P4	TRNG SAR/LAND N-DOD
1P5	TRNG SAR/TACEVAC MIL SUPT
1P6	TRNG SAR/TACEVAC N-DOD
1P7	TRNG SAR/TACEVAC LAND CMBT
1P8	TRNG SAR/WATER CMBT
1P9	TRNG SAR/LAND CMBT
1P0	TRNG SAR
1R4	TRNG TRANS TRP IN/OUT CMBT
1R5	TRNG TRANS LSN IN/OUT CMBT
1R6	TRNG TRANS LOG IN/OUT CMBT
2J1	SUPT FERRY FLEET FUND
2J2	SUPT FERRY SQDN FUND
2K1	SUPT TEST FLEET FUND
2K2	SUPT TEST SQDN FUND
2K3	SUPT TEST OBS/CHASE TGT
2K4	SUPT BOGEY FOR OT ACFT
2K5	SUPT BOGEY FOR GND UNIT
2K6	SUPT BOGEY FOR SHIP OPS
2K7	SUPT FLY QUAL/PERF EVAL
2K8	SUPT ACCEL SERV/PROP EVAL
2K9	SUPT NAV/WEAP/EW EVAL
2K0	SUPT CARR SUIT/DYN EVAL
2L1	SUPT EXPM/EVAL OT&E
2L2	SUPT EXPM/EVAL ORI

Figure D-1. Total Mission Requirement (TMR) Codes (cont.)

TMR CODE	DESCRIPTION
2L3	SUPT EXPM/EVAL INST CHECK
2L4	SUPT EXPM/EVAL NATOPS
2L5	SUPT EXPM/EVAL STANDARD
2L6	SUPT EXPM/EVAL SP WEAPONS
2L7	SUPT ORD/CONV/NUC EVAL
2L8	SUPT DRONE/TGT TOW
2L9	SUPT ACFT/SURV SYS EVAL
2L0	SUPT PROJECT/OTHER
2M1	LOG SUPT MAG/CAG
2M2	LOG SUPT MAW/FUNCT WING
2M3	LOG SUPT NAS/MCAS
2M4	LOG SUPT FMF/CINC
2M5	LOG SUPT CMC/CNO
2M6	LOG SUPT TYCOM/MARDIV
2N1	SUPT C/A MAINT ENG/FUEL
2N2	SUPT C/A MAINT HYD/FRAME
2N3	SUPT C/A MAINT RADIOS
2N4	SUPT C/A MAINT NAVAID
2N5	SUPT C/A MAINT RAD/SYS
2N6	SUPT C/A MAINT ELEC/INST
2N7	SUPT C/A MAINT ORDNANCE
2N8	SUPT C/A MAINT WGMAN DOWN
2N9	SUPT C/A MAINT SUPT EQUIP
2N0	SUPT C/A MAINT SAFETY
2O1	SUPT C/A OPS WEATHER
2O2	SUPT C/A OPS HIGHER AUTH
2O3	SUPT C/A OPS SUPT UNIT
2O4	SUPT C/A OPS NO TGT
2O5	SUPT C/A OPS FAC DOWN
2O6	SUPT C/A OPS AIR SPACE
2O7	SUPT C/A OPS NO CREW
2O8	SUPT C/A OPS ACCIDENT
2O9	SUPT C/A OPS PROJECTS
2P1	SUPT SAR/WATER MIL SUPT
2P2	SUPT SAR/LAND MIL SUPT
2P3	SUPT SAR/WATER N-DOD

Figure D-1. Total Mission Requirement (TMR) Codes (cont.)

TMR CODE	DESCRIPTION
2P4	SUPT SAR/LAND N-DOD
2P5	SUPT SAR/TACEVAC MIL SUPT
2P6	SUPT SAR/TACEVAC N-DOD
2P7	SUPT SAR/TACEVAC LAND CMBT
2P8	SUPT SAR/WATER CMBT
2P9	SUPT SAR/LAND CMBT
2P0	SUPT SAR TRNG
2Q1	SUPT MISC AEROLOGICAL
2Q2	SUPT MISC N-CMBT PAT
2Q3	SUPT MISC N-CMBT PH/RD MAP
2Q4	SUPT MISC AIR SHOW/DEMO
2Q5	SUPT MISC N-CMBT/TRNG
2Q6	SUPT MISC N-CMBT REFUEL
2Q7	SUPT MISC AEW TACT OPS
2Q8	SUPT MISC PATHFINDER
2Q9	SUPT MISC DRUG RUN
2R1	SUPT TRANS TRP SCH
2R2	SUPT TRANS TRP N-SCH
2R3	SUPT TRANS TRP N-SCH ADMIN
2R4	SUPT TRANS TRP IN/OUT CMBT
2R5	SUPT TRANS LSN IN/OUT CMBT
2R6	SUPT TRANS LOG IN/OUT CMBT
3N1	BGO C/A MAINT ENG/FUEL
3N2	BGO C/A MAINT HYD/FRAME
3N3	BGO C/A MAINT RADIOS
3N4	BGO C/A MAINT NAVAID
3N5	BGO C/A MAINT RAD/SYS
3N6	BGO C/A MAINT ELEC/INST
3N7	BGO C/A MAINT ORDNANCE
3N8	BGO C/A MAINT WGMAN DOWN
3N9	BGO C/A MAINT SUPT EQUIP
3N0	BGO C/A MAINT SAFETY
3O1	BGO C/A OPS WEATHER
3O2	BGO C/A OPS HIGHER AUTH
3O3	BGO C/A OPS SUPT UNIT
3O4	BGO C/A OPS NO TGT

Figure D-1. Total Mission Requirement (TMR) Codes (cont.)

TMR CODE	DESCRIPTION
3O5	BGO C/A OPS FAC DOWN
3O6	BGO C/A OPS AIR SPACE
3O7	BGO C/A OPS NO CREW
3O8	BGO C/A OPS ACCIDENT
3S1	BGO DES GND ATCK BEF T/O
3S2	BGO DES GND ATCK AFT T/O
3S3	BGO DES ILLUM TGT
3S9	BGO DES ESC/COV NO ATCK
3T1	BGO N-DES GND ATCK BEF T/O
3T2	BGO N-DES TGT OPP RECON
3T3	BGO N-DES ILLUM TGT
3T4	BGO N-DES FLACK SUPPRESS
3T5	BGO N-DES MISSILE SUPPRESS
3T6	BGO N-DES MINELAYING
3T7	BGO N-DES REFUEL CMBT OPS
3T8	BGO N-DES ECM SUPT GND TGT
3T9	BGO N-DES ESC/COV NO ATCK
3U1	BGO AWO FIGHTER SWEEPS
3U2	BGO AWO CMBT AIR PAT
3U3	BGO AWO DEF DIVER/DECEPT
3U4	BGO AWO ECM SUPT FROM ACFT
3U5	BGO AWO AMCM NEUT/SWEEP
3U8	BGO AWO ESC USAF BOMBERS
3U9	BGO AWO ESC/COV TRANS
3V1	BGO RECON PHOTO
3V2	BGO RECON RAD/ECM
3V3	BGO RECON GUNFIRE SPOT
3V4	BGO RECON AMCM SEARCH
3V9	BGO RECON ESC/COV ACFT
3W1	BGO DEF HOME AEW/CIC
3W2	BGO DEF HOME CMBTAIR CONT
3W7	BGO DEF HOME INTERCEPTT
3X1	BGO DEF OT AEW/CIC
3X2	BGO DEF OT PROT RAD ACFT
3X7	BGO DEF OT INTERCEPTT
3Y1	BGO OFF ASW ROUTE SEARCH

Figure D-1. Total Mission Requirement (TMR) Codes (cont.)

TMR CODE	DESCRIPTION
3Y2	BGO OFF ASW BARRIER PAT
3Y3	BGO OFF ASW OFF SEARCH
3Y4	BGO OFF ASW HOLDDOWN SUB
3Y5	BGO OFF ASW ATCK SUB
3Y6	BGO OFF ASW LOC/ATCK SUB
3Y9	BGO OFF ASW ATCK SUB FAC
3Z1	BGO DEF ASW PROT FORCE
3Z2	BGO DEF ASW ESC SHIPS
3Z4	BGO DEF ASW DEF HARBOR
4N1	FMF C/A MAINT ENG/FUEL
4N2	FMF C/A MAINT HYD/FRAME
4N3	FMF C/A MAINT RADIOS
4N4	FMF C/A MAINT NAVAID
4N5	FMF C/A MAINT RAD/SYS
4N6	FMF C/A MAINT ELEC/INST
4N7	FMF C/A MAINT ORDNANCE
4N8	FMF C/A MAINT WGMAN DOWN
4N9	FMF C/A MAINT SUPT EQUIP
4N0	FMF C/A MAINT SAFETY
4O1	FMF C/A OPS WEATHER
4O2	FMF C/A OPS HIGHER AUTH
4O3	FMF C/A OPS SUPT UNIT
4O4	FMF C/A OPS NO TGT
4O5	FMF C/A OPS FAC DOWN
4O6	FMF C/A OPS AIR SPACE
4O7	FMF C/A OPS NO CREW
4O8	FMF C/A OPS ACCIDENT
4S1	FMF DES GND ATCK BEF T/O
4S2	FMF DES GND ATCK AFT T/O
4S3	FMF DES ILLUM TGT
4S9	FMF DES ESC/COV NO ATCK
4T1	FMF N-DES GND ATCK BEF T/O
4T2	FMF N-DES TGT OPP RECON
4T3	FMF N-DES ILLUM TGT
4T4	FMF N-DES FLACK SUPPRESS
4T5	FMF N-DES MISSILE SUPPRESS

Figure D-1. Total Mission Requirement (TMR) Codes (cont.)

TMR CODE	DESCRIPTION
4T6	FMF N-DES MINELAYING
4T7	FMF N-DES REFUEL CMBT OPS
4T8	FMF N-DES ECM SUPT TGT
4T9	FMF N-DES ESC/COV NO ATCK
4U1	FMF AWO FIGHTER SWEEPS
4U2	FMF AWO CMBT AIR PAT
4U3	FMF AWO DEF DIVER/DECEPT
4U4	FMF AWO ECM SUPT FROM ACFT
4U5	FMF AWO AMCM NEUT/SWEEP
4U8	FMF AWO ESC USAF BOMBERS
4U9	FMF AWO ESC/COV TRANS
4V1	FMF RECON PHOTO
4V2	FMF RECON RAD/ECM
4V3	FMF RECON GUNFIRE SPOT
4V4	FMF RECON AMCM SEARCH
4V9	FMF RECON ESC/COV
4W1	FMF DEF HOME AEW/CIC
4W2	FMF DEF HOME CMBT AIR CONT
4W7	FMF DEF HOME INTERCEPTT
4X1	FMF DEF OT AEW/CIC
4X2	FMF DEF OT PROT RAD ACFT
4X7	FMF DEF OT INTERCEPT
4Y1	FMF OFF ASW ROUT SEARCH
4Y2	FMF OFF ASW BARRIER PAT
4Y3	FMF OFF ASW OFF SEARCH
4Y4	FMF OFF ASW HOLD DOWN SUB
4Y5	FMF OFF ASW ATCK SUB
4Y6	FMF OFF ASW LOC/ATCK SUB
4Y9	FMF OFF ASW ATCK SUB FAC
4Z1	FMF DEF ASW PROT FORCE
4Z2	FMF DEF ASW ESC SHIPS
4Z4	FMF DEF ASW DEF HARBOR
5N1	CONT C/A MAINT ENG/FUEL
5N2	CONT C/A MAINT HYD/FRAME
5N3	CONT C/A MAINT RADIOS
5N4	CONT C/A MAINT NAVAID

Figure D-1. Total Mission Requirement (TMR) Codes (cont.)

TMR CODE	DESCRIPTION
5N5	CONT C/A MAINT RAD/SYS
5N6	CONT C/A MAINT ELEC/INST
5N7	CONT C/A MAINT ORDNANCE
5N8	CONT C/A MAINT WGMAN DOWN
5N9	CONT C/A MAINT SUPT EQUIP
5N0	CONT C/A MAINT SAFETY
5O1	CONT C/A OPS WEATHER
5O2	CONT C/A OPS HIGHER AUTH
5O3	CONT C/A OPS SUPT UNIT
5O4	CONT C/A OPS NO TGT
5O5	CONT C/A OPS FAC DOWN
5O6	CONT C/A OPS AIR SPACE
5O7	CONT C/A OPS NO CREW
5O8	CONT C/A OPS ACCIDENT
5S1	CONT DES GND ATCK BEF T/O
5S2	CONT DES GND ATCK AFT T/O
5S3	CONT DES ILLUM TGT
5S9	CONT DES ESC/COV NO ATC
5T1	CONT N-DES ATCK BEF T/O
5T2	CONT N-DES TGT OPP RECON
5T3	CONT N-DES ILLUM TGT
5T4	CONT N-DES FLACK SUPPRESS
5T5	CONT N-DES MISSILE SUPPRESS
5T6	CONT N-DES MINELAYING
5T7	CONT N-DES REFUEL CMBT OPS
5T8	CONT N-DES ECM SUPT TGT
5T9	CONT N-DES ESC/COV NO ATCK
5U1	CONT AWO FIGHTER SWEEPS
5U2	CONT AWO CMBT AIR PAT
5U3	CONT AWO DEF DIVER/DECEPT
5U4	CONT AWO ECM SUPT ACFT
5U5	CONT AWOAMCM NEUT/SWEEP
5U8	CONT AWO ESC USAF BOMBERS
5U9	CONT AWO ESC/COV TRANS
5V1	CONT RECON PHOTO
5V2	CONT RECON RAD/ECM

Figure D-1. Total Mission Requirement (TMR) Codes (cont.)

TMR CODE	DESCRIPTION
5V3	CONT RECON GUNFIRE SPOT
5V4	CONT RECON AMCM SEARCH
5V9	CONT RECON ESC/COV ACFT
5W1	CONT DEF HOME AEW/CIC
5W2	CONT DEF HOME CMBT AIR CON
5W7	CONT DEF HOME INTERCEPT
5X1	CONT DEF OT AEW/CIC
5X2	CONT DEF OT PROT RAD ACFT
5X7	CONT DEF OT INTERCEPT
5Y1	CONT OFF ASW ROUT SEARCH
5Y2	CONT OFF ASW BARRIER PAT
5Y3	CONT OFF ASW OFF SEARCH
5Y4	CONT OFF ASW HOLDDOWN SUB
5Y5	CONT OFF ASW ATTACK SUB
5Y6	CONT OFF ASW LOC/ATCK SUB
5Y9	CONT OFF ASW ATCK SUB FAC
5Z1	CONT DEF ASW PROT FORCE
5Z2	CONT DEF ASW ESC SHIPS
5Z4	CONT DEF ASW DEF HARBOR
6N1	CMBT C/A MAINT ENG/FUEL
6N2	CMBT C/A MAINT HYD/FRAME
6N3	CMBT C/A MAINT RADIOS
6N4	CMBT C/A MAINT NAVAID
6N5	CMBT C/A MAINT RAD/SYS
6N6	CMBT C/A MAINT ELEC/INST
6N7	CMBT C/A MAINT ORDNANCE
6N8	CMBT C/A MAINT WGMAN DOWN
6N9	CMBT C/A MAINT SUPT EQUIP
6N0	CMBT C/A MAINT SAFETY
6O1	CMBT C/A OPS WEATHER
6O2	CMBT C/A OPS HIGHER AUTH
6O3	CMBT C/A OPSSUPT UNIT
6O4	CMBT C/A OPS NO TGT
6O5	CMBT C/A OPS FAC DOWN
6O6	CMBT C/A OPS AIRSPACE
6O7	CMBT C/A OPS NO CREW

Figure D-1. Total Mission Requirement (TMR) Codes (cont.)

TMR CODE	DESCRIPTION
6O8	CMBT C/A OPS ACCIDENT
6S1	CMBT DES GND ATCK BEF T/O
6S2	CMBT DES GND ATCK AFT T/O
6S3	CMBT DES ILLUM TGT
6S9	CMBT DES ESC/COV NO ATCK
6T1	CMBT N-DES ATCK BEF T/O
6T2	CMBT N-DES TGT OPP RECON
6T3	CMBT N-DES ILLUM TGT
6T4	CMBT N-DES FLACK SUPPRESS
6T5	CMBT N-DES MISSILE SUPPRESS
6T7	CMBT N-DES REFUEL CMBT OPS
6T8	CMBT N-DES ECM SUPT TGT
6T9	CMBT N-DES ESC/COV NO ATCK
6U1	CMBT AWO FIGHTER SWEEPS
6U2	CMBT AWO AIR PAT
6U3	CMBT AWO DEF DIVER/DECEPT
6U4	CMBT AWO ECM SUPT
6U5	CMBT AWO AMCM NEUT/SWEEP
6U8	CMBT AWO ESC USAF BOMBERS
6U9	CMBT AWO ESC/COV TRANS
6V1	CMBT RECON PHOTO
6V2	CMBT RECON RAD/ECM
6V3	CMBT RECON GUNFIRE SPOT
6V4	CMBT RECON AMCM SEARCH
6V9	CMBT RECON ESC/COV ACFT
6W1	COMBT DEF HOME AEW/CIC
6W2	CMBT DEF HOME CMBT AIR CON
6W7	CMBT DEF HOME INTERCEPT
6X1	CMBT DEF OT AEW/CIC
6X2	CMBT DEF OT PROT RAD ACFT
6X7	CMBT DEF OT INTERCEPT
6Y1	CMBT OFF ASW ROUT SEARCH
6Y2	CMBT OFF ASW BARRIER PAT
6Y3	CMBT OFF ASW OFF SEARCH
6Y4	CMBT OFF ASW HOLD DOWN SUB DOWN SUB
6Y5	CMBT OFF ASW ATCK SUB

Figure D-1. Total Mission Requirement (TMR) Codes (cont.)

TMR CODE	DESCRIPTION
6Y6	CMBT OFF ASW LOC/ATCK SUB
6Y9	CMBT OFF ASW ATCK SUB FAC
6Z1	CMBT DEF ASW PROT FORCE
6Z2	CMBT DEF ASW ESC SHIPS
6Z4	CMBT DEF ASW DEF HARBOR
7N1	EXER C/A MAINT ENG/FUEL
7N2	EXER C/A MAINT HYD/FRAME
7N3	EXER C/A MAINT RADIOS
7N4	EXER C/A MAINT NAVAID
7N5	EXER C/A MAINT RAD/SYS
7N6	EXER C/A MAINT ELEC/INST
7N7	EXER C/A MAINT ORDNANCE
7N9	EXER C/A MAINT SUPT EQUIP
7N0	EXER C/A MAINT SAFETY
7O1	EXER C/A OPS WEATHER
7O2	EXER C/A OPS HIGHER AUTH
7O3	EXER C/A OPS SUPT UNIT
7O4	EXER C/A OPS NO TGT
7O5	EXER C/A OPS FAC DOWN
7O6	EXER C/A OPS AIR SPACE
7O7	EXER C/A OPS NO CREW
7O8	EXER C/A OPS ACCIDENT
7S1	EXER DES GND ATCK BEF T/O
7S2	EXER DES GND ATCK AFT T/O
7S3	EXER DES ILLUM TGT
7S9	EXER DES ESC/COV NO ATCK
7T1	EXER N-DES ATCK BEF T/O
7T2	EXER N-DES TGT OPP RECON
7T3	EXER N-DES ILLUM TGT
7T4	EXER N-DES FLACK SUPPRESS
7T5	EXER N-DES MISSILE SUPPRESS
7T6	EXER N-DES MINELAYING
7T7	EXER N-DES REFUEL CMBT OPS
7T8	EXER N-DES ECM SUPT TGT
7T9	EXER N-DES ESC/COV NO ATCK
7U1	EXER AWO FIGHTER SWEEPS

Figure D-1. Total Mission Requirement (TMR) Codes (cont.)

TMR CODE	DESCRIPTION
7U2	EXER AWO AIR PAT
7U3	EXER AWO DEF DIVER/DECEPT
7U4	EXER AWO ECM SUPT
7U5	EXER AWO AMCM NEUT/SWEEP
7U8	EXER AWO ESC USAF BOMBERS
7U9	EXER AWO ESC/COV TRANS
7V1	EXER RECON PHOTO
7V2	EXER RECON RAD/ECM
7V3	EXER RECON GUNFIRE SPOT
7V4	EXER RECON AMCM SEARCH
7V9	EXER RECON ESC/COV ACFT
7W1	EXER DEF HOME AEW/CIC
7W2	EXER DEF HOME CMBT AIR CON
7W7	EXER DEF HOME INTERCEPTT
7X2	EXER DEF OT PROT RAD ACFT
7X7	EXER DEF OT INTERCEPTT
7Y1	EXER OFF ASW ROUT SEARCH
7Y2	EXER OFF ASW BARRIER PAT
7Y3	EXER OFF ASW OFF SEARCH
7Y4	EXER OFF ASW HOLD DOWN SUB DOWN SUB
7Y5	EXER OFF ASW ATCK SUB
7Y6	EXER OFF ASW LOC/ATCK SUB
7Y9	EXER OFF ASW ATCK SUB FAC
7Z1	EXER DEF ASW PROT FORCE
7Z2	EXER DEF ASW ESC SHIPS
7Z4	EXER DEF ASW DEF HARBOR

This Page Intentionally Left Blank.

APPENDIX E

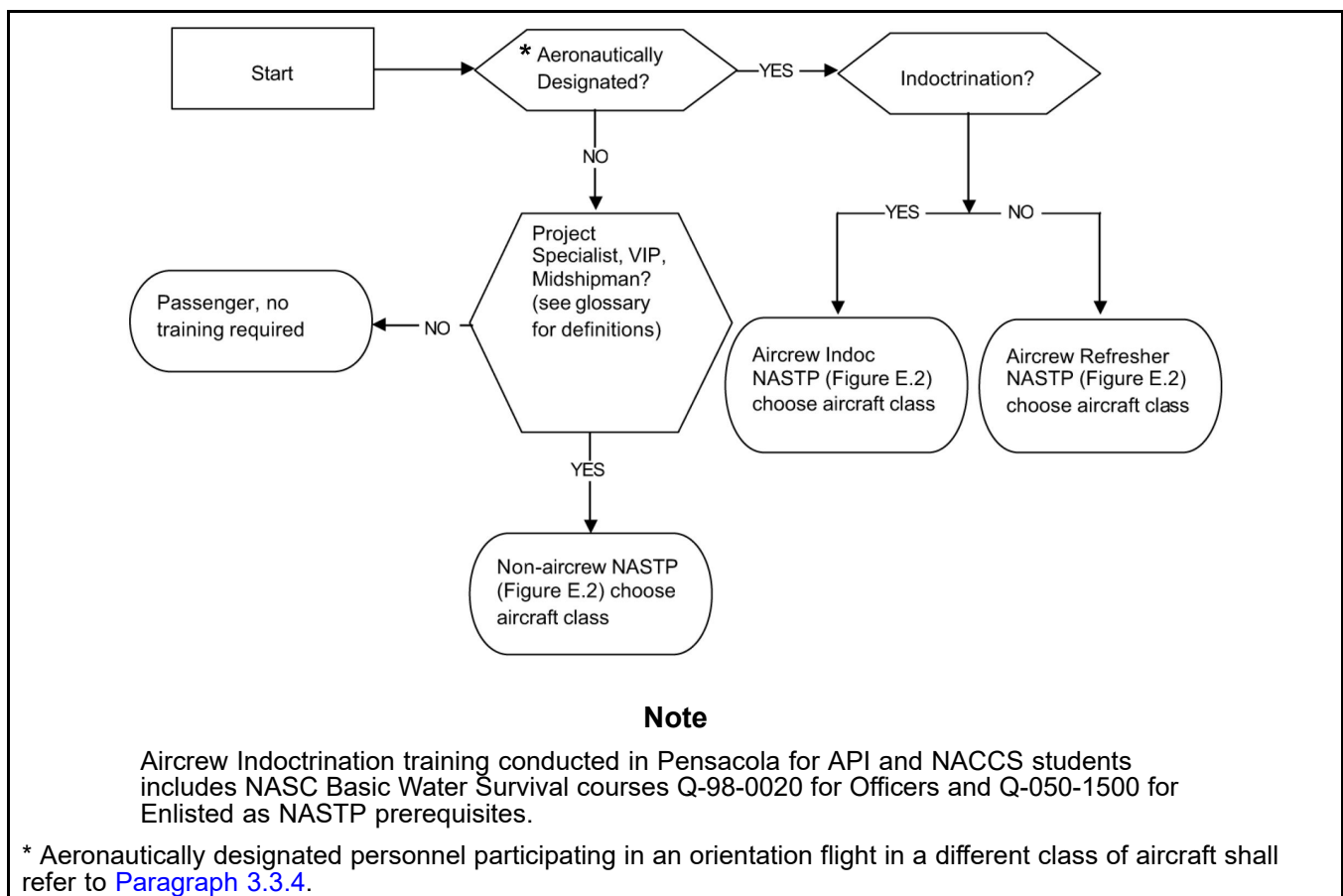
Naval Aviation Survival Training Program (NASTP) Requirements

E.1 PURPOSE

In conjunction with [Chapter 8](#), this appendix provides the training requirements for aircrew and non-aircrew flying in or operating Navy and Marine Corps aircraft. It specifies curricula content for required and recommended NASTP training courses and provides course locations. Also included are requirements for NASTP adjunctive training.

E.2 NASTP TRAINING STATUS (DOES NOT INCLUDE NON-AIRCRAFT SPECIFIC NASTP TRAINING COURSES LISTED IN FIGURE E-1)

Figure E-1. NASTP Training Status



E.3 NASTP TRAINING REQUIREMENTS

Figure E-2. NASTP Courses

NASTP COURSE	A: N ASTP Overview	B: Altitude Threats	C: Altitude Threats Lab	D: Human Performance	E: Sensory Physiology	F: Acceleration Physiology	G: ALSS	H: First Aid	I: Survival Swimming	J: Flight Equip. Swim	K: Water Survival Skill	L: Underwater Prob. Solving	M: Underwater Egress	N: Parachuting	O: Liferrafts	P: Rescue Devices	Q: Ejection	R: CFET	S: Underwater Brthg. Device
Aircraft Specific NASTP Training Courses																			
Indoc Class 1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Indoc Class 2	X	X	X	X	X	2	X	X	X	X	X	X	X	X	X	X			1
Indoc Class 3	X	X	6	X	X		X	X	X	X	X	X	X		X	X			X
Indoc Class 4	X	X	X	X	X		X	X	X	X	X	X	X		X	X			1
Refresher Class 1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Refresher Class 2	X	X	X	X	X	2	X	X	X	X	X	5	5	X	X	X			1
Refresher Class 3	X	X	6	X	X		X	X	X	X	X	X	X		X	X			X
Refresher Class 4	X	X	X	X	X		X	X	X	X	X	5	5		X	X			1
Non-aircrew Class 1	X	X	4	X	X	X	X	X	X	X	X	4	4	4	4	4	4		
Non-aircrew Class 2	X	X	4	X	X	2	X	X	X	X	X	4	4	4	4	4			1, 4
Non-aircrew Class 3	X	X	4, 6	X	X		X	X	X	X	X	4	4		4	4			4
Non-aircrew Class 4	X	X	4	X	X		X	X	X	X	X	4	4		4	4			1, 4
Notes: Aircraft is defined in Figure E-3 . Curricula contain aircraft unique modules which are frequently not interchangeable. (see CNO/COMNAVAIRFOR approved curricula for specific guidance on multiple qualifications). <ol style="list-style-type: none"> 1. Required for all personnel authorized to carry SEBD or similar underwater emergency egress device. 2. Included for T-34 only. 3. Survival swimming curriculum varies depending on student needs. 4. Lecture only training provided to non-aircrew classes unless dynamic devices training is requested in writing by flight approving authority. 5. Dynamic Device training involving underwater inversion utilizing the MSWET device and the 9D6 device is no longer required for Class 4 Refresher, and Class 2 C-130 and P-3 Refresher. Aircrew Dynamic device training utilizing the SWIMMER device for Module L is still required. 6. Included for V-22 only. 																			

Figure E-2. NASTP Courses (cont.)

NASTP COURSE	A: N ASTP Overview	B: Altitude Threats	C: Altitude Threats Lab	D: Human Performance	E: Sensory Physiology	F: Acceleration Physiology	G: ALSS	H: First Aid	I: Survival Swimming	J: Flight Equip. Swim	K: Water Survival Skill	L: Underwater Prob. Solving	M: Underwater Egress	N: Parachuting	O: Liferafts	P: Rescue Devices	Q: Ejection	R: CFET	S: Underwater Brthg. Device
Non-aircraft Specific NASTP Training Courses																			
CFET	X					X												X	
HAP Phys	X	X	X	X	X														
Dynamic Hypoxia	X	X	X																
SEBD	X											X							X
Survival Swimming	X						3		3	3	3	3							
Non-aircrew Egress	X								X	X	X	X	X						X
CBR Ensemble Egress	X						X		X	X	X								
USMC Egress	X								X	X	X	X	X						X
Advanced Egress	X								X		X	X	X						
Notes: Aircraft is defined in Figure E-3 . Curricula contain aircraft unique modules which are frequently not interchangeable. (see CNO/COMNAVAIRFOR approved curricula for specific guidance on multiple qualifications). <ol style="list-style-type: none"> 1. Required for all personnel authorized to carry SEBD or similar underwater emergency egress device. 2. Included for T-34 only. 3. Survival swimming curriculum varies depending on student needs. 4. Lecture only training provided to non-aircrew classes unless dynamic devices training is requested in writing by flight approving authority. 5. Dynamic Device training involving underwater inversion utilizing the MSWET device and the 9D6 device is no longer required for Class 4 Refresher, and Class 2 C-130 and P-3 Refresher. Aircrew Dynamic device training utilizing the SWIMMER device for Module L is still required. 6. Included for V-22 only. 																			

Note

Non-aircrew NASTP courses do not include dynamic training devices unless requested by the individual's commanding officer/OIC.

E.4 NASTP CURRICULA OUTLINE

A. NASTP OVERVIEW — Presentation on the content and requirements of the Naval Aviation Survival Training Program as well as the role of the NASTP in reducing mishaps and enhancing aircrew performance. During this period, the students will complete student screening questionnaires and be briefed on drop on request, training time out and high risk training safety policies as required.

B. AVIATION PHYSIOLOGY — Presentation on the effects of the flight environment on the human body. The principles of cardiovascular and respiratory physiology are emphasized. Presentation primarily covers hypoxia, hyperventilation, trapped gas, and evolved gas (decompression sickness) and aircraft pressurization/oxygen systems as appropriate to aircraft Class.

C. ALTITUDE THREATS LABORATORY — Presentation and laboratory exercise on the use of oxygen systems and proper equipment use. Includes a review of the simulated altitude profile and reinforces the effects of altitude on the human body, effective performance times with the corrective actions required. The training device evolution may include exposure to a hypobaric environment and/or induction of hypoxia/hypocapnia using a low-pressure chamber or a NASTP approved single seat or multi-crew normobaric oxygen systems trainer.

D. HUMAN PERFORMANCE ENHANCEMENT — Presentation discussing the various aspects of physiological, (self-imposed) psychological, environmental, and mission stressors, and their effect on performance. Includes discussion of governing general NATOPS regulations/requirements as applicable. Indoctrination courses emphasize physiological factors and the regulatory aspects of the general NATOPS manual. Advanced training focuses more on the impact of specific operational stressors on crew performance.

E. SENSORY PHYSIOLOGY/SITUATIONAL AWARENESS — Presentation on the effects of the flight environment on the human body's sensory systems. Specifically, the stressors that affect sensory adaptation (acceleration, darkness, lack of visual cues, visual illusions, etc.) are covered. Disorientation, misorientation, temporal distortion, motion sickness caused by flight, and situational awareness are also discussed as appropriate. The training may include laboratory evolutions to demonstrate visual and vestibular phenomena.

F. ACCELERATION PHYSIOLOGY — Presentation on the effects of acceleration forces (Gz) on human physiology. Includes instruction on GLOC, Almost Loss of Consciousness (ALOC) and the proper performance of the anti-G straining maneuver.

G. AVIATION LIFE SUPPORT SYSTEMS — Presentation on and hands-on experience with NATOPS required ALSS equipment which includes helmets, anti-exposure systems, general flight clothing, survival vests and contents, optional flight equipment, flotation devices, life raft contents, signaling devices, and CBR protective systems as applicable.

H. SURVIVAL FIRST AID — Classroom and/or laboratory presentation using survival equipment and improvised first aid items available to the aircrew.

I. AVIATION SURVIVAL SWIMMING SKILLS — Review of basic aviation survival swimming skills and in-water practice period for swim strokes, treading water, and drown proofing.

J. FLIGHT EQUIPMENT SWIM — Wearing appropriate NATOPS required flight equipment; demonstrate ability to effectively survival swim.

K. AVIATION WATER SURVIVAL SKILLS — Wearing the appropriate NATOPS required flight equipment; demonstrate the ability to stay afloat and inflate LPU.

L. UNDERWATER PROBLEM SOLVING SKILLS — Wearing the appropriate NATOPS required flight equipment; demonstrate ability to solve simple egress problems while underwater. Training may include the use of a Modular Shallow Water Egress Trainer (MSWET) and the Shallow Water Initial Memory Mechanical Exit Release (SWIMMER) trainer.

M. MULTIPLACE AIRCRAFT UNDERWATER EGRESS — Classroom presentation and practical experience in procedures for underwater escape from multi-place aircraft. The training evolution may include the 9D6 series device.

N. PARACHUTE TRAINING — Classroom and laboratory presentations and practical experience in overwater and overland parachute descent training. Procedures are practiced while suspended from Virtual Reality Trainers, Lateral Drift Trainers, Parachute Hang Trainers, Swing Landing Trainers, and/or Slide Trainers, as appropriate to version and training site. Additional dynamic training includes PLFs, in-water landing procedures, and parachute drag using training devices 9F2 and 9F9A.

O. LIFERAFTS AND SEA SURVIVAL — Practical and laboratory presentation on multiplace and singleplace life raft righting, organization, boarding and extended sea survival priorities and techniques.

P. RESCUE DEVICES AND SIMULATED HELICOPTER HOIST — Classroom and practical experience with rescue devices and a simulated helicopter hoist. Training includes device 9H1. An actual helicopter hoist may be conducted at Pensacola (only) as part of the API and NACCS pipeline training.

Q. EJECTION SEAT TRAINING — Classroom presentation covering the psychological aspects of the ejection decision, aeromedical aspects of ejection, wind blast and flailing injuries, and seat-man separation. The training device evolution includes static firing of an ejection seat emphasizing proper body position and a dynamic firing on device 9E6 for some courses.

R. CENTRIFUGE FLIGHT ENVIRONMENT TRAINING — Classroom and laboratory presentation covering the physiological affects of acceleration and the counter-measures employed in the high G environment.

S. UNDERWATER EMERGENCY EGRESS BREATHING DEVICE (e.g. SEBD) — Classroom and dynamic training as applicable to the specific curricula in underwater egress using the SEBD or similar underwater emergency egress breathing device as applicable.

E.5 AIRCRAFT CLASS

Figure E-3. Aircraft Class

Class 1 Ejection Seat	Class 2 Non-Ejection Seat, Parachute Equipped	Class 3 Helicopters/Tilt-rotor Aircraft	Class 4 Pressurized Non-Parachute Equipped
AV-8	E-2	AH-1	C-12
EA-18	C-130	H-3	C-130T
F/A-18	(excludes C-130T)	H-53	C-20
F-16	P-3	H-60	C-21
F-35	T-34	H-72	C-26
F-5	C-2	H-92	C-35
T-38	X-26	OH-58C	C-37
T-45		TH-57	C-38/C-38A
T-6		TH-73	C-40
		UH-1	E-4
		V-22	E-6
			NU-1B
			P-8
			T-44
			T-54
			U-6A
Note: Aircraft not listed above shall be categorized and trained based on which class is most applicable.			

E.6 APPROVED NASTP TRAINING SITES (AVIATION SURVIVAL TRAINING CENTERS (ASTC))

ASTC MCAS Cherry Point, NC

ASTC NAS Jacksonville, FL

ASTC NAS Lemoore, CA

ASTC MCAS Miramar, CA

ASTC NAS Patuxent River, MD

ASTC NAS Norfolk, VA

ASTC NAS Pensacola, FL

ASTC NAS Whidbey Island, WA

E.7 ADJUNCTIVE TRAINING

The following training serves to enhance warfighter readiness and is required for all aeronautically designated individuals, as appropriate per aircraft T/M/S, and is recommended for non-aeronautically designated aircrew (i.e. project specialists). Training shall be tailored specifically to T/M/S and potential operating conditions utilizing a hands-on interactive approach incorporating aviation life support systems (ALSS) when possible and appropriate. All annual and pre-deployment training shall be documented in the individuals' NATOPS Training/Qualification Jacket (OPNAV 3760/32). Level A (Annual) training may be accomplished within 60 days preceding the current expiration and will be valid for 12 months from the last day of the month in which the current training expires. Level B training can be completed up to 180 days prior to deployment and is valid for 12 months from the last day of the month in which the training occurs, or upon return from deployment, whichever occurs later. A Naval Aerospace / Operational Physiologist (NAOP), Aeromedical Safety Officer (AMSO), or Aeromedical Safety Corpsman (AMSC) shall conduct the training unless operationally unfeasible or otherwise noted below. When operationally unfeasible, units are directed to contact the NASTP model manager, Naval Survival Training Institute, Director of Operations (usn.pensacola.navmedotcnstifl.list.nsti-ops@health.mil), who will provide or coordinate the best qualified NAOP, AMSO or AMSC to conduct the training. Refer to [Paragraph 8.4.4](#) for waivers or extension to this NASTP requirement.

LEVEL A - Required Annual Training:

1. Ejection Seat Training: The following objectives shall be covered during [Items a, b, or c](#); proper fit and use of ALSS gear, ejection sequence, ejection decisions, envelope of the ejection system, seat-man separation, ejection initiation, normal operations and malfunctions.
 - a. A qualified AME or NI/ANI (for contract maintenance activities only) or USMC MOS 628X shall train the specific T/M/S mechanics prior to first flight and annually.
 - b. The Aeromedical Aspects of ejection.
 - c. Ejection with Night Vision Devices (NVD): Failure to remove NVDs prior to ejection may result in serious injury or death. The pilot in command of any NVD flight shall ensure non-NVD qualified personnel demonstrate proper technique of removing NVDs for ejection situations.
2. Egress Training: Specific egress for the T/M/S aircraft shall be documented prior to flight and annually. In addition, qualified personnel shall train how to assist passengers and nonessential aircrew. A NATOPS qualified aircrew member or AME/628X shall give this training.
3. Sensory Physiology/Situational Awareness — This training shall be T/M/S and crew position specific. Instructors shall ensure coverage of relevant topics, such as: environmental threats, risk mitigation of sensory problems, visual illusions, low level flight, task saturation, anomalies of attention/complacency, learning, memory improvement, temporal distortion, spatial disorientation, nausea, and motion/simulator sickness as it affects aircrew personnel. Incorporating proper countermeasures and methods to achieve consistent situational awareness is the final objective of this module.

4. LASER Eye Protection (LEP): A qualified TLSO/ALSO shall give this brief. This module of training shall cover; LASER hazards, operations and safety of LASER/LEP for squadrons that have Class 3 A LASERs and above for operators/maintainers per reference (bc).
5. High-Performance High-Altitude Physiology (HPHAP) Training (Class 1 aircraft only) — This training will be specific to both the aircraft T/M/S and the environment in which the aircrew fly. The following topics shall be covered at a minimum: oxygen system components (to include aircraft warnings and alerts); mask maintenance and hygiene tips; types of hypoxia, signs, symptoms, treatment and countermeasures; hypo/hypercapnia, signs, symptoms, treatment, and countermeasures; Strategic Air Breaks and performance of the Aircrew Controlled Breathing Cycle.
6. Dynamic Altitude Breathing Threats (DABT) (Class 1 aircraft only). Every other year, this training shall be conducted using an approved training device (e.g., ROBD, FBAT).
7. Gravity Tolerance Improvement Program (G-TIP). This brief shall cover anti-G straining maneuver (AGSM), G-suit fit, hydration, nutrition, fatigue, and exercises that will promote an increase in G tolerance. Adherence to G-TIP enhances risk mitigation of Physiological Events.
8. Aviation Life Support Systems (ALSS) Hands on training of individual ALSS items for each T/M/S platform. Specific survival items contained in the vest, seat kit and /or aircraft mounted kits shall be refreshed. NATOPS qualified personnel may provide this training.
9. Survival Radios: All aircrew shall receive a squadron specific survival radio brief with hands-on training prior to first flight. Refresher training shall be completed annually and need not be hands-on and may be given by a NATOPS qualified instructor. Appropriate specific radio training shall be completed prior to deployment if the operational radio is different from the training environment radio. Aviation Survival Equipmentmen/Flight Equipment Marines may provide training on non-combat radios. Subject matter experts and qualified instructors shall provide training on combat radios. Naval Aviation Warfighting Development Center (NAWDC) is the designated Combat Survivor Evader Locator (CSEL) curriculum manager. CSEL training shall be conducted IAW NAWDCINST 1500.12 for specific training and instructor qualification requirements.
10. Parachute Descent Procedures: Aircrew in ejection seat and parachute-equipped platforms shall be refreshed on T/M/S specific parachutes and parachute descent procedures.

LEVEL-B Deployment Briefs — Allow up to 180 days prior to deployment in order to complete the following briefs:

1. First Aid/Self Aid/Buddy Aid: Review specific items that are included in the aircraft, survival vest, and survival raft contents and proper use.
2. Stress and Human Performance: Physiological, psychological, environmental, circadian dysregulation and cultural influences affect aeromedical aspects of flight.
3. Environmental and AOR Stressors: Dependent on the geographical location of the deployment, the following environments and their stressors shall be reviewed; jungle, mountain, desert or arctic conditions and optimal survival tactics. This brief shall include water survival and cold weather gear as dictated by the Combatant Commander's (CCDR) area of responsibility (AOR). Discuss AOR specific stressors to include operational tempo, scheduling, fatigue mitigation, sleep environments, and sleep hygiene modifications in theatre.
4. Combat Survivor Evader Locator (CSEL): The CSEL system is a multi-faceted communication system, designed to facilitate personnel recovery in the combat environment. Naval Aviation Warfighting Development Center (NAWDC) is the designated Combat Survivor Evader Locator (CSEL) curriculum manager. CSEL training shall be conducted IAW NAWDCINST 1500.12 for specific training and instructor qualification requirements.
5. Chemical, Biological, Radiological, (CBR) Defense: As directed by the TYCOM, the following three phased approach shall be incorporated into the pre-deployment preparation schedule (as applicable), preferably completed by qualified instructor:
 - a. PR/FE shall measure, size, order, and properly fit the gear (use PIC sheet). Civilian contract personnel may conduct CBR sizing if assigned by the initial issue contract.

CNAF M-3710.7

- b. Hands-on training shall include; familiarization of donning and doffing, while in CBR gear perform avionics checks, aircraft communications, pre-flight aircraft, demonstrate emergency procedures, in order to determine restriction of movement in aircraft.
- c. Culmination of flying with the gear inside a simulator or, for multi-piloted aircraft, in the aircraft. For in aircraft flights the following restrictions apply:
 - (1) A pilot may wear the gear only when there is a second pilot not wearing the gear and
 - (2) No more than half the crew may wear the gear at any time.

APPENDIX F

Exception, Special Qualification, Service, Landing, and Approach Codes

F.1 PURPOSE

This appendix contains the exception, special qualification, service, landing, and approach codes required for completion of the Naval Aircraft Flight Records (NAVFLIRS) and aircrew member's Aviators Flight Log Books addressed in [Chapter 10](#).

F.2 EXCEPTION CODES

C — Correction to previously submitted data other than RECTYP 7D.

D — Deletion of previously submitted data other than RECTYP 7D.

E — Documenting flights when the crewmember and the aircraft are assigned to different organizations (RECTYP 7C only).

G — Gaining a crewmember to the squadron data base (RECTYP 7D only).

L — Losing a crewmember from the squadron data base (RECTYP 7D only).

R — Revision to crewmember personnel data residing on the squadron data base (RECTYP 7D only).

S — Documenting staff member flight time. Indicates an individual assigned to an approved DIFOPS billet on a CVW staff only. All other staff crewmembers shall use an exception code E when flying in aircraft assigned to a different organization than the one to which the staff crewmember is assigned (RECTYP 7C only).

T — Documenting simulator time. Simulator time only refers to approved simulators capable of logging flight time (RECTYP 7C only).

X — Documenting a canceled flight. A canceled flight is one for which no flight time is obtained (RECTYP 7B only).

F.3 SPECIAL QUALIFICATION CODES

A — ACFT CMDR. That individual designated as a qualified aircraft commander in the aircraft model being flown, serving as pilot in command (pilot assigned responsibility for the safe and orderly conduct of the flight).

B — OBSERVER. Performs in-flight duties as an observer and not actively engaged in the performance of the flight.

C — COPILOT. An assistant pilot or instructor who is positioned with access to the flight controls or is providing instruction to the pilot exercising principal active control of the aircraft. The copilot designation does not change even though the copilot may exercise principal control of the aircraft.

D — SAR CREWMAN. Performs emergency medical care functions assigned in support of search and rescue missions.

E — ECM. Performs in-flight duties related to electronic countermeasures.

F — FLIGHT ENGINEER/CREWCHIEF. Performs in-flight duties as a flight engineer. Is knowledgeable of all aircraft systems, emergency procedures, and flight equipment. Troubleshoots and repairs discrepant aircraft systems.

G — FLT ATTENDANT. Performs in-flight duties as a flight attendant dealing with passenger handling requirements, safety procedures, and equipment.

CNAF M-3710.7

H — FLT SURGEON AEROMEDICAL OFFICER. That individual designated as an Aeromedical Officer flight surgeon. This individual may collect FPT or CPT as defined in [Chapter 11](#) if all specified conditions are met.

I — INSTRUCTOR. Performs in-flight duties as an instructor or evaluator of other aeronautically designated personnel during the flight.

J — SENSOR OPERATOR. Performs in-flight duties as a sonar, acoustic, or nonacoustic operator.

K — FLT TECHNICIAN. Performs in-flight duties of maintaining, troubleshooting, and repairing avionic systems.

L — LOADMASTER. Performs in-flight functions of maintaining loading, rigging, internal cargo handling, and weight and balance requirements.

M — STUDENT PILOT. That individual under-going training as a student pilot and performing functions/collecting FPT or CPT.

N — MISSION SPECIALIST (Space Shuttle). The mission specialist working with the commanding pilot has overall responsibility for the coordination of shuttle operations in the areas of crew activity planning, consumables usage, and experiment and payload operations.

O — ORDNANCE. Performs in-flight duties as a flightcrew ordnanceman. Is knowledgeable of aircraft ordnance systems, weapons loading, emergency procedures, and flight equipment.

P — NFO. As a qualified naval flight officer crewmember, performs in-flight duties required to ensure mission accomplishment (e.g., ASW tactical coordinator, navigator, radar intercept officer, electronic warfare evaluator, electronics countermeasures officer, airborne communicator, etc.)

Q — COMMUNICATION. Performs in-flight duties as a flight communication operator. Is knowledgeable of aircraft avionic systems, emergency procedures, and flight equipment.

R — RADAR. Performs in-flight duties as a radar operator. Is knowledgeable of aircraft avionic systems, emergency procedures, and flight equipment.

S — ACFT CMDR and MSN CMDR. That individual designated as a qualified Aircraft Commander, serving as pilot in command of the aircraft model being flown and simultaneously, during a single flight, functioning as the Mission Commander of a group of aircraft performing a mission.

T — CREW UT. An air crewman assigned to crewmember flight status who has not achieved full designation in the syllabus to which assigned.

U — NONCREW UT. An enlisted aircrew candidate assigned to noncrewmember flight status for training.

V — LOCAL USE/OTHER. As the local activity desires for functions that do not fall into any identified special qualifications.

W — GUNNER. Performs in-flight functions as a gunner.

X — 2ND MECHANIC/ASSIST FLT ENGINEER. Performs in-flight functions assisting the crewchief/flight engineer in the performance of their duties. The 2ND mechanic/assist FLT engineer may perform takeoffs and landings (no induced malfunctions) with an instructor pilot and instructor flight engineer onboard during minimum crew training flights.

Y — HELO UTILITY/AMCM. Performs in-flight operation of vertical replenishment or mine countermeasures equipment.

Z — MSN CMDR. A qualified naval aviator or naval flight officer designated by appropriate authority to exercise command over single aircraft or formation and responsible for all phases of the assigned mission except those aspects in safety of flight that relate to the physical control of the aircraft during flight.

F.4 SERVICE CODES

1. Pilot/Student/Pilot	
a. USN/R Active Duty	1
b. USNR Reserve Training	2
c. USMC/R Active Duty	3
d. USMCR Reserve Training	4
2. Naval Flight Officer/Aeromedical Officer Flight Surgeon	
a. USN/R Active Duty	6
b. USNR Reserve Training	7
c. USMC/R Active Duty	8
d. USMCR Reserve Training	9
3. Other	
a. USMC AO/Navigator	0
b. Other Services	5
c. Enlisted Marine	M
d. Enlisted Navy	N

F.5 LANDING CODES

TYPE	DAY	NIGHT
Ship Arrest/RAST/V/STOL/STOVL Ship Vertical	1	A
Ship Touch and Go	2	B
Ship Bolter/RAST Free Deck	3	C
Ship Helicopter/Clear Deck	4	D
Ship UAS	—	I
FCLP/V/STOL/STOVL FCLP Vertical	5	E
Field Full Stop/V/STOL/STOVL Conventional	6	F
Field Touch and Go	W	T
Field Arrest/V/STOL/STOVL Variable Nozzle Slow	7	G
Field UAS	—	U
V/STOL/STOVL Fixed Nozzle Slow	8	H
V/STOL/STOVL Field Vertical	9	J
V/STOL/STOVL Vertical Roll	0	K
NVD Ship	—	N
NVD Field/Field Touch and Go	—	P
NVD FDLP	—	Q
Unprepared Landing	L	M
NFO	Y	Z
Reduced Visibility Landing	R	S

F.6 APPROACH CODES**Note**

The approach is actual if actual instrument conditions (as defined in the Glossary) are encountered below 1,000 feet above airport/flight deck elevation during the approach. The approach is simulated if flown in accordance with the criteria set forth in the Glossary under simulated instrument conditions.

CATEGORY	ACTUAL INSTRUMENT (ACT)	SIMULATED INSTRUMENT (SIM)
Precision	1	A
Nonprecision	2	B
Auto	3	C
Auto (NVD)	4	—
Degraded Visual Environment	5	E
UAS	—	F

1. Precision - A precision approach is a standard instrument approach procedure in which an electronic glideslope/glidepath is provided, including but not limited to the following:
 - a. ALS Automatic landing system (includes SPN-46 Mode I or IA).
 - b. ILS Instrument landing system (includes Mode II).
 - c. PAR Precision approach radar (includes Mode III).
2. Nonprecision - A nonprecision approach is a standard instrument approach procedure in which no electronic glideslope/glidepath is provided, including but not limited to the following:
 - a. VOR — VHF omni range.
 - b. VOR/DME — VOR/distance measuring equipment.
 - c. Tacan — UHF tactical air navigation aid.
 - d. NDB (ADF) — Nondirectional beacon (automatic direction finder).
 - e. L/MF range.
 - f. Localizer.
 - g. ASR — Airport surveillance radar (includes CCA when no glidepath information is provided).
 - h. ELVA (helicopter only) — Emergency low visibility approach. Controlled by ASAC utilizing ship-controlled radar.
 - i. SCA — Self-contained approach controlled by operator using onboard radar.
 - j. GPS — Global Positioning System.
3. Auto
 - a. Coupled/automatic hover system approaches after official sunset or during actual instrument conditions in automatic or alternate modes will utilize 3 or 4 as appropriate. Simulated instrument conditions in automatic or alternate modes will utilize C.
4. UAS - A UAS approach is a standard instrument approach in which UAS guidance is utilized.

APPENDIX G

Time Zone, System Status, Passenger Priority, and Opportune Cargo Codes

G.1 PURPOSE

This appendix contains the time zone, system status, passenger priority, and opportune cargo codes required for completion of the Naval Aircraft Flight Records (NAVFLIRS) addressed in [Chapter 10](#).

G.2 TIME ZONE CODES

Time zone codes are referenced to Greenwich Mean Time (GMT)/Coordinated Universal Time (UTC): solar time of the meridian at Greenwich, England, used as the basis for standard time throughout the world.

Compute time in the Western Hemisphere from local zones to GMT/UTC as follows:

ZONE	ADD	HOUR(S)
N	+	1
O	+	2
P	+	3
Q	+	4
R	+	5
S	+	6
T	+	7
U	+	8
V	+	9
W	+	10
X	+	11
Y	+	12

CNAF M-3710.7

Compute time in the Eastern Hemisphere from local zones to GMT/UTC as follows:

ZONE	MINUS	HOUR(S)
A	—	1
B	—	2
C	—	3
D	—	4
E	—	5
F	—	6
G	—	7
H	—	8
I	—	9
K	—	10
L	—	11
M	—	12

Note

The time zone for either the Eastern or Western hemisphere remains unchanged, even during daylight savings time.

G.3 SYSTEM STATUS CODES

1. F — Full systems from takeoff to landing.
2. P — Full systems at takeoff; not full systems at landing.
3. N — None/partial systems from takeoff to landing.

G.4 PASSENGER PRIORITY CODES

1. Priority 1 (PRI1) — Emergency airlift in direct support of operational forces or for lifesaving purposes.
2. Priority 2 (PRI2) — Official business airlift of personnel with scheduling constraints that cannot be satisfied by any other mode of travel.
3. Priority 3 (PRI3) — Other official business airlift of passengers that requires the carrying of classified material for mission accomplishment that cannot be accommodated by mail or the Armed Forces Courier Services.
4. Priority 4 (PRI4) — Official business airlift involving group or team travel that requires the conduct of official business while en route that maintains the integrity of cohesiveness of the group and that cannot be reasonably satisfied by other modes of travel.
5. Priority 5 (PRI5) — Any other official business airlift that can be shown to be less expensive than any other mode of travel to satisfy scheduling constraints. Requests carrying this priority shall be supported only when cost effective.

G.5 OPPORTUNE CARGO CODES

CODE	CARGO
*1	NMCS items
*2	CASREP items
*3	NMCM items
A	Mail
B	Aircraft spares, parts
C	Avionic spares, parts
D	Aircraft engines
E	Ship parts
F	Electronic spares, parts
G	Electronic test equipment
H	Ground support equipment
I	Boats
J	Medical equipment, supplies
*K	Organizational equipment
L	Maintenance tools, equipment
M	Petroleum products/tanker fuel
N	Explosives, flares, ammunition
O	Aircraft
P	Weapons, weapon parts
Q	Missiles, torpedoes
R	Drones, air targets
S	Chemicals
T	Vehicles, vans, trailers
U	Food, commissary supplies
V	Musical instruments
W	Human remains
*X	Other aviation cargo
*Y	Other general cargo
*Z	Other (i.e., hazardous cargo)

*Briefly described in remarks section of the naval aircraft flight record.

Note

If codes 1, 2, or 3 are utilized, indicate alphabetical code first (primary), and code 1, 2, or 3 second. (E2 means ship parts that are CASREP items.) If codes 1, 2, or 3 are not used, indicate the categories relative to predominance/bulk of cargo.

This Page Intentionally Left Blank.

APPENDIX H

Weapons Proficiency Codes

H.1 PURPOSE

This appendix contains the weapons proficiency codes required for completion of the Naval Aircraft Flight Records (NAVFLIRS) addressed in [Chapter 10](#).

H.2 ORDNANCE CODES

Below are the ordnance types and the weapons proficiency subsystem:

ORDNANCE	ORDNANCE CODE
B43	B43
B43 Retarded	B43A
B57	B57
B57 Retarded	B57A
B61	B61
B61 Retarded	B61A
Mk-81 FF	B81
Mk-81 SE	B81A
Mk-82 FF	B82
Mk-82 SE	B82A
Mk-83 FF	B83
Mk-84 FF	B84
BDU-8	BD1
BDU-8 Retarded	BD1A
BDU-12	BD2
BDU-12 Retarded	BD2A
BDU-20	BD3
BDU-20 Retarded	BD3A
BDU-24	BD4
BDU-24 Retarded	BD4A
BDU-33	BD5
BDU-33 Retarded	BD5A
BDU-36	BD6
BDU-36 Retarded	BD6A
BDU-45	BD7
BDU-45 Retarded	BD7A
BDU-48	BD8
BDU-48 Retarded	BD8A

CNAF M-3710.7

ORDNANCE	ORDNANCE CODE
Mk-20 Rockeye	C20
CBU-55 FAE	C55
CBU-59 APAM	C59
CBU-72 Napalm	C72
Mk-82 Gator	C78
CBU-88 Smokeye	C88
RR-129 Chaff	CH1
Speedbrake Chaff	CH2
Pod Chaff	CH3
Chaffeye	CH4
RR-144	CH5
AIRBOC	CH6
Mk-36 Destructor	D36
Mk-40 Destructor	D40
Mk-41 Destructor	D41
Mk-45 Flare (SUU-44 Dispenser)	F1
Mk-46 Decoy Flare	F2
Aviation Parachute Flare	F3
Mk-25 Marine Smoke Marker	F10
Mk-12 Smoke Tank	F11
Mk-58 Marine Smoke Markers	F12
G-900 Series Smoke Grenades	F13
LB-31 Camera Pod	F21
M-112/123 Photo Flash Cartridges	F22
LAU-10 Leaflet Dispenser	F31
GAU-2 Gun	G2
20MM Gun	G20
25 MM Gun	G25
30 MM Gun	G30
.50 Caliber Gun	G50C
7.62 MM Gun	G762
M60 Machinegun	GM60
Mk-81 FF Inert	I81
Mk-81 SE Inert	I81A
Mk-82 FF Inert	I82
Mk-82 SE Inert	I82A
Mk-83 FF Inert	I83
Mk-84 FF Inert	I84

ORDNANCE	ORDNANCE CODE
Mk-7 JATO	J1
LGB Mk-82	L82
LGB Mk-82 With Extended Fin (PEP KIT)	L82P
LGB Mk-83	L83
LGB Mk-84	L84
Mk-25 Mine	M1
Mk-36 Mine	M2
Mk-52 Mine	M3
Mk-55 Mine	M4
Mk-56 Mine	M5
AIM-7 Sparrow	M7
AIM-7 Sparrow (Captive)	M7C
AIM-9 Sidewinder	M9
AIM-9 Sidewinder (Captive)	M9C
AGM-119B Penguin	M119
AIM-120 AMRAAM	M10
AIM-120 AMRAAM (Captive)	M10C
AGM-45 Shrike	M45
AGM-45 Shrike (Captive)	M45C
AIM-54 Phoenix	M54
AIM-54 Phoenix (Captive)	M54C
AGM-62 Walleye	M62
AGM-62 Walleye (Captive)	M62C
AGM-65 IR Maverick	M65I
AGM-65 Laser Maverick	M65L
AGM-71 Tow	M71
AGM-78 Standard Arm	M78
AGM-84 Harpoon	M84
AGM-88 Harm	M88
AGM-114 Hellfire	M114
AGM-122 Sidearm	M122
AGM-123 Skipper	M123
AGM-179 JAGM	M179
Mk-76	P76
Mk-106	P106
ACMR/TACTS Pod	POD1
LAU-68 (7 2.75 Rockets)	R275
LAU-61(19 2.75 Rockets)	R275
LAU-10 (5" Zuni)	R5
Mk-94 Chemical Bomb	S1

CNAF M-3710.7

ORDNANCE	ORDNANCE CODE
AERO-14 Spray Tank	S2
Bigeye	S3
Weteye	S4
AN/SSQ-36 Sonobuoy	SB1
AN/SSQ-41 Sonobuoy	SB2
AN/SSQ-47 Sonobuoy	SB3
AN/SSQ-50 Sonobuoy	SB4
AN/SSQ-53 Sonobuoy	SB5
AN/SSQ-62 Sonobuoy	SB6
AN/SSQ-77 Sonobuoy	SB7
ADSID III-N Seismic Detector	SD1
Mk-64 SUS	SU1
Mk-84 SUS	SU2
Mk-46 Torpedo	T594
Mk-46 Torpedo (Extorp)	T595
Mk-46 Torpedo (Rextorp)	T596
Mk-50 Torpedo	T597
Mk-50 Torpedo (Extorp)	T598
Mk-50 (Rextorp)	T599

H.3 ORDNANCE DELIVERY DATA CODES

Below are the delivery types and delivery codes for the weapons proficiency subsystem:

H.3.1 Ordnance System/Automatic Delivery Code

TYPE DELIVERY	DELIVERY CODE
Straight Path (1g)	A1
General/Dive Toss (Any g)	A2
Auto TV (Any g)	A3
Auto Hud (Any g)	A4
Auto Slew	A5
Air-to-Air Radar	F1
Air-to-Air Infrared	F2
High Loft	S1
LST/LDT-Bombs (Laser Designated)	S2
LST/LDT-Missiles (Laser Designated)	S3
System Mining	S4
CCIP	V1
Point Blank (Boresight/Pickle-Pull)	V2

H.3.2 Manual Delivery Code

TYPE DELIVERY	DELIVERY CODE
0° Bombs (Manual)	B0
5° Bombs (Manual)	B5
10° Bombs (Manual)	B1
20° Bombs (Manual)	B2
30° Bombs (Manual)	B3
45° Bombs (Manual)	B4
60° Bombs (Manual)	B6
5° Popup Bombs (Manual)	BA
10° Popup Bombs (Manual)	BB
20° Popup Bombs (Manual)	BC
30° Popup Bombs (Manual)	BC/D
 Radar Manual Range Line	 L0
Labs IP	L1
Labs Target	L2
Conlabs	L3
Special Weapons Laydown	L4
Mining (Manual)	L5
 5° Rockets (Manual)	 R5
10° Rockets (Manual)	R1
20° Rockets (Manual)	R2
30° Rockets (Manual)	R3
45° Rockets (Manual)	R4
60° Rockets (Manual)	R6
5° Popup Rockets (Manual)	RA
10° Popup Rockets (Manual)	RB
20° Popup Rockets (Manual)	RC
30° Popup Rockets (Manual)	RD

H.4 MISCELLANEOUS DATA RECORD CODES

The miscellaneous data subsystem of NAVFLIRS is utilized to capture and document miscellaneous training and utilization that is of importance to the individual aviator or the aviator's command, but is not documented elsewhere.

The miscellaneous code contains two characters. If the first character of the miscellaneous code is "N", "R" or "I", the data field will be numbers and tenths of numbers with an implied decimal between the second and third characters.

Below are the listed miscellaneous data codes:

DATA	CODE
Number of Autorotations	AI

CNAF M-3710.7

DATA	CODE
Number of Rounds Fired	FI
Logistical Movement W-79 8" Arty Rounds	L1
Logistical Movement B-33 8" Arty Rounds	L2
Logistical Movement B-48 155 MM Arty Rounds	L3
Logistical Movement B-54 SADM	L4
Logistical Movement B-43	L5
Logistical Movement B-57	L6
Logistical Movement B-61	L7
Night Vision Device Usage (high light level)	N1
Night Vision Device Usage (low light level)	11
SUA not utilized because of cancellation of flight ops	N2
SUA canceled because of wx	N3
SUA canceled because of maintenance action	R1
SUA canceled by air traffic control	R2
Future Use	12
Future Use	13
Covered Radio-Successful Check In	21
Covered Radio-Unsuccessful Check In	22
Future Use	31
Future Use	32
Future Use	33

APPENDIX I

Support Codes

I.1 PURPOSE

This appendix contains the user's activity codes required for completion of the Naval Aircraft Flight Records (NAVFLIRS) for flight simulators addressed in [Chapter 10](#).

SUPPORT CODES	ACTIVITY NAME
AL	COMNAVAIRLANT
AP	COMNAVAIRPAC
CN	CNATRA
FL	MARFORCOM
FP	MARFORPAC
ME	MCIEAST
MR	MARINE RESERVE (CG FOURTH MAW)
MW	MCIWEST
MX	HMX-1
NA	COMNAVAIRSYSCOM
NS	COMNAVSAFECOM (PEP)
RE	COMNAVAIRFORES

This Page Intentionally Left Blank.

APPENDIX J

USMC Personal Data Syllabus and Status Codes

J.1 PURPOSE

This appendix contains the syllabus and status codes for use by USMC and USN personnel for completion of the Naval Aircraft Flight Records (NAVFLIRS) Personnel Data section addressed in [Chapter 10](#). Completion of NAVFLIRS Personal Data Section Assigned Syllabus (TEC), Aircrew Status (ASC), and Syllabus Status (SSC) Codes are mandatory for USMC personnel, and [Paragraph J.2](#) through [J.4](#) identify specific codes for use by USMC personnel. Although these NAVFLIRS fields are also available for by USN personnel use, no USN codes are presently established within this appendix.

J.2 USMC ASSIGNED SYLLABUS (TEC) CODES

SYLLABUS	SYLLABUS CODES
EA-6 Pilot	7541/7543
EA-6 EWO	7582/7588
AV-8 Pilot	7507/7509
F/A-18 Pilot	7521/7523
F/A-18 WSO	7524/7525
CT-39 Pilot	7559
C-40 Pilot	7540
C-40 Crew Chief	6141
UC-12 Pilot	7555
UC-35 Pilot	7554
KC-130 Pilot	7556/7557
KC-130 Flight Engineer	6242
C-40 Loadmaster	6140
KC-130 Loadmaster	6276
CH-46 Pilot	7561/7562
CH-46 Crew Chief	6172
CH-53 Pilot	7558/7560/7564/7566
CH-53 Crew Chief	6173
Aerial Observer/Gunner	6199
MV-22 Pilot	7531/7532
MV-22 Crew Chief	6176
F-35B Pilot	7516/7518

J.3 USMC SYLLABUS STATUS (SSC) CODES

C — Conversion Syllabus. The syllabus provided for aircrewmen converting from one model aircraft to another within the specific aircraft type (i.e., CH-46 to CH-53 or F-4 to F/A-18).

F — Full Syllabus. The standard instruction prescribed for newly designated aircrewmen to become full-combat qualified (sometimes referred to as the first tour or replacement aircrew (RAC) syllabus).

R — Refresher Training. The syllabus to be flown by aircrewmen who have not flown the model aircraft in which refresher training is to be conducted within the previous 12 months. Refresher programs to be flown by aircrewmen with differing backgrounds and assignments are outlined within MCO 3500.14 (Training and Readiness Manual, Vol. 1, Admin.) and/or NAVMC 3500.14 (as applicable).

T — Transition Syllabus. Syllabus instruction designed for aircrewmen changing aircraft types. Tactical jet, helicopter, fixed-wing transport, fixed-wing observation, and V/STOL attack are the Marine Corps aircraft types.

J.4 USMC AIRCREW STATUS (ASC) CODES

0 — Personnel authorized more than two syllabuses.

1 — Tactical Crewmen. Aircrewmen permanently assigned to a tactical aircraft unit and whose cumulative combat readiness contributes directly toward the combat readiness of the unit as reported through UNITREP.

2 — Augmentation Crewmen. Those crewmen assigned to fly with tactical squadrons to augment the unit for combat readiness purposes. No more augmentation personnel will be assigned to a unit than is required to bring that unit to 100-percent T/O.

3 — Tactical Support Crewmen. Crewmen similarly assigned as augmentation crewmen, but only maintained at a level of combat readiness that shall not inordinately degrade the capacity of the reporting unit to maintain combat readiness of tactical and augmentation crewmen.

4 — Replacement Aircrewmen. Newly designated aircrewmen undergoing training as outlined in the Training and Readiness Manual within a tactical or training squadron.

5 — All enlisted aircrewmen (flight engineers, loadmasters, crewchiefs, gunners, test, trainees, etc.) and aerial observers and non-USN/USMC NA/NFOs.

6 — Nonsyllabus pilot.

7 — Nonsyllabus NFO.

8 — Other nonsyllabus crewmen.

9 — Local use.

APPENDIX K

COMNAVAIRFOR Approved IFAR Simulators

K.1 PURPOSE

This appendix contains lists of flight simulators approved by COMNAVAIRFOR and NAWCTSD RDT&E for logging pilot time for pilots and special crew time for NFOs and aircrewmembers that is required for completion of the OPNAV 3710/4 and aircrew member's OPNAV 3760/31 addressed in [Chapter 10](#). At a minimum, these training devices are approved for completing basic (1A1) and instrument (1A2) flight training, NATOPS checks (2L4/2L5) and Instrument Check (2L3) flight evaluations. Further guidance on the ability to log additional Total Mission Requirement (TMR) codes and tactical training should be determined by the respective T/M/S NATOPS Model Manager or Type Wing.

K.2 DESIGNATION OF NEW SIMULATORS

1. All USN and USMC fleet simulators shall be approved by COMNAVAIRFOR prior to logging pilot or special crew time. Modifications to this appendix may be made by submitting a change recommendation via AIRS located on the Airworthiness web site or by email to COMNAVAIRFOR NATOPS (N455). See [Chapter 2](#) for additional information on submitting change recommendations.
2. Requests to add a new simulator to this appendix should originate from the T/M/S NATOPS Model Manager and should include the following information:
 - a. Aircraft Type (T/M/S).
 - b. Simulator Designation.
 - c. Simulator Type.
 - d. Type Equipment Code.
 - e. Device manufacturer and date.
 - f. Type of Request (New or Update).
 - g. Point of contact for technical data review.
3. COMNAVAIRFOR N455 will forward the request to NAWCTSD RDT&E. Based on NAWCTSD RDT&E and COMNAVAIRFOR N455 initial reviews of the training request, COMNAVAIRFOR N455 may issue a temporary waiver to authorize logging of flight time until certification of the training device's capabilities can be validated.
4. NAWCTSD RDT&E will certify the training device's ability to meet basic and instrument flight through evaluation of the training device's test procedures, test results, open deficiencies and Subject Matter Expert (SME) inputs. Where test data does not exist for the configuration of the training system in question, an onsite evaluation of the device will be performed by independent evaluators to validate the capabilities of the training device. Based on the certification recommendation from NAWCTSD RDT&E, COMNAVAIRFOR N455 will issue final approval of the training system for inclusion into [Appendix K](#). The final approval will include the software and hardware configurations of the approved training device(s). It is the T/M/S NATOPS Model Manager's responsibility to ensure simulator flight time is logged against the approved configuration. If changes are made to the simulator's configuration, the T/M/S NATOPS Model Manager shall review the configuration changes and test results to ensure training tasks associated with basic and instrument flight training will have not been adversely affected by the modification. NAWCTSD RDT&E will be available to assist in this determination.

CNAF M-3710.7

5. For additional guidance on logging flight time in simulators not listed in [Appendix K](#), refer to [Paragraph 10.3.1.2](#).

K.3 NAVY SIMULATORS (PILOT AND NFO SPECIAL CREW TIME)**Note**

Pilots must occupy a pilot station to log pilot time.

AC/TYPE	SIMULATOR DESIGNATION	SIMULATOR TYPE	TYPE EQUIP CODE
AV-8B	2F149	WST	VAGQ
AV-8B	2F150	WST	VAGR
AV-8B	2F150A	WST	VAGW
AV-8B	2F150B	WST	VAGY
AV-8B	2F150C	WST	VAGZ
AV-8B	2F150D	WST	VAG7
C-2A	2F168	OFT	VCWC
CH-53E	2F174	WST	VHUP
CH-53E	2F171	APT	VHUM
CH-53E	2F190	APT	VHUQ
CH-53K	2F243-1	CFTD	VHX4
CMV-22	2F247	FTD	VYNO
CMV-22	2F296	ICLE	VYN2
E-6B	2F144A-1	OFT	VECE
E-6B	2F144A-2	OFT	VECE
EA-18G	2F198	OFT	VAE7
E-2C	15F8C	WST	VEBM
E-2C	5F8H-4	WST	VEBN
E-2C	15F8H-5	WST	VEBP
E-2C	2F110	OFT	VEBG
E-2C	2F166	OFT	VEBE
E-2D	2F210	OFT	VEBS
E-2D	2F211	APT	VEBT
EP-3E	10H1H	TORT	VPBC
EP-3E	10H1J	MAST	VPBD
F-35C	F-35B/C FMS O	PT/FMS	VFB1
KC-130	2F176	APT	VCMG
KC-130J	2F199	WST	VCMJ
KC-130R	2F107	APT	VCMH
KC-130T	2F107	OFT	VCMB
KC-130T	2F107A	OFT	VCMH
KC-130T	2F152	OFT	VCME
KC-130T	2F176	APT	VCMG
F-5	2F213	IFT	VFZA
F/A-18	2E7	VTI	VFYA

AC/TYPE	SIMULATOR DESIGNATION	SIMULATOR TYPE	TYPE EQUIP CODE
F/A-18	2F132	OFT/TOFT	VFYB
F/A-18	2F192	TOFT	VFXG
F/A-18	2F193	TOFT	VFXH
F-18	2F193B	TOFT	VFXK
F-18C	2F193A	OFT	VFXJ
F/A-18E/F	2F132	OFT/TOFT	VFYB
F/A-18F	2F201	TOFT	VFXM
MH-53E	2F141	OFT	VHUK
MH-60R	2F195	WST	VHYG
MH-60R	2F195	TOFT #1 thru 5	VHYG
MH-60R	2F195	TOFT	VHYG
MH-60S	2F189	OFT	VHZX
MH-60S	2F189A	OFT	VHYD
MH-60S	2F189B	TOFT #3	VHYH
MH-60S	2F189C	TOFT #4	VHYJ
MH-60S	2F189D	TOFT #5	VHYK
MH-60S	2F189E	TOFT #6	VHYL
MH-60S	2F189F	TOFT #7 & 8	VHYM
MH-60R/S	2F195RS	TOFT	VHY2
MQ-4C IFC-3	3F202F	MST	VD1A
	2F230	MST	VQC0
MQ-4C IFC-4	2F229	MST	VQC1
	2F230	MST	VQC0
MV-22	2F183-1	FTD	VKAO
MV-22	2F182	FFS	VKAC
MV-22	2F183	FTD	VKAD
MV-22	2F200	CFTD	VHAQ
MV-22	2F212	ICLE	VKAP
P-8A	2F202 (F)	OFT	VPDA
P-3C	2F87 (F)	OFT	VPBR
P-3C	2F142 (AF)	OFT	VPCD
P-3C	2F179	WST	VPCF
P-3C	2F140	WST	VPB6
SH-3H	2F64C	OFT	VHCL
SH-60B	2F135	OFT	VHQB
SH-60B	2F135A	TOFT	VHYB

CNAF M-3710.7

AC/TYPE	SIMULATOR DESIGNATION	SIMULATOR TYPE	TYPE EQUIP CODE
SH-60B	2F139	WST	VHZW
SH-60B	2F135B	TOFT #7	VHYQ
SH-60F	2F146	WST	VHZF
T-44C	2F129C	OFT	VTLB
T-44C	2F129D	OFT	VTLC
T-45C	2F137C	IFT	VTME
T-45C	2F138C	OFT	VTMF
T-45C	2F138E	OFT	VTMK
T-45C	2F138F	OFT	VTML
T-45C	2F205A	OFT	VTMJ
T-6A	2F208A	OFT	VTQA
T-6B	2F208B	OFT	VTQA
TH-57C	2B42A	OFT	VHSH
UH-1N	2F161	WST	VHTR
UH-1N	2F175	APT	VHTS
UH-1Y	2F196	FTD	VHEC
UH-1Y	2F206	FFS	VHEB
VH-3D	2F180	APT	VHCU
VH-60N	2F233	CFTD	VHZZ

Where simulator types are as follows:

APT — Aircrew Procedure Trainer

CFTD — Containerized Flight Training Device

FIT — Flight Instrument Trainer

FTD — Flight Training Device

FFS — Full Flight Simulator

IFT — Instrument Flight Trainer

MAST — Mission Avionics Systems Trainer

MST — Mission System Trainer

OFT — Operational Flight Trainer

OF/NT — Operational Flight/Navigation Trainer

TACT — Tactical Air Crew Trainer

TOFT — Tactical Operational Flight Trainer

TORT — Tactical Operational Readiness

Trainer WST — Weapon System Trainer

WTT — Weapon Tactics Trainer

K.4 NAVY SIMULATORS (SPECIAL CREW TIME ONLY)

The following simulators are suitable only for substitution of special crew time.

Note

Pilots must occupy a pilot station to log pilot time.

AC/TYPE	SIMULATOR DESIGNATION	SIMULATOR TYPE	TYPE EQUIP CODE
MH-53E	20D17	WTT	VHUN
E-2C	15F8A	TT	VEBJ
E-2D	15F14	TT	VEBW
E-6B	2F194	WST	VECF
RQ-7B	2F240	UMS	VXXO
SH-60B	14B51	WTT	VHZC
SH-60F	14H9	TTT	VHZV
P-3C	2F179A	WST	VPCF
P-3C	2F140(T)	TTT	VPB6
P-8A	2F202(T)	WTT/WST	VPDB

Where simulator types are as follows:
 MCOT — Missile Control Officer Trainer
 TT — Tactics Trainer

TTT — Team Tactics Trainer
 WTT — Weapon Tactics Trainer

K.5 NON-NAVY SIMULATORS (PILOT AND SPECIAL CREW TIME)

A/C TYPE	SIMULATOR TYPE	LOCATION	TYPE EQUIP CODE
TH-73A	FSTD L6UX	NAS WHITING FIELD	NA
TH-73A	FSTD L7UX	NAS WHITING FIELD	NA
TC-4C	OFT	FSI SAVANNAH	VZAG
C-20G/D	OFT	FSI SAVANNAH/FSI LONG BEACH	NA
C-26	FFS	FSI SAN ANTONIO	NA
UC-35C/D	OFT	FSI WICHITA	NA
C-37A	OFT	FSI SAVANNAH	NA
C-38A	OFT	FSI DALLAS	NA
C-40	OFT	CAE DALLAS	NA
UC-12B	OFT	FSI/SIMUFLITE	VZAP
UC-12B	OFT	CAE DALLAS	NA
UC-12F/M	OFT	CAE DOTHAN	NA
UC-12FW	OFT	FSI WICHITA	NA
C-130E	OFT	US AIR FORCE	VZAU
C-130T	OFT	CAE TAMPA	NA
E-3	OFT/TTT	US AIR FORCE/NATO	VZBE
E-6B	OFT	L3 LINK OKLAHOMA CITY	NA
F-4	OFT/WST	US AIR FORCE	VZAT
RF-4	OFT	US AIR FORCE	VZAK
F-15	OFT/WST	US AIR FORCE	VZBV
F-16	OFT/WST	US AIR FORCE	VCT7
F-111	OFT/WST	US AIR FORCE	VCT6
AH-1S	OFT	US ARMY	VZA5
AH-1T	OFT	US ARMY	VZA1
UH-1	OFT	US ARMY	VZAM
HH-52	OFT	US COAST GUARD	VZAJ
UH-60	OFT	US ARMY	VZAQ
AH-64	OFT	US ARMY	VZBC
T-37	OFT	US AIR FORCE	VZBJ
T-38	OFT	US AIR FORCE	VZBK
CT-39	OFT	FSI ST. LOUIS	VZAE
T-43	FT/TT	US AIR FORCE	VZAX
FALCON	OFT/WST	NUMEROUS FOREIGN	VZBL
HARRIER	OFT/WST	NUMEROUS FOREIGN	VZBM

A/C TYPE	SIMULATOR TYPE	LOCATION	TYPE EQUIP CODE
HORNET (F-18)	OFT/WST	NUMEROUS FOREIGN	VZA8
JAGUAR	OFT/WST	NUMEROUS FOREIGN	VZA7
LYNX	OFT/WST	NUMEROUS FOREIGN	VZBN
MIRAGE	OFT/WST	NUMEROUS FOREIGN	VZBP
ORION (P-3)	OFT/TTT/WST	NUMEROUS FOREIGN	VZBQ
SEA KING (H-3)	OFT/WST	NUMEROUS FOREIGN	VZBR
TORNADO	OFT/WST	NUMEROUS FOREIGN	VZA6
AURORA	OFT/TTT/WST	CANADA	VZBA
CRUSADER (F-8)	OFT/WST	FRANCE	VZBS
ETENDARD	OFT/WST	FRANCE	VDT1
F-15	WST	MCAIR ST. LOUIS	VZBV
F/A-18	WST	MCAIR ST. LOUIS	VZAW
GENERIC	FIXED WING	US AIR FORCE	V1AF
GENERIC	HELO	US AIR FORCE	V2AF
GENERIC	FIXED WING	US ARMY	V1AR
GENERIC	HELO	US ARMY	V2AR
GENERIC	FIXED WING	US COAST GUARD	V1CG
GENERIC	HELO	US COAST GUARD	V2CC
GENERIC	FIXED WING	FOREIGN	V1FM
GENERIC	HELO	FOREIGN	V2FM
GENERIC	FIXED WING	NASA	VZBW
GENERIC	V/STOL	NASA	VZAV
MFS	FIXED WING	PATUXENT RIVER	VZBX
MFS	V/STOL	PATUXENT RIVER	VZBY
H-60	SIL	PATUXENT RIVER	VZC1
CH-53E	SIL	PATUXENT RIVER	VHX3

This Page Intentionally Left Blank.

APPENDIX L

List of Forms and Reports

L.1 PURPOSE

The forms and reports required by this manual are listed in this Appendix.

L.2 FORMS

The following forms are required for use with this manual. Copies of the electronic forms may be obtained through the sponsor's website listed in [Figure L-2](#). Copies of "paper only" forms can be ordered through the Naval Supply System DLA Forms Online website (<https://forms.documentservices.dla.mil/order/>). An asterisk (*) beside forms listed as available in "electronic media" indicates that, in addition to being available in electronic media, paper copies of the form have not yet been exhausted, and remain available for the moment on the DLA Forms Online website. Paper copies for forms listed as in "electronic media only" are no longer available through the DLA Forms Online website.

Figure L-1. Forms Referenced in this Manual

FORM NR/DATE	SPONSOR	FORM TITLE	TYPE MEDIA AND S/N
SF 88 (Rev 10-94)	GSA	Report of Medical Examination	Electronic media only
SF 93 (Rev 6-96)	GSA	Report of Medical History	Electronic media only
118A (12-96)	NAVMC	USMC Service Record Book Cover	Paper media only S/N 0109-LF-067-1200
123A (12-96)	NAVMC	USMC Service Record Book Cover	Paper media only S/N 0109-LF-062-8800
DD 175 (5-86)	DOD	Military Flight Plan	Electronic media only
DD 175-1 (10-02)	DOD	Flight Weather Brief	Electronic media only
DD 365-4 (8-96)	DOD	Weight and Balance Clearance Form F — Transport/Tactical	Electronic media only
DD 1381 (7-62)	DOD	Air Transportation Agreement	Electronic media only
DD 2807-1 (Mar 2015)	DOD	Report of Medical History	Electronic media only
DD 2808 (Oct 2005)	DOD	Report of Medical Examination	Electronic media only
DD 1801 (5-87)	DOD	DOD International Flight Plan	Electronic media
DD 2992 (1-15)	DOD	Medical Recommendation for Flying or Special Operational Duty	
3710/2 (4-16)	OPNAV	NATOPS Instrument Rating Request	Electronic media
3710/4 (2-84)	OPNAV	Naval Aircraft Flight Record (NAVFLIRS)	Paper media only S/N 0107-LF-037-1020
3710/6 (4-90)	OPNAV	NATOPS/Tactical Change Recommendations	Electronic media
3710/7 (4-16)	OPNAV	NATOPS Evaluation Report	Electronic media only
3710/18 (7-10)	OPNAV	Clearance for Nonmilitary/Nonaircraft Personnel to Fly In USN/USMC Aircraft	Electronic media only

Figure L-1. Forms Referenced in this Manual (cont.)

FORM NR/DATE	SPONSOR	FORM TITLE	TYPE MEDIA AND S/N
3722/18 (8-09)	OPNAV	Naval Flight Information Group Application/Validation of Jeppesen Terminal Approach Procedures	Electronic media only
3760/31 (4-65)	OPNAV	Aviators Flight Log Book	Paper media only S/N 0107-LF-736-2001
3760/32 (4-81)	OPNAV	NATOPS Flight Personnel Training/Qualification Jacket — Report Covers and Divider Tabs	Paper media only S/N 0107-LF-736-2112
3760/32A (4-81)	OPNAV	NATOPS Flight Personnel Training/Qualification Jacket Section IA — Review and Certification Record	Electronic media*
3760/32B (4-81)	OPNAV	NATOPS Flight Personnel Training/Qualification Jacket Section ID — Record of Flight Equipment Issue	Electronic media*
3760/32C (4-81)	OPNAV	NATOPS Flight Personnel Training/Qualification Jacket Section IIIA — Flight Personnel Designation record	Electronic media*
3760/32D (Rev 4-90)	OPNAV	NATOPS Flight Personnel Training/Qualification Jacket Section IIB — Mission Qualification Record	Electronic media*
3760/32E (Rev 4-90)	OPNAV	NATOPS Flight Personnel Training/Qualification Jacket Section IIIA — School/Course Attendance Record	Electronic media*
3760/32F (Rev 4-90)	OPNAV	NATOPS Flight Personnel Training/Qualification Jacket Section IIIB — Operational Physiology & Survival Training	Electronic media*
3760/32G (Rev 4-90)	OPNAV	NATOPS Flight Personnel Training/Qualification Jacket Section IIIC — Examination Record	Electronic media*
3760/32H (4-81)	OPNAV	NATOPS Flight Personnel Training/Qualification Jacket Section IVB — Mishap/Flight Violation Record	Electronic media*
3760/32I (4-81)	OPNAV	Flight Jacket Divider Tabs	Paper media only S/N 0107-LF-000-7500
3760/37 (Rev 9-74)	OPNAV	Record of Completed Flight Time	Electronic media*
4790/141 (5-12)	CNAF	Aircraft Inspection and Acceptance Record	Paper and Electronic media
5211/9 (3-92)6410/10 (Rev 6-21)	OPNAV/NAVMED	Disclosure Accounting Form — Record of DisclosureAbbreviated Aviation Medicine Examination	Electronic media*Paper and Electronic media
7233-1 (8-82)	FAA	FAA Flight Plan	Electronic media only

L.3 FORMS WEBPAGES

Forms listed in [Figure L-1](#), above, can be downloaded from the following webpages:

Figure L-2. Webpages Hosting Forms Referenced in this Manual

TYPE FORM	WEBPAGE	WEBPAGE URL
CNAF	CNAFINST 4790.2 NAMP Forms Only	http://www.navair.navy.mil/logistics/4790/library/Appendix%20B.pdf
DD	DOD Forms Library	http://www.dtic.mil/whs/directives/infomgt/forms/index.htm
FAA	FAA Forms	http://www.faa.gov/forms
NAVMC	DON Naval Forms Online (Select "Marine Corps" Forms)	https://forms.documentservices.dla.mil
NAVMED	Navy Medicine Forms	http://www.med.navy.mil/directives/Pages/NAVMEDForms.aspx
	DOD Naval Forms Online (Select "BUPERS" forms)	https://forms.documentservices.dla.mil
OPNAV	DON Naval Forms Online	https://forms.documentservices.dla.mil
SF	GSA Forms Library	http://www.gsa.gov/portal/forms/type/TOP

This Page Intentionally Left Blank.

APPENDIX M

Standardized ACM Training Rules Briefing Guide

M.1 PURPOSE

This appendix contains the standardized ACM training rules briefing guide. The ACM Training Rules are applicable to all DON aircraft. USN and USMC units shall utilize these training rules as published and shall not deviate, change or manipulate them. Interservice or international ACM training shall be conducted using the most restrictive ACM Training Rules. Any changes to this appendix shall be routed to CNAF via the NATOPS change recommendation form. More restrictive rules may be used but must be specifically briefed.

M.2 ACM TRAINING RULES

Note

Mandatory briefing items denoted by an asterisk (*).

M.2.1 Administrative

- *Departure/spin for each type of aircraft
- Scheduled face to face or coordinated brief
- ACM authorized by cognizant commander
- Designated ACM area

*Currency: All In Flight Have Flown

Pilots

- < 750 hrs FPT in type/class ♦ Once within previous 6 days
 - ♦ Twice within previous 14 days (1 dynamic in T/M)
- > or = 750 hrs FPT in type/class ♦ Once within previous 14 days
 - ♦ Twice within previous 30 days (1 dynamic in T/M)

Naval Flight Officers (NFO)

- Hours independent ♦ Once within previous 14 days
 - ♦ Twice within previous 30 days (1 dynamic in T/M)

Weather, Decks and Blocks

Weather

- Daylight, VMC, 5 miles visibility and a defined horizon
- Cloud separation — 2,000' vertically and 1 mile horizontally
- No maneuvers through cloud layers

*Decks

- Hard deck ♦ Minimum 5,000' AGL or above an undercast

CNAF M-3710.7

- Soft deck ♦ Minimum 5,000' above the hard deck
 - ♦ No slow speed or high AOA maneuvering below the soft deck (defined by T/M/S NFM)
- Below the hard deck: ♦ Maximum of 180° of turn or role reversal
- Below 500' AGL: ♦ Wing rock only

***Blocks**

- Established in assigned block by 10 nm without required SA on opposing force

COMM Requirements

- Transmit/receive/monitor guard/ics (multi place aircraft)

Pre-commencement of ACM

- Perform G-warm maneuver
- Altimeter warnings set
- Element lead final coordination

Confirm:

- ♦ Weather

Announce

- ♦ Type of war
- ♦ Local altimeter setting
- ♦ Any decks/spins changes

Commencement of ACM

Collision Avoidance

- 500' separation between all aircraft at all times
- Always assume the other aircraft does not see you

Head-on pass:

- ♦ Maintain established trend, if no trend established, give way to the right to create a left-to-left pass
- When in doubt, broadcast your own intentions
- Converging flight paths: ♦ Nose high goes high
 - ♦ Nose low has collision avoidance responsibility
- Never intentionally maneuver to lose sight (no blind lead turns)
- Up sun aircraft has the responsibility for collision avoidance. If down sun aircraft lost sight, transmit “callsign blind” and turn away from predicted collision bearing
- Call “ballistic” (for slow speed reduced maneuverability)
- No head-on missile acq inside 9000k ft (1.5 nm) 20° of the nose
- No forward quarter gun attacks (45° of the nose)
- Break off all gun attacks at 1000'
- No flares with attacker approaching guns

Terrain Avoidance

- No guns defense below the soft deck
- Offensive aircraft will monitor the defensive aircraft altitude, attitude, and airspeed and will break off the attack prior to pushing the defensive aircraft through the hard deck.

Termination of ACM

- ACM shall cease when:
 - ♦ Any training rule is violated
 - ♦ “Knock it off”/“terminate” is called, all players echo
- “Knock it off” for:
 - ♦ Interloper
 - ♦ Departure/spin
 - ♦ G-Loc
 - ♦ Min alt broken
 - ♦ Nordo
 - ♦ Overstress
 - ♦ Bingo fuel
 - ♦ Inadvertent IFR
 - ♦ Loss of situational awareness/any unsafe condition develops
 - ♦ Training objectives attained
 - ♦ In a BFM engagement, both aircraft lose sight approaching training area boundary

Post Termination of ACM

- Be aware of the high midair collision potential following the “knock it off”/“terminate” call

This Page Intentionally Left Blank.

APPENDIX N

BUQ Levels

N.1 PURPOSE

Chapter 14 establishes UAS training standards, Basic UAS Qualifications (BUQs), for UASCs. Appendix N presents the knowledge requirements and knowledge-based skills required for each BUQ level.

N.2 BUQ LEVELS I–IV TRAINING

Each training level is inclusive of the previous levels (e.g., BUQ IV includes BUQ-I, II, and III tasks).

1. BUQ Level I: Knowledge and knowledge-based skills required to fly in VFR conditions in Class E, G, and Restricted/combat airspace <1200' AGL. The 14 Code of Federal Regulation (CFR) requirements do not currently exist for this group of aircraft. BUQ-I is the minimum recommended training level for UASC who perform duties other than UACOM/UAO. Figure N-1 contains the required areas of knowledge for BUQ Level I.

Figure N-1. BUQ Level I

BUQ Level I	
MISSION PREPARATION	
Aviation Weather	Aircraft Performance Data and Limitations
Crew Resource Management and Communications	Publications
Emergency Equip/In Flight Emergency Procedures	Departure and Arrival Planning
Flight Checklists and Use	Computerized Flight Planning Systems
Charts — Sectional, Tactical, and Global	Mission Route Selection & Analysis
International Civil Aviation Organization (ICAO)/Flight Information Publications Procedures	
COMMUNICATIONS	
Communication Planning and Management	Data Links
Knowledge of Airborne Communication Systems	
AIRCRAFT OPERATIONS	
Weather Hazards	Basic Manual Navigation
General Flight Rules	Low Level Flying
Fuel Planning	Aircraft System and Directives
Integrated Navigation Systems	Emergency Procedures
Aviation Principles	Manual Flight Control Skills
Time & Course Control	Air Tasking Order (ATO)

Figure N-1. BUQ Level I (cont.)

BUQ Level I	
(1) BEFORE FLIGHT CATEGORY	
VFR Mission Planning	Exterior Inspection Checks
Weather Data for Mission Planning	Appropriate Communication Procedures
Operational Data for Mission Planning	Starting Engines Checks
Mission Briefing	
Map Preparation for use During Flight	Verbal Communication/Radio Procedures
Route Planning to Destination & Alternates	GPS Position Checks
En Route Altitudes IAW FLIP	Pre-flight Clearances
Pre-flight Checks	Ground Control Station (GCS) Instrument Checks
Maintenance Logs	Before Takeoff Checks
(2) CONTACT CATEGORY	
Recognize departure and recovery procedures	
Appropriate climb airspeed	Controlling Rate of Descent
Establishing and maintaining altitude	Use of local area map for orientation
Applicable in-flight checks	Clearing turns
Turns, climbs, descents, as required	Slow flight
Level-off checks	Approach to field checks
Basic area orientation	Basic AERO maneuvers
Current wind conditions	Before descent checks
Touch and go landing	Automatic approach and landing
Go-around on final approach turn	Approach to landing
Airspeed change, straight-and level as required	Landing & rollout procedures
Go-ahead form final approach/flare	Go-around/missed approach checks
GCS Safety procedures	Post landing checks & procedures
Normal traffic pattern	Flight line and air discipline
Traffic pattern deconfliction	Final approach procedures
	Takeoff, initial climb & Associated checks

Figure N-1. BUQ Level I (cont.)

BUQ Level I	
(2) CONTACT CATEGORY	
Clearing airspace in direction of turn	Maneuvering within assigned airspace
Aircraft configuration: Pre-landing checks	Airmanship, judgment, & decision-making in aircraft *Departure/spin for each type of aircraft (situational awareness)
Unusual attitudes and recovery techniques	Stalls and recovery procedures
Normal overhead and straight-in patterns, as appropriate	Altitude/attitude control throughout flight
(3) INSTRUMENT CATEGORY — NO TASKS	
(4) NAVIGATION CATEGORY	
Visual navigation	Correlation of aircraft position with map
Map reading	Calculation of actual fuel consumption
Using visual landmarks in flight planning	In-flight navigation planning
Calculation/compensation for inflight winds	Time and fuel management
Calculation of new Estimated Time of Arrival (ETA)	Lost communication/Command and Control (C2) link procedures
Emergency conditions	Analyzing current situation, including systems for possible emergency
Aircraft control during emergency conditions	Recognition of applicable Emergency procedures
Communication/declaration of an emergency (if required)	Recognition and proper response to unplanned lost C2 link events
Land as soon as conditions permit	
After landing checks	Completion of flight time logs
Engine shutdown checks	Completion of maintenance logs
All safety procedures for securing aircraft	Post landing procedures

2. BUQ Level II: Aviation knowledge and UAS knowledge-based skills required to fly in VFR conditions in Class D, E, G, and Restricted/combat airspace <18,000' MSL. BUQ Level II meets or exceeds the knowledge requirements of 14 CFR Sub-part J 61.309 and 61.311 for a FAA sport pilot license. [Figure N-2](#) contains the required areas of knowledge for BUQ Level II. As stated above, tailoring of BUQ requirements toward individual UAS, and BUQ Levels are cumulative in nature.

Figure N-2. BUQ Level II

BUQ Level II	
PREREQUISITES — ALL BUQ LEVEL I TASKS	
MISSION PREPARATION — NO NEW TASKS	
COMMUNICATIONS — NO NEW TASKS	
AIRCRAFT OPERATIONS	
Radio Aid Navigation	RADAR Navigation/Fixing
(1) BEFORE FLIGHT CATEGORY	
Compute takeoff and landing data	Clearance to taxi
Local VFR flight clearance	Clearance to takeoff
ICE-T/Ground speed	Taxiing to runway
Filing DD 175/ICAO 1801 (Flight Plan)	Taxiing into takeoff position
Interior inspection check	Line-up checks
Before taxi checks	Operation of navigation radios
(2) CONTACT CATEGORY	
Appropriate climb per manuals	Requesting and receiving landing clearance
Basic departure procedures	Local breakout procedures
Leveling off from TECH order climb	Closed pattern
(3) INSTRUMENT CATEGORY — NO NEW TASKS	
(4) NAVIGATION CATEGORY	
Position reporting	Usage of Pilot to Metro Service (PMSV) and Air Traffic Information Service (ATIS), and Pilot Report (PIREP)
In-flight clearances	Interpretation of radio weather condition report
Dead reckoning navigation	Navigation Diversions based on weather reports
Actual and planned rate of fuel consumption	Comparing actual and planned groundspeeds
(5) EMERGENCY CATEGORY — NO NEW TASKS	
(6) AFTER FLIGHT CATEGORY	
Taxiing clear of runway	Closing a flight plan with ATC
Taxiing to parking	

3. BUQ Level III: Knowledge and knowledge-based skills required to fly in VFR conditions in airspace below 18,000' MSL. BUQ Level III meets or exceeds the knowledge requirements of 14 CFR Sub-part E 61.105 and 61.107 for a FAA private pilot license. [Figure N-3](#) contains the required areas of knowledge for BUQ Level III. As stated above, tailoring of BUQ requirements toward individual UAS, and BUQ Levels are cumulative in nature.

Figure N-3. BUQ Level III

BUQ Level III	
PREREQUISITES — ALL BUQ LEVEL I AND II TASKS	
MISSION PREPARATION — NO NEW TASKS	
COMMUNICATIONS — NO NEW TASKS	
AIRCRAFT OPERATIONS	
Instrument Flight	Instrument Flight Procedures
(1) BEFORE FLIGHT CATEGORY	
Instrument Flight Rules (IFR) mission planning	Obtaining an IFR clearance
Operation of Air Traffic Surveillance Equipment (Identification, Friend or Foe/Selective Identification Feature/Traffic Collision Avoidance System/Sense and Avoid Sensors)	
(2) CONTACT CATEGORY — NO NEW TASKS	
(3) INSTRUMENT CATEGORY	
Partial panel instrument flight	Aircraft maneuvers under instrument conditions
Recognition of improper nose low condition	Course intercept
Rate of intercept	Angle of intercept
Recognition and recovery from unusual attitudes under instrument conditions	Operation of aircraft instruments and navigation equipment
Hazardous/adverse weather conditions in flight	Weather phenomena which affect flight
Establishing and maintaining constant altitude, airspeed, and heading during instrument flight	
(4) NAVIGATION CATEGORY	
Unfamiliar field departure procedures	Low level navigation
Unfamiliar field visual and instrument approach procedures	
(5) EMERGENCY CATEGORY — NO NEW TASKS	
(6) AFTER FLIGHT CATEGORY — NO NEW TASKS	

4. BUQ Level IV: Knowledge and knowledge-based skills required to fly VFR/IFR in all weather conditions in airspace up to FL600. BUQ Level IV meets or exceeds the knowledge requirements of 14 CFR Sub-part F 61.125 and 61.127 for an FAA commercial pilot license with instrument rating. [Figure N-4](#) contains the required areas of knowledge for BUQ Level IV. As stated above, tailoring of BUQ requirements toward individual UAS, and BUQ Levels are cumulative in nature.

Figure N-4. BUQ Level IV

BUQ Level IV	
PREREQUISITES — ALL BUQ LEVEL I, II AND III TASKS	
MISSION PREPARATION	
Global Flight Ops Knowledge	
COMMUNICATIONS	
Satellite Communications (SATCOM)	
AIRCRAFT OPERATIONS	
Global Navigation Procedures	
AIR OPERATIONS	
Search and Rescue (SAR)	
(1) BEFORE FLIGHT CATEGORY — NO NEW TASKS	
(2) CONTACT CATEGORY — NO NEW TASKS	
(3) INSTRUMENT CATEGORY	
Auto/instrument takeoff, climb, and departure procedures	Departing a holding pattern
Instrument cross check	Procedure turns
Intercepting a heading at a predetermined angle	Transitioning from Minimum Descent Altitude (MDA) to runway
Establishing and maintaining appropriate heading	ATC/approach control clearances
Determination of lead point	Standard instrument approach Plate procedures
Course interception	Procedure turn airspace
IFR Navigation	En Route descents
Fix-to-fix navigation	Appropriate Landing Configuration
Maintaining selected course with wind correction	Descent gradients
Knowledge of establishing Arc	Instrument Meteorological Condition (IMC) penetration
Arc interception	ATC clearances

Figure N-4. BUQ Level IV (cont.)

BUQ Level IV	
(3) INSTRUMENT CATEGORY	
Arc maintenance	ATC procedures
Radial interception from Arc	Remaining within cleared airspace
Holding/loitering	Controlling Rate of Descent
Understanding holding instructions	Instrument approach procedures
Holding pattern entry	RADAR procedures
Maintaining position within holding pattern airspace	Following Ground Controlled Approach (GCA) controller's directions
Wing analysis in holding pattern airspace	Turning to directed headings
Maintaining directed altitudes	Glide slope control
Maintaining proper airspace	Course control
Establishing proper holding configuration	Transitioning from instruments to visual references
Precision RADAR approach	Visual Descent Point (VDP)
Non-precision RADAR approach	Circling approach procedures
Gyro-out instrument pattern	Missed approach procedures
Half-standard rate turns on final	ATC missed approach clearances
Gyro-out precision RADAR approach	Missed approach checks
Corrections to aircraft heading	Transitioning from glide path to runway
In-flight IFR Clearance	
(4) NAVIGATION CATEGORY — NO NEW TASKS	
(5) EMERGENCY CATEGORY — NO NEW TASKS	
(6) AFTER FLIGHT CATEGORY — NO NEW TASKS	

This Page Intentionally Left Blank.

INDEX

Page
No.

Page
No.

A

Action.....	12-13, 13-4	Chase Aircraft Position and Communication...	5-17
Action Required.....	11-16	Chase Aircraft Requirement	5-17
Additional Identification Characters.....	B-1	Civilian Aircraft Pilots.....	3-3
Additional Ratings	11-4	Civilian Crewmembers Flying Naval Aircraft (Active)	10-16
Adequate Cockpit Visual Lookout.....	7-2	Documentation of the Naval Aircraft Flight Record	10-2
ADJUNCTIVE TRAINING	E-6	Ejection Seat (Class 1) Aircraft Oxygen Mask Usage.....	8-13
Administrative.....	M-1	Ejection Seat Aircraft Strategic Air Breaks	8-18
Administrative NATOPS Products and Tools	2-7	Engine Malfunctions on Multiengine Aircraft... 7-4	
Adverse Physiological Conditions	8-14	Flying in Other Than Military Aircraft.....	11-2
Aerial Photography	5-20	Foreign Military Aircraft	9-2
Aerobatic Flight	5-7	Handling of VIP Aircraft	6-2
Aerobatic Flight Precautions.....	5-7	Helicopter Aircraft Commander	12-5
AEROMEDICAL REQUIREMENTS.....	14-16	Marking of Aircraft.....	B-2
Aeronautical Organizations	12-11	Medical Requirements for Contract Civilians Operating Naval Aircraft	8-43
AIR TRAFFIC CONTROL	14-16	Military Aircraft Arriving in the Continental U.S. From Overseas	9-2
AIR TRAFFIC CONTROL PROCEDURES	6-1	Naval Aircraft	9-2
AIRCRAFT CLASS	E-5	Naval Aircraft Participation.....	3-10
AIRCRAFT CONSIDERATIONS	13-4	Other Aircraft.....	B-2
AIRCRAFT FUEL PURCHASE.....	9-1	Parachute Equipped Aircraft and High Winds... 8-8	
AIRCRAFT NOISE ABATEMENT.....	9-2	Personnel Authorized To Perform Crew Duties in Naval Aircraft	3-4
Aircraft:		Personnel Authorized To Pilot Naval Aircraft... 3-3	
Aircraft Commander	12-3	Personnel Authorized To Taxi Naval Aircraft ... 3-4	
Aircraft Commander Requirement	4-1	Pressurized Aircraft Oxygen Usage.....	8-10
Aircraft Considerations	14-24	Right-of-way Between Single Aircraft and Formations of Aircraft	14-14
Aircraft Data Section	10-6	Right-of-Way Between Single and Formations of Aircraft.....	5-2
Aircraft Equipment Requirements	5-24	State Aircraft.....	3-24
Aircraft Lighting.....	5-1	Tiltrotor Aircraft Commander.....	12-7
Aircraft Mishap.....	9-1	Tobacco Products in Aircraft	7-6
Aircraft of Other Military Services.....	6-4	Unmanned Aircraft System Commander Requirement.....	14-8
Aircraft of Other Services	3-2	Unpressurized Aircraft Oxygen Usage	8-10
Aircraft Oxygen System and Cabin Pressurization.....	8-8	Unusual Performance of Aircraft.....	7-7
Aircraft Performance Record Attempts	3-1	Aircrew	8-1
Aircraft Side Numbers	B-2	AIRFIELD VEHICULAR TRAFFIC.....	3-23
Aircraft Speed	5-2	Airspace	14-9, 14-14
Aircraft Tail Letters and Side Numbers	9-3	Airspace Coordination	14-9
Airworthiness Authority of CAS Aircraft Designated State.....	3-24	All Fixed-Wing Multiengine Transition Pilots... 12-13	
Approach Criteria for Aircraft in Formation ... 5-19		All Pilots	12-12
Approach Criteria for Multipiloted Aircraft ... 5-28		Allocation of Temporary Flight Orders	12-10
Approach Criteria for Single-Piloted Aircraft.....	5-28	Alternate Airfield	4-10
Assignment of Aircraft to Specific Individuals... 3-1		Altitude	5-29
Authority to Designate CAS Aircraft as State Aircraft.....	3-25		
Avoidance of Commercial Carriers and Aircraft of Civil Registry	5-31		
CAS Aircraft Designated as State Aircraft	3-24		

	<i>Page No.</i>		<i>Page No.</i>
Annoyance to Civilians and Endangering Private Property.....	5-30	Present Assignments	B-1
Annual Revalidation	3-21	ATC Liaison	14-9
APPLICABILITY	6-1	Authority:	
APPLICABILITY OF THE TOTAL MISSION REQUIREMENT CODES.....	D-1	Airworthiness Authority	3-23
Application of Operational Risk Management Analysis.....	1-2	Airworthiness Authority of CAS Aircraft Designated State.....	3-24
APPROACH CODES	F-4	Approval Authority	3-6, 3-11, 5-3
Approach:		As Directed by Higher Authority	8-39
Approach Criteria for Aircraft in Formation ...	5-19	Authority	4-1
Approach Criteria for Multipiloted Aircraft ...	5-28	Authority to Designate CAS Aircraft as State Aircraft.....	3-25
Approach Criteria for Single-Piloted Aircraft.....	5-28	Authority to Waive.....	11-16
Approach Instructions.....	6-3	Issuing Authority	13-3, 14-24
Execution of the Missed Approach.....	5-29	Authorization:	
Final Approach Abnormalities During Radar Approaches	5-28	Authorization for UAS Flight Operations (Flight Schedule).....	14-7
Approaches:		Certificates of Waiver or Authorization (COAs).....	14-2
Actual Flameout Approaches.....	5-33	Requirement for Flight Authorization	14-7
Criteria for Continuing Instrument Approaches to a Landing	5-28	Authorized Airfields	14-10
Final Approach Abnormalities During Radar Approaches	5-28	AUTHORIZED AIRFIELDS	4-3
Instrument Approaches and Landing Minimums	5-27	Aviation Career Incentive Pay for Rated Members (Rated Members Include Aeronautically Designated Naval Aviators and Naval Flight Officers)	11-13
Practice Approaches.....	5-29	AVIATION LIFE SUPPORT SYSTEMS	8-1
Sensor Trail Approaches	5-19	AVIATION PHYSICAL EXAMINATIONS AND QUALIFICATIONS.....	8-37
Simulated Flameout Approaches	5-33	Avoidance of Installations Important to Defense	5-32
Approaching Head-on.....	14-14	AVP	14-21
Approved Simulators	10-5		
Area:		B	
Aviation Qualified Foreign Area Officer (AFAO) Policy	11-3	Binders	10-17
Areas:		Blood Donation.....	8-26, 14-17
Areas of Responsibility.....	1-2	Briefing:	
Authorized Airfields and Landing Areas For Training.....	4-3	Briefing Items	14-12
Designated Aerobatics Areas.....	5-8	Briefing Requirements.....	14-12
Helicopter, Tiltrotor, and VSTOL/STOL Landing Areas	4-4	Flight Personnel and Passenger Briefing	7-4
Noise Sensitive and Wilderness Areas.....	5-30	Flight Route Weather Briefing	4-7
Noise Sensitive Areas	5-30	Preflight Briefing Guides	14-13
ASSEMBLY AND MAINTENANCE.....	A-3	BUQ LEVELS I-IV TRAINING	N-1
Assignment:		C	
Assignment of Aircraft to Specific Individuals... 3-1		Cancelling a NATOPS	2-12
Assignment of Other Than Permanently Designated Aeronautical Personnel	11-17	Categories of Eligible Participants for Orientation Flight.....	3-7
Policy Governing Assignment of Inactive Reserve Personnel.....	11-12	Categories of NATOPS Products	2-9
Assignments:		Celebrations	3-2
Future Assignments	B-1	Centers:	
NATOPS Program Assignments	2-2	APPROVED NASTP TRAINING SITES (Aviation Survival Training Centers (ASTC)).....	E-6
		Fleet Readiness Centers	10-16
		Certification:	

<i>Page No.</i>	<i>Page No.</i>
Master Flight File Certification 10-18	ACM Special Considerations..... 5-16
CHANGE RECOMMENDATIONS..... 2-12	Aircraft Considerations..... 14-24
Change Symbols 1-2	Airfield and Launch/Recovery Zone Considerations..... 14-10
Changes to NATOPS Products..... 2-10	Emergency/Contingency Considerations..... 14-13
Chapter 8 Applicability..... 14-18	Fuel and Propulsion Battery Charge Considerations..... 14-11
Check-In..... 8-39	Content of Report..... 3-17
Checklists:	Control:
Takeoff and Landing Checklists 7-4, 14-16	Airfield Operations Outside Published Hours/Closed Control Tower Airfield Operations..... 4-4
Civilian Airfields 4-3	Command and Control Communication 7-5
Civilian Law Enforcement Officials (LEO) 3-2	Control of Formation Flights 6-1
CLAIMS FOR PERSONAL PROPERTY IN MARITIME DISASTERS OF AIRCRAFT 9-2	Control Tower 6-1
CLASSIFICATION AND QUALIFICATION OF NAVAL AIRCREWMAN..... 12-10	Flight Control Station 3-13
CLASSIFICATION OF TOTAL MISSION REQUIREMENT CODES..... D-1	IFR Filing and Positive Control..... 5-23
Classification:	NATOPS Air Traffic Control Manual (NAVAIR 00-80T-114)..... 1-5
Classification..... 10-17, 12-1, 12-8	Positive Control Requirement..... 14-8
Intermediate Classification 12-8	Tower/Approach Control Responsibilities..... 5-29
Naval Aircrewman Classification 12-10	Weight and Balance Control 4-12
Naval Flight Officer Classification 12-8	Convening Announcement..... 2-19
Pilot Classification 12-1, 12-4, 12-6	Converging..... 14-13
Closed Airfields 4-4	Coordination 8-32
CLOSING OF FLIGHT PLAN 4-12	Corrective Lenses for Vision 8-27
CNAF M-3710.7 1-2	Creating a New NATOPS 2-11
Code:	CREATING, UPDATING AND CANCELLING NATOPS PUBLICATIONS 2-11
Manual Delivery Code..... H-5	CREW RESOURCE MANAGEMENT 3-14
Ordnance System/Automatic Delivery Code.... H-4	Crew:
Codes:	Crew Composition 3-16
General Purpose Codes D-2	Crew Rest and Sleep 8-21
Specific Purpose Codes..... D-3	Crew Rest, Sleep, and Shift Work 14-18
COMMAND 3-12	FCF Crew Composition 14-7
Command:	Personnel Authorized To Perform Crew Duties in Naval Aircraft 3-4
Command and Control Communication 7-5	UAS Crew Replacement Briefings 14-6
Officer in Tactical Command Embarked 3-13	Crewmember:
Officer in Tactical Command Present..... 14-6	UAS Crewmember Requirements..... 14-8
Pilot in Command 3-12, 10-1	Crewmembers:
Responsibility of the Pilot in Command..... 8-8	Civilian Crewmembers Flying Naval Aircraft (Active) 10-16
UAS Command Responsibilities 14-5	Marine Corps Crewmembers 11-14
Commands:	Navy Crewmembers..... 11-14
Naval Commands..... 5-32	Criteria:
Non-Naval Commands..... 5-32	ACM Weather Criteria 5-13
Communication:	Approach Criteria for Aircraft in Formation ... 5-19
ACM Communication Requirements 5-13	Approach Criteria for Multiplied Aircraft 5-28
Chase Aircraft Position and Communication... 5-17	Approach Criteria for Single-Piloted Aircraft..... 5-28
Command and Control Communication 7-5	Criteria for Continuing Instrument Approaches to a Landing 5-28
Communication Failure 5-6	
No Communication Link 4-4	
Conduct of Flight 7-1, 14-16	
Conduct of NATOPS Reviews..... 2-19	
Conduct of Passengers 7-2	
Conformance to TERPs 3-21	
Considerations:	

	<i>Page No.</i>		<i>Page No.</i>
FCF Location and Weather Criteria	14-7	Documentation	4-1
Weather Criteria	3-16	Documentation/Record	2-24
Weather Criteria for Filing	4-9	DoD Airfield Facilities	4-3
CROSS-COUNTRY PLANNING	3-19	Draft NATOPS Products	2-9
CURRENTLY ASSIGNED TOTAL MISSION REQUIREMENT CODES	D-8	Drugs	8-24
Curriculum Management	8-32	Duties:	
		Personnel Authorized To Perform Crew Duties in Naval Aircraft	3-4
D		Duty:	
Daily Flight Schedule	4-7	Limited Duty (LIMDU)	8-42
Decompression:		E	
Decompression Sickness/Arterial Gas Embolism	8-19	Electronic:	
Definitions	2-22, 8-37, 11-13	DoD Electronic Instrument Procedure Library	3-20
Dehydration	8-27	Electronic Kneeboard	5-20
Delayed Release Jumps	9-1	Embarkation of Passengers	3-9
Delays	4-11	Emergency Procedures:	
Demonstrations:		Emergency Procedures	7-5
Demonstrations	9-1	Emergency:	
Displays and Demonstrations	14-5	Distress and Emergency	7-5
NATO Flight Demonstrations	3-12	Emergency	5-6
NATO Live Weapons Demonstrations	3-12	Emergency and Humanitarian Operations	3-1
Dental Care	8-25	Emergency Jettisoning	5-32
Departure Instructions	6-2	Emergency Procedures	7-5
Description:		Minimum and Emergency Fuel/Propulsion Battery Charge States	14-11
ORM Process Description	3-15	Emotional Upset/Excessive Stress	8-26
Descriptive Titles	12-1	EMPLOYMENT OF NAVAL AVIATORS BY CIVILIAN CONTRACTORS	3-12
Descriptive Titles for Additional Designations	14-21	Engine:	
Design	A-3	Engine Malfunctions on Multiengine Aircraft ...	7-4
DESIGNATION OF NEW SIMULATORS	K-1	Engines:	
Deviation	D-1	Feathering or Securing Engines	7-2
Deviations from FAR	14-1	Enhancing ORM	3-16
DIFOPS/DIFDEN Billet Review/Assignment (USN Only)	11-12	ENLISTED CREWMEMBERS	11-14
Directives:		Entitlement Status	11-13
Compliance With Directives	5-20, 5-24	Entries:	
Compliance with UAS-Related Directives	14-2	Entries	10-19
Directives Referenced in this Manual	C-1	Entry:	
Websites for the Above Directives	C-4	Flight Personnel Training/Qualification Jacket Entry/Aviators Flight Log Book Entry	3-18
Discharging of Passengers/Cargo	9-2	Environmental Exposure	8-35
DISPERSAL OF PESTICIDES	9-3	Equipment:	
Displays:		Aircraft Equipment Requirements	5-24
Displays and Demonstrations	14-5	Aircrew Personal Protective Equipment Requirements	8-1
Disposition	8-42, A-1	Chemical, Biological, Radiological, Nuclear, Defense (CBRND) Protective Equipment	8-20
Disposition of Aircrew Found Not Physically Qualified (NPQ)	8-40	Communication, Navigation, Identification (CNI) Equipment	5-25
Dissimilar Formation Flight	5-20	Fleet Air Introduction/Liaison of Survival Aircrew Flight Equipment (FAILSAFE) Program	8-36
Distribution of Changes	2-10		
Disturbance of Wildlife	5-31		
Ditching:			
Ditching and Bailout	7-5		
Ditching Precautions	7-5		

	<i>Page No.</i>		<i>Page No.</i>
Instrument Flight Equipment	5-24	FLIGHT DEMONSTRATIONS AND STATIC	
Instrument Flight Equipment Requirements...	14-15	EXHIBITS	3-10
Rescue Aircrewmen Equipment	8-7	FLIGHT OPERATIONS WITH NIGHT VISION	
Evaluation:		DEVICES.....	5-33
Evaluation Flight.....	2-24	Flight Over the High Seas.....	5-6
Ground Evaluation	2-23	Flight Pay	11-12
Instrument Ground Training, Examination, and		Flight Plan Approval.....	4-7
Flight Evaluation.....	13-1	FLIGHT PLAN MODIFICATION	4-7
Policy Governing NATOPS Evaluation Flight		Flight Plan Submission	14-5
Substitution	11-19	FLIGHT PLANNING.....	4-2
Unit NATOPS Evaluation	2-25	Flight PlanS.....	4-4
Examination:		FLIGHT PRECAUTION	7-1
Periodic Flight Physical Examination.....	8-38	FLIGHT RECORDS, REPORTS AND	
Physical Examination Requirements for		FORMS	14-18
Non-aeronautically Designated Individuals...	8-39	Flight Status	8-42
Examinations:		Flight Time.....	8-22
Aviation Physical Examinations and		Flight Weather Packet	4-9
Qualifications.....	14-16	Flights Requested by Civilian Contractors	3-1
Scope of Examinations	8-40	Flying:	
Exception	3-12	Aeromedical Officer Flying Policy.....	11-3
EXCEPTION CODES	F-1	Applicability of Flying Regulations Other Than	
Exceptions.....	B-1	Naval	3-18
Exercise.....	8-23	Civilian Crewmembers Flying Naval Aircraft	
Expenditure of Airborne Stores Through Extensive		(Active)	10-16
Cloud Cover	5-32	Flying Activity Denied	11-6
EXPLANATION OF TERMS	1-5	Flying by Individuals in DIFDEN Status	11-10
Explanation of UAS Groups	14-2	Flying in a Leave Status.....	11-2
Extensions	13-2, 14-25	Flying in Other Than Military Aircraft	11-2
External Stores/Cargo	5-31	Formation Flying	5-17
		Local Flying Rules and Instructions	1-3
F		Minimum Flying Hours	11-4, 14-19
FAA Order JO 7110.65 (Air Traffic Control)		Policy Governing Flying Time Substitution...	11-19
(NOTAL).....	1-4	Reports of Investigations of Violations of Flying	
Factors Affecting Aircrew, Sailor, and Watch Stander		Regulations	3-16
Performance	8-21	Formation Leader.....	3-13
Failure:		FORMS	L-1
Communication Failure	5-6	FORMS WEBPAGES.....	L-3
Failure To Meet Renewal Requirements.....	14-25	Forms:	
Failure To Meet Requirements.....	13-4	Flight Plan Forms.....	4-4
Failure To Qualify.....	14-23	Forms	A-3
FAR 91	5-2	Forwarding of Report.....	3-17
FAR Exemptions.....	1-3	Fuel:	
File Contents	10-17	Fuel and Propulsion Battery Charge	
Filing.....	4-12	Considerations.....	14-11
Firing.....	5-31	Fuel Planning	4-11
FLAMEOUT APPROACHES.....	5-33	Jettisoning Fuel	5-32
Flat Hatting	5-31	Minimum Fuel	6-2
Fleet Replacement Squadrons.....	12-12	Minimum Fuel Requirements	4-11
FLIGHT AUTHORIZATION.....	4-1	FUNCTIONAL CHECKFLIGHTS	3-16
FLIGHT AUTHORIZATION AND		Functional Checkflights (FCFs).....	14-7
PLANNING	14-7	Functions:	
Flight Control:		Composition and Functions of Instrument Flight	
Flight Control Station	3-13	Boards	13-3

	<i>Page No.</i>	<i>Page No.</i>
G		
General	2-19, 2-21, 3-20, 4-4, 4-7, 5-4, 5-7-5-8, 5-17, 5-27, 5-31, 5-33, 8-20, 9-1, 12-10, 13-5, 14-13, A-3	
GENERAL	1-1, 8-1, B-1	
GENERAL FLIGHT RULES	5-1, 14-13	
GENERAL INSTRUCTIONS ON DUTY INVOLVING FLYING AND ANNUAL FLIGHT PERFORMANCE REQUIREMENTS	14-19	
General Operating Precautions	14-5	
General Precautions	7-1	
General Prestart Precautions	7-3, 14-16	
GENERAL/SPECIFIC PURPOSE OF FLIGHT CODE COMBINATIONS A THROUGH I (TRAINING FLIGHTS)	D-2	
GENERAL/SPECIFIC PURPOSE OF FLIGHT CODE COMBINATIONS J THROUGH R (SERVICE FLIGHTS)	D-3	
GENERAL/SPECIFIC PURPOSE OF FLIGHT CODE COMBINATIONS S THROUGH Z (COMBAT FLIGHTS)	D-6	
GMVO	14-22	
GPS:		
GPS Navigation Flight Training	13-6	
GPS NAVIGATION TRAINING	13-5	
Grading	8-35	
Ground:		
Fixed Wing Versus Fixed-Wing ACM and Ground Attack Interface	5-15	
Ground Evaluation	2-23	
Ground Instruction	13-5	
Ground Operations	5-30	
Instrument Ground Training, Examination, and Flight Evaluation	13-1	
Guidance for Qualifying Authorities	12-12	
Guidance for the Domestic Use of UAS	14-4	
Guide:		
DoN Detail Specification for NATOPS Program Technical Publications and Products; Style, Format, and Common Technical Content, ACO NATOPS Style Guide	1-5	
Guides:		
Preflight Briefing Guides	14-13	
H		
Handling:		
ASAP Data Handling and Review	3-22	
Data Handling for Mishaps	3-22	
Handling of VIP Aircraft	6-2	
Hazardous Weather (Icing, Thunderstorms, Turbulence, Volcanic Ash)	4-10	
Helicopter	3-4	
Helicopter Transition Pilots	12-13	
HELICOPTER/TILTROTOR OPERATIONS	5-29	
Helicopters Not Requiring a Copilot	4-2	
Helicopters/Tiltrotors	7-3	
How To Obtain Copies	1-2	
HUMAN PERFORMANCE AND AEROMEDICAL QUALIFICATIONS FOR FLIGHT, FLIGHT SUPPORT, and sailors	8-20	
Hyperbaric Exposure	8-27	
Hypobaric and Hyperbaric Exposure	14-17	
Hypobaric Exposure	8-26	
I		
IFR Flight Plans	4-9	
Illness	8-24	
Immunizations and Injections	8-26, 14-17	
Implementation	2-22, 3-20	
Implementation of Approved Agenda Items	2-21	
In Distress	14-13	
In-Flight:		
In-Flight Refueling	4-11	
Incorporation of Changes	2-11	
INDIVIDUAL AND COMMAND RESPONSIBILITIES	11-19	
Individual NATOPS Evaluations	2-22	
Instructors	3-13	
INSTRUMENT FLIGHT RULES AND POSITIVE CONTROL PROCEDURES	5-23	
INSTRUMENT RATING FORMS	13-4	
INSTRUMENT RATINGS AND QUALIFICATIONS	13-1	
Instrument:		
Composition and Functions of Instrument Flight Boards	13-3	
Criteria for Continuing Instrument Approaches to a Landing	5-28	
DoD Electronic Instrument Procedure Library	3-20	
Expiration of Instrument Flight Qualifications	14-24	
Initial Qualification For An Instrument Rating	14-24	
Initial Qualification For UAS Instrument Ratings	14-24	
Instrument Approaches and Landing Minimums	5-27	
Instrument Departures	5-18, 5-27	
Instrument Flight Equipment	5-24	
Instrument Flight Equipment Requirements ...	14-15	
Instrument Ground Training, Examination, and Flight Evaluation	13-1	
Instrument Navigation Packet	5-26	
Instrument or Composite Flight Plan	5-24	
Instrument Rating Administration	14-24	

Period for Renewal/Expiration of Renewed Instrument Rating Qualifications	14-25
Pilots/Naval Flight Officers Required To Maintain Instrument Ratings/Qualifications	13-1
Renewal/Expiration of Instrument Ratings and Qualifications	13-1
Requirement For UAS Instrument Ratings....	14-23
Restrictions on Instrument Ratings	13-4, 14-24
Revoking of Instrument Ratings	13-4, 14-25
Simulated Instrument Flight	5-17
UAS Instrument Rating Annual Qualification Requirements	14-23
UAS Instrument Rating Renewal Requirements	14-25
Insufficient NATOPS Guidance.....	4-2
Intent	3-17
Interface:	
Fixed Wing Versus Fixed-Wing ACM and Ground Attack Interface.....	5-15
Interim Change Recommendation to NATOPS Publications	2-14
Interim Change Recommendations.....	2-13
Interim Change Recommendations To CNAF M-3710.7.....	2-15
INTRODUCTION	A-1
Issuing Interim Changes	2-10

J

Jet Transition Pilots.....	12-13
Joining Formations	5-19
Judgment	5-20
Jump Precautions	9-1

L

LANDING CODES	F-3
LANDING INSTRUCTIONS	6-3
Landing:	
Authorized Airfields and Landing Areas For Training.....	4-3
Criteria for Continuing Instrument Approaches to a Landing	5-28
Helicopter, Tiltrotor, and VSTOL/STOL Landing Areas	4-4
Instrument Approaches and Landing Minimums	5-27
Landing	14-14
Takeoff and Landing Checklists	7-4, 14-16
Letters of Agreement	6-5
LETTERS OF AGREEMENT.....	6-4
Liferafts.....	7-1, 8-8
Lighting:	
Aircraft Lighting	5-1
Formation Flight Lighting	5-2

Lights:	
Anti-Collision Lights	5-1
Landing/Taxi Lights.....	5-1
Lights Out Operation	5-2
Position Lights	5-1
Limit:	
Maximum Time Limit for Positional Qualification as Naval Aircrewman.....	12-11
Limitations:	
Altitude Limitations	5-17
Flight Limitations	3-9
Operating Limitations	5-33
Limits:	
Flight Time Limits	14-17
Shift Work Limits	14-18
Time Limits.....	12-3, 12-5, 12-8-12-9
Time Limits on Action of Each Report of Investigation.....	3-17
Listing	B-1
Loading/Offloading.....	7-2
Logging Simulator Time	10-4
Loose Articles	7-4

M

Maintaining Proficiency.....	14-20
Maintenance.....	A-3
Mask Breathing Dynamics.....	8-14
MASTER FLIGHT FILES	10-16
Medical or Economic Insect Pests	9-3
Medical Waivers	14-17
MILITARY FLIGHT OPERATIONS QUALITY ASSURANCE (MFOQA).....	3-21
Military Installations.....	4-12
Minimum Altitude	5-24
MINIMUM FLIGHTCREW REQUIREMENTS.....	4-1
MISCELLANEOUS	14-18
MISCELLANEOUS DATA RECORD CODES... H-5	
Mishap:	
Aircraft Mishap	9-1
Mishap and Flight Rule Violation Record	10-21
Mishaps:	
Data Handling for Mishaps.....	3-22
Missing Data	10-17
Mission:	
Mission Commander.....	3-13
Mission Essential Subsystem Matrix (MESM)	14-11
UAS Mission Commander (UMC)	14-6
Missions:	
DOD Flight Information Publications (FLIPs) (NOTAL) and Notices to Airmen/Notices to Air Missions (NOTAMs) (NOTAL).....	1-4

	<i>Page No.</i>		<i>Page No.</i>
MONTHLY INDIVIDUAL FLIGHT ACTIVITY REPORT (NAVFLIRS-3)	10-21	Aviation Operations Officer (AVOPS)	11-4
MPO.....	14-22	Aviation Qualified Foreign Area Officer (AFAO) Policy	11-3
MULTIPILOTED FIXED-WING AIRCRAFT (PILOT).....	12-1	Flag or General Officer Embarked	3-13
MULTIPILOTED ROTARY-WING AIRCRAFT (PILOT).....	12-4	Naval Flight Officer Classification	12-8
MULTIPILOTED TILTROTOR AIRCRAFT (PILOT).....	12-6	Officer in Tactical Command Embarked	3-13
		Officer in Tactical Command Present	14-6
		Officer Service	11-13
		Officers:	
N		Flag or General Officers	14-6
NASTP CURRICULA OUTLINE	E-4	Pilots/Naval Flight Officers Required To Maintain Instrument Ratings/Qualifications	13-1
NASTP TRAINING REQUIREMENTS.....	E-2	Operating Proficiency	14-19
NATOPS EVALUATION PROCEDURES	2-21	Operating UAS While in a Leave Status	14-19
NATOPS FLIGHT PERSONNEL		Operation:	
TRAINING/QUALIFICATION JACKET, OPNAV 3760/32	10-21	Helicopter/Tiltrotor Night Hover Operation Over Water	5-30
NATOPS Manuals.....	1-3	Lights Out Operation	5-2
NATOPS Manuals and Associated Products	2-8	Nonstandard Operation	3-21
NATOPS Products AND PUBLICATIONS	2-7	Operation of Battery Powered Devices.....	7-2
NATOPS PROGRAM ORGANIZATION.....	2-1	OPERATIONAL FLYING.....	11-2
NATOPS Publications.....	1-2	OPERATIONAL-RISK MANAGEMENT.....	3-15
NATOPS REVIEW PROCEDURES	2-19	Operations:	
NATOPS Review Report	2-20	Airfield Operations Outside Published Hours/Closed Control Tower Airfield Operations	4-4
NAVAL AIRCRAFT/SIMULATOR FLIGHT CLASSIFICATION SYSTEM.....	D-1	Authorization for UAS Flight Operations (Flight Schedule).....	14-7
NAVAL AVIATION SURVIVAL TRAINING PROGRAM.....	8-28	Aviation Operations Officer (AVOPS)	11-4
NAVAL FLIGHT OFFICERS.....	12-8	Detachment Operations.....	4-3
NAVAL FLIGHT RECORD SUBSYSTEM.....	10-1	Directives, Procedures and Terminology Applicable to UAS Operations	14-1
Navigation:		Emergency and Humanitarian Operations	3-1
GPS Navigation Flight Training	13-6	Ground Operations.....	5-30
Instrument Navigation Packet.....	5-26	Helicopter Operations	5-30
RNAV/GPS Navigation	5-26	Helicopter/Tiltrotor Operations in Class B, C, or D Airspace	5-29
NAVY SIMULATORS (PILOT AND NFO SPECIAL CREW TIME).....	K-2	Helicopter/Tiltrotor Terrain Flight Operations.....	5-30
NAVY SIMULATORS (SPECIAL CREW TIME ONLY)	K-5	Joint Forces Established Airspace OCONUS Operations.....	14-9
Night:		Memorandum of Understanding between DoD and FAA for UAS Operations in the National Airspace System Dated 09 May 2019.....	14-2
Helicopter/Tiltrotor Night Hover Operation Over Water	5-30	NATOPS Airfield Operations Manual (NAVAIR 00-80T-124)	1-5
Non-aeronautical Organizations	12-11	Performance Maintenance During Continuous and Sustained Operations	8-27
Non-Current UASC	14-20	Shore-to-Ship and Ship-to-Shore Operations	4-5
NON-NAVY SIMULATORS (PILOT AND SPECIAL CREW TIME).....	K-6	Supersonic Flight Operations.....	5-7
Nonessential Flights.....	3-2	OPNAV 3710/4 (NAVAL AIRCRAFT FLIGHT RECORD (NAVFLIRS))	10-1
Nonmilitary Installations	4-12		
Nutrition	8-23		
NVD TRAINING PROGRAM.....	8-36		
O			
Officer:			
Aeromedical Officer Flying Policy.....	11-3		

	Page No.		Page No.
OPNAV 3760/31 (AVIATORS FLIGHT LOG BOOK).....	10-18	Personnel Authorized To Perform Crew Duties in Naval Aircraft	3-4
OPNAV 3760/37 (Record of Completed Flight Time).....	10-16	Personnel Authorized To Pilot Naval Aircraft...	3-3
OPNAV 4790/141 (AIRCRAFT INSPECTION AND ACCEPTANCE RECORD).....	10-1	Personnel Authorized To Taxi Naval Aircraft ...	3-4
OPPORTUNE CARGO CODES	G-3	Personnel Data	10-14
ORDNANCE CODES	H-1	Personnel Exchange Program/DCMA/Any Aeronautically Designated Personnel Assigned to an Activity Where NDCSC Support Is Not Available	10-15
Ordnance DELIVERY DATA CODES.....	H-4	Policy Governing Assignment of Inactive Reserve Personnel.....	11-12
Orientation Flight Prerequisites	3-8	Policy Governing Management of DIFDEN Personnel.....	11-12
ORIENTATION FLIGHTS.....	3-5	Regular and Reserve Personnel	3-3
OTHER GOVERNING SOURCES OF INFORMATION.....	1-3	Physical Standards	8-40
Other Instructions.....	1-5	Pilot:	
OTHER PREFLIGHT REQUIREMENTS.....	4-7	Helicopter Second Pilot	12-4
Other Than U.S. Airports.....	3-21	Navy Flight Surgeon Review of Contract Civilian Pilot FAA Medical Evaluations	8-43
Other UAS-Specific Publications	14-1	Personnel Authorized To Pilot Naval Aircraft...	3-3
Overtaking.....	14-14	Pilot Classification.....	12-1, 12-4, 12-6
Oxygen:		Pilot in Command	3-12, 10-1
Aircraft Oxygen System and Cabin Pressurization.....	8-8	Pilot in Command/Formation Leader	4-6
Ejection Seat (Class 1) Aircraft Oxygen Mask Usage.....	8-13	Responsibility of the Pilot in Command.....	8-8
Pressurized Aircraft Oxygen Usage.....	8-10	Second Pilot	12-2
Quantity of Oxygen.....	8-13	Summary of Pilot Time by Month, Model, Etc	10-20
Unpressurized Aircraft Oxygen Usage	8-10	Third Pilot	12-1
		Tiltrotor Second Pilot.....	12-6
P		Planning:	
PARACHUTE JUMPS	9-1	Fuel Planning	4-11
Parachutes	8-8	Preflight Planning	4-2, 5-4
PASSENGER PRIORITY CODES	G-2	UAS Preflight Planning	14-8
Passengers	8-7	Weather Planning	14-10
Period of Grace	13-1	Weather Planning Factors	14-11
Period of Grace For Requalification	14-25	Policies:	
Personal Changes	10-19	General Policies	10-18, 11-2
Personnel:		Special Policies	3-1
Assignment of Other Than Permanently Designated Aeronautical Personnel	11-17	POLICY CONCERNING USE OF AIRCRAFT...	3-1
Authorized Personnel.....	6-1, 7-2, 14-16	POLICY CONCERNING USE OF SIMULATORS	3-5
Civilian Personnel.....	3-4	POLICY GOVERNING LOGGING, REPORTING, AND USE OF SIMULATOR TIME.....	11-19
Flight Personnel and Passenger Briefing	7-4	POLICY GUIDANCE FOR USE OF UAS.....	14-4
Flight Personnel Training/Qualification Jacket Entry/Aviators Flight Log Book Entry	3-18	Policy:	
Foreign Military Personnel	3-3, 3-5	Aeromedical Officer Flying Policy.....	11-3
Human Performance and Aeromedical Qualifications For Flight and Flight Support Personnel.....	14-17	Aviation Qualified Foreign Area Officer (AFAO) Policy	11-3
Marine Corps Flight Personnel	12-14	Policy	5-3, 5-7
Military Personnel.....	3-4	Policy and Procedures.....	11-13
Navy Flight Personnel.....	12-14	Policy Governing Assignment of Inactive Reserve Personnel.....	11-12
Non-Participating Personnel	14-7	Policy Governing Flying Time Substitution...	11-19
Other Military Personnel.....	3-3		
Personnel Authorized as Project Specialists	3-5		

	<i>Page No.</i>		<i>Page No.</i>
Policy Governing Management of DIFDEN		Proficiency	12-11
Personnel.....	11-12	Program:	
Policy Governing NATOPS Evaluation Flight		ALL-HANDS SAFETY ACTION Program	
Substitution	11-19	(ASAP).....	3-22
Post Hospitalization	8-39	DoN Detail Specification for NATOPS Program	
Postgrounding	8-39	Technical Publications and Products; Style,	
Postmishap	8-39	Format, and Common Technical Content, ACO	
Practice Autorotations.....	5-30	NATOPS Style Guide	1-5
Preflight:		Fleet Air Introduction/Liaison of Survival Aircrew	
Preflight.....	5-18	Flight Equipment (FAILSAFE) Program.....	8-36
Preflight Briefing Guides.....	14-13	NATOPS Program Assignments	2-2
Preflight Planning	4-2, 5-4	NATOPS Program Manager's Handbook.....	2-20
UAS Preflight Briefings.....	14-12	UAS NATOPS Program Implementation	14-4
UAS Preflight Planning	14-8	Prohibited Maneuvers	14-5
Pregnancy.....	8-25, 14-17	Promulgated NATOPS Products	2-9
Preliminary NATOPS Products.....	2-9	Propulsion:	
Preparation:		Fuel and Propulsion Battery Charge	
Preparation and Distribution of Interim		Considerations.....	14-11
Changes.....	2-15	UAS Propulsion Battery Charge Reserves	14-12
Prepublication Reviews	2-21	Prorating Minimums	11-6
Prerequisites.....	8-37	PUBLIC AIRCRAFT OPERATIONS (PAO)	
Pressurization:		VERSUS CIVIL AIRCRAFT OPERATIONS...	3-23
Aircraft Oxygen System and Cabin		PURPOSE	2-1, E-1, G-1, H-1, L-1, M-1
Pressurization.....	8-8	PURPOSE AND SCOPE.....	14-1
Loss of Cabin Pressurization	8-19	Purpose:	
Previous Experience.....	12-12	General Purpose Codes	D-2
Primary Source.....	D-1	Purpose.....	3-6, A-1, D-1, F-1, I-1-J-1, K-1, N-1
Priority	6-4	Purpose and Scope	1-1
Procedure:		Purpose of Flight.....	D-1
Departure Procedure (DP).....	5-27	Specific Purpose Codes.....	D-3
DoD Electronic Instrument Procedure			
Library.....	3-20		
Procedure for Checking Wheels Down and			
Locked.....	6-4		
Procedures:			
Directives, Procedures and Terminology			
Applicable to UAS Operations	14-1		
Distress Procedures.....	7-5		
Emergency Procedures.....	7-5		
Filing Procedures	10-17		
Military Reporting Procedures For UAS Flight			
Deviations	14-1		
Operating Procedures.....	5-4		
Performance and Procedures.....	3-22		
Policy and Procedures.....	11-13		
Procedures.....	2-23, 3-16, 7-5		
Procedures for Maintaining Master Flight			
Files.....	10-17		
Starting Procedures	7-3		
UAS Airport Operating Procedures	14-15		
Process:			
ORM Process Description.....	3-15		
Procurement	A-5		

Q

QUALIFICATION TO TRANSITION INTO JET, HELICOPTER, OR TILTROTOR AIRCRAFT.....	12-12
Qualification:	
Basic UAS Qualification (BUQ) Levels.....	14-21
General Requirements for Positional Qualification as a Naval Aircrewman.....	12-10
General Requirements for Qualification.....	12-3, 12-5, 12-9, 14-22
Initial Qualification... 12-3, 12-5, 12-7, 12-9, 14-22	
Initial Qualification For An Instrument Rating.....	14-24
Initial Qualification For UAS Instrument Ratings	14-24
Maximum Time Limit for Positional Qualification as Naval Aircrewman.....	12-11
Qualification Opportunity.....	12-12
Qualification Waivers for Naval Aircrewmen.....	12-11
Specific Requirements for Qualification	12-1, 12-4, 12-8, 14-21

	<i>Page No.</i>		<i>Page No.</i>
UAS Instrument Rating Annual Qualification Requirements	14-23	Reports:	
UAS Qualification (BUQ) Levels.....	14-4	FAA Reports and Cooperation.....	3-18
Qualifications and Achievements	10-19, A-4	Incident Reports	3-18
QUALIFICATIONS OF UAS		Reports	7-5
FLIGHTCREW.....	12-10	Reports of Investigations of Violations of Flying Regulations	3-16
QUALIFYING AUTHORITIES	12-11	Reports, Inquiries, and Investigations.....	5-7
		Requalification.....	12-3, 12-5, 12-7, 12-9, 14-23
		Required Evaluations	8-38
		REQUIREMENT FOR INSTRUMENT RATINGS.....	13-3
R		Requirement:	
Reconstructions of Log Books.....	10-19	Aircraft Commander Requirement	4-1
Record:		ATC Clearance Requirement	5-23
Aircraft Performance Record Attempts	3-1	Chase Aircraft Requirement	5-17
Auditing of Enlisted Flight Record.....	12-10	Positive Control Requirement.....	14-8
Documentation of the Naval Aircraft Flight Record.....	10-2	Requirement.....	13-1
Flight Clothing Record	10-20	Requirement for Flight Authorization	14-7
Flight Record Summary, Total and for 12 Months Preceding This Log	10-19	Requirement For UAS Instrument Ratings....	14-23
Flight-by-Flight Record	10-20	Unmanned Aircraft System Commander Requirement.....	14-8
Mishap and Flight Rule Violation Record	10-21	Waiving IFR Requirement	5-23
Naval Flight Record Subsystem (NAVFLIRS).....	14-18	Requirements:	
Non-Programs of Record (POR) Systems	14-3	ACM Communication Requirements	5-13
Summary of Total Flight Record	10-19	Additional Requirements	5-23, 12-12
Records:		Aircraft Equipment Requirements	5-24
Flight Records.....	12-10, A-4	Aircrew Personal Protective Equipment Requirements	8-1
Records	4-12, 8-30	Airfield Requirements.....	14-10
Reduced Same Runway Separation	6-3	Anthropometric Requirements.....	8-27
REDUCING FLIGHT-RELATED DISTURBANCES	5-30	ASAP Data Requirements.....	3-22
REFERENCES TO DIRECTIVES.....	C-1	ASAP Submission Requirements	3-22
Refueling:		Aviation Qualification/Currency Requirements Summary.....	11-6
Aerial Refueling.....	5-31	Briefing Requirements	14-12
Authorized Airfields for Stop-and-Go, Refueling and RON	4-3	Call Sign Requirements	4-7
In-Flight Refueling.....	4-11	Failure To Meet Renewal Requirements.....	14-25
Regulations:		Failure To Meet Requirements.....	13-4
Applicability of Flying Regulations Other Than Naval	3-18	Flightcrew Requirements	4-1
Federal Aviation Regulations.....	9-1	General Administrative Requirements.....	2-6
Federal Aviation Regulations (FAR).....	1-3, 14-1	General Requirements.....	5-23, 8-37
Regulations	3-11	General Requirements for Positional Qualification as a Naval Aircrewman	12-10
Reports of Investigations of Violations of Flying Regulations	3-16	General Requirements for Qualification.....	12-3, 12-5, 12-9, 14-22
Renewal/Expiration.....	13-1	IFR Weather Filing Requirements	14-15
REPORTING AND RECORDING OF DEVIATIONS AND VIOLATIONS OF FLYING REGULATIONS AND MISHAP INFORMATION	3-16	Instrument Flight Equipment Requirements...	14-15
Reporting:		Manifest Requirements	4-7
Military Reporting Procedures For UAS Flight Deviations	14-1	Medical Requirements for Contract Civilians Operating Naval Aircraft	8-43
Reporting Loss of Link (LOL).....	14-14	Minimum Fuel Requirements	4-11
REPORTS	12-14	Minimum Training Syllabus Requirements...	12-12

	<i>Page No.</i>		<i>Page No.</i>
Physical Examination Requirements for Non-aeronautically Designated Individuals...	8-39	ACM Training Rules.....	5-11
Requirements	4-12, 8-8, 10-18	ACM TRAINING Rules	M-1
Special Airlift Requirements.....	3-1	Local Airfield Rules.....	3-23
Specific Requirements	10-16	Local Flying Rules and Instructions	1-3
Specific Requirements for Qualification	12-1, 12-4, 12-8, 14-21	Right-of-way Rules.....	14-13
Specific Requirements for Qualifications.....	12-6	Simulated Air Combat Maneuvering (ACM) Training Rules.....	5-8
Training Requirements.....	8-28, 8-37	Runway Braking Action Advisory/Condition Readings.....	6-4
UAS Crewmember Requirements.....	14-8		
UAS Flightcrew Requirements.....	14-7	S	
UAS IFR Requirements.....	14-15	SAFETY	14-16
UAS Instrument Rating Annual Qualification Requirements	14-23	Safety Belts and Shoulder Harnesses.....	7-6
UAS Instrument Rating Renewal Requirements	14-25	Scope.....	A-1
UAS Proficiency Requirements.....	14-19	SCOPE	12-1
UAS VFR Requirements.....	14-14	SCOPE, PURPOSE, AND APPLICABILITY	11-1
VFR Weather Requirements	14-15	Seat:	
Rescue Helicopters Operating Over Water	4-2	Ejection Seat (Class 1) Aircraft Oxygen Mask Usage.....	8-13
Responsibilities:		Ejection Seat Aircraft Strategic Air Breaks	8-18
Responsibilities	2-3, 11-19	Seats:	
Tower/Approach Control Responsibilities.....	5-29	Reclining Seats.....	7-4
Transfer of UAS Responsibilities During Flight.....	14-6	Section:	
UAS Command Responsibilities	14-5	Aircraft Data Section	10-6
Responsibility:		Aircrew Data Section.....	10-8
Areas of Responsibility.....	1-2	“Limitations/Remarks” Section	10-1
Chief of Naval Air Training Responsibility ...	12-13	Logistics Data Section	10-11
Responsibility	2-19, 3-16, 4-12, A-1	Weapons Proficiency Data Section.....	10-12
Responsibility of the Pilot in Command.....	8-8	Security	A-1
Restrictions:		SECURITY OF AIRCRAFT AWAY FROM BASE	9-1
Fixed Wing Versus Fixed-Wing ACM Altitude Restrictions	5-14	See and Avoid	5-21
Fixed Wing Versus Helicopter/Tiltrotor and Helicopter Versus Helicopter ACM Altitude Restrictions	5-15	Sensor:	
General Flight Personnel/Passenger Restrictions	7-2	Sensor Trail Approaches	5-19
Restrictions on Instrument Ratings.....	13-4, 14-24	SERVICE CODES	F-3
Temporary Flight Restrictions	5-31	Service:	
Retention of Master Flight Files	10-18	Aviation Service.....	11-13
Review	A-3	Aviation Service Career	11-13
Review Agenda.....	2-19	GPCs L, M, N, and O for Service Flights.....	D-4
REVOCATION OF ORDERS TO DUTY INVOLVING FLYING	11-19	Medical Service Group 1	8-42
Revocation of Qualifications	12-14, 14-23	Medical Service Group 2	8-42
Revoked Qualifications.....	A-4	Medical Service Group 3	8-42
Risk Assessment	3-19, 14-12	Medical Service Groups.....	8-42
Routine Change Recommendations.....	2-13	Officer Service	11-13
Rule:		SPCs To Be Used With GPCs J and K for Service Flights	D-3
Mishap and Flight Rule Violation Record	10-21	Severe Weather Watch Bulletins.....	4-10
Rules:		Shipment Orders	3-2
		Simulator Sickness.....	8-27
		Skills:	
		Critical Behavioral Skills.....	3-14
		SPCs Used With GPC P.....	D-5
		SPCs Used With GPC Q	D-5

	<i>Page No.</i>		<i>Page No.</i>
SPCs Used With GPC R	D-5	Time of Requalification for Naval	
SPECIAL QUALIFICATION CODES.....	F-1	Aircrewman.....	12-11
Special Rating	13-4	TIME ZONE CODES	G-1
Special Use Airspace	5-3	Tower Clearance	5-29
Speed:		TRAINING OF ENLISTED FLIGHT	
Aircraft Speed	5-2	PERSONNEL	12-10
Standard Rating.....	13-3	Training:	
Starting Files	10-17	ACM Training.....	5-11
Starting, Turning, and Taxiing	7-2, 14-16	ACM Training Rules.....	5-11
Station:		Adjunctive Training	8-34
Flight Control Station	3-13	Air-to-Air Missile Training Flights.....	5-32
Stopover Flights Within the Contiguous United		Aircrew Indoctrination NASTP Training	8-32
States	4-6	Aircrew Refresher NASTP Training.....	8-32
Submission of NATOPS Change		APPROVED NASTP TRAINING SITES (Aviation	
Recommendations.....	1-1, 2-13	Survival Training Centers (ASTC)).....	E-6
SUBMISSION OF THE FLIGHT PLAN.....	4-6	Authorized Airfields and Landing Areas For	
Subsystem:		Training	4-3
Mission Essential Subsystem Matrix		Chief of Naval Air Training Responsibility ...	12-13
(MESM).....	14-11	Cross-Country Training Flight.....	3-19
Naval Flight Record Subsystem		Effective CRM Training	3-15
(NAVFLIRS).....	14-18	Flight Training	3-2
Supervision	11-19	GPS Navigation Flight Training	13-6
SYSTEM STATUS CODES	G-2	Military Training Routes (MTRs).....	5-4
System:		Minimum Training Syllabus Requirements ...	12-12
Aircraft Oxygen System and Cabin		NASTP TRAINING STATUS (Does not include	
Pressurization.....	8-8	Non-aircraft Specific NASTP Training Courses	
Federal Aviation Administration Order 8900.1		listed in Figure E-1)	E-1
Flight Standards Information Management		Non-Aircraft Specific NASTP Training	8-33
System.....	14-1	Non-Aircrew NASTP Training.....	8-33
Memorandum of Understanding between DoD and		Physical and Training Prerequisites for	
FAA for UAS Operations in the National Airspace		Participation in NASTP Training.....	8-30
System Dated 09 May 2019	14-2	Refresher Training	14-20
Unmanned Aircraft System Commander		Search and Rescue Pilot/Rescue Swimmer	
Requirement.....	14-8	Training	8-36
Systems:		Simulated Air Combat Maneuvering (ACM)	
Non-Programs of Record (POR) Systems	14-3	Training Rules.....	5-8
		Theater Indoctrination Training	3-1
		Training	A-4
		Training Requirements.....	8-28, 8-37
		Training Waivers/Qualification Extensions	8-31
		Transition Course Training	14-22
		Travel Orders	3-2
		Turnup	7-3
		Types of NATOPS Change Recommendations....	2-12
		U	
		U.S. Civil Airports	3-21
		U.S. CUSTOMS, HEALTH, IMMIGRATION, AND	
		AGRICULTURAL CLEARANCE.....	9-2
		UAC	14-21
		UAS Commander (UAC).....	14-6
		UAS Flight Logs	14-18
		UAS Flightcrew Qualifications.....	14-7

T

U

	<i>Page No.</i>		<i>Page No.</i>
UAS INSTRUMENT RATING	14-23	Reports of Investigations of Violations of Flying Regulations	3-16
UAS NATOPS PROGRAM.....	14-4	VISUAL FLIGHT RULES PROCEDURES	5-20
UAS Simulators	14-20	VITAL MILITARY OPERATIONS	6-4
UASC Classifications	14-20		
UASC CLASSIFICATIONS AND DESIGNATION OF UAS FLIGHT AND MAINTENANCE		W	
PERSONNEL	14-20	Waiver of Physical Standards	8-40
UASC Designations	14-21	Waivers	14-3
Unit:		WAIVERS OF MINIMUM FLYING REQUIREMENTS.....	11-16
Unit Identification.....	B-1	WARNINGS, CAUTIONS, AND NOTES.....	1-5
Unit NATOPS Evaluation	2-25	Weapons:	
Unplanned Formation Flight.....	5-20	NATO Live Weapons Demonstrations.....	3-12
Unusual Maneuvers Within Class B, C, or D		Weapons Proficiency Data Section	10-12
Airspace	5-2	Weather Conditions Precluding VFR Flight.....	5-21
Updating an Existing NATOPS	2-12	Weather Minimums.....	5-21
Use of Closed Airfields.....	14-10	Weight:	
Use of Lookouts.....	4-2	Weight and Balance Control	4-12
Use of MFOQA Data	3-22	Wing:	
USMC AIRCREW STATUS (ASC) CODES.....	J-2	Fixed Wing.....	3-4
USMC ASSIGNED SYLLABUS (TEC)		Fixed Wing Versus Fixed-Wing ACM Altitude Restrictions	5-14
CODES	J-1	Fixed Wing Versus Fixed-Wing ACM and Ground Attack Interface.....	5-15
USMC SYLLABUS STATUS (SSC) CODES	J-2	Fixed Wing Versus Helicopter/Tiltrotor and Helicopter Versus Helicopter ACM Altitude Restrictions	5-15
		WORDING	1-6
V			
Vehicle:		Z	
Airfield Vehicle Operators Course.....	3-23	Zooming of Vessels.....	5-31
VFR Flight Plans	4-9		
VFR Operating Provisions.....	14-15		
Violation:			
Mishap and Flight Rule Violation Record	10-21		
Violations:			
Alleged Offshore Air Defense Identification Zone Violations	3-18		