U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

ORDER
JO 7610.14B

Air Traffic Organization Policy

Effective Date:
December 24, 2026

SUBJ: Non-Sensitive Procedures and Requirements for Special Operations

This order establishes non-sensitive procedures and requirements for air traffic control (ATC) planning and coordination; and operational execution of ATC-related services supporting special operations while mitigating collateral safety and efficiency effects on the National Airspace System (NAS). The procedures and requirements contained herein are applicable to the Department of Defense (DoD), including National Guard (NG); Department of Homeland Security (DHS); and other government agencies that conduct special operations for national defense, homeland security, intelligence, and emergency operations purposes.

This order, which complements FAA Order JO 7610.4, Sensitive Procedures and Requirements for Special Operations, is focused on non-sensitive procedures and requirements that do not require a protection designation. FAA Order JO 7610.14 was created to provide easier access to uncontrolled and unclassified information relocated from JO 7610.4, which retains its protection designation. For Air Traffic Organization (ATO) purposes, this relocated, uncontrolled, and unclassified information is referred to as non-sensitive information. Relocated information identified as non-sensitive includes content in chapters such as procedures for altitude reservation (ALTRV) procedures, aerial refueling, military training routes (MTRs), and military radar units (MRUs). In consultation with the DoD, this non-sensitive information is relocated from JO 7610.4 to this publicly available order.

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Explanation of Changes
Basic

a. 8−1−8. FAA RESPONSIBILITY

8−2−1. AREA OF OPERATION

8−3−5. BASIC EVALUATION

This change replaces USINDOPACOM with PACAF in multiple paragraphs.

b. Editorial Changes

Editorial change includes a change to update any reference akin to the old terminology, “NOTAM system”, “Federal NOTAM System (FNS), “United States NOTAM System (USNS)” within the order to either “NOTAM Service” or “NOTAM Management Service (NMS)”. .

c. Entire Publication

Additional editorial/format changes were made where necessary. Revision bars were not used because of the insignificant nature of these changes.

Table of Contents

Chapter 1. General

Section 1. Introduction

Paragraph		Page
1−1−1.	PURPOSE OF THIS ORDER	1−1−1
1−1−2.	AUDIENCE	1−1−1
1−1−3.	WHERE TO FIND THIS ORDER	1−1−1
1−1−4.	WHAT THIS ORDER CANCELS	1−1−1
1−1−5.	EXPLANATION OF CHANGES	1−1−1
1−1−6.	EFFECTIVE DATES AND SUBMISSION FOR CHANGES	1−1−1
1−1−7.	RECOMMENDATIONS FOR PROCEDURAL CHANGES	1−1−2
1−1−8.	DISTRIBUTION	1−1−3

Section 2. Application

1−2−1.	FAA RESPONSIBILITIES	1−2−1
1−2−2.	MEMORANDA OF AGREEMENT, MEMORANDA OF UNDERSTANDING, EXECUTIVE ORDERS, AND OTHER NATIONAL-LEVEL REFERENCE DOCUMENTS	1−2−1
1−2−3.	WORD MEANINGS	1−2−1
1−2−4.	NOTES	1−2−1
1−2−5.	MILITARY PROCEDURES IDENTIFICATION	1−2−1
1−2−6.	REQUIREMENTS REVIEW WITH INTERAGENCY PARTNERS	1−2−2

Chapter 2. Services and Responsibilities

Section 1. ATC Services by the Military

2−1−1.	WHERE SERVICE MAY BE PROVIDED	2−1−1
2−1−2.	AIR TRAFFIC CONTROL AUTHORITY	2−1−1
2−1−3.	FREQUENCY REQUIREMENTS	2−1−1
2−1−4.	LETTERS OF AGREEMENT (LOAs)/LETTERS OF PROCEDURE (LOPs)	2−1−1
2−1−5.	TOWER EN ROUTE CONTROL SERVICE	2−1−1
2−1−6.	EVALUATIONS BY FAA	2−1−2
2−1−7.	SUSPENDING APPROACH CONTROL OR OTHER AIR TRAFFIC CONTROL AUTHORITY	2−1−2
2−1−8.	USE OF MILITARY AUTHORITY ASSUMES RESPONSIBILITY FOR SEPARATION OF AIRCRAFT (MARSA)	2−1−2
2−1−9.	RELEASE OF AIRCRAFT TO GROUND CONTROL APPROACH (GCA) UNITS	2−1−3
2−1−10.	CONTROL OF FLIGHTS IN PATTERN	2−1−3
2−1−11.	EXCHANGE OF INFORMATION	2−1−3

Section 2. Air Traffic Representative (ATREP)

2−2−1.	ASSIGNMENTS	2−2−1
2−2−2.	ATREP FUNCTIONS	2−2−1
2−2−3.	FAMILIARIZATION FLIGHTS	2−2−1
2−2−4.	REQUIRED ABSENCE	2−2−1
2−2−5.	ALTERNATE AIR TRAFFIC REPRESENTATIVE	2−2−1

Paragraph **Page**
2−2−6. FUNCTIONS OF ALTERNATE ATREP . . . . . 2−2−1
2−2−7. COORDINATION . . . . . 2−2−1
2−2−8. AVAILABILITY . . . . . 2−2−1

Section 3. Miscellaneous

2−3−1. ASSIGNMENT OF MILITARY TOWER LIAISONS . . . . . 2−3−1
2−3−2. SUPERVISOR OF FLYING (SOF) . . . . . 2−3−1
2−3−3. MILITARY AIRSPACE MANAGERS . . . . . 2−3−1
2−3−4. MILITARY REPRESENTATIVES (MILREPs) . . . . . 2−3−1
2−3−5. DOD REIMBURSABLE SUPPORT TO FAA . . . . . 2−3−2

Chapter 3. Military Exercise Planning

Section 1. General

3−1−1. PURPOSE . . . . . 3−1−1
3−1−2. POLICY . . . . . 3−1−1
3−1−3. PROCEDURES . . . . . 3−1−1
3−1−4. SPECIAL USE AIRSPACE (SUA) . . . . . 3−1−1
3−1−5. MILITARY AIRSPACE PLANNING . . . . . 3−1−2
3−1−6. FAA MILITARY LIAISON OFFICERS' RESPONSIBILITIES . . . . . 3−1−3
3−1−7. CHANGES IN REQUIREMENTS . . . . . 3−1−3
3−1−8. PUBLIC NOTIFICATION . . . . . 3−1−3
3−1−9. PLANNING CONFERENCES . . . . . 3−1−3

Section 2. Criteria

3−2−1. PURPOSE . . . . . 3−2−1
3−2−2. POLICY . . . . . 3−2−1
3−2−3. AIRSPACE DESCRIPTION . . . . . 3−2−1
3−2−4. LIMITATIONS . . . . . 3−2−1
3−2−5. LETTERS OF AGREEMENT/PROCEDURE . . . . . 3−2−1

Section 3. ATCAA and MOA Procedures

3−3−1. REQUIREMENT . . . . . 3−3−1
3−3−2. USING AGENCY RESPONSIBILITIES . . . . . 3−3−1
3−3−3. CONTROLLING AGENCY RESPONSIBILITY . . . . . 3−3−1
3−3−4. ATC CONTROL WITHIN ATCAAs AND MOAs . . . . . 3−3−2
3−3−5. NONRADAR AND COMMUNICATIONS . . . . . 3−3−2

Section 4. ATCAA and MOA Procedures

3−4−1. EXERCISE/ORI . . . . . 3−4−1
3−4−2. NOTIFICATION OF EXERCISE/ORI . . . . . 3−4−1

Section 5. Air Mobility Command (AMC) Exercise/Operational Readiness Inspection (ORI)

3−5−1. ORI . . . . . 3−5−1
3−5−2. NOTIFICATION OF ORI . . . . . 3−5−1

Paragraph **Page**

Section 6. United States Strategic Command (USSTRATCOM) Operational Readiness Inspection (ORI)

3−6−1. ORI BOOKLETS . . . . . 3−6−1
3−6−2. NOTIFICATION OF ORI . . . . . 3−6−1
3−6−3. NOTIFICATION FORMAT . . . . . 3−6−1
3−6−4. MISSION DELAYS . . . . . 3−6−1

Section 7. Navy Shipboard Exercises

3−7−1. FLEET AREA CONTROL AND SURVEILLANCE FACILITIES (FACSFACs) . . . . . 3−7−1
3−7−2. FACSFAC LOCATIONS . . . . . 3−7−1
3−7−3. FLEET READINESS EXERCISES . . . . . 3−7−1
3−7−4. PLANNING CONFERENCES . . . . . 3−7−1
3−7−5. AIRCRAFT CARRIER OPERATIONS . . . . . 3−7−2
3−7−6. FLYOFF PROCEDURES . . . . . 3−7−2
3−7−7. AIR CAPABLE SHIP OPERATIONS . . . . . 3−7−2
3−7−8. CENTRAL ALTITUDE RESERVATION FUNCTION (CARF) APPROVED ALTRVS . . . . . 3−7−2
3−7−9. FAMILIARIZATION VISITS . . . . . 3−7−3

Chapter 4. Altitude Reservation (ALTRV) Procedures

Section 1. General

4−1−1. PURPOSE . . . . . 4−1−1
4−1−2. POLICY . . . . . 4−1−1
4−1−3. APPLICATION . . . . . 4−1−1
4−1−4. ALTERNATE TRACKS . . . . . 4−1−3
4−1−5. USER REQUIREMENTS . . . . . 4−1−3
4−1−6. ALTITUDE CRITERIA . . . . . 4−1−3

Section 2. Central Altitude Reservation Function (CARF)

4−2−1. INTERNATIONAL COORDINATION . . . . . 4−2−1
4−2−2. APPROVAL AUTHORITY . . . . . 4−2−1
4−2−3. ALTRV APPROVAL REQUEST (APREQ) . . . . . 4−2−1
4−2−4. ALTRV APPROVAL (APVL) . . . . . 4−2−2
4−2−5. NOTIFICATIONS . . . . . 4−2−2
4−2−6. AIRSPACE NOT UNDER CARF JURISDICTION . . . . . 4−2−2
4−2−7. RESOLUTION OF CONFLICTS BETWEEN MISSIONS . . . . . 4−2−3
4−2−8. ISSUE ALTITUDE RESERVATION NOTICE TO AIRMEN (NOTAM) . . . . . 4−2−3
4−2−9. ACKNOWLEDGMENT OF ALTRV APREQs . . . . . 4−2−3
4−2−10. MESSAGES CLASSIFIED AS ENCRYPT FOR TRANSMISSION ONLY (EFTO) . . . . . 4−2−3
4−2−11. LETTERS OF AGREEMENT . . . . . 4−2−3

Section 3. ATC Facility Responsibilities

4−3−1. APREQ REVIEW AND COORDINATION . . . . . 4−3−1
4−3−2. ARTCC/CCF/HCF APPROVED ALTRVs . . . . . 4−3−1
4−3−3. MISSION SEPARATION . . . . . 4−3−1
4−3−4. FLIGHT PROGRESS STRIPS . . . . . 4−3−1

Paragraph		Page
4−3−5.	NOTIFICATION	4−3−2
4−3−6.	ISSUE ALTITUDE RESERVATION NOTAM	4−3−2
4−3−7.	TRUSTED AGENTS	4−3−2
4−3−8.	ALTRV AUTHORIZATION AND CHANGES	4−3−2

Section 4. Mission Planning

4−4−1.	RESOLVING MISSION CONFLICTS	4−4−1
4−4−2.	ORDER OF PRECEDENCE	4−4−1
4−4−3.	SPECIFY VOID TIME	4−4−2
4−4−4.	RESCHEDULING	4−4−2
4−4−5.	DELAY NOTIFICATIONS	4−4−2
4−4−6.	EN ROUTE TIMING	4−4−2

Section 5. Originator Responsibilities

4−5−1.	TWO OR MORE COMMANDS	4−5−1
4−5−2.	TWO OR MORE SERVICES	4−5−1
4−5−3.	MISSIONS REQUIRING EXTENSIVE ATC SUPPORT	4−5−1
4−5−4.	PROJECT OFFICER	4−5−1
4−5−5.	ALTRVs ENTERING U.S. CTA/FIR	4−5−2
4−5−6.	NO*NOTICE AND/OR DO NOT PASS TO AIR DEFENSE RADAR (NOPAR) MISSION	4−5−2

Section 6. Planning Approval of APREQs

4−6−1.	PLANNING/APPROVAL OF APREQs	4−6−1
4−6−2.	MILITARY AUTHORITY ASSUMES RESPONSIBILITY FOR SEPARATION OF AIRCRAFT (MARSA)	4−6−1
4−6−3.	IN*FLIGHT SEPARATION	4−6−2
4−6−4.	POSITION REPORTS	4−6−2
4−6−5.	USE OF AIRSPACE THROUGH ALTRV	4−6−2

Section 7. Special/Emergency ALTRVs

4−7−1.	INTERNATIONAL PRESIDENTIAL FLIGHTS	4−7−1
4−7−2.	PROCESSING WAIVERS	4−7−1
4−7−3.	EMERGENCY ALTITUDE RESERVATIONS	4−7−1

Section 8. Altitude Reservation NOTAMs

4−8−1.	CRITERIA	4−8−1
4−8−2.	FORMULATION AND DISSEMINATION	4−8−1

Section 9. Space Support Operations

4−9−1.	PURPOSE	4−9−1
4−9−2.	POLICY	4−9−1
4−9−3.	CLASSIFIED SPACE LAUNCH/REENTRY NOTIFICATION	4−9−1

Section 10. Altitude Reservation Approval Request (ALTRV APREQ), Format, and Amendments

4−10−1.	ALTRV APREQs	4−10−1
4−10−2.	FORMAT	4−10−1

Paragraph **Page**
4−10−3. ALTRV APREQ AMENDMENTS . . . . . 4−10−5

Section 11. Flight Path Format Components

4−11−1. INTRODUCTION . . . . . 4−11−1
4−11−2. DEFINITION . . . . . 4−11−1
4−11−3. FORMAT . . . . . 4−11−1
4−11−4. MOVING ALTRV COMPONENTS . . . . . 4−11−2
4−11−5. STATIONARY ALTRV COMPONENTS . . . . . 4−11−10
4−11−6. MOVING ALTRV APREQ EXAMPLES . . . . . 4−11−11
4−11−7. STATIONARY ALTRV APREQ EXAMPLES . . . . . 4−11−14

Chapter 5. Aerial Refueling

Section 1. General

5−1−1. POLICY . . . . . 5−1−1
5−1−2. OBJECTIVE . . . . . 5−1−1
5−1−3. RESPONSIBILITY . . . . . 5−1−1
5−1−4. SEPARATION . . . . . 5−1−1
5−1−5. DEVIATIONS . . . . . 5−1−1
5−1−6. CHRONOLOGY . . . . . 5−1−1

Section 2. Track Requirements

5−2−1. DESCRIPTION . . . . . 5−2−1
5−2−2. NAVIGATION ALONG AIR REFUELING TRACK . . . . . 5−2−1
5−2−3. ARIP ESTABLISHMENTS . . . . . 5−2−1
5−2−4. DEGREE*DISTANCE TRACK DEFINITION . . . . . 5−2−1
5−2−5. TANKER ORBIT PATTERNS . . . . . 5−2−1

Section 3. Anchor Requirements

5−3−1. DESCRIPTION . . . . . 5−3−1
5−3−2. NAVIGATION WITHIN ANCHOR AREA . . . . . 5−3−1
5−3−3. ARIP ESTABLISHMENT . . . . . 5−3−1
5−3−4. DEGREE*DISTANCE ANCHOR DEFINITION . . . . . 5−3−2

Section 4. Planning

5−4−1. TRACK/ANCHOR PROPOSALS . . . . . 5−4−1
5−4−2. COORDINATION . . . . . 5−4−1
5−4−3. CRITERIA FOR ESTABLISHMENT . . . . . 5−4−1
5−4−4. APPROVAL NOTIFICATION . . . . . 5−4−2
5−4−5. PUBLICATION IN FLIP . . . . . 5−4−2
5−4−6. MILITARY SERVICE AREA REPRESENTATIVE RESPONSIBILITIES . . . . . 5−4−3
5−4−7. NGA RESPONSIBILITIES . . . . . 5−4−3
5−4−8. EFFECTIVE DATE . . . . . 5−4−4
5−4−9. REVISIONS TO TRACKS/ANCHORS . . . . . 5−4−5

Section 5. Operations

5−5−1. PROVISIONS FOR CONDUCTING AERIAL REFUELING . . . . . 5−5−1

Paragraph **Page**
5−5−2. USER REQUIREMENTS . . . . . 5−5−2
5−5−3. MARSA APPLICABILITY FOR AERIAL REFUELING . . . . . 5−5−2
5−5−4. CRITERIA FOR SCHEDULING . . . . . 5−5−2
5−5−5. SCHEDULING RESPONSIBILITIES . . . . . 5−5−4
5−5−6. FLIGHT PLAN REQUIREMENTS . . . . . 5−5−5
5−5−7. TANKER AIRCRAFT/FORMATION COMMANDER RESPONSIBILITIES . . . . . 5−5−5
5−5−8. RECEIVER AIRCRAFT RESPONSIBILITIES . . . . . 5−5−7
5−5−9. ATC CLEARANCE . . . . . 5−5−7
5−5−10. RADAR VECTOR ASSISTANCE . . . . . 5−5−7
5−5−11. ATC FACILITY RESPONSIBILITIES . . . . . 5−5−7
5−5−12. COMMUNICATIONS FAILURE . . . . . 5−5−8

Section 6. Special Refueling Requirements

5−6−1. PROVISIONS FOR SPECIAL TRACKS/ANCHORS . . . . . 5−6−1
5−6−2. RESPONSIBILITY OF REQUESTING UNIT . . . . . 5−6−1
5−6−3. OPERATIONS WITHIN AN ALTRV . . . . . 5−6−1
5−6−4. OPERATIONS OUTSIDE AN ALTRV . . . . . 5−6−1
5−6−5. IN-FLIGHT REQUESTS . . . . . 5−6−2
5−6−6. SPECIAL EXERCISES . . . . . 5−6−2
5−6−7. ISSUE NOTAM . . . . . 5−6−2
5−6−8. VFR HELICOPTER/TILTROTOR REFUELING OPERATIONS . . . . . 5−6−2
5−6−9. VFR REFUELING TRACK ESTABLISHMENT . . . . . 5−6−2
5−6−10. REFUELING TRACK DEFINITION . . . . . 5−6−3
5−6−11. OPERATING PROCEDURES . . . . . 5−6−3
5−6−12. FLIGHT PLAN REQUIREMENTS . . . . . 5−6−4
5−6−13. WEATHER MINIMUMS . . . . . 5−6−4
5−6−14. ADHERENCE TO REFUELING TRACK . . . . . 5−6−4
5−6−15. FAA COORDINATION . . . . . 5−6−4
5−6−16. PUBLICATION/SCHEDULING . . . . . 5−6−4

Chapter 6. Military Training Routes (MTR)

Section 1. General

6−1−1. PURPOSE . . . . . 6−1−1
6−1−2. POLICY . . . . . 6−1−1
6−1−3. DEVIATIONS . . . . . 6−1−1
6−1−4. PUBLICATION . . . . . 6−1−1
6−1−5. RECORD OF MILITARY TRAINING ROUTE (MTR) OPERATIONS . . . . . 6−1−1
6−1−6. FAA FORM 7110-4, MILITARY TRAINING ROUTE DATA . . . . . 6−1−2

Section 2. MTR Route Designation Criteria

6−2−1. LIMITATIONS . . . . . 6−2−1
6−2−2. ROUTE IDENTIFICATION . . . . . 6−2−1

Section 3. Publicity

6−3−1. INFORMATION TO THE PUBLIC . . . . . 6−3−1

Paragraph **Page**

Section 4. IR Route Definition

6−4−1. ROUTE WIDTH . . . . . 6−4−1
6−4−2. ROUTE ALIGNMENT . . . . . 6−4−1
6−4−3. ALTITUDES . . . . . 6−4−1
6−4−4. RE-ENTRY SEGMENTS . . . . . 6−4−2
6−4−5. ALTERNATE ENTRY, EXIT, AND END POINTS . . . . . 6−4−2
6−4−6. ROUTE REPORTING POINTS . . . . . 6−4−2
6−4−7. SPECIAL OPERATING PROCEDURES . . . . . 6−4−3
6−4−8. LOW ALTITUDE AIR-TO-AIR TRAINING (LOWAT) . . . . . 6−4−3

Section 5. IR Coordination

6−5−1. ESTABLISHING OR REVISING IR ROUTES . . . . . 6−5−1
6−5−2. PUBLICATION . . . . . 6−5−3
6−5−3. EFFECTIVE DATE . . . . . 6−5−4

Section 6. IR Route Use

6−6−1. SCHEDULING . . . . . 6−6−1
6−6−2. LETTERS OF AGREEMENT * IR . . . . . 6−6−1
6−6−3. ADVISORY AND OPERATIONAL STATUS MESSAGES . . . . . 6−6−2
6−6−4. FLIGHT PLAN REQUIREMENTS . . . . . 6−6−2
6−6−5. IR USE DENIAL . . . . . 6−6−4
6−6−6. ROUTE ADHERENCE . . . . . 6−6−4
6−6−7. SPEED AUTHORIZATION . . . . . 6−6−4
6−6−8. ENTRY/EXIT PROCEDURES . . . . . 6−6−5
6−6−9. COMMUNICATION FAILURE . . . . . 6−6−5
6−6−10. LOST COMMUNICATIONS TRANSPONDER OPERATIONS . . . . . 6−6−5
6−6−11. SEPARATION OF PARTICIPATING AIRCRAFT . . . . . 6−6−5

Section 7. VR Route Definition

6−7−1. ROUTE WIDTH . . . . . 6−7−1
6−7−2. ROUTE ALIGNMENT . . . . . 6−7−1
6−7−3. ALTITUDES . . . . . 6−7−1
6−7−4. ROUTE ENTRY AND EXIT POINTS . . . . . 6−7−2
6−7−5. ALTERNATE ENTRY/EXIT/END POINTS . . . . . 6−7−2
6−7−6. SPECIAL OPERATING PROCEDURES . . . . . 6−7−2

Section 8. VR Coordination

6−8−1. ESTABLISHING OR REVISING VR ROUTES . . . . . 6−8−1
6−8−2. PUBLICATION . . . . . 6−8−2
6−8−3. EFFECTIVE DATE . . . . . 6−8−2

Section 9. VR Route Use

6−9−1. SCHEDULING . . . . . 6−9−1
6−9−2. COMPLIANCE . . . . . 6−9−1
6−9−3. FLIGHT PLAN REQUIREMENTS . . . . . 6−9−1
6−9−4. ROUTE ADHERENCE . . . . . 6−9−2

Paragraph **Page**
6–9–5. SPEED AUTHORIZATION 6–9–2
6–9–6. WEATHER MINIMUMS 6–9–2
6–9–7. TRANSPONDER PROCEDURES 6–9–2

Chapter 7. Miscellaneous Flight Activities and Requirements

Section 1. Aircraft Arresting System, Single Frequency Approach (SFA), Simulated Flameout (SFO)/Emergency Landing Pattern (ELP) Operations, Celestial Navigation (CELNAV) Training

7–1–1. OPERATION OF AIRCRAFT ARRESTING SYSTEMS 7–1–1
7–1–2. ARRESTING SYSTEMS CONTROL PANELS 7–1–1
7–1–3. ACTION REQUIRED BY FACILITY AIR TRAFFIC MANAGER 7–1–1
7–1–4. PUBLICATION OF INSTALLATION 7–1–2
7–1–5. SINGLE FREQUENCY APPROACH (SFA) 7–1–2
7–1–6. SIMULATED FLAMEOUT (SFO)/EMERGENCY LANDING PATTERN (ELP) OPERATIONS 7–1–3
7–1–7. CELESTIAL NAVIGATION (CELNAV) TRAINING 7–1–3

Section 2. USAF Undergraduate Flying Training (UFT)/Pilot Instructor Training (PIT)/Introduction to Fighter Fundamentals

7–2–1. DEFINITIONS 7–2–1
7–2–2. KEY OPERATIONAL CONSTRAINTS 7–2–1
7–2–3. RADAR SERVICE REQUIREMENTS 7–2–1
7–2–4. MERGING TARGET VS APPROVED SEPARATION 7–2–2
7–2–5. AIRSPACE REQUIREMENTS 7–2–2
7–2–6. MTR REQUIREMENTS 7–2–3
7–2–7. COMMUNICATION REQUIREMENTS 7–2–3
7–2–8. SCHEDULING 7–2–3
7–2–9. STEREOTYPE ROUTING/FLIGHT PLANS 7–2–3
7–2–10. LETTERS OF AGREEMENT (LOAs) 7–2–3
7–2–11. AUTHORIZATIONS 7–2–3

Section 3. Military Formation Flight

7–3–1. PURPOSE 7–3–1
7–3–2. POLICY 7–3–1
7–3–3. FORMATIONS 7–3–1
7–3–4. FORMATION DEPARTURE 7–3–1
7–3–5. CELL FORMATION 7–3–1
7–3–6. NONSTANDARD FORMATION TACTICS 7–3–1
7–3–7. CELL SEPARATION STANDARDS 7–3–3
7–3–8. NONSTANDARD FORMATION NOTIFICATION AND APPROVAL 7–3–3
7–3–9. AERIAL REFUELING FORMATION 7–3–3

Section 4. Special Interest Flights

7–4–1. GENERAL 7–4–1
7–4–2. APPLICATION 7–4–2

Paragraph **Page**

Chapter 8. Military Radar Unit Duties, Responsibilities, and Procedures

Section 1. General

8−1−1. MILITARY RADAR UNIT (MRU)/AIRBORNE RADAR UNIT (ARU)/ AIRBORNEWARNING AND CONTROL SYSTEM (AWACS) . . . . . 8−1−1
8−1−2. MILITARY RADAR UNIT (MRU) . . . . . 8−1−1
8−1−3. AIRBORNE RADAR UNIT (ARU) . . . . . 8−1−1
8−1−4. AIRBORNE WARNING AND CONTROL SYSTEM (AWACS) . . . . . 8−1−2
8−1−5. ADDITIONAL AWACS RESPONSIBILITIES . . . . . 8−1−2
8−1−6. TACTICAL MONITOR (TM) . . . . . 8−1−3
8−1−7. TRANSFER OF FLIGHT INFORMATION . . . . . 8−1−3
8−1−8. FAA RESPONSIBILITY . . . . . 8−1−3
8−1−9. ATC FACILITIES RESPONSIBILITY . . . . . 8−1−3
8−1−10. RELEASE OF AIRSPACE . . . . . 8−1−4
8−1−11. MILITARY RESPONSIBILITY . . . . . 8−1−4
8−1−12. RADAR MALFUNCTION AT MRU/ARU . . . . . 8−1−5
8−1−13. RADAR MALFUNCTION AT ATC FACILITY . . . . . 8−1−6
8−1−14. COMMAND AND CONTROL . . . . . 8−1−6
8−1−15. SEPARATION BETWEEN PARTICIPATING AND NONPARTICIPATING AIRCRAFT . . . . . 8−1−6

Section 2. Intercept Training Activities

8−2−1. AREA OF OPERATION . . . . . 8−2−1
8−2−2. RADAR SURVEILLANCE . . . . . 8−2−1

Section 3. FAA/Military Joint Evaluations/Site Visits

8−3−1. PURPOSE . . . . . 8−3−1
8−3−2. SCOPE OF EVALUATION/SITE VISIT . . . . . 8−3−1
8−3−3. ADVANCE COORDINATION . . . . . 8−3−1
8−3−4. OBJECTIVES . . . . . 8−3−1
8−3−5. BASIC EVALUATION TEAM/SITE VISIT . . . . . 8−3−1
8−3−6. “TRUSTED AGENTS” . . . . . 8−3−1
8−3−7. OUT*BRIEFING . . . . . 8−3−2
8−3−8. PREPARE JOINT REPORT . . . . . 8−3−2

Chapter 9. Air Traffic Control Assigned Airspace (ATCAA) Procedures

Section 1. General

9−1−1. PURPOSE . . . . . 9−1−1
9−1−2. TERMS . . . . . 9−1−1
9−1−3. POLICY . . . . . 9−1−2

Section 2. Procedures

9−2−1. ATCAA PROPOSAL COORDINATION . . . . . 9−2−1
9−2−2. ATCAA PROPOSAL CONTENT . . . . . 9−2−1
9−2−3. ATCAA PROPOSAL SCHEDULING . . . . . 9−2−3

Paragraph **Page**

Section 3. Environmental Impact Analysis Procedures for ATCAAs

9−3−1. ENVIRONMENTAL REVIEW PROCESS FOR ATCAA PROPOSALS . . . . . 9−3−1

Appendices

Appendix 1. Abbreviations . . . . . Appendix 1−1
Appendix 2. Definitions . . . . . Appendix 2−1
Appendix 3. Documents Pertinent to System Operations Security . . . . . Appendix 3−1
Appendix 4. Documents Pertinent to Mission Support Services . . . . . Appendix 4−1

Chapter 1. General

Section 1. Introduction

1−1−1. PURPOSE OF THIS ORDER

This order specifies non-sensitive procedures and requirements for air traffic control planning, coordination, and services supporting national defense, homeland security, and other special operations conducted by the Department of Defense (DoD), Department of Homeland Security (DHS), and other federal, state, local, territorial, or tribal governmental agencies in U.S. controlled airspace. Air Traffic Managers must ensure controllers are familiar with the provisions of this order that pertain to their operational responsibilities. In addition, controllers must exercise sound judgement if they encounter situations that are not covered.

1−1−2. AUDIENCE

This order applies to all ATO personnel and anyone using ATO directives.

1−1−3. WHERE TO FIND THIS ORDER

Information for access to this order is available on the MyFAA employee website at https://employees.faa.gov/tools_resources/orders_notices/ and on the FAA Air Traffic Plans and Publications website at https://www.faa.gov/air_traffic/publications.

1−1−4. WHAT THIS ORDER CANCELS

FAA Order JO 7610.14, Non-Sensitive Procedures and Requirements for Special Operations, dated October 5, 2023, and all changes to it are canceled.

1−1−5. EXPLANATION OF CHANGES

The significant changes to this order are normally identified in the Explanation of Changes page(s). It is advisable to retain the page(s) throughout the duration of the basic order.

1−1−6. EFFECTIVE DATES AND SUBMISSION FOR CHANGES

a. This order and its changes are scheduled to be published to coincide with Aeronautical Information Regulation and Control (AIRAC) dates. (See TBL 1−1−1.)

b. The “Cutoff Date for Completion” in the table below refers to the deadline for a proposed change to be fully coordinated and signed. Change initiators must submit their proposed changes well in advance of this cutoff date to meet the publication effective date. The process to review and coordinate changes often takes several months after the change is initially submitted.

TBL 1−1−1

Publication Schedule

Basic or Change	Cutoff Date For Completion	Effective Date Of Publication
JO 7610.14B	**7/9/26**	**12/24/26**
Change 1	12/24/26	**6/10/27**
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Change 3	**11/25/27**	**5/11/28**
JO 7610.14C	**5/11/28**	**10/26/28**
Change 1	**10/26/28**	**4/12/29**
Change 2	**/4/12/29**	**9/27/29**
Change 3	**9/27/29**	**3/14/30**

1−1−7. RECOMMENDATIONS FOR PROCEDURAL CHANGES

a. The office of primary responsibility (OPR) for this order is ATO System Operations Security. However, other FAA organizations may be responsible for the non-sensitive procedures and requirements contained in this order. Inquiries regarding the responsible organization for a particular chapter, section, or paragraph may be addressed/emailed as follows:

FAA Headquarters
Air Traffic Organization (ATO)
Office of System Operations Security (AJR-2)
800 Independence Avenue, SW
FOB 10A, Suite 300W
Washington, DC 20597

Email: 9-ATOR-HQ-IFOS@faa.gov

b. The responsibility associated with processing and coordinating revisions to this order is delegated to the Director, Policy, AJV-P. Recommended changes to this order must be submitted electronically to 9-AJV-P-HQ-Correspondence@faa.gov. The submission should include a description of the recommended change and the proposed language to be used in the order.

NOTE−
For additional details on the submission process as well as further description of AJV-P processing responsibilities, see FAA Order JO 7000.5, Procedures for Submitting Changes to Air Traffic Control Publications.

c. ATO personnel should submit recommended changes in procedures to facility management.

d. Recommendations from other sources should be submitted through appropriate FAA, military, or industry/user channels.

e. Procedural changes will not be made to this order until coordination that supports implementation of the new or revised procedures has been completed through AJV-P.

1−1−8. DISTRIBUTION

This order is available online and will be distributed electronically to all offices that subscribe to receive email notification/access to it through the FAA website (https://www.faa.gov/air_traffic/publications/).

Section 2. Application

1−2−1. FAA RESPONSIBILITIES

FAA ATO must provide services for the special operations conducted by DoD, DHS, and other U.S. federal, state, local, territorial, or tribal government agencies in accordance with the policy, criteria, and procedures in this order.

1−2−2. MEMORANDA OF AGREEMENT, MEMORANDA OF UNDERSTANDING, EXECUTIVE ORDERS, AND OTHER NATIONAL-LEVEL REFERENCE DOCUMENTS

Where deemed appropriate and applicable, national-level reference documents, such as memoranda of agreement, memoranda of understanding, or Executive Orders, may be included in the appendices of this order.

1−2−3. WORD MEANINGS

As used in this order:

a. “Must” means a procedure is mandatory.

b. “Should” means a procedure is recommended.

c. “May” and “need not” mean a procedure is optional.

d. “Will” indicates futurity, not a requirement for application of a procedure.

e. “Must not” means a procedure is prohibited.

f. Words importing the singular include the plural.

g. Words importing the plural include the singular.

h. **“**Aircraft”means airframe, crew members, or both.

i. **“**Altitude”means altitude mean sea level, flight level, or both.

j. **“**Time,”when used in the context of a clock reading, is the hour in Coordinated Universal Time (UTC) or the local equivalent, as appropriate, and the minutes. Change to the next minute is made at the minute plus 30-second point, except for time checks, which are given to the nearest quarter minute.

k. **“**Miles”means nautical miles.

l. “Approved Separation”means separation in accordance with the applicable minima in FAA Order JO 7110.65, Air Traffic Control.

1−2−4. NOTES

Statements of fact of a prefatory or explanatory nature and relating to the use of procedural material have been identified and worded as “Notes.”

1−2−5. MILITARY PROCEDURES IDENTIFICATION

A service abbreviation – USAF for U.S. Air Force, USA for U.S. Army, USMC for U.S. Marine Corps, USN for U.S. Navy, and USCG for U.S. Coast Guard – denotes that the procedure immediately following the abbreviation only applies to the designated service.

1−2−6. REQUIREMENTS REVIEW WITH INTERAGENCY PARTNERS

Pursuant to 49 U.S.C. Section 40103(b), the FAA Administrator is responsible for developing plans and policy for the use of the navigable airspace and assigning by regulation or order the use of the airspace necessary to ensure the safety of aircraft and the efficient use of airspace. The FAA may modify or revoke an airspace assignment when required in the public interest. It is the policy of the FAA to consult with DoD, DHS, and other interagency partners, as necessary, in developing policies, plans, and procedures enabling the safe and efficient movement of air traffic, and while delivering air navigation services needed by national defense, homeland security, law enforcement, and emergency operations efforts. To assist in this endeavor, FAA will convene meetings, as necessary, with the interagency partners to review plans, procedures, and requirements for the special operations described in this order.

Chapter 2. Services and Responsibilities

Section 1. ATC Services by the Military

2−1−1. WHERE SERVICE MAY BE PROVIDED

The military may provide airport traffic control service at airports not served by an FAA or contract civil tower.

2−1−2. AIR TRAFFIC CONTROL AUTHORITY

a. Requests to delegate air traffic control authority at a location not served by an FAA facility to a military facility must come to the national level.

b. If there is agreement at the national level between FAA Air Traffic Organization (ATO) Air Traffic Services and the appropriate military service, then delegation may be authorized.

c. If authorized, the FAA Service Area office may delegate Terminal Radar Approach Control (TRACON)/approach control authority at a location not served by an FAA facility to a military ATC facility.

REFERENCE−

FAA Order JO 7610.14, Appendix 4, Memorandum of Agreement between Department of Transportation, Federal Aviation Administration, and the U.S. Army – the U.S. Navy – the U.S. Air Force.

d. Regardless of the originator, requests for the situational deployment and operation of mobile DoD and/or National Guard (NG) ATC assets or other air navigation services in the NAS in response to a significant incident must be coordinated through System Operations Security (AJR-2) or, when activated, the Joint Air Traffic Operations Command (JATOC) Crisis Action Team (J-CAT). AJR-2 and/or the J-CAT will lead any needed coordination with DoD, NG, and other interagency stakeholders such as the Federal Emergency Management Agency (FEMA); conduct coordination within the ATO on letters of agreement and other implementation steps; and provide final ATO approval or disapproval to DoD and/or NG.

2−1−3. FREQUENCY REQUIREMENTS

Air traffic control authority must not be delegated to the military until the facility is equipped to transmit and receive on all frequencies necessary to control all categories of instrument flight rules (IFR) traffic (including civil) operating on a regular basis in the terminal area.

2−1−4. LETTERS OF AGREEMENT (LOAS)/LETTERS OF PROCEDURE (LOPS)

LOAs/LOPs relating to the control of air traffic must be completed between the military air traffic control facility and appropriate FAA facilities.

2−1−5. TOWER EN ROUTE CONTROL SERVICE

Tower en route control procedures, stated in an LOA, may be implemented between an FAA-operated terminal area traffic control facility and a military-operated approach control facility if an FAA Air Traffic Representative (ATREP) or ATC specialist designated by the FAA Service Area office has

ensured that military personnel involved are qualified. This tower en route control service includes traffic to and from an airport that is served by a non-FAA facility if all en route control is exercised by a designated FAA approach control facility or a military facility that has been properly certified.

2−1−6. EVALUATIONS BY FAA

a. FAA evaluations of military air traffic control facilities and airport surveillance radar (ASR)/ precision approach radar (PAR) units that exchange control of air traffic directly with FAA facilities must be accomplished in accordance with Article I, Paragraph E, of the Memorandum of Agreement between the Department of Transportation, Federal Aviation Administration, and the U.S. Army, U.S. Navy, and U.S. Air Force in Appendix 4 of this order.

b. The intent of the evaluation is to determine that:

1. Equipment performance and staffing are adequate for the service being provided.

2. Personnel qualifications, certifications/credentials, and performance meet acceptable standards.

3. Procedures utilized are consistent with LOAs between FAA air traffic control facilities and the appropriate local military authority and local memorandum of agreement between FAA and appropriate military authority.

c. FAA evaluations may only be conducted through participation in support of Service-scheduled Service-led evaluations.

d. Military Service-specific evaluation checklists must be utilized during evaluations of military ATC facilities.

e. All deficiencies that may affect flight safety must be reported to the cognizant military authority responsible for ATC oversight for timely corrective action.

f. Special interest items for evaluation must be coordinated with the Service evaluation team lead a minimum of 30 days prior to the evaluation.

g. FAA participation in Service-led evaluations must be coordinated with the appropriate Military Representative (MILREP) a minimum of 30 days in advance, except the U.S. Army, which requires a minimum of 45 days advance coordination.

2−1−7. SUSPENDING APPROACH CONTROL OR OTHER AIR TRAFFIC CONTROL AUTHORITY

FAA suspension or withdrawal of approach control or other air traffic control authority delegated to military air traffic control facilities must be accomplished in accordance with Article I, Paragraphs F and G, of the Memorandum of Agreement between the Department of Transportation, Federal Aviation Administration, and the U.S. Army, U.S. Navy, and U.S. Air Force in Appendix 4 of this order.

2−1−8. USE OF MILITARY AUTHORITY ASSUMES RESPONSIBILITY FOR SEPARATION OF AIRCRAFT (MARSA)

The application of MARSA is a military service prerogative and will not be invoked by individual units or pilots except as follows:

a. Military service commands authorizing MARSA must be responsible for its implementation and terms of use. When military operations warrant an LOA and MARSA will be applied, the authority to invoke MARSA must be contained in the LOA. It must be noted that an LOA will not be required in all cases involving MARSA.

b. ATC facilities do not invoke or deny MARSA. Their sole responsibility concerning the use of MARSA is to provide separation between military aircraft engaged in MARSA operations and other nonparticipating IFR aircraft.

c. DoD must ensure that military pilots requesting special activity airspace (SAA) have coordinated with the scheduling agency, obtained approval for entry, and are familiar with appropriate MARSA procedures. ATC is not responsible for determining which military aircraft are authorized to enter SAA/ATC-assigned airspace (ATCAA).

2−1−9. RELEASE OF AIRCRAFT TO GROUND CONTROL APPROACH (GCA) UNITS

When a GCA unit is located on an airport that is provided IFR service by an FAA facility, details concerning the release of arriving and/or departing aircraft to the unit must be contained in an LOA. Include the following items:

a. Details of the procedures, GCA patterns, release points, and areas to be used.

b. The maximum number of aircraft that may be released to GCA at any one time.

c. Specific instructions concerning a missed approach, loss of communications, and loss of radar.

d. A statement that the GCA unit must be responsible for maintaining radar separation in accordance with FAA JO Order 7110.65, Air Traffic Control.

e. Detailed instructions concerning the exchange of information between GCA and approach control.

2−1−10. CONTROL OF FLIGHTS IN PATTERN

At locations where the FAA facility normally vectors arrivals to base leg or final approach, permit the GCA unit to control sufficient flights throughout the pattern to maintain proficiency.

2−1−11. EXCHANGE OF INFORMATION

At airports served by an FAA tower and a military GCA unit, an LOA must be formulated containing the following items:

a. Before conducting actual or practice GCA approaches, GCA personnel must coordinate with the tower to obtain approval of the runway of intended landing.

b. If GCA personnel wish to subsequently change runways, they must coordinate with and obtain approval from the tower for this change.

c. GCA personnel must include the number of the runway of intended landing when the base leg report is relayed to the tower.

d. If a GCA approach is to be conducted straight-in, the number of the runway of intended landing must be relayed to the tower when the final controller assumes control of the aircraft, but in no case later than the time the aircraft is 6 miles from the end of the runway.

e. Procedures for opposite direction approaches that include the following:

1. Description of inter—and intra—facility coordination, and

2. Establishment of cutoff points, such as distances or fixes for authorizing the approach.

Section 2. Air Traffic Representative (ATREP)

2−2−1. ASSIGNMENTS

In cooperation with the appropriate military authority, Service Center Operation Support Groups assign ATREPs by geographic area to military air traffic control facilities.

2−2−2. ATREP FUNCTIONS

FAA ATREP functions are listed in Article IV of the Memorandum of Agreement between the Department of Transportation, Federal Aviation Administration, and the U.S. Army, U.S. Navy, and U.S. Air Force in Appendix 4 of this order.

2−2−3. FAMILIARIZATION FLIGHTS

ATREPs are encouraged to coordinate familiarization flights with units within their respective area of responsibility whenever possible. When unit resources are available and unit mission is not degraded, the ATREP should attempt to complete a flight every 6 months in each unit-equipped aircraft or simulator.

2−2−4. REQUIRED ABSENCE

When required to be absent from their assigned duties, the ATREP must:

a. Notify the appropriate military authority and FAA facilities, and furnish the name and contact information of the designated alternate.

b. Notify the designated alternate and apprise them of matters requiring ATREP services.

2−2−5. ALTERNATE AIR TRAFFIC REPRESENTATIVE

In order to ensure continuing FAA representation, an appropriately qualified alternate ATREP must be designated to substitute for the assigned specialist during periods of extended absence.

2−2−6. FUNCTIONS OF ALTERNATE ATREP

The alternate must perform the ATREP functions to the maximum extent possible.

2−2−7. COORDINATION

The ATREP and their designated alternate must coordinate to ensure familiarity with air traffic control facilities.

2−2−8. AVAILABILITY

FAA Service Areas must ensure that an ATREP and their designated alternate are not unavailable for the same period.

Section 3. Miscellaneous

2−3−1. ASSIGNMENT OF MILITARY TOWER LIAISONS

At the request of the USAF, a military tower liaison may be assigned to the cab of an FAA tower located on a joint-use airport or military base if space other than at the operating desk is available. Under these circumstances:

a. Telephone or intercom equipment that is necessary by virtue of the assignment of a military tower liaison to the tower must be independent of the tower system and must be reimbursable.

b. Install no radio equipment at this position. The release of a frequency and transmitting capability to the military tower liaison must be at the discretion of the area manager, and only in the case of an emergency. No air traffic control instructions must be formulated or transmitted by the military tower liaison, nor must the military tower liaison interfere in any manner with the performance of duties by FAA personnel.

c. The military tower liaison assigned must be on duty only during military flight activities. In many cases, this will only be during the hours from sunrise to sunset.

d. The number of personnel so assigned must be kept at a minimum. In most cases, one tower liaison should suffice to provide the necessary services.

2−3−2. SUPERVISOR OF FLYING (SOF)

Procedures governing the use of designated SOF inflight emergency frequencies must be contained in an LOA between the USAF and the appropriate FAA ATC facility.

a. The LOA must specify a radio frequency to be used by the SOF during the emergency.

b. Each LOA must contain explicit coordination procedures to be followed by the SOF prior to use of any ATC frequency including 121.5/243.0.

c. ATC must have the capability to override the SOF discrete frequency when required for ATC purposes.

2−3−3. MILITARY AIRSPACE MANAGERS

The military services have assigned airspace managers at various levels of command who are responsible to work with FAA and other agencies to identify, coordinate, procure, and manage airspace, and to develop and coordinate agreements/procedures to support military flight operations in meeting both peace and war-time requirements.

2−3−4. MILITARY REPRESENTATIVES (MILREPS)

DoD Military Representatives (MILREPs) are FAA's principal points of contact for DoD aviation, airspace, and air traffic control matters, and are instrumental in providing effective liaison and agency interoperability. MILREP positions are embedded with various FAA offices at both FAA Headquarters and FAA Service Centers.

NOTE−
For contact information on MILREPs, see Appendix 4 for the Memorandum of Agreement (MOA) between the Federal Aviation Administration (FAA) and the Department of Defense (DoD) for Military Representatives to the FAA.

2−3−5. DOD REIMBURSABLE SUPPORT TO FAA

FAA considers it essential to national security that military personnel present DoD's perspective and provide expertise as members of the FAA staff and to ensure these military personnel are properly utilized in specific positions that will benefit both FAA and DoD. The DoD assigns military personnel as DoD Reimbursable Support to FAA for that purpose. FAA lines of business may request military reimbursable support on a case-by-case basis in accordance with DoD Instruction (DoDI) 1000.17, Detail of DoD Personnel to Duty Outside the Department of Defense, available on the DoD's Directives Division Website at https://www.esd.whs.mil/DD/.

NOTE−
See Appendix 3 for FAA and DoD memoranda that provide guidance for DoD Reimbursable Support to FAA.

Chapter 3. Military Exercise Planning

Section 1. General

3−1−1. PURPOSE

This chapter describes exercise requirements, policy, procedures, and criteria for planning military aviation exercises.

3−1−2. POLICY

Exercises will be planned, insofar as possible, to be conducted within U.S. controlled airspace. Exercise planners must coordinate with the affected ATC facilities all pertinent data relative to the mission. During initial planning with FAA, a decision will be made to determine the capability of FAA to provide ATC services for the entire exercise, or the extent to which services can be provided. Airspace requirements must be identified at this initial planning stage to ensure adequate processing time for airspace actions. Efforts will be made to minimize conflicts with other operations being conducted in the area.

3−1−3. PROCEDURES

ATC services to exercise aircraft must be predicated on the following:

a. Issuance of an appropriate ATC clearance. This includes filing a flight plan for each departure. The method of filing may be determined at the local level.

b. Pilot adherence to procedures, routes, and altitudes as agreed to between military users and air route traffic control centers (ARTCCs) through letters of agreement (LOAs), and/or Special Instructions (SPINS).

c. Aircraft participating in planned exercises must be afforded ATC clearances as agreed upon through LOAs.

d. Procedures for an altitude reservation (ALTRV) required in the conduct of an exercise are contained in Chapter 4 of this order.

3−1−4. SPECIAL USE AIRSPACE (SUA)

a. The establishment of special use airspace (SUA) as defined in FAA Order JO 7400.2, Procedures for Handling Airspace Matters, for planned exercises must be processed through the appropriate FAA Service Area. Other exercise-related airspace needs, such as ATCAA, aerial refueling tracks, etc., must be coordinated with the appropriate ARTCC.

b. Exercise airspace should be approved provided the airspace requirements will not impose an unreasonable burden upon the National Airspace System.

c. The appropriate military authority, when denied exercise airspace, may request the Service Area military representative to obtain further consideration from the appropriate FAA Air Traffic Service Area.

d. LOAs for exercise operations in ATCAA, stereo-type flight plans, and other exercise procedures must be coordinated with the ARTCCs concerned at least 45 days prior to the beginning of the proposed exercise.

3−1−5. MILITARY AIRSPACE PLANNING

To assist FAA and military personnel in planning and preparing for military exercises that require establishment of temporary Special Activity Airspace (SAA), the following listing of information items has been developed.

REFERENCE−
FAA Order JO 7400.2, Procedures for Handling Airspace Matters.

a. After all coordination has been completed and in sufficient time to process an airspace action, if needed, a formal proposal should be submitted to the appropriate FAA Service Area Office. The proposal should include:

1. Name of exercise.

2. Location and description of temporary SAA.

3. Time of designation.

4. Controlling and using agency.

5. Complete justification for the requested temporary SAA, including:

(a) Number of aircraft involved.

(b) Types of aircraft and missions they will perform.

(c) The exercise concept of operation (scenario).

6. A statement that describes the entire exercise area must include the following:

(a) Availability/non-availability for use by nonparticipating aircraft for the entire exercise period;

(b) Availability for real-time coordination with ATC and release of one or more portions of the area for use by nonparticipating aircraft for part of the exercise period; and

(c) Area/altitude/time of the exercise that may be available for release. Specify each portion, providing vertical and horizontal dimensions and for what period of time each portion may be available for release.

7. Requirements for refueling tracks, including location, visual flight rules (VFR) or instrument flight rules (IFR), in or below Class A airspace.

8. Military commands and, if applicable, other departments and agencies that will participate in the exercise.

9. Requirements for FAA liaison personnel at exercise facilities and military liaison personnel at affected FAA facilities.

10. Provisions to be made for nonparticipating aircraft desiring to operate in the exercise area.

(a) Local airport operations.

(b) Ingress and egress routes.

(c) Overflights.

(d) Capability of the using agency to accept direct radio requests from pilots.

b. Four months prior to the proposed exercise effective date, the proponent furnishes the following data:

1. Bases to be used as staging airfields and the estimated volume of activity at each.

2. Inactive bases to be activated and their locations.

3. Military control facilities or navigational aids to be established where none exists for use by participating aircraft outside of the exercise area. Information provided should include locations and frequencies.
4. Requirements for ingress and egress areas.
5. Requirements for routes from staging bases to include estimated volume of use.
6. Location of participating military air traffic facilities.
7. Requirements for military control of exercise traffic outside of the exercise area.

c. Three months prior to the beginning of the exercise:

1. Make provisions to ensure that participating pilots are provided the capability of closing VFR flight plans.
2. Provide information concerning other activities not mentioned which will require development of special operating procedures, such as an LOA or SPINS.

d. Forty-five (45) days prior to beginning of exercise:

1. Provide any additional information deemed necessary by FAA or the exercise proponent.
2. Provide copies of all established procedures and agreements for distribution to FAA and military personnel who require this information.

3−1−6. FAA MILITARY LIAISON OFFICERS' RESPONSIBILITIES

FAA Military Liaison officers must encourage mission planning officers to include requested airspace requirements in the information disseminated with the request for exercise approval. In addition, they should recommend the use of planning conferences for the resolution of any issues that may impact air traffic.

3−1−7. CHANGES IN REQUIREMENTS

Changes to the exercise should not be made within 45 days of the exercise unless they are essential to the safe and successful conduct of the exercise or to reduce the amount of SAA to be designated.

3−1−8. PUBLIC NOTIFICATION

To minimize the effect of an exercise upon the public and to enhance flight safety, the military, with the assistance of FAA, must notify the public, to the maximum extent possible, with the location, configuration, and periods of use of the exercise areas.

3−1−9. PLANNING CONFERENCES

Initiate action to resolve problems attendant to military exercises that appear to impose an unreasonable burden upon the air traffic control system or other users of the airspace through the use of planning conferences, telephones, or other suitable media.

Section 2. Criteria

3−2−1. PURPOSE

This section prescribes policy, criteria, administrative and operating procedures pertaining to airspace for military operations/training activities during planned exercises and daily training missions/ research, development, test and evaluation (RDT&E).

3−2−2. POLICY

FAA recognizes that the military has a continuing requirement to conduct certain training and RDT&E activities within airspace as free from other aircraft as is practicable. Therefore, certain special military training and/or RDT&E operations must be conducted within ATC-assigned airspace (ATCAA), altitude reservation (ALTRV), military operations areas (MOA), restricted areas, warning areas, and IFR military training routes (IR) so that these activities are separated from other IFR traffic in controlled airspace. Flights to/from such areas must be under the control of either FAA or military ATC facilities to the maximum extent possible. The policies and procedures for designating special use airspace (SUA) are contained in FAA Order JO 7400.2, Procedures for Handling Airspace Matters.

3−2−3. AIRSPACE DESCRIPTION

Airspace utilized for military operations must be described in terms of lateral and vertical dimensions and specific times of use. In developing the dimensions and times of use for SUA and ATCAA descriptions, apply the criteria contained in Chapter 21, Section 2, of FAA Order JO 7400.2, Procedures for Handling Airspace Matters.

3−2−4. LIMITATIONS

a. The designation of SUA or ATCAA must be limited to the minimum number of areas necessary to support operational requirements.

b. To the extent possible, the area must be designed so as to accommodate the maximum number of different types of military activities in the same airspace area. The military must provide procedures for joint-use scheduling in an area.

c. To facilitate joint-use of SUA/ATCAA, activation must be limited to the minimum area, altitude, and time required for the activity/mission.

3−2−5. LETTERS OF AGREEMENT/PROCEDURE

a. Letters of agreement/procedure governing SUA must include as a minimum:

1. Scheduling procedures and positive updating, to include requirement and time parameters for providing these updates to the schedule.

2. Activation/deactivation procedures.

3. Activation/deactivation times.

b. The letters of agreement/procedure governing special conditions of use and procedures for each SUA and ATCAA areas must be authorized (signed) by the affected ATC facility manager and the military representative of the originating/scheduling activity.

c. Each SUA/ATCAA area will have a designated military office responsible for scheduling all military activities within that area. Areas must not be used for military activities unless scheduled by the responsible military office.

d. When the use of SUA/ATCAA has been requested in accordance with agreed upon procedures, the military scheduling unit is responsible for determining priority of use and for advising all users of the operational procedures restrictions or other conditions contained in the letters of agreement/procedure.

Section 3. ATCAA and MOA Procedures

3−3−1. REQUIREMENT

a. Each ATC-assigned airspace (ATCAA)/military operations area (MOA) must have a designated military unit responsible for scheduling all military flights intending to use the airspace. If the designated military unit does not have a continuous point of contact—i.e., a unit subject to deployment or a unit not available during normal work days (Air National Guard unit working Wednesday through Sunday)—then an alternate scheduling agency will be designated. ATCAA/MOAs must not be used for military training/ research, development, test and evaluation (RDT&E) unless scheduled by the scheduling agency.

b. Procedures governing operations within ATCAAs and MOAs must be specified in letters of agreement authorized (signed) by the controlling facility Air Traffic manager and the military representative of the originating/scheduling agency (primary or alternate). The alternate scheduling agency will have the same responsibilities as the primary scheduling agency. Procedures must be developed to ensure continuity of scheduling functions so that the primary and alternate scheduling agencies do not schedule airspace simultaneously.

3−3−2. USING AGENCY RESPONSIBILITIES

When the use of an ATCAA/MOA has been requested, as specified in the letter of agreement, the using agency must:

a. Determine priority of use and advise all users of the pertinent procedures contained in the letter of agreement.

b. Establish a real-time activity schedule indicating airspace use times and forward the schedule and any subsequent changes to the controlling agency.

c. Develop procedures with the military using units to ensure that they inform the scheduling agency, as soon as possible, of any periods of nonuse (1 hour or longer) after the initial schedule has been established.

NOTE−
Efficient management of ATCAAs/MOAs require that activity schedules reflect the real-time use of the airspace. After the initial activity schedule has been coordinated and established, maintenance problems, weather conditions, etc., can cause military using units to cancel previously scheduled missions. To provide FAA and the civil airspace users with actual (real-time) ATCAA/MOA activity schedules, it is essential that the military using units inform the scheduling agency of those unscheduled periods of nonuse so that the information can be disseminated to all interested parties.

3−3−3. CONTROLLING AGENCY RESPONSIBILITY

a. The controlling agency (normally an ARTCC) must originate a Notice to Airmen (NOTAM) for MOA activity scheduled for other than published times as follows:

1. The MOA contains a NOTAM provision in its times of use legal description.

2. The MOA can only be activated by NOTAM.

b. The NOTAM for MOA activity scheduled for other than published use times must be issued at least 2 hours prior to the beginning of the planned activity.

REFERENCE−
FAA Order 7930.2 Notice to Airmen (NOTAM), Para 6−1−2, Special Activity Airspace (SAA).

3−3−4. ATC CONTROL WITHIN ATCAAS AND MOAS

ATCAAs and MOAs may be controlled by an ATC facility. Every effort should be made to provide instrument flight rules (IFR) service within these areas when requested by the military:

a. When IFR service is provided by the ATC facility within the area, the separation within the area is the responsibility of the ATC facility unless MARSA is established in accordance with paragraph 2−1−8, Use of Military Authority Assumes Responsibility for Separation of Aircraft (MARSA).

b. The pilot, when cleared into the area, is responsible for remaining within the area, whether visual flight rules (VFR) or IFR; however, the ATC facility should assist the pilot when the aircraft is under its control.

3−3−5. NONRADAR AND COMMUNICATIONS

ATCAAs and MOAs may be established in airspace where radar and/or direct communication is not available. Procedures concerning these areas must be specified in a letter of agreement.

Section 4. ATCAA and MOA Procedures

3−4−1. EXERCISE/ORI

a. To the extent practical, exercises and ORIs must be conducted using existing special use airspace (SUA), military training routes (MTR), air refueling tracks/anchors, and Airborne Warning and Control System (AWACS) orbits. The exercise/ORI project officer must advise the appropriate ARTCC/CCF/HCF(s) of the exercise/ORI objective, scenario, and execution date; and must ensure coordination is effected in sufficient time to establish arrival/departure procedures and ingress/egress of target/exercise area/air refueling tracks/anchors.

b. If alteration of existing SUA or the establishment of temporary SUA, MTRs, air refueling tracks/anchors, and/or AWACS orbits are required for an exercise or ORI, the exercise/ORI project officer must ensure coordination is effected with the appropriate ARTCC/CCF/HCF(s) in sufficient time to comply with the lead time required for development of letters of agreement and processing airspace proposals.

c. If an altitude reservation (ALTRV) is required for the exercise/ORI, the project officer must ensure the above coordination is coordinated with the appropriate ARTCC/CCF/HCF(s) prior to submitting the ALTRV request to the FAA Central Altitude Reservation Function (CARF).

d. ATC facilities may authorize communications out/reduced communications procedures in lieu of radio position reporting if required by military operations and prior coordination has been accomplished with affected ATC facilities.

3−4−2. NOTIFICATION OF EXERCISE/ORI

Exercise/ORI mission notification will be provided no later than 30 days prior to the departure date of the mission to the affected ARTCC/CCF/HCF(s).

Section 5. Air Mobility Command (AMC) Exercise/ Operational Readiness Inspection (ORI)

3−5−1. ORI

The AMC project officer must coordinate with the air route traffic control center (ARTCC) affected by an ORI to establish arrival/departure procedures, ingress/egress of target areas, and air refueling tracks/anchor areas prior to submitting the altitude reservation (ALTRV) to the FAA Central Altitude Reservation Function (CARF).

3−5−2. NOTIFICATION OF ORI

Exercise/ORI mission notification will be provided no later than 30 days prior to the departure date of the mission to the affected ARTCC/CCF/HCF(s).

Section 6. United States Strategic Command (USSTRATCOM) Operational Readiness Inspection (ORI)

3−6−1. ORI BOOKLETS

The USSTRATCOM will provide current ORI Altitude Reservation Flight Plan books to appropriate air route traffic control center (ARTCC)/ATC facilities and air defense regions/sectors. The Central Altitude Reservation Function (CARF) will be provided with a current base code listing to be used for identifying participating units.

3−6−2. NOTIFICATION OF ORI

ORI mission notification will be provided to CARF via telephone no later than (NLT) 30 calendar days prior to the date of the mission. The Inspector General Scheduling Division (IGXP) will forward the current information NLT 15 days prior to the mission. The telephonic coordination will include:

a. Mission names (from ORI books).
b. Call signs (if they differ from the ones listed in the ORI books).
c. Initiation hour (“I” hour)—the earliest time a unit may be told of the mission timing.
d. Execution reference time (“ERT”)—hour mission take-off time.

3−6−3. NOTIFICATION FORMAT

CARF must forward the ORI mission notification information to the required ARTCC/CCF/HCF(s) no later than 30 days prior to the departure date of the mission. The ARTCC/CCF/HCF(s) must be provided the current information, as provided by IGXP, NLT 15 days prior to the mission via the Aeronautical Fixed Telecommunications Network (AFTN) as follows:

a. Mission name.
b. Bomber call signs.
c. Tanker call signs.
d. “I” hour.
e. “ERT” hour.

3−6−4. MISSION DELAYS

ORI missions will delay in 24-hour increments.

Section 7. Navy Shipboard Exercises

3−7−1. FLEET AREA CONTROL AND SURVEILLANCE FACILITIES (FACSFACS)

FACSFACs are Navy air traffic control facilities established to manage/schedule special use airspace (SUA), operating areas (OPAREAs), and off-shore airspace in support of air, surface and sub-surface operations. FACSFACs should be used as the point of contact for FAA activities with respect to Navy shipboard operations. Although each FACSFAC has location-specific responsibilities, they normally perform the following services:

a. Scheduling, coordinating, and monitoring of surface, sub-surface and airborne units operating within and transiting between offshore OPAREAs and the National Airspace System (NAS).

b. Scheduling and coordinating airborne units operating within assigned airspace of inland operating areas.

c. Scheduling of military training routes (MTRs).

d. Maintaining liaison with other controlling agencies, fleet commands, other military commands, FAA, Coast Guard, and selected state and federal agencies.

e. Providing SUA control services to participating military units, other government aircraft, government contract aircraft, and, on a not-to-interfere basis, civil aircraft as delineated in letters of agreement with applicable FAA and military activities.

f. Scheduling and coordinating associated commercial and military aircraft services support.

g. Assistance during search and rescue (SAR) and medical evacuation (MEDEVAC).

3−7−2. FACSFAC LOCATIONS

Each FACSFAC is structured to meet the operational needs of a specific geographic area in direct support of fleet requirements. Facility location and associated areas of responsibility are as follows:

a. FACSFAC San Diego, CA: responsible for NOCAL/SOCAL OPAREAs.

b. FACSFAC Pearl Harbor, HI: responsible for Hawaiian/MIDPAC OPAREAs.

c. FACSFAC Vacapes, VA: responsible for Narragansett, Atlantic City, Vacapes, and Cherry Point OPAREAs.

d. FACSFAC Jacksonville, FL: responsible for Charleston, Jacksonville, Gulf of America, Caribbean, and Puerto Rico OPAREAs.

3−7−3. FLEET READINESS EXERCISES

The Navy must coordinate with the ARTCC/CCF/HCF(s) involved in the handling of aircraft operating from shore bases participating in fleet readiness exercises at least 30 days prior to the exercise.

3−7−4. PLANNING CONFERENCES

Planning conferences between the regional FACSFAC supporting Navy shipboard operations, the regional Navy representative (NAVREP) and the appropriate FAA activity should be held to review operation planning and execution. Emphasis should be placed on procedures for aircraft transiting the NAS to/from inland OPAREAs and target complexes. The following topics should also be discussed:

a. Adherence to coordinated strike/launch sequence plans, published stereo routes and pre-coordinated flight plan routes.

b. Adherence to filed instrument flight rules (IFR) flight plan call signs while transiting the NAS.

c. Assignment of Mode 3 Identification Friend or Foe (IFF) codes for flight operations within the air defense identification zone (ADIZ).

d. Coordination with other commercial, military, and civil agencies impacted by shipboard operations.

e. Issuance of Notices to Mariners (NOTMARs) for hazardous operations.

f. Notification procedures for completion of operations in altitude reservation (ALTRV)/SUA/range/target areas.

g. Flexibility/contingency plans for unforeseen changes to planned operations.

3−7−5. AIRCRAFT CARRIER OPERATIONS

Regional FACSFACs are the communications link between FAA activities and aircraft carriers. Shipboard air operations personnel establish ship-to-shore communications with the regional FACSFAC (unless beyond communication range or if shipboard electronic emissions are restricted) to facilitate the conduct of aircraft carrier operations. If circumstances dictate, airborne carrier air wing aircraft (such as E-2 airborne early warning aircraft) can be used as "middle-man" to coordinate with the aircraft carrier. Typical aircraft carrier operations consist of:

a. Cyclic operations consisting of numerous aircraft launching and recovering from the ship for extended periods of time.

b. Carrier qualification/refresher training consisting of continuous flight operations for pilot proficiency that may require several aircraft to divert/bingo to a shore installation for minimum/emergency fuel or other emergency situations.

c. ALPHA strike and amphibious assault exercises that require numerous aircraft to transit coastal routes to/from inland areas/target complexes.

d. Air wing flyoffs consisting of numerous aircraft (approximately 50–70 aircraft) departing the ship en route to their home bases at the completion of the at-sea period.

e. SAR and MEDEVAC missions.

3−7−6. FLYOFF PROCEDURES

Procedures for the coordination and handling of air wing flyoffs from aircraft carriers returning from deployments must be developed between appropriate FAA activities and the regional FACSFAC

3−7−7. AIR CAPABLE SHIP OPERATIONS

Air capable ships are naval vessels, such as destroyers, frigates, etc., that embark a helicopter detachment of one to three aircraft. Air capable ship operations consist of surveillance missions, logistical support flights, MEDEVAC missions, SAR support and passenger/cargo flights to/from shore installations in support of fleet operations. FACSFACs should be used as the point of contact for FAA activities with respect to air capable ship operations.

3−7−8. CENTRAL ALTITUDE RESERVATION FUNCTION (CARF) APPROVED ALTRVS

Exercises/operations requiring FAA CARF altitude reservations will normally be coordinated by FACSFAC in accordance with Chapter 4 of this order.

3−7−9. FAMILIARIZATION VISITS

Procedures must be developed to provide for liaison visits to the aircraft carrier by FAA personnel. Carrier air wing and shipboard air operations personnel must develop procedures to visit FAA activities.

Chapter 4. Altitude Reservation (ALTRV) Procedures

Section 1. General

4−1−1. PURPOSE

This chapter establishes policy, prescribes uniform procedures, and sets forth criteria to be applied to all phases of an ALTRV. The authority, responsibility, and general operating procedures under the ALTRV concept for Central Altitude Reservation Function (CARF) and other concerned ATC facilities are herein defined.

4−1−2. POLICY

An altitude reservation is authorization by the CARF or the appropriate ARTCC/CCF/HCF under certain circumstances, "for airspace utilization under prescribed conditions." An altitude reservation must receive special handling from FAA facilities.

a. CARF or the appropriate ARTCC/CCF/HCF (if the approving authority) is responsible for separation of the ALTRV mission from other ALTRVs after the aircraft have reached the first cruising altitude to a point where descent is started into the destination airport or where the ALTRV ends.

b. ALTRVs must be classified as either moving or stationary**.**

1. A moving ALTRV encompasses en route activities and advances with the mission progress, i.e., the reservation moves with the aircraft or flight.

2. A stationary ALTRV encompasses activities within a fixed volume of airspace to be occupied for a specified time period.

3. The final approval authority is designated to the authority whose area of responsibility includes the departure airport. The final approval authority is responsible for the issuance of the final ALTRV approval.

NOTE−
When the ALTRV is for aerial refueling, the departure airport is usually determined by the receiver aircraft.

4−1−3. APPLICATION

An ALTRV may be employed under conditions normally prescribed for the mass movement of aircraft or other special user requirements that cannot otherwise be accomplished.

a. In the application of ALTRV procedures, policies, and criteria, due consideration must be given to total user requirements throughout the navigable airspace in accordance with the procedures prescribed herein.

b. Unmanned aircraft system (UAS) operations within ALTRVs must operate in accordance with all applicable FAA regulations, including, if applicable, a written letter of authorization (LOA) and certificate of waiver or authorization (COA).

c. Stationary ALTRVs within oceanic and offshore airspace may encompass rocket, missile, and state activities. If multiple aircraft are expected to be in the ALTRV at the same time and military

authority assumes responsibility for separation of aircraft (MARSA) will not be used, separation procedures must be covered in an LOA.

NOTE−
State activities consist of DoD, DHS, law enforcement, and federal and state government agencies' aircraft.

NOTE−
Commercial space operations are examples of activity permitted in ALTRVs within oceanic and offshore airspace.

d. Stationary ALTRVs in airspace other than oceanic and offshore may be approved for state aircraft; activities covered in Section 7, Special/Emergency ALTRVs; and other activities covered by an LOA.

e. An ALTRV must not be used in lieu of other airspace expressly defined and designated for a special activity. This airspace must be coordinated in accordance with (IAW) FAA Order JO 7110.65, paragraph 9−3−4, Transiting Active SUA/ATCAA.

NOTE−
An ALTRV approval does not include approval to use special activity airspace. This airspace must be coordinated by the point of contact (POC) with the Using Agency IAW AP1A FLIP.

f. An ALTRV approval does not constitute authorization for chaff or electronic attack (EA) activities.

g. ALTRVs for single aircraft will not normally be approved, with the following exceptions:

1. The aircraft will join a tanker en route and conduct air refueling.

2. Operations above FL 600.

3. UAS with authorization.

h. Aircraft established on an approved ALTRV route and altitude must not be changed except in the interest of safety of flight. The ARTCC/CCF/HCF may cancel the entire ALTRV if the aircrew requests routing and/or altitude changes that are not in the approved ALTRV. Consideration will be given to the ALTRV when deviations are required.

i. An ALTRV APVL is valid in controlled airspace only.

j. Except within 180 NM of Bermuda, air refueling within New York Oceanic Airspace must be conducted on an approved ALTRV. Tankers joining receivers must be on an ALTRV to join/leave a receiver's ALTRV. Altitudes will normally be approved at or below FL 280. Both receivers and supporting tanker ALTRVs must begin at least 60 NM prior to entering and must continue at least 60 NM after leaving New York Oceanic Airspace.

k. Within Anchorage Oceanic Airspace, west of a line between 5340N 16800E to 4830N 17230E (approximately 430 NM from the Tokyo/Anchorage boundary), tankers joining or leaving a receiver ALTRV must be on an ALTRV.

l. Due to handoff and communication transfer, ALTRVs that transit international airspace must not begin, end, climb, descend, expand, compress, orbit, join, or leave on the boundary.

m. Moving ALTRVs that transit domestic airspace must not begin, end, climb, descend, expand, compress, orbit, join or leave on ARTCC boundaries.

4−1−4. ALTERNATE TRACKS

Circumstances occasionally dictate the need for submitting alternate refueling/special tracks to meet mission objectives. Although they may be filed on the same request, only the primary track must initially be approved. If the alternate track is needed and coordinated in a timely manner to process the change, the alternate track must be approved and the primary track canceled.

NOTE−
Depending on location and timing, coordination requirements may dictate up to 72-hour notice prior to departure time.

4−1−5. USER REQUIREMENTS

a. When approving an ALTRV, every effort should be made to ensure requested altitudes are approved and to provide adequate altitudes for the normal requirements of other airspace users. Total user requirements, traffic flow, available routes, military missions, and other operations that are using or that propose to use the ATC system must be afforded equitable consideration.

b. Special care must be exercised when processing ALTRV requests that entail operation on a broad frontal width. Indiscriminate approval of these requests could render a considerable portion of navigable airspace unavailable to other users for extended periods of time.

4−1−6. ALTITUDE CRITERIA

a. Altitude utilization criteria must be flexible and adjusted as required. Seasonal traffic trends and changes in revised civil and military jet aircraft inventories are factors that necessitate flexibility.

b. Due to pressure gradients, FL 180 will not normally be acceptable on an ALTRV except in oceanic airspace.

c. The normal altitude block assignments for nonstream aircraft are:

1. Two aircraft refueling, two altitudes.

2. More than two aircraft, 500 feet per aircraft.

NOTE−
Flights of six or more aircraft should consider cell formations; 30 minutes between the cells.

Section 2. Central Altitude Reservation Function (CARF)

4−2−1. INTERNATIONAL COORDINATION

Coordinate international altitude reservation (ALTRV) request with the appropriate foreign altitude reservation facilities in accordance with CARF letters of agreement. This includes missions that depart from points within a control area/flight information region (CTA/FIR) in which the United States is responsible for the provision of air traffic services and enters a CTA or FIR in which a foreign country is responsible for the provision of air traffic services.

NOTE−
Do not coordinate or approve classified missions that penetrate a CTA/FIR in which another country provides air traffic services, unless authorized in advance by the appropriate military authority. See subparagraph 4−10−1b.

4−2−2. APPROVAL AUTHORITY

a. CARF is authorized to approve an ALTRV in any CTA/FIR in which the United States is responsible for the provision of air traffic services, except in the territorial airspace of a foreign country, when authorized by the appropriate authorities of the foreign country:

1. FL 240 and above west of the 100th meridian.

2. FL 180 and above east of the 100th meridian.

b. CARF is the final approval authority for any ALTRV departing United States airspace which traverses or penetrates airspace outside a CTA/FIR in which the United States is responsible for the provision of air traffic services, regardless of the ALTRV location or start point.

4−2−3. ALTRV APPROVAL REQUEST (APREQ)

CARF must:

a. Transmit all ALTRV APREQs to the appropriate U.S. ARTCC/CCF/HCF and International Altitude Reservation Facilities as per letter of agreement and list those facilities in Item G of the ALTRV APREQ per section 10 of this chapter.

NOTE−
This includes aircraft departing a point in the U.S. on a DD-175/1801 and beginning an ALTRV in Canadian airspace.

b. Normally, CARF will transmit the APREQ to impacted ARTCC/CCF/HCFs prior to issuing an approval.

c. When mission requirements or timeliness dictate, coordinate as needed by telephone, facsimile machine, or other electronic means.

NOTE−
The APREQ coordination requirement may be waived in a national emergency.

d. Ensure Pacific Military Altitude Reservation Facility/European Central Altitude Reservation Facility (PACMARF/EUCARF) are addressed on the military ALTRV APREQ for any mission that departs U.S. airspace and traverses their countries' FIRs or penetrates their traffic.

e. Advise all concerned ATC/international altitude reservation facilities and the project officer of any change to the original ALTRV APREQ prior to issuing a final ALTRV approval.

f. Process changes submitted by the project officer and ATC/international altitude reservation facilities.

g. Process all requests for ALTRVs in airspace above FL 600 in accordance with the provisions contained within this order for stationary and moving ALTRVs.

4−2−4. ALTRV APPROVAL (APVL)

CARF must be the final approval authority for any ALTRV departing a point within the United States CTA/FIR, regardless of the ALTRV start point, except as provided for in paragraph 4−3−2. CARF must:

a. Forward ALTRV APVLs to all concerned at least 24 hours prior to the proposed departure time, unless a shorter time is coordinated with all concerned U.S. ARTCC/CCF/HCF facilities. If special instructions are required concerning the delivery of the APVL to the project officer, they are to be included in the ALTRV APVL message. Forward ALTRV APVLs to the following:

1. Concerned U.S. ARTCC/CCF/HCF facilities.

2. International altitude reservation facilities, as appropriate.

3. Message originator.

4. Tanker support unit, when forwarding information is provided.

5. Other parties as requested in Item G of the ALTRV APREQ.

b. Provide the following information in Item G of the ALTRV APVL:

1. Location indicators of the recognized international altitude reservation facilities and U.S. air traffic control facilities concerned with the mission.

2. Whenever the requested altitudes include uncontrolled airspace, include the phrase “NOTE ALTRV APVL VALID IN CONTROLLED AIRSPACE ONLY.”

c. Precede a No-Notice ALTRV APVL message with “This is a (executing command) No-Notice Mission.”

d. Process proposed changes in an ALTRV APVL:

1. At least 24 hours prior to departure.

2. With less than the time specified above, subject to CARF discretion after approval from the affected ATC facilities.

e. Process the ALTRV in accordance with the above procedures and obtain APVL from facilities which abut the U.S. CTA/FIR whenever the ALTRV is penetrating traffic.

4−2−5. NOTIFICATIONS

Disseminate ALTRV cancellations to impacted U.S. air traffic facilities and recognized international altitude reservation facilities as soon as practicable.

4−2−6. AIRSPACE NOT UNDER CARF JURISDICTION

Coordinate with the appropriate international altitude reservation facilities in accordance with the applicable letters of agreement to obtain approval for ALTRV APREQs encompassing airspace under such facilities' jurisdiction.

4−2−7. RESOLUTION OF CONFLICTS BETWEEN MISSIONS

Missions with higher precedence will be afforded priority over lower precedence missions when resolving a conflict. CARF will coordinate with the project officer for resolution of conflicts between missions. Information pertaining to a No-Notice mission conflict must not be divulged to anyone other than the designated trusted agents (see paragraph 4−3−7, Trusted Agents).

4−2−8. ISSUE ALTITUDE RESERVATION NOTICE TO AIRMEN (NOTAM)

CARF is responsible for the formulation and dissemination of Altitude Reservation NOTAMs for the portion of the ALTRV in the U.S. CTA/FIR that CARF is the approval authority (see paragraph 4−8−1, NOTAM Criteria).

4−2−9. ACKNOWLEDGMENT OF ALTRV APREQS

When requested, acknowledge receipt of ALTRV APREQs to the originator.

4−2−10. MESSAGES CLASSIFIED AS ENCRYPT FOR TRANSMISSION ONLY (EFTO)

Handle all ALTRV messages exchanged between CARF and ATC facilities, which are classified as EFTO via Defense Communication Systems, in accordance with FAA Order 1600.8, Communications Security (COMSEC). EFTO messages cannot be transmitted to foreign altitude reservation facilities.

4−2−11. LETTERS OF AGREEMENT

CARF is authorized to enter into letters of agreement as necessary to improve the coordination and processing of ALTRV requests provided that such agreements are not contrary to the provisions of this order.

Section 3. ATC Facility Responsibilities

4−3−1. APREQ REVIEW AND COORDINATION

a. Review all altitude reservation (ALTRV) approval requests (APREQs) to ensure completeness, and advise Central Altitude Reservation Function (CARF) of any requested change to the ALTRV APREQ as soon as possible.

b. Ensure that the required separation exists in accordance with (IAW) FAA Order JO 7110.65 between two or more missions departing within the ARTCC/CCF/HCF of origin up to the first cruising altitude requested. This coordination includes all ATC facilities to which airspace has been delegated.

c. Schedule ATC-Assigned Airspace (ATCAAs) to allow ALTRVs to transit or utilize the airspace. If unable to schedule an ATCAA, provide alternate routing.

4−3−2. ARTCC/CCF/HCF APPROVED ALTRVS

Where practical and advantageous, an ARTCC/CCF/HCF may be the final approval authority for an ALTRV when the entire route of flight and associated protected airspace will not involve more than two ARTCC/CCF/HCF areas of control jurisdiction. The ARTCC/CCF/HCF must:

a. Assume the ALTRV APREQ responsibilities outlined in paragraph 4−2−3.

b. Assume the ALTRV APVL responsibilities outlined in paragraph 4−2−4.

c. Forward ALTRV APREQ/APVL to CARF for ALTRVs which will be conducted in airspace outlined in paragraph 4−2−2.

d. Deliver all ALTRV APVLs and amendments to the designated project officer in accordance with delivery instructions contained in the ALTRV APREQ message. Comply with the security restrictions contained in the APREQ message regarding release time to military personnel, estimated time of departure (ETD), etc.

NOTE−
ARTCC/CCF/HCFs are not authorized to approve ALTRVs whose routes of flight or protected airspace are not wholly contained within the U.S. CTA/FIR (see paragraph 4−2−1, Canadian and Overseas).

4−3−3. MISSION SEPARATION

Ensure that required separation exists, to the altitudes specified in paragraph 4−3−1, APREQ Review and Coordination, between two or more missions departing within the U.S. ARTCC/CCF/HCF of origin.

4−3−4. FLIGHT PROGRESS STRIPS

Departure ARTCC/CCF/HCF must ensure unclassified ALTRVs are entered into the NAS computer in accordance with FAA Order JO 7110.65, Air Traffic Control; and FAA Order JO 7210.3, Facility Operation and Administration, paragraph 8−1−2, ALTRV Flight Data Processing, to display the required information on mission aircraft utilizing an ALTRV.

4−3−5. NOTIFICATION

a. Forward departure times of ALTRV aircraft to the ALTRV approval authority and to all facilities concerned. Departure messages must include the departure time and identification of the following:

1. Cell formation.

2. First and last aircraft of a stream formation.

3. Individual aircraft not listed in the above.

b. Forward cancellations of ALTRV aircraft and other ALTRV changes to CARF and appropriate approach control facilities. This applies to cancellations of individual aircraft within the ALTRV or the whole mission. CARF will forward the information to the appropriate ATC and international reservation facilities.

4−3−6. ISSUE ALTITUDE RESERVATION NOTAM

a. ARTCC/CCF/HCFs are responsible for the formulation and dissemination of an altitude reservation Notice to Airmen (NOTAM) for ALTRVs for which they are the final approval authority.

b. Coordination must be effected between adjacent ARTCC/CCF/HCFs for the issuance of a joint altitude reservation NOTAM if it will permit consolidation of the altitude reservation NOTAM information prescribed above.

4−3−7. TRUSTED AGENTS

Each ARTCC/CCF/HCF must provide CARF a current listing of trusted agents, responsible for safeguarding and controlling COMSEC material, updated at least once per year, no later than March 1. If the list changes during the year, forward updates as needed.

4−3−8. ALTRV AUTHORIZATION AND CHANGES

An ALTRV APVL authorizes the aircraft to climb or descend as specified. Controllers are not required to issue a climb or descent clearance for the various flight segments. They may, however, request that the pilot advise them prior to initiating an altitude change. Routing and altitude(s) of aircraft established on an approved ALTRV must not be changed except in the interest of safety of flight or as specified below:

a. Aircraft requested routing or altitude changes that are not in the approved ALTRV are handled in accordance with subparagraph 4−1−3i.

b. Short-term adjustments to altitude or course of single aircraft (or standard formation) on an ALTRV may be issued with the concurrence of the aircraft (flight) commander in order to expedite overall traffic flow as long as the controller ensures return of the aircraft to the ALTRV, within their sector or within sectors with which the adjustment and return are directly coordinated.

c. If ARTCC/CCF/HCF initiates changes to the ALTRV due to safety of flight or other extraordinary circumstances, military authority assumes responsibility for separation of aircraft (MARSA), if applicable, is suspended and the ARTCC/CCF/HCF assumes responsibility for separation. The ARTCC/CCF/HCF is also responsible to return the aircraft to the ALTRV as soon as practicable.

NOTE−
Due to critical military operational requirements (timing, refueling, locations, etc.) that necessitated the ALTRV, changes must be kept to the absolute minimum required for safety of flight or other extraordinary circumstances.

d. Multiple cells in an ALTRV are responsible for their own separation (MARSA) from other cells within the same ALTRV from the initiation of the ALTRV until the termination or cancellation of the ALTRV.

1. Controller-assigned course or altitude changes without the concurrence of the formation flight leader will void MARSA between cells.

2. The ARTCC/CCF/HCF is responsible for returning the cell to the ALTRV as soon as practical and confirming re-establishment of MARSA between cells.

Section 4. Mission Planning

4−4−1. RESOLVING MISSION CONFLICTS

During periods other than when the provisions of the Emergency Security Control of Air Traffic (ESCAT Plan 32 CFR part 245) are invoked, the order of precedence set forth in paragraph 4−4−2 below must be applied to all requests for altitude reservations (ALTRVs) for the purpose of resolving conflicts. Airspace assigned by ATC for the conduct of interceptor activity must be provided the same order of precedence class number as that applied to the ALTRV associated with the exercise or mission.

NOTE−
The ESCAT Air Traffic Priority List (EATPL) contained in the ESCAT Plan governs the movement of aircraft for airspace user requirements during time of tension and war.

4−4−2. ORDER OF PRECEDENCE

The order of precedence contained herein is designed to facilitate the handling of airspace user requirements.

a. The organization originating an ALTRV request must assign the appropriate order of precedence class number in accordance with the listing contained herein.

b. FAA may, under certain emergency conditions, determine an appropriate order of precedence classification.

c. The following class numbers establish the order of precedence designed to resolve mission conflicts in connection with ALTRVs:

1. Class One-Aircraft implementing peacetime national emergency plans as well as missile activities authorized by approved and pre-coordinated procedures or letters of agreement. ALTRV approval request (APREQ) should be filed as far ahead of departure/estimated time of launch as practicable.

2. Class Two-Aircraft engaged in search and rescue operations. ALTRV APREQ should be filed as far ahead of takeoff as practicable.

3. Class Three-Aircraft engaged in emergency air evacuation, hurricane operations, weather reconnaissance (WX RECON), or other operations involving safety of lives or property (i.e., use of airlift forces as directed by appropriate authority in support of domestic crises). ALTRV APREQ should be filed as far ahead of takeoff as practicable.

4. Class Four-Deployments at the direction of the Joint Chiefs of Staff (JCS) in support of an exercise or large-scale mission and fulfilling an unforeseen requirement. The deployment should be essential to the success of the exercise or mission when assigned Class Four precedence. ALTRV APREQ should be filed as far ahead of departure as practicable.

5. Class Five-Aircraft engaged in important peacetime service, joint or unified/specified command exercises or missions. Notification of application of this priority must be received from the appropriate military headquarters. ALTRV APREQ must be filed at least 15 days before proposed takeoff. It may be filed less than 15 days before proposed takeoff with Central Altitude Reservation Function (CARF) approval.

6. Class Six-Aircraft engaged in a large scale mission directed by a major command headquarters. ALTRV APREQ must be filed at least 10 days before proposed takeoff.

7. Class Seven-Aircraft engaged in evaluation-type operations or overseas deployment. ALTRV APREQ must be filed at least 4 days before proposed takeoff except for ALTRVs penetrating foreign airspace, which requires 6 days.
8. Class Eight-Aircraft engaged in missions directed by specified air forces or commands, aircraft engaged in other training exercises, and all other aircraft requesting ALTRVs. ALTRV APREQ must be filed at least 4 days before proposed takeoff except for ALTRVs penetrating foreign airspace, which requires 6 days.

4−4−3. SPECIFY VOID TIME

Aircraft must depart within the assigned ALTRV APVL void for aircraft not airborne (AVANA) time for the purpose of providing separation between altitude reservations. Normal AVANA will be 1 hour.

4−4−4. RESCHEDULING

If a mission is to be delayed beyond the AVANA time, rescheduling:

a. Will normally be in 24-hour increments after the original schedule.

b. Can be in less than the time specified above, subject to CARF discretion and after approval from the affected ARTCC/CCF/HCF.

4−4−5. DELAY NOTIFICATIONS

As soon as the delay becomes apparent, notify the ALTRV approval authority and provide all available updated information.

4−4−6. EN ROUTE TIMING

In a nonradar environment, unless otherwise stated in the ALTRV APVL, the pilot must advise ATC if actual fix timing will be more than plus or minus 5 minutes from the planned ALTRV en route fix estimate.

Section 5. Originator Responsibilities

4−5−1. TWO OR MORE COMMANDS

When two or more commands within the same service are involved in an exercise, the responsibility for planning and processing an ALTRV APREQ must be accepted by each command unless notice is given to CARF that one command has accepted the responsibility for the other commands.

4−5−2. TWO OR MORE SERVICES

When two or more services (USAF, USA, USN, USMC) are involved in an exercise, the responsibility for planning and processing an ALTRV APREQ must be accepted by each service unless notice is given to CARF that one service has accepted the responsibility for the other service(s).

4−5−3. MISSIONS REQUIRING EXTENSIVE ATC SUPPORT

Missions which originate on a Joint Chiefs of Staff or Service Headquarters level (USA, USN, USMC, USAF) and require extensive ATC support, must be initially coordinated with FAA Headquarters, ATO System Operations Security, 800 Independence Avenue, S.W., Washington, DC 20591.

4−5−4. PROJECT OFFICER

The originator of the ALTRV request must assign a project officer and an alternate project officer for each proposed ALTRV APREQ. These project officers must be thoroughly familiar with the requirements set forth in this chapter and available for coordination until the ALTRV completion or cancellation. Telephone numbers must be specified in Item G of the ALTRV APREQ in accordance with subparagraph 4–10–2h (2) and (3) of this chapter.

a. The project officer must coordinate the ALTRV APREQ with the following:

1. The ARTCC/CCF/HCF in whose area the flight originates to obtain acceptable departure procedures up to the first cruising altitude. Additional data must be provided in accordance with section 10 of this chapter.

2. The using agency for approval to transit special use airspace; e.g., prohibited, restricted, warning, or military operations areas, etc.

3. The designated scheduling unit for approval to use or transit published refueling tracks/anchors and military training routes.

4. The appropriate FAA Liaison Officer, Service Area ATREP and/or military representative.

5. 5.Air Traffic Control Spectrum Engineering Services for EA and chaff authorization, if applicable. (See subparagraph 4−1−3e of this chapter.)

b. It must be the responsibility of the project officer to ensure receipt of the approvals specified in subparagraph a above.

c. The project officer must ensure that the ALTRV APVL and any subsequent amendments are coordinated with the aircrews.

d. The project officer must ensure the results of coordination efforts listed in subparagraphs 4−5−4a2, 3, and 5 above, are included in the remarks section, item G. of the APREQ under Additional Information. Refer to section 10 of this chapter for more details.

1. ARTCC/CCF/HCFs in which ALTRV is flight planned.

2. EA and chaff information, including EA and/or chaff authorization number, if applicable. (See subparagraph 4−1−3f.)
3. All individual flight plan from this point (IFPFP) routing and altitude information to the BEGIN ALTRV point and from the ALTRV termination point. Location, routing (IFPFP), and procedures for airborne spares to drop out/exit the ALTRV.
4. All special use airspace and ATC-assigned airspace (ATCAA) for which approval has been obtained.

e. It must be the responsibility of the originator and the project officer to ensure that ALTRV APREQs are submitted so as to reach CARF not later than the time criteria specified in paragraph 4−4−2, Order of Precedence. Proposed departure times of No-Notice missions must be included. If the ALTRV APREQ is to be submitted in accordance with Section 10 and Section 11 of this chapter, all mission aircraft, and other aircraft as deemed necessary by coordination between CARF and the project officer, must be included in the ALTRV APREQs.

f. The final approval authority will be determined in accordance with paragraphs 4−2−4, ALTRV Approval (APVL), and 4−3−2, ARTCC/CCF/HCF Approval ALTRVs. CARF/EUCARF/PACMARF and all U.S. ARTCC/CCF/HCF must be addressed when missions will enter their areas of responsibility. Missions which do not depart from within the U.S. CTA/FIR should be addressed to the appropriate altitude reservation facility with whom CARF has a LOA.

g. The project officer must be responsible for informing the final approval authority of any mission delay request.

h. The project officer must ensure that aircraft commanders are briefed on the importance of maintaining planned ALTRV en route timing.

i. The project officer must ensure that all air traffic facilities are provided aircraft call signs in the original submission of the ALTRV APREQ in accordance with existing directives.

4−5−5. ALTRVS ENTERING U.S. CTA/FIR

Military command headquarters located outside U.S. CTA/FIR proposing to conduct an exercise that will encompass activities within the U.S. CTA/FIR must coordinate with CARF.

4−5−6. NO*NOTICE AND/OR DO NOT PASS TO AIR DEFENSE RADAR (NOPAR) MISSION

Every precaution must be taken to safeguard the execution time and date of a No-Notice mission.

a. Information concerning NOPAR missions must be withheld from specified air defense radar facilities and/or specified interceptor squadrons.

b. The following procedures apply:

1. If required, the project officer or the FAA Liaison Officer must furnish the concerned FAA facilities, in separate correspondence, a list of “trusted agents” or “eyes only officers” with whom the time and dates of the No-Notice mission may be discussed.
2. The project officer must specify “NOPAR” in the remarks sections of an ALTRV APREQ when mission information is to be withheld from all air defense radar facilities and fighter interceptor squadrons. When mission information is to be withheld only from specific Air Defense Radar Facilities and/or fighter interceptor squadrons, the facilities and/or squadrons must be added to the ALTRV APREQ immediately after “NOPAR.”

Section 6. Planning Approval of APREQs

4−6−1. PLANNING/APPROVAL OF APREQS

The following separation minima must be applied in the planning and approval of ALTRVs:

a. Vertical - Standard minima specified for the area of operation.

b. Lateral - Standard minima specified for the area of operation. When a mission requires operation on a broad frontal width, separation must be provided in accordance with FAA Order JO 7110.65, Air Traffic Control, between the outer limits of such flight or formation and non-participating aircraft.

c. Longitudinal and Crossing.

1. Domestic - 30 minutes.

2. Oceanic - 60 minutes.

d. STATIONARY ALTRVs - Separate one stationary ALTRV from another stationary ALTRV by one of the following minima:

1. VERTICAL SEPARATION – Standard minima specified for the area of operation.

2. LATERAL SEPARATION - Between stationary ALTRVs, lateral separation will exist if there is no overlap of the boundary of the stationary ALTRV with the boundary of another stationary ALTRV.

3. Stationary ALTRVs are considered separated if the requested time periods do not coincide and are separated by one or more minutes.

4. You may approve ALTRVs that are separated from each other by less than the minima provided that each APREQ specifies MARSA with respect to the other conflicting ALTRV.

NOTE−
The originator/agency of the ALTRV that specifies MARSA with another ALTRV is responsible for coordinating with the other originator/agency before submitting the initial request and any subsequent amendment requests.

4−6−2. MILITARY AUTHORITY ASSUMES RESPONSIBILITY FOR SEPARATION OF AIRCRAFT (MARSA)

When less than the separation in paragraph 4−6−1, Planning/Approval of APREQs, exists, MARSA must apply as follows:

a. The originator of an ALTRV APREQ must accept the responsibility for separation:

1. Between all aircraft in the ALTRV.

2. Between aircraft in the ALTRV and other aircraft or groups of aircraft utilizing the same “mission” name even though the flights originate from different air bases, division headquarters, and/or military commands.

b. When MARSA is applied between missions of different mission names, include a statement in the remarks section of the flight plan and ALTRV APREQ that includes the name(s) of the missions with which separation responsibility is accepted.

c. MARSA authorizes an ATC facility to clear a tanker to a common altitude with a receiver even though the altitude has not been processed as an ALTRV request. This information and the identification of the other aircraft must be included in the flight plan(s).

4−6−3. IN*FLIGHT SEPARATION

ATC facilities must provide separation in accordance with FAA Order JO 7110.65, Air Traffic Control, unless MARSA is applicable in accordance with paragraph 4−6−2, Military Authority Assumes Responsibility for Separation of Aircraft (MARSA).

4−6−4. POSITION REPORTS

a. In a nonradar environment or when requested by the air traffic controller, the first and last aircraft in a stream formation must make position reports at each required reporting point and must indicate position in the formation.

NOTE−
In Class A airspace, controllers may find it necessary to obtain information from pilots conducting certain military operations over and above that is normally required for IFR flight.

b. The cell leader must make position reports for the cell formation at each required reporting point.

NOTE−
Caution should be exercised by the pilot and the controller during the departure and/or arrival phase of the ALTRV to avoid referring to the lead aircraft and succeeding aircraft as a cell unless the definition of a cell formation is met.

c. Aircraft in an ALTRV, other than in a stream or cell formation, must make position reports as individual aircraft or flight plan formation.

d. ATC facilities may authorize communications out/reduced communications procedures in lieu of radio position reporting if required by military operations and prior coordination has been accomplished with affected ATC facilities.

4−6−5. USE OF AIRSPACE THROUGH ALTRV

Approval of airspace for an ALTRV must not preclude ATC from using such airspace, provided that separation is applied in accordance with FAA Order JO 7110.65, Air Traffic Control, between nonparticipating aircraft and aircraft within the ALTRV.

Section 7. Special/Emergency ALTRVs

4−7−1. INTERNATIONAL PRESIDENTIAL FLIGHTS

When requested, ALTRVs must be provided for aircraft transporting the President or the Vice President when conducting international flights. Headquarters USAF will authorize a Class One order of precedence for those flights.

a. The appropriate military authority will provide CARF with detailed flight plan information, both to the destination and return, as far in advance as possible.

b. CARF must arrange for ALTRVs for Presidential and Vice Presidential rescue support aircraft.

4−7−2. PROCESSING WAIVERS

a. ALTRV requests which do not qualify under the provisions of this section and cannot otherwise be accomplished will be handled on an individual basis.

b. Such ALTRV requests must be forwarded, with accompanying justification, to the David J. Hurley Air Traffic Control System Command Center, ATTN: Central Altitude Reservation Function, 3701 Macintosh Drive, Warrenton, Virginia 20187. A waiver will be issued by CARF if deemed appropriate.

c. All originating units must process such requests through channels to the appropriate Command Headquarters for transmittal to CARF.

4−7−3. EMERGENCY ALTITUDE RESERVATIONS

CARF or an ARTCC/CCF/HCF may approve a request for an emergency ALTRV if the safety of life or property is threatened. Operations such as search and rescue, hurricane evacuation, or mass air evacuation may be considered in this category. When an ARTCC/CCF/HCF approves an ALTRV under this paragraph, the following actions must be taken:

a. The facility must advise CARF and other concerned ARTCC/CCF/HCFs of the approved ALTRV in detail by the most expedient means.

b. Upon receipt of such notification, CARF must take immediate action to preclude possible conflict between ALTRVs previously approved by CARF and the emergency ALTRV.

Section 8. Altitude Reservation NOTAMs

4−8−1. CRITERIA

The issuance of an altitude reservation NOTAM, except as provided in subparagraph 4−8−2c, involving the U.S. control area/flight information region (CTA/FIR) must be governed by the following procedures:

a. Issue an altitude reservation NOTAM for:

1. All Stationary ALTRVs.

NOTE−
CARF, ARTCC, CCF, or HCF (whoever is the final approval authority) must issue the NOTAM.

EXAMPLE−
ZNY AIRSPACE DCC ANTARES NG-13 STNR ALT RESERVATION WI AN AREA DEFINED AS 3619N7240W TO 3537N7134W TO 3517N7214W TO 3536N7240W TO POINT OF ORIGIN AND WITHIN AN AREA DEFINED AS 2851N6257W TO 3056N6500W TO 2959N6635W TO 2740N6421W TO POINT OF ORIGIN SFC-UNL 2002142015-2002142215

2. Selected Moving ALTRVs, whenever a portion of the ALTRV includes air refueling and/or other unusual activity below FL 180, or when the activity covers a broad frontal width.

b. Describe the area which is in use and the duration of the ALTRV. Reference must not be made to the type of activity within the ALTRV unless the originator has agreed to the publication of this information.

EXAMPLE−
ZNY AIRSPACE DCC ON CORONET EAST 037A LEG 3 MIL ACT ALONG THE ROUTE FM 4200N4000W TO 4200N4330W TO 4200N4500W TO 4200N5000W TO 4200N5300W TO 4200N5500W TO 4200N6000W TO 4125N6500W TO DOVEY TO ACK 15000FT-FL210 2002121354-2002122138

4−8−2. FORMULATION AND DISSEMINATION

a. The final approval authority, CARF or the appropriate ARTCC/CCF/HCF, is responsible for the formulation and dissemination of appropriate NOTAMs for those ALTRVs which they have approved in their area of jurisdiction.

b. Coordination must be effected between adjacent ARTCC/CCF/HCFs if it will permit consolidation of NOTAM information as prescribed above for the issuance of a joint altitude reservation NOTAM.

c. Altitude reservation NOTAMs must not be issued under the following conditions:

1. If the originator of an ALTRV request specifies “Secure Handling” by assigning one of the following classifications to the request:

(a) Confidential.

(b) Secret.

(c) Top Secret.

2. The mission is a No-Notice mission, except that appropriate altitude reservation NOTAMs may be issued after specific instructions have been received from the originator of the mission.

3. On portions of an ALTRV which are conducted in accordance with published activities; e.g., Military Training Routes, etc.

Section 9. Space Support Operations

4−9−1. PURPOSE

This section prescribes policy, and administrative procedures pertaining to launch notification in support of future space missions.

4−9−2. POLICY

FAA NAS Operations, Space Operations (AJR-1800) will support all NASA, DoD and commercial space operations in accordance with written agreements (i.e., letters of agreement) and regulations.

REFERENCE−
FAA Order JO 7400.2, Procedures for Handling Airspace Matters.

4−9−3. CLASSIFIED SPACE LAUNCH/REENTRY NOTIFICATION

a. FAA recognizes that the military has a continuing requirement for periodic space launches/reentry that are classified in nature due to payload and/or mission.

b. Classified notification procedures must be developed to ensure, to the extent possible, minimal impact on aircraft operations conducted in affected airspace.

Section 10. Altitude Reservation Approval Request (ALTRV APREQ), Format, and Amendments

4−10−1. ALTRV APREQS

The originator must file an ALTRV APREQ with CARF in accordance with the instructions contained in this order unless specific guidance or instruction has been pre-coordinated with CARF/ARTCC/CCF/HCF.

a. Whenever possible, ALTRV APREQs should be sent unclassified.

b. If sent classified or encrypt for transmission only (EFTO), advise CARF of the earliest time the message may be declassified or EFTO may be dropped; i.e., 24 hours prior to departure, upon departure, etc.). Classified or EFTO missions cannot be coordinated with international facilities or agencies unless written permission is given by the unit or command that files the APREQ. Advise CARF of the earliest declassification time in item G of APREQ.

4−10−2. FORMAT

In order to accomplish timely data processing by the CARF automated system, ALTRV APREQs must be properly formatted prior to submission to CARF, or other approval authority, utilizing key phrases outlined in this paragraph and Section 10, Flight Path Format Components. Indicate the following items on all ALTRV APREQ messages:

NOTE−
N/A may be used in a stationary ALTRV for items A thru C, E thru F, when applicable.

a. Heading: “ALTRV APREQ,” the mission name, and a slash “/” followed by the mission class. ALTRV APREQs filed in support of another ALTRV must file the same mission name and mission class, followed by the word “SUPPORT.”

EXAMPLE−
ALTRV APREQ CORONET WEST 450A/7
ALTRV APREQ FULL UP 95-4/8
ALTRV APREQ FULL UP 95-4/8 SUPPORT

b. Item A, Call Sign(s): “A” followed by the call sign(s) of all aircraft which will depart together from the location specified in item C. Call signs must not exceed seven alphanumeric characters in length; the tactical call sign is a pronounceable word of 3 to 6 alphabetical characters followed by a 4, 3, 2, or 1 digit number. When there are multiple flights with the same tactical call sign, combine the numbers portion by separating consecutive series with a dash and individual numbers with a comma.

NOTE−
Do not include the call signs of aircraft which file individual flight plans to join the ALTRV en route. These will be noted in the Item D or G.

EXAMPLE−
A. BONE11-13
(This indicates BONE11, BONE12 and BONE13).
A. HAPPY32,34
(This indicates HAPPY32 and HAPPY34).
A. PINE80,81 MOOSE31-33
(This indicates PINE80, PINE81, MOOSE31, MOOSE32, MOOSE33).

c. Item B, Number and Type of Aircraft: "B" followed by the number of aircraft if more than one; heavy indicator "H," if appropriate; type of aircraft; and equipment suffix code. The items should be specified in the same order that the call signs appear in Item A, and the number of aircraft should agree with the number of call signs.

EXAMPLE−
B. 3HB52/R
(3 is the number of aircraft, H indicates heavy, B52 is the type of aircraft, and R is the equipment suffix code).

d. Item C, Point of Departure: "C" followed by the four-letter ICAO location identifier. When the point of departure is classified, indicate "ZZZZ." Do not include the departure point of aircraft that file individual flight plans which join the ALTRV en route.

EXAMPLE−
C. KJAX
C. PANC

e. Item D, Route of Flight, Elapsed Times, and Altitudes: "D" followed by the route of flight, elapsed times between segments on the routes, and the altitude to be flown for each segment (fix-time-event sequence).

1. Route of Flight: The route of flight will include events or actions within the route and may be composed of any number of flight paths as defined in Section 11, Flight Path Format Components. Route of flight for operations above FL 180 should be defined in relation to established high altitude navigation aids only. The route of flight segment for a stationary ALTRV must adhere to the guidelines outlined in subparagraphs 4−11−4a-e.

NOTE−
When tanker aircraft do not depart with the ALTRV but join up at a later point, provide the following information, at the point at which they join the ALTRV: "JOIN"; the call sign; the number, type and equipment suffix, as in subparagraph c above; "IFPFP"; and the point of departure.

EXAMPLE−
[JOIN JOE53 KC10/R IFPFP PHIK]

2. Elapsed times: Times should be specified in four digits which express hours and minutes. Indicate cumulative time elapsed in one of the following manners:

(a) When timing begins upon departure, from the point of departure.

EXAMPLE−
0012 (This indicates 12 minutes from the time of departure).
0509 (This indicates 5 hours and 9 minutes from the time of departure).

(b) When timing begins over the first fix of a partial route, indicate the beginning point as the first fix in Item D using the time elapsed from the departure point.

3. Altitudes: Indicate the altitude in three digits expressed in hundreds of feet; "SURFACE" may be used to indicate altitudes which extend from the surface of controlled airspace. Precede the altitude with "FL" for altitudes of 18,000 feet or above. Insert "B" between the lower and upper limits of a block altitude.

NOTE−
Flight levels may be used in oceanic airspace below 18,000 feet if required to set altimeter to 29.92.

EXAMPLE−
090 (indicates 9,000 feet)
FL190 (indicates Flight Level 190)
FL240B260 (indicates block altitudes of FL240 through FL260).

f. Item E. Destination: "E" followed by the four-letter ICAO location identifier.

1. When all aircraft proceed to the same destination, no additional information is needed.

2. When there are multiple destinations, specify the call sign and location identifier for the destination for all aircraft that remain in the ALTRV at the ALTRV end point as follows:

(a) Call sign.

(b) Location identifier for the destination.

3. When the destination is classified, indicate "ZZZZ"; do not include an elapsed time.

EXAMPLE−
E. PHNL
E. CLAN80,81 PHNL ZESTY12 PHNG
E. ZZZZ

g. Item F, Departure Information: "F" followed by "ETD" and:

1. When timing begins upon departure, indicate the date time group of the estimated time of departure as follows:

(a) If a single cell is departing, indicate the day of the month and UTC time, expressed in six digits, and the month and year of departure.

(b) If more than one cell is departing, indicate the call sign for each cell, in the order of departure, followed by the date time group.

(1) For the first cell, specify the date time group as described in subparagraph (a) above.

(2) For successive cells, indicate only the day of the month and UTC time, expressed in six digits.

2. Interval Between Aircraft (ADMIS): The ADMIS should be specified for any group of more than one aircraft. Indicate one of the following:

(a) "ADMIS" followed by two digits which indicate the number of minutes between departing aircraft in the group.

(b) "ADMIS" followed by two digits and "SEC" to indicate the number of seconds between departing aircraft in the group.

(c) "FRMN" to indicate that departing aircraft are considered as one and will depart in less than 30 second intervals.

(d) "MITO" to indicate the minimum takeoff interval between departing aircraft in the group.

3. AVANA Time: "AVANA" followed by the date time group, expressed in six digits.

EXAMPLE–
F. ETD 020030 JAN 2005 ADMIS 01 AVANA
02013
F. ETD BONE11-16 020030 JAN 2005
ADMIS 30 SEC
BONE17,18 020100 FRMN
BONE19 020130 AVANA 020230
F. ETD SLIP31-36 151000 FEB 2005 ADMIS MITO AVANA 151100

h. Item G, Remarks: "G" followed by:

1. "TAS." Include the airspeed in three digits and "KTS." Indicate if cruise and air refueling speeds are different.

2. "PROJECT OFFICER." Include the name and telephone number of the project officer.

3. "ALTERNATE PROJECT OFFICER." Include the name and telephone number of the alternate project officer.

4. "ADDITIONAL INFORMATION." Include any remarks pertaining to the execution of the mission, for example:

(a) MARSA

NOTE–
A MARSA statement must be included if the aircraft will fly less than approved separation.

(b) NOPAR

(c) EA and chaff information, including authorization number, if applicable. (See subparagraph4–5–4a5 in this chapter.)

(d) IFPFP routings. All individual flight plan information from this point (IFPFP), including routing and altitude information, to the BEGIN ALTRV point and from the ALTRV termination point. Also, location, routing (IFPFP), and procedures for airborne spares to drop out/exit the ALTRV, etc.

(e) All special use airspace and ATC assigned airspace (ATCAA) for which approval has been obtained.

(f) Nonstandard Formation information in accordance with subparagraph 7–3–3b in this order; and FAA Order JO 7110.65, Air Traffic Control, paragraph 5–5–8, which addresses additional separation for formation flights.

5. “ARTCC.” List the names of all ARTCC/CCF/HCF/ATC facilities which will be concerned with the ALTRV.
6. “REQUEST COPY OF ALTRV APVL BE SENT TO.” (Optional) List any additional parties that need a copy of the ALTRV APREQ. (See subparagraph 4−2−2a in this chapter.)

EXAMPLE−
G. TAS: 430KTS CRUISE/AIRFL
G. TAS: 440KTS CRUISE 410KTS AIRFL
PROJECT OFFICER: CAPT SMITH DSN 555-5555/COMM 111-555-1111
ALTERNATE PROJECT OFFICER: CAPT JONES DSN
555-5556/COMM 111-555-2222 ADDITIONAL INFORMATION:
MARSA ALL BUSY LEADER OSCAR AIRCRAFT. ARTCC CONCERNED:
ZNY ZDC AR-E EUCARF REQUEST COPY OF ALTRV APVL BE SENT TO
438MAW MCGUIRE AFB NJ//DO

4−10−3. ALTRV APREQ AMENDMENTS

When necessary to amend an ALTRV APREQ, indicate the following:

a. Heading: “Amendment to,” followed by the heading information as specified in the original APREQ.
b. Date Time Group: “ROMES” (Reference our message) followed by the date time group of the original APREQ message.
c. Estimate Time of Departure: “ETD” followed by the date time group specified in Item F on the original APREQ.
d. Amendment(s): “AMEND” followed by the item(s) to be amended and the amendment; indicate the specific item on the original APREQ; such as, Item A, Item B, etc.
e. Ending: “ALL ELSE REMAINS THE SAME.”

EXAMPLE−
AMENDMENT TO ALTRV APREQ SHARP
SHOOTER 97-1/8
ROMES 111012 ETD 191500 FEB 1997
AMEND ITEM A AND B
ITEM A RAVEN01-07
ITEM B 7EF111/R
ALL ELSE REMAINS THE SAME

Section 11. Flight Path Format Components

4−11−1. INTRODUCTION

This section supplements paragraph 4−10−2, Format. It contains detailed instructions on the format of flight path components and provides examples of properly formatted ALTRV APREQs.

4−11−2. DEFINITION

A flight path is defined as a consecutively listed set of fix/time/event groups in which the fixes in the set will be successively overflown. A route of flight may be composed of any number of flight paths; aircraft may merge or separate at various points along the route of flight.

4−11−3. FORMAT

Flight paths are separated by the phrases defined in paragraph 4−11−4, Components, which begin and/or end events along the route. The repetition of previously listed fixes is to be avoided. When flight paths merge or separate, the last fix listed in a flight path should be the point of merger or separation. Accordingly, the first fix listed in a flight path should not repeat the point of merger or separation. ALTRVs operating within US domestic airspace must file a minimum of one en route fix for each ARTCC through whose area the mission will be flown. Fixes must be no more than 200nm apart.

a. Fixes should be used in one of the following formats:

1. A two to five letter NAVAID identifier, location identifier, or fix name.

EXAMPLE−
DB Burwash NDB
OKC Oklahoma City VORTAC
KNTU NAS Oceana
DENNS The fix DENNS

2. A fix/radial/distance; specify the NAVAID, the radial in degrees magnetic, a slash “/” and the distance in nautical miles, expressed in three digits.

EXAMPLE−
RDF 070/040 (This indicates 40 NM DME on the 70 degree radial of the RDF NAVAID).

3. A latitude/longitude expressed in degrees and minutes with the appropriate “N,” “S,” “E,” “W” suffix.

NOTE−
Normally, fix/radial/distance must be utilized for fixes over the conterminous U.S. Latitude/longitude must be used for tracks flown over oceanic and Canadian airspace unless there is a published fix available.

EXAMPLE−
3030N 17500W (This indicates 30 degrees 30 minutes north latitude, 175 degrees west longitude).

b. Altitudes should be in one of the following formats:

1. Below 18,000 feet - expressed in hundreds of feet.

NOTE–
Flight levels may be used in oceanic airspace below 18,000 feet if required to set altimeter to 29.92.

2. Flight levels - "FL" followed by the three digits of the altitude/flight level (18,000 feet and above).

3. Block or range of altitudes:

(a) Below 18,000 feet - the lower limit, "B," then the upper limit expressed in hundreds of feet.

(b) Flight levels - "FL," the lower limit, "B," and the upper limit expressed in three digits of altitude/flight level.

EXAMPLE–
110 (indicates 11,000 feet)
FL220 (indicates Flight Level 220)
FL190B220 (indicates block altitudes of FL190 through FL220)

c. Airways should be in one of the following formats:

1. Victor airways - "V" followed by the one, two or three digit number of the airway.

2. Jet routes - "J" followed by the one, two or three digit number of the route.

4–11–4. MOVING ALTRV COMPONENTS

The following phrases are to be used in Item D when filing an ALTRV APREQ for a Moving ALTRV. Unless otherwise noted, these phrases refer to events that occur immediately "following" the specified fix/time. The exceptions are LVLOF BY, cross; begin branch route, begin alternate route, begin partial route, join common route and exit at. Only certain listed phrases are known to the CARF computer. Any use of nonstandard phrases in Item D, unless contained within brackets [ ], will prevent timely processing of the ALTRV. The use of brackets for nonstandard phrases will cause the CARF computer to skip over the phrase and not utilize it for plotting or conflict detection. As used in this order, the phrases set forth below must have the meaning indicated.

a. Beginning events.

1. An ALTRV which starts from the departure point must have the following components:

(a) It must begin with an altitude.

(b) A SID or RAVEC may be specified.

(c) A LVLOF point must be specified.

EXAMPLE–
FL240B260 RAVEC LVLOF BY SWL

EXAMPLE–
FL210B230 APHID2 LVLOF W/I 40NM

2. If an ALTRV does not begin from the departure point, a beginning event must be used to start the ALTRV. BEGIN PARTIAL RTE or ((PR or ((... are used when it is desired to start the ALTRV en route. There are four types of partial route formats:

(a) A PR may be used when the pilot does not desire the ALTRV to begin from the departure point or if the departure point must not be disclosed.

EXAMPLE–
((PR FL270B280 AEX 0200 LFK 0230 MCN 0300.

(b) A PR may be used for an ALTRV coming from an international departure point inbound to U.S. airspace.

NOTE–
This is used for CARF internal processing only.

EXAMPLE–
((PR FL240B260 4300N 3500W 0300 4300N 4000W 0340 4300N 4500W 0410.

(c) A PR may be used for an aircraft recovering from special use airspace and returning back to destination on an ALTRV.

EXAMPLE–
AEX 0300 ALTRV ENDS IFPFP INTO MORRIS MOA DLA 1+00.
((PR FL270B290 AEX 260/040 0400 DRCT AEX 0420 FTW 0440.

b. Aircraft Joining/Leaving an ALTRV

1. JOIN (call sign). Point and time at which the specified aircraft merge with the ALTRV routing being defined.

EXAMPLE–
FSD 0213 ARCP JOIN INSET34 1K35R/R IFPFP FROM KRDR

EXAMPLE–
4200N 4500W 0213 ARCP JOIN BLUE34 1K35R/R VIA SUPPORT ALTRV FROM LPLA

2. LEAVE (call sign). Point and time at which the specified aircraft are to separate from the ALTRV route being defined.

EXAMPLE–
MOT 0311 LEAVE INSET34 IFPFP TO KRDR

EXAMPLE–
4200N 5000W 0311 LEAVE INSET34 VIA SUPPORT ALTRV TO KBGR

EXAMPLE–
4200N 5000W 0311 LEAVE INSET34 VIA BRANCH RTE TO KBGR

c. Increasing and Decreasing area/track Events.

1. BEGIN ALT DPRT RTE or ((AR. Specifies two or more alternate routes from the same point of departure. This should either be the first phrase of Item D or immediately follow a previous alternate departure route. The phrase should be followed by:

(a) Alternate departure route description enclosed in square brackets "[ ]."

(b) Call signs of the aircraft that will utilize the route; all of the aircraft specified in Item A must be accounted for.

(c) Altitude

EXAMPLE–
BEGIN ALT DPRT RTE [OPTIMUM SOUTH RUNWAY] BONE 10 FL210B230
((AR [CALDI SIDOR] BONE11-12 FL220B240
((AR [NORTH DEPARTURE] BONE13-16 FL190B210
((AR [SOUTH DEPARTURE] BONE17-19 FL190B210

2. BEGIN BRANCH RTE or ((BR. A branch route always starts from a point on an existing ALTRV. It is a track of an ALTRV defined from the breakaway point on a common route to the next fix or final destination. The phase should be followed by:

(a) Call signs of aircraft which will utilize this route.

(b) Altitude held prior to splitting off.

(c) FROM (fix). Indicates the point at which aircraft taking the branch route separate from the main body. The phrase "FROM" is followed by the name of the breakaway fix and all remaining fix/time events.

EXAMPLE–
BEGIN BRANCH RTE LUCID98,99 FL210B230 FROM STL
((BR LUCID101-103 FL250B260 FROM STL

3. BEGIN CMN RTE or BEGIN CMN RTE or ((CR. - Defines a route formed by the merger of two or more flight paths when "JOIN" is not used. This phrase should follow all of the branch routes which merge into the common route. It should be followed by:

(a) Call signs of all aircraft merging into this route at its starting point.

(b) Altitude.

(c) FROM (fix/time). (optional) Indicates the point at which the aircraft merge; the phrase is followed by the name of the fix and the time.

EXAMPLE–
BEGIN CMN RTE BONE11-15 LUCID98,99 FL190B220 FROM MEM 0200
((CR BONE11-14 LUCID98,99 FL210B230 FROM STL 0200

4. Join RCVR CMN RTE Timing/Altitudes to (fix). Defines a route formed by the merger of two flight paths. Typically used in a support ALTRV where the tanker is joining the RCVR ALTRV and assumes RCVR route/timing and altitudes on the RCVR ALTRV. Note: At the join up point, the altitude of Tanker must be the same altitude as the RCVR Altitude.

EXAMPLE−
LFV 0045 JOIN RCVR CMN RTE/TIMING ALTITUDES TO 4200N 3500W 0300

5. END CMN RTE. Point at which the aircraft will separate into two or more routes.

EXAMPLE−
((CR BONE11-14 FL210B230 STL 0200 MKC 0240 END CMN RTE

6. BROAD FRONT EVENT. BEGIN (number) NM FRONT (number) NM EITHER SIDE OF A CENTER LINE (fix/time)...(fix/time) FRONT ENDS. Describes an event which occupies a frontal width, measured perpendicular to the direction of flight, which is greater than normal. The broad front event is the specified number of nautical miles wide and is centered on a line of the specified fixes; two or more fixes should be specified.

EXAMPLE−
DENNS 0321 BEGIN 60NM FRONT 30NM EITHER SIDE OF A CENTER LINE FUFFE 0406 DANKA 0451 FRONT ENDS

7. CELESTIAL NAVIGATION (CELNAV). This may be filed for use in a Broad Front.

EXAMPLE−
LKV 0321 BEGIN 30NM FRONT CELNAV 15NM EITHER SIDE OF A CENTER LINE IMB 0355 PDT 0421 GEG 0433 FRONT ENDS YXC 0500.

8. ENTER STATIONARY RESERVATION or ENTER MANEUVER AREA or ENTER TIMING TRIANGLE. Utilized whenever it is desired to reserve a stationary volume of airspace within a moving ALTRV for some period of time; point and time of entry are indicated by the fix/time which precedes the phrase. The phrase should be followed by:

(a) Definition of the vertical altitude range of the stationary reservation; may be omitted if the range is the same as the altitude held prior to entry into the reservation.

(b) Definition of the boundary of the stationary reservation. One of the following phrases should be utilized:

(1) (number) NM EITHER SIDE OF A LINE BETWEEN (fix)...(fix). Defines a corridor of the indicated number of nautical miles wide centered on the line segments which connect the specified fixes; specify two or more fixes.

(2) BNDD BY (fix)(fix)...(fix) or WITHIN AN AREA BNDD BY (fix)(fix)...(fix). Defines an area bounded by the line segments which connect the specified fixes; specify three or more fixes.

(3) WITHIN (number) NM RADIUS OF (fix). Defines a circle with a radius of the indicated number of nautical miles centered about the specified fix.

(c) EXIT AT (fix/time) or EXIT STATIONARY RESERVATION AT (fix/time) OR EXIT TIMING TRIANGLE AT (fix/time). Point and time of exit specified by the fix/time which follows the phrase.

EXAMPLE−
UPP 0123 ENTER STATIONARY RESERVATION 090B110 WITHIN AN AREA BNDD BY UPP MUE IAI IAI 320/050 EXIT AT UPP 0223
OBH 0345 ENTER MANEUVER AREA 20NM EITHER SIDE OF A LINE BETWEEN OBH ONL EXIT AT ONL 0358
OBH 0123 ENTER TIMING TRIANGLE BNDD BY OBH ONL ONL 180/050 EXIT TIMING TRIANGLE AT ONL 0223
UPP 0305 ENTER MANEUVER AREA WITHIN 50NM RADIUS OF UPP EXIT MANEUVER AREA AT UPP 200/050 0345

9. ORBIT W/I (number) NM RADIUS DPRT ORBIT AT (time). Utilized to orbit aircraft within the specified number of nautical miles about the fix which precedes the phrase and to have the aircraft depart the orbit at the specified time; the use of “W/I” and/or “AT” is optional.

EXAMPLE−
MKC 0213 ORBIT 30NM RADIUS DPRT ORBIT AT 0233

NOTE−
When aircraft will follow the same route but depart the orbit at different times, indicate only the elapsed time of the first aircraft to depart. Information specific to individual aircraft should be placed in square brackets “[ ].”

EXAMPLE−
MKC 0213 ORBIT W/I 30NM RADIUS DPRT ORBIT 0233IBASF 10 [BOXES06 0233 BOXES07 0243 BOXES08 0253]

10. IBASF (number). Point and time at which aircraft will initiate a stream formation with the formation aircraft separated by the specified number of minutes.

EXAMPLE−
TUL 0038 IBASF 5
TUL 0038 IBASF 12

NOTE−
The CARF computer will not modify the ALTRV length to accommodate the specified spacing. If the spacing will place aircraft outside the reservation, the AVANA time should be increased accordingly.

11. IBACF (number). Point and time at which cells will initiate a stream formation with the cells separated by the specified number of minutes.

EXAMPLE–
TUL 0038 IBACF 5
TUL 0038 IBACF 10

NOTE–
The CARF computer will not modify the ALTRV length to accommodate the specified spacing. If the spacing will place aircraft outside the reservation, the AVANA time should be increased accordingly.

EXAMPLE–
TUL 0038 IBASF 5
TUL 0038 IBASF 12

NOTE–
The CARF computer will not modify the ALTRV length to accommodate the specified spacing. If the spacing will place aircraft outside the reservation, the AVANA time should be increased accordingly.

d. Altitude Changing events

1. CLMB. Indicates that the new altitude range extends above the old altitude and does not include all of the previous altitudes. A level-off point (LVLOF) is required.

EXAMPLE–
FL280B310 LVLOF BY FSD 319/060 0213 OBR 0222MOT 0252 CLMB FL390 LVLOF W/I 20NM

2. CMPS. Indicates that the new altitude includes some of the previous altitude range but does not extend above or below the old altitude range. A level-off point (LVLOF) is required.

EXAMPLE–
FL280B310 LVLOF BY FAM 134/067 0054 FAM 0104LMN 0139 CMPS FL310 LVLOF BY FSD 0205

3. CROSS (fix/time) AT (altitude) OR ABOVE/BELOW. Restricts the climb or descent to an altitude so that the ALTRV will be within the specified altitude range when passing over the specified fix. A level-off point (LVLOF) is required.

EXAMPLE–
CLMB FL260B280 CROSS CAP 0105 AT FL250 OR ABOVE LVLOF BY BVT 0210

4. DSND. Indicates that the new altitude range extends below the old altitude range and does not include all of the previous altitudes. A level-off point (LVLOF) is required.

EXAMPLE–
FL390 LVLOF BY VUZ 0025 DSND FL280B310 LVLOF BY FAM 134/067 0054

5. LVLOF or LVLOF BY(fix) or LVLOF W/I. Altitude transition is to be completed "by the fix following LVLOF or LVLOF by or," within the specified number of nautical miles of the fix which precedes LVLOF W/I; this phrase is not needed when the new altitude contains all of the previous altitude.

EXAMPLE−
FL250B270 GTF 0200 XPND FL250B280 LVLOF BY BIL0220.

6. XPND. Indicates that the new altitude range extends above and/or below the old altitude range and includes all of the previous altitude range.

EXAMPLE−
CMPS FL310 LVLOF BY FSD 0205 FSD 319/020 0207XPND FL280B310

e. Descriptive Events. Used to describe or clarify certain mission activities.

1. ACCELERATE TO SUPERSONIC. Supersonic speed will commence at the fix/time which precedes this phrase. (See End Supersonic.)

EXAMPLE−
BOS 0200 ACCELERATE TO SUPERSONIC

2. END SUPERSONIC. Point where supersonic speed will cease. (See Accelerate to Supersonic.)

EXAMPLE−
BOS 0200 ACCELERATE TO SUPERSONIC 4200N 6700W 0230 END SUPERSONIC

3. AIRFL BEGINS or BEGIN AIRFL. Point at which air refueling begins.

EXAMPLE−
VUZ 0025 AIRFL BEGINS
PLB 216/053 BEGIN AIRFL

4. AIRFL ENDS or END AIRFL. Point at which air refueling ends.

EXAMPLE−
LMN 0139 AIRFL ENDS
SAV 0212 END AIRFL

5. ARCP. Point at which the receiver arrives in the observation/refueling position with respect to the assigned tanker.

EXAMPLE−
RZS 0029 ARCP

6. ARIP. Point at which the receiver enters the refueling track, initiates radio contact with the tanker, and begins maneuver to join up.

EXAMPLE−
RZS 0019 ARIP

7. DRCT. Utilized to eliminate doubt as to when an action occurs. It is generally used for clarification in association with multiple events.

EXAMPLE−
FROM MEM DRCT LIT 0250

8. ENCAN or EXCAN. Point and time at which aircraft will enter or exit Canadian airspace. These fixes may be defined as either a fix/radial/distance or a latitude/longitude.

EXAMPLE−
YSC 205/026 [4500N 7200W] 0206 ENCAN DRCT YIB0230 PQI 330/28 [4716N 9130W] 0300 EXCAN

9. Point at which the aircraft will exit CARF jurisdiction and will cease to be defined.

EXAMPLE−
SOK 0210..

f. ALTRV ENDING EVENTS

1. END RTE or)). A general terminator for routes; the fix/time which precedes this event is the final point of the route (LAND, IFPFP, END CMN RTE, JOIN CMN RTE (in the case of a Support ALTRV), or "..." may be substituted for this phrase. It does not indicate the disposition of the aircraft at the point of termination.

EXAMPLE−
STL 0200 END RTE
STL 0200))
STL 0200 LAND
STL 0200 IFPFP
STL 0200 END CMN RTE
STL 0200 JOIN CMN RTE
STL 0200 ...

2. IFPFP (Individual Flight Plan From Point). Point and time at which aircraft will proceed to their destination on individual flight plans. This event is used to allow the controller to pre-plan clearances prior to the break-away fix. Most foreign nations mandate IFPFP information. File all IFPFP routing information to and from the ALTRV:

(a) To join the ALTRV.

(b) When receiver(s) and/or tankers leave ALTRV en route.

EXAMPLE−
Item D:...OKC 0310 LEAVE EXXON02 IFPFP TO KGSB
Item G:...IFPFP RTG FOR EXXON02 FROM OKC..REQ CLMB FL310 DRCT CAP FAM MEM JAN

(c) When receiver/tanker buddy launch and terminate ALTRV en route.

EXAMPLE−
Item A: TIGER1-10 EXXON3-5
Item D: ... ABI 0310 ACT 0340 ALTRV ENDS IFPFP
Item G: IFPFP RTG FOR TIGER1-10 FROM
ACT ...REQ FL260B270 DRCT LFK AEX CEW DEFUN DESTINATION KPAM.
IFPFP RTG FOR EXXON3-5 FROM ACT...REQ CLMB FL290 DRCT LFK AEX CEW DEFUN KPAM.

(d) When receiver/tanker join the ALTRV en route and terminate the ALTRV en route, IFPFP routing information is required for both receiver and tanker to and from the ALTRV.

(e) When receivers file air spares. The project officer is required to file IFPFP routings for air spares from the break-away FIX back to destination.

EXAMPLE−
Item D: TWINS 0012 MCN 0021 AIRFL BEGINS MGM 0042 MEI 0100 LEAVE (AIR SPARES)
MAZDA27-28 IFPFP TO KNBC MCB 0114
Item G: IFPFP RTG FOR AIR SPARES MAZDA27-28 FROM MEI...REQ CLMB FL270B280 DRCT MGM MCN TWINS KNBC.

3. JOIN CMN RTE TO (fix). Point at which aircraft will join a route described on another ALTRV. The phrase is followed by:

(a) Fix/time at which aircraft leave the common route, or,

(b) "END" when the aircraft will proceed with the other ALTRV to destination, or ALTRV ending point.

EXAMPLE−
JAX 0155 JOIN CMN RTE TO MIA 0344
JAX 0245 JOIN CMN RTE TO END

4. LAND. Point at which aircraft will land.

EXAMPLE−
IAD 0534 LAND

4−11−5. STATIONARY ALTRV COMPONENTS

STATIONARY RESERVATION. This is the first phrase in Item D whenever a stationary ALTRV is being utilized. The phrase should be followed by definitions of the:

a. Vertical altitude range.

b. Boundary. One of the following phrases should be utilized:

1. (number) NM EITHER SIDE OF A LINE BETWEEN (fix)...(fix). Defines a corridor the indicated number of nautical miles wide centered on the line segments which connect the specified fixes; specify two or more fixes.

2. BNDD BY (fix)(fix)...(fix) or WITHIN AN AREA BNDD BY (fix)(fix)...(fix). Defines an area bounded by the line segments which connect the specified fixes; specify three or more fixes.

3. WITHIN (number) NM RADIUS OF (fix). Defines a circle with a radius of the indicated number of nautical miles centered about the specified fix.

c. Duration of the activation, by indicating "FROM (day of the month and UTC time, month and year) TO (day of the month and UTC time, month and year)."

EXAMPLE−

STATIONARY RESERVATION 090B110 WITHIN AN AREA BNDD BY UPP MUE IAI IAI320/050 FROM 200035 JULY 1997 TO 260400 JULY 1997

4−11−6. MOVING ALTRV APREQ EXAMPLES

The following are a few common examples of formatted ALTRV APREQs.

a. Example of an ALTRV in which the tanker buddy launches with the receivers and stays with them to destination.

EXAMPLE−

A. TREND11-14 BLUE01
B. 4F16/I 1KC135/R
C. KSPS
D. FL210B230 RAVEC LVLOF W/I 80NM IFI 0016 ICT0033 AIRFL BEGINS LNK 0101 FSD 0124 AIRFL ENDS FAR 0150 GFK 0202 RDR 0205 LAND
E. KRDR
F. ETD 211600 NOV 2004 ADMIS 20 SEC AVANA 211700
G. TAS: 420KTS
PROJECT OFFICER: LT I. M. NEU DSN 555-1212
ALTERNATE PROJECT OFFICER: CAPT JAMES DSN 555-1213
ARTCCS CONCERNED: ZFW ZKC ZMP
ADDITIONAL INFO: MARSA ALL MISSION EXAMPLE ONE AIRCRAFT WHILE ON ALTRV.

b. Moving ALTRV with tankers joining en route and leaving the ALTRV IFPFP:

EXAMPLE−
A. CELL1 TREND11-14
CELL2 TREND21-24
B. 8F16/I
C. KSPS
D. FL210B230 RAVEC LVLOF BY IFI 0016 ARIP ICT 0033 ARCP CELL-1 JOIN BLUE01 CELL-2 JOIN BLUE02 2KC135 IFPFP FROM KSZL AIRFL BEGINS LNK 0101 FSD 0124 AIRFL ENDS LEAVE BLUE01,02 IFPFP TO KSZL FAR 0150 GFK 0202 RDR 0205 LAND
E. KRDR
F. ETD TREND11-14 211600 NOV 2004 ADMIS 20 SEC TREND21-24 211630 ADMIS 20 SEC AVANA 211730
G. TAS: 420KTS
PROJECT OFFICER: MAJ MINOR DSN 555-1212
ALTERNATE PROJECT OFFICER: CAPT SMITH DSN 555-1213
ARTCCS CONCERNED: ZFW ZKC ZMP
ADDITIONAL INFO: MARSA ALL MISSION EXAMPLE TWO AIRCRAFT WHILE ON ALTRV.
IFPFP ROUTING IS FOR INFORMATION ONLY AND IS NOT AN ATC CLEARANCE OR PART OF THIS ALTRV.
IFPFP BLUE01,02 TO ALTRV: REQ FL280 KSZL ICT
IFPFP BLUE01,02 FROM ALTRV: REQ FL330 OVR J41 MKC KSZL

c. Moving ALTRV with tankers joining IFPFP and leaving via Branch RTE.

EXAMPLE−
A. TREND11-14,21-24
B. 8F16/I
C. KSPS
D. FL250B270 RAVEC LVLOF BY IFI 0016 ARIP ICT 0033 ARCP CELL-1 JOIN BLUE01 CELL-2 JOIN BLUE02 2KC135 IFPFP FROM KSZL AIRFL BEGINS LNK 0101 FSD 0124 AIRFL ENDS LEAVE BLUE01,02 VIA BRANCH ROUTE TO KSZL FAR 0150 GFK 0202 RDR 0205 LAND
((BR BLUE01,02 FROM FSD CLMB FL280 LVLOF W/I 20NM OVR 0147 J41 MKC 0205 SZL 0215 LAND
E. TREND11-14,21-24 KRDR BLUE01,02 KSZL
F. ETD TREND11-14 211600 NOV 2004 ADMIS 20 SEC TREND21-24 211630 ADMIS 20 SEC AVANA 211730
G. TAS: 420KTS
PROJECT OFFICER: SGT A.T. ARMS DSN 555-1212
ALTERNATE PROJECT OFFICER: CAPT BRAEDEN DSN 555-1213
ARTCCS CONCERNED: ZFW ZKC ZMP
ADDITIONAL INFO: MARSA ALL MISSION EXAMPLE THREE AIRCRAFT WHILE ON ALTRV. IFPFP ROUTING IS FOR INFORMATION ONLY AND IS NOT AN ATC CLEARANCE OR PART OF THIS ALTRV.
IFPFP BLUE01,02 TO ALTRV: REQ FL280 KSZL ICT

d. Moving ALTRV with an accompanying support ALTRV:

1. ALTRV MISSION

EXAMPLE−
A. CELL1 TREND11-14
CELL2 TREND21-24
B. 8F16/I
C. KSPS
D. FL250B270 RAVEC LVLOF BY IFI 0016 ARIP ICT 0033 ARCP CELL-1 JOIN BLUE01 CELL-2 JOIN BLUE 02 2KC135 ALTRV FROM KSZL AIRFL BEGINS LNK 0101 FSD 0124 AIRFL ENDS LEAVE BLUE01,02 ALTRV TO KSZL FAR 0150 GFK 0202 RDR 0205 LAND
E. KRDR
F. ETD TREND11-14 211600 FEB 2004 ADMIS 20 SEC TREND21-24 211630 ADMIS 20 SEC AVANA 211730
G. TAS: 420KTS
PROJECT OFFICER: MR. CORY DSN 555-1212
ALTERNATE PROJECT OFFICER: MAJ CAREY DSN 555-1213
ARTCCS CONCERNED: ZFW ZKC ZMP
ADDITIONAL INFO: MARSA ALL MISSION

2. SUPPORT AIRCRAFT WHILE ON ALTRV.

EXAMPLE−
A. CELL1 BLUE01
CELL2 BLUE02
B. 2KC135/R
C. KSZL
D. FL280 RAVEC LVLOF BY ICT 060/050 0022 ICT 0030 ORBIT W/I 20NM RADIUS DSND FL250B270 LVLOF W/I ORBIT DPRT ORBIT 0045 JOIN CMN RTE/TIMING/ALTITUDES TO FSD 0136 CLMB FL290 LVLOF W/I 20NM DRCT OVR 0159 J41 MKC 0217 SZL 0226 LAND
E. KSZL
F. ETD BLUE01 211548 FEB 2004 BLUE02 211618 AVANA 211718
G TAS: 420KTS
PROJECT OFFICER: MAJ SAGE DSN 555-1212
ALTERNATE PROJECT OFFICER: CAPT SMITH DSN 555-1213
ARTCCS CONCERNED: ZKC ZMP
ADDITIONAL INFO: MARSA ALL MISSION EXAMPLE FOUR AND SUPPORT AIRCRAFT WHILE ON ALTRV.

e. Moving ALTRV as a partial route

EXAMPLE−
A. TREND11-14 BLUE01
B. 4F16/I 1KC135/R
C. KSPS
D.((PR FL210B230 ICT 0033 AIRFL BEGINS LNK 0101 FSD 0124 AIRFL ENDS IFPFP
E. KRDR
F. ETD 211600 NOV 2004 ADMIS 20 SEC AVANA 211700
G. TAS: 420KTS
PROJECT OFFICER: MAJ SMITH DSN 555-1212
ALTERNATE PROJECT OFFICER: CAPT JONES DSN 555-1213
ARTCCS CONCERNED: ZKC ZMP
ADDITIONAL INFO: MARSA ALL MISSION EXAMPLE FIVE AIRCRAFT ENTIRE MISSION.
IFPFP ROUTING IS FOR INFORMATION ONLY AND IS NOT AN ATC CLEARANCE OR PART OF THIS ALTRV.
IFPFP TO ALTRV: REQ FL210B230 KSPS IFI ICT
IFPFP FROM ALTRV: REQ FL280B290 FAR GFK
KRDR

4−11−7. STATIONARY ALTRV APREQ EXAMPLES

a. Stationary ALTRV which includes aircraft:

Stationary ALTRV which includes aircraft:

EXAMPLE−
A. RIMER15-16
B. 2HB52/A
C. KBGR
D. STATIONARY RESERVATION SURFACE TO 160 WHILE IN CONTROLLED AIRSPACE WITHIN AN AREA BNDD BY 4000N 6600W 4000N 6200W 3600N 6200W 3600N 6600W FROM 012200 MAY 2006 TO 020200 MAY 2006
E. KBGR
F. N/A
G. TAS: 430KTS CRUISE/320KTS LOW LEVEL
PROJECT OFFICER: MR BILL
DSN 555-5555/COMM 111- 555-5556
ALTERNATE PROJECT OFFICER: LT WRY DSN 555-1213
ARTCC: ZBW, ZNY
ADDITIONAL INFORMATION: MARSA ALL MISSION CORONET BLUE AIRCRAFT WHILE ON ALTRV. NOPAR. AIRCRAFT WILL PARTICIPATE IN NORAD EXERCISE.

b. Stationary ALTRV which does not include aircraft:

ALTRV APREQ MISSION CORONET BLUE

EXAMPLE−

1.*STATIONARY RESERVATION SURFACE TO FL200 WHILE IN CONTROLLED AIRSPACE WITHIN 100NM RADIUS OF 2030N 16000W FROM 132200 JUN 2004 TO 132330 JUN 2004*

2.*PROJECT OFFICER: MAJ LEAGUE DSN 555-5555/COMM 111-555-5556*

ALTERNATE PROJECT OFFICER: CAPT REYE DSN 555-1213

ARTCCS CONCERNED: ZHN ZOA

ADDITIONAL INFO:

Chapter 5. Aerial Refueling

Section 1. General

5−1−1. POLICY

This chapter sets forth policy and criteria for the establishment of aerial refueling tracks and anchors and the air traffic control aspects of aerial refueling operations. Effective utilization of this information will permit aerial refueling to be conducted with minimal planning and will ensure maximum utilization of airspace. Refueling tracks/anchors are published in DoD Flight Information Publications (FLIP) and are established for universal use by all military services.

5−1−2. OBJECTIVE

Approved separation will apply between military aerial refueling operations and other airspace users. In order to provide for the safe and efficient conduct of refueling operations, aerial refueling tracks/anchors will be planned to have a minimal impact on the air traffic system and still satisfy user needs.

> ***NOTE−***
> *Approval of an aerial refueling tract/anchor must not preclude ATC from using such airspace after the completion of the rendezvous, provided that approved separation is applied between nonparticipating aircraft and participating aircraft within the aerial refueling track/anchor.*

5−1−3. RESPONSIBILITY

The U.S. military services will, to the maximum extent possible, conduct aerial refueling on existing published tracks/anchor tracks or within segregated airspace such as an ALTRV, ATCAA, or other applicable SUA, and conduct aerial refueling operations in accordance with the provisions of this chapter which provides standard guidance for all user commands involved in aerial refueling operations.

5−1−4. SEPARATION

Approved separation will be applied between aircraft conducting aerial refueling operations and other nonparticipating aircraft.

5−1−5. DEVIATIONS

FAA air traffic Service Area managers may authorize deviations from provisions of this chapter when military requirements cannot be supported within the established standards. Approved deviations must be fully coordinated between FAA and the appropriate military authority and must contain provisions to ensure a level of safety equivalent to standards set forth in this chapter.

5−1−6. CHRONOLOGY

The following is a basic chronology of the events for a typical air refueling operation in tracks and anchors. The exact sequence may vary as dictated by operational circumstances. For air refueling tracks, the en route rendezvous differs from the point-parallel rendezvous (see subparagraph 5−5−4a,

5(a)) only in that the tanker does not delay at the air refueling control point (ARCP) and both tanker and receiver aircraft enter the aerial refueling airspace simultaneously.

a. Aerial Refueling Track.

NOTE–
Normally, the tanker aircraft enters the track at the ARCP, and the receiver aircraft enters at the air refueling initial point (ARIP).

1. Tanker requests delay at the ARCP and advises ATC of the requested aerial refueling block altitudes.
2. ATC approves delay and issues clearance, or advises tanker to expect clearance, for the air refueling block.

NOTE–
If the delay is approved, the aircraft will enter the refueling pattern. If a hold is issued, aircraft will enter a standard holding pattern or as assigned by ATC.

3. Tanker enters orbit pattern airspace for delay at ARCP.

NOTE–
If no clearance is received, aircraft will hold in the direction of the air refueling pattern until their filed air refueling control time (ARCT). If no clearance is received by the ARCT, the aircraft will proceed down the AR track on its flight plan route; refueling is not authorized.

4. Receivers are cleared to requested altitude and approved separation is established prior to ARIP and release to tanker communication rendezvous (C/R) frequency.
5. Tanker declares MARSA.
6. ATC releases receiver to tanker C/R frequency not later than the ARIP.
7. ATC issues clearance to conduct aerial refueling along the track, and issues block altitude clearance, if not previously accomplished.

NOTE–
MARSA needs to be declared prior to ATC issuing a clearance to conduct air refueling. An ATC clearance is needed for any maneuver that requires the tanker to depart the orbit pattern.

8. ATC must ensure that nonparticipating aircraft remain clear of the area until the rendezvous is complete.
9. Tanker and receiver aircraft complete rendezvous and proceed down track. During aerial refueling, the tanker is responsible for receiver aircraft navigation along the track and for all tanker/receiver communications with ATC.
10. Tanker advises ATC of tanker and receiver end aerial refueling altitude requests at least five (5) minutes prior to exit.
11. At or prior to the exit point, ATC provides tanker and receiver expected altitudes, transponder codes, and if requested, amended routing.

12. Prior to exit, tanker vertically positions the aircraft in the formation within the air refueling airspace to facilitate breakup at the exit point (normally, tanker at highest altitude of aerial refueling block and receiver at lowest altitude).

13. MARSA is terminated when approved separation is established and ATC advises MARSA is terminated.

NOTE−
Course or altitude changes prior to establishment of approved separation will automatically void MARSA and are to be avoided. See paragraph 5−5−3.d.

b. Anchor Aerial Refueling.

1. Anchor aerial refueling operations involve the same basic procedural elements as required for track refueling, except that both tanker and receiver aircraft file a delay in the anchor area, and all aerial refueling activity is conducted within the anchor as per paragraph 5−3−2, Navigation within Anchor Area.

2. Additional requirements, such as, alternate entry/exit points, military radar unit (MRU) procedures, etc., must be specified in a letter of agreement, as required.

Section 2. Track Requirements

5−2−1. DESCRIPTION

a. Aerial refueling tracks are established to accommodate refueling operations along a prescribed route. An aerial refueling track consists of an ARIP, ARCP, and an exit point. Navigation check points between the ARCP and exit point are specified, as required, to facilitate navigation along the route. It also includes the tanker orbit pattern at the ARCP, and the altitude block(s) assigned for the track.

b. Instructions for preparing and submitting track proposals are contained in Section 4 of this chapter.

5−2−2. NAVIGATION ALONG AIR REFUELING TRACK

Navigation along an aerial refueling track must be accomplished using a combination of airborne equipment and NAVAIDs as appropriate.

NOTE−
Whatever the method of navigation, participating aircraft are expected to adhere to the course centerline during aerial refueling operations unless deviations within/beyond the track are specifically approved by the ARTCC/CCF/HCF, or are authorized in a procedural letter of agreement with the controlling agency.

5−2−3. ARIP ESTABLISHMENTS

The ARIP must be established:

a. At a distance from the ARCP which must meet the requirements of the primary user command.

b. Within 30 degrees either side of the extended centerline of the track on which the actual aerial refueling operation is to be accomplished.

c. Within the same ARTCC/CCF/HCF area as the ARCP whenever practical.

d. So as to provide for a direct course between the ARIP and ARCP.

5−2−4. DEGREE*DISTANCE TRACK DEFINITION

a. Tracks predicated on degree-distance track definition must provide:

1. A means of navigation from the ARIP to the exit point via a usable NAVAID radial/distance or along offshore extended routes.

2. A means of navigation from at least one navigational checkpoint or from the exit point to proceed IFR en route via a usable NAVAID.

b. Tracks located over water or in remote areas or beyond the range of fixed NAVAIDs must be predicated on geographical coordinate route definition with suitable navigation means provided by the user command.

5−2−5. TANKER ORBIT PATTERNS

The following describes typical orbit patterns for jet aircraft and turboprop/conventional type aircraft.

a. Turbojet - Normally, a rectangle 60 NM long (48 NM uptrack and 12 NM downtrack from ARCP or anchor point) and 25 NM wide, oriented longitudinally along the ARIP-ARCP or

anchor point segment of the track so as to provide 7 NM of airspace on the non-holding side of the refueling track and 18 NM of airspace on the holding side. This pattern will normally be designed for left turns. When right turns are used, the orientation of the orbit pattern will shift accordingly. (See FIG 5−2−1, Components of a Typical Turbojet Aerial Refueling Track.)

b. Turboprop - Normally, a rectangle 34 NM long (27 NM uptrack and 7 NM downtrack from ARCP or anchor point) and 18 NM wide, oriented longitudinally along the ARIP-ARCP or anchor point segment of the track so as to provide 4.5 NM of airspace on the non-holding side of the refueling track and13.5 NM of airspace on the holding side. The pattern will normally be designed for left turns. When right turns are used, the orientation of the orbit pattern will shift accordingly. (See FIG 5−2−2, Components of a Typical Turboprop Aerial Refueling Track.)

NOTE−
Tankers are NOT automatically cleared to the IP; they must request clearance from the box to the IP if that airspace is desired.

FIG 5−2−1
Components of a Typical Turbojet Aerial Refueling Track

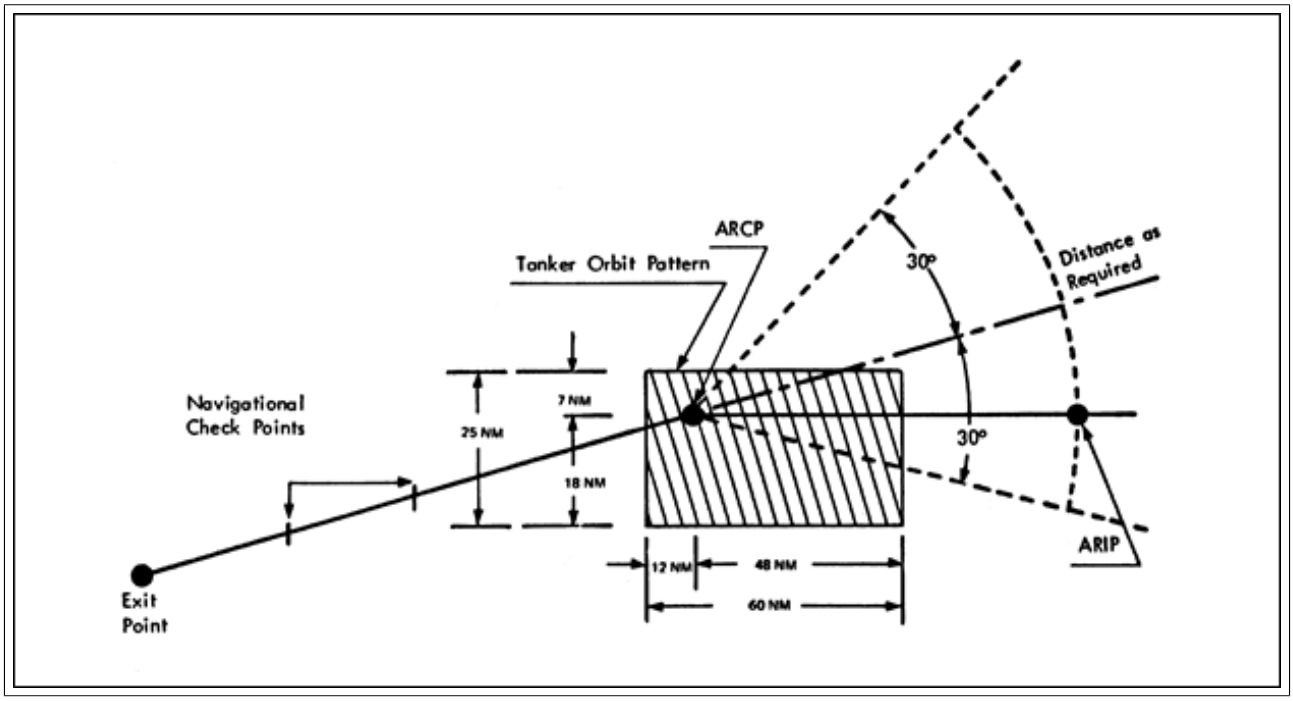
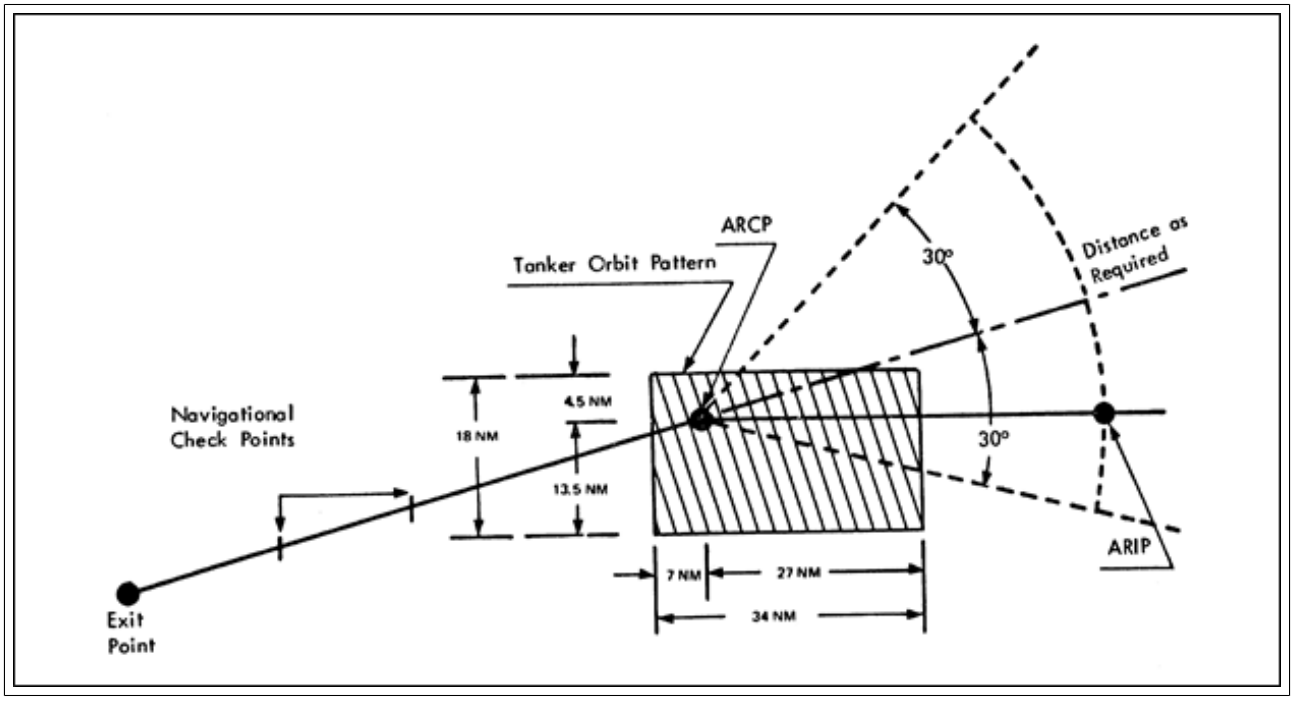


FIG 5−2−2

Components of a Typical Turboprop Aerial Refueling Track



Section 3. Anchor Requirements

5−3−1. DESCRIPTION

a. The standard aerial refueling anchor track consists of a left-hand race track orbit with legs at least 50 NM in length. The legs will normally be separated by at least 20 NM. The orientation of the track is determined based on the inbound course to the anchor point. Four turn points are designated to describe the anchor track. (See FIG 5−3−1.)

NOTE−
An anchor track may be designed with legs greater than or less than 50 NM in length provided all parties agree that the length is sufficient for the proposed operation and that the refueling operation can safely be conducted within the confines of the anchor area.

b. The standard anchor area consists of one or more entry points, an ARIP, anchor point, anchor track turn points, one or more exit points, and the designated refueling altitude block(s).

c. Instructions for preparing and submitting anchor proposals are contained in section 4 of this chapter.

5−3−2. NAVIGATION WITHIN ANCHOR AREA

Anchor refueling must take place along the published anchor track unless otherwise coordinated with the ARTCC/CCF/HCF or through a letter of agreement with the controlling agency. Navigation must be accomplished predicated on one of the following:

NOTE−
Clearance into an anchor area does not give aircraft on the anchor track the ATC assigned airspace (ATCAA) that may be associated with the anchor area.

a. NAVAIDs while within usable range.

b. Airborne equipment utilizing geographical coordinates in remote areas without NAVAID reference.

c. Radar service provided by a military radar unit either ground-based or airborne.

d. Airborne radar as a secondary operation within the anchor area.

5−3−3. ARIP ESTABLISHMENT

The anchor ARIP must be established:

a. Normally, a minimum of 70 NM from the anchor point and within 30 degrees either side of the extended anchor point leg at the uptrack end of the anchor track.

b. So as to provide for straight-line navigation from the ARIP to the anchor point leg at the uptrack end of the anchor track.

NOTE−
Receiver entry at ARIP is not required when random rendezvous procedures have been coordinated prior to track/anchor entry and approved by the tanker commander. All maneuvers required to effect rendezvous must be contained within designated airspace.

5−3−4. DEGREE*DISTANCE ANCHOR DEFINITION

Anchors predicated on degree-distance definition must provide:

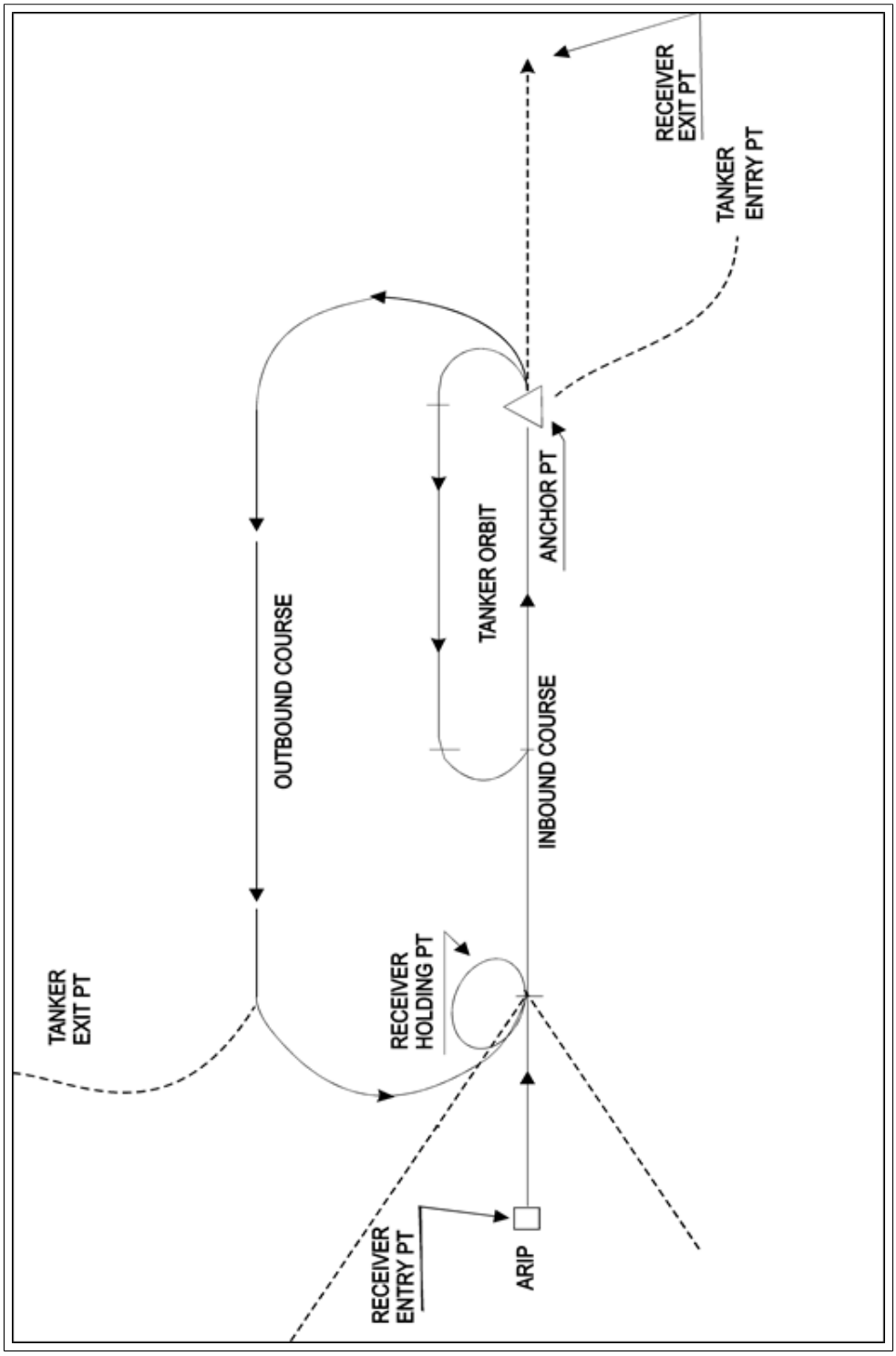
a. A means of navigation from the anchor ARIP to the anchor point via a usable NAVAID radial/distance.

b. A means of navigation from the exit point of the anchor area to proceed IFR en route via a usable NAVAID.

c. Anchor areas located over water or in remote areas or beyond the range of fixed NAVAIDs must be predicated on geographical coordinate route definition with suitable navigation means provided by the user command.

FIG 5−3−1

Anchor Track



Section 4. Planning

5−4−1. TRACK/ANCHOR PROPOSALS

Proposals for establishing refueling tracks or anchors must be submitted in the format and with the data depicted in FIG 5−4−1 to the appropriate ARTCC/CCF/HCF with a copy to the appropriate Service Area military representative.

5−4−2. COORDINATION

a. The ARTCC that received the request for establishment of an aerial refueling track or anchor must assume the responsibility for FAA internal coordination, as necessary.

b. In the event the proposed track/anchor lies within special use airspace (SUA) or ATC assigned airspace (ATCAA), the using agency, if different from the requesting unit, must provide written assurances to the appropriate FAA office that aerial refueling operations will not conflict with other activities being conducted. Correspondence accompanying the initial proposal for refueling track/anchor must include the written assurance.

5−4−3. CRITERIA FOR ESTABLISHMENT

a. Aerial refueling tracks may be established for use in either direction in sufficient length to satisfy the mission requirement.

b. Parallel tracks may be established provided a minimum of 30 NM exist between track centerlines.

c. Tracks/anchors may be established coincident with, parallel to, or across airways/jet routes as considered appropriate by the ATC facility with airspace jurisdiction.

d. Tracks/anchors must be defined in relation to NAVAIDs by degree-distance reference or by geographical coordinates.

e. Where anchors are established inside SUA or ATCAAs, entry and exit points must be located on the boundary of the SUA or ATCAA for use as transfer of flight data information points, unless alternate entry and exit points are authorized by ATC.

NOTE−
If activation of the ATCAA or SUA is desired for aerial refueling operations, an activation request must accompany the initial request for aerial refueling operations.

f. The scheduling agency for the ATCAA must ensure that pilots comply with the procedures in the applicable LOA.

g. The receiver entry point (track/anchor) will be the ARIP.

h. The tanker entry point (track/anchor) will be the ARCP/anchor point and should be located to permit direct routing.

i. The following is guidance for establishing simultaneous opposite direction aerial refueling (SODAR):

1. Simultaneous refueling in opposite direction may be authorized between single AR tracks, which are vertically separated by a minimum of 2,000 feet between altitude blocks.

2. If it becomes necessary to assign SODAR aircraft altitude blocks which are outside the vertical limits of the AR tracks, controllers must ensure a vertical separation minimum of 2,000 feet between assigned altitude blocks.
3. The SODAR procedure is not intended to apply to all refueling tracks (due to airspace configuration, traffic volume, etc.), however, the appropriate ARTCCs/CCFs/HCFs are expected to evaluate existing tracks for feasibility upon user request.
4. If an existing single AR track qualifies for SODAR, it may be split into two separate tracks, or a new track may be created directly above or directly below the existing track. In either case, the tracks must be vertically separated by 2,000 feet and each track must be designated by a separate number.
5. Each published track description must contain, in remarks, that it is authorized for simultaneous opposite direction aerial refueling (i.e., "SODAR authorized with AR___").
6. SODAR tracks should be established for bi-directional use to permit course reversals without requiring altitude changes.

5−4−4. APPROVAL NOTIFICATION

After receiving concurrence from all impacted ARTCCs/CCFs/HCFs for an aerial refueling track or anchor, the ARTCC/CCF/HCF in which the AR track is initiated must forward the Aerial Refueling Track/Anchor Proposal (See FIG 5−4−1). This includes all information required in FIG 5−4−1 and any other pertinent information to the appropriate air traffic Service Area office and military representatives.

5−4−5. PUBLICATION IN FLIP

After final coordination the military representative assigned to the FAA Service Area office must forward the following information to the National Geospatial-Intelligence Agency (NGA) for publication:

a. For tracks:

1. Number - The originator of the track/anchor must obtain a route designator for use during coordination from NGA Aeronautical Help Desk via telephone (DSN 846-1636 or commercial 1-877-817-9134) or email (aerohelp@nga.mil) The number in the designator provided by NGA will be prefixed by an "X"; for example, AR-X100, to indicate the number to be used for coordination purposes only. The prefix "X" will be deleted when published in FLIP Planning.
2. ARIP - Degree-distance or coordinate values.
3. ARCP - Degree-distance or coordinate values.
4. Navigation check points - Degree-distance or coordinate values.
5. Exit point - Degree-distance or coordinate values.
6. Communications/Rendezvous Plan – Obtain from 618 AOC/XOPM, 402 Scott Dr., Unit 2K1, Scott AFB, Illinois 62225 (commercial (618) 256-8511 or DSN 576-8511) by the Service Area military representative if required.
7. Refueling altitudes.
8. Scheduling unit.
9. Assigned ATC facility.
10. Remarks including the list of coordination accomplished.

b. For anchors:

1. Number - Same procedures as in subparagraph a1.
2. Description of anchor area - Coordinates.
3. Entry point(s) - Degree-distance or coordinate values.
4. ARIP(s) - Degree-distance or coordinate values.
5. Exit - Degree-distance or coordinate values.
6. Anchor pattern (four turn points) - Degree-distance or coordinate values.
7. Exit point(s) - Degree-distance or coordinate values.
8. Communications/Rendezvous Plan – Obtain from 618 AOC/XOPM, 402 Scott Dr., Unit 2K1, Scott AFB, Illinois 62225 (commercial (618) 256-8511 or DSN 576-8511) by the Service Area military representative if required.
9. Military radar unit (MRU) call sign and MHz frequencies.
10. Refueling altitudes.
11. Scheduling unit.
12. Assigned ATC facility.
13. Operational time.
14. Remarks, including anchor point, inbound course, pattern width, pattern length, and the list of coordination accomplished.
15. State whether ATCAA is associated with anchor and list the scheduling agency for the ATCAA.

5−4−6. MILITARY SERVICE AREA REPRESENTATIVE RESPONSIBILITIES

a. Ensure that all appropriate DoD and FAA coordination has been accomplished.
b. Obtain a Communications Rendezvous Plan (C/R Plan) from 618 AOC/XOPM, 402 Scott Dr., Unit 2K1, Scott AFB, Illinois 62225 (commercial (618) 256-8511 or DSN 576-8511) by the Service Area military representative if necessary, and submit the information required in paragraph 6−4−5, Publication in FLIP, to NGA. The USN regional representative must submit data to Naval Flight Information Group, Washington Navy Yard, Bldg. 176, 901 M Street SE, Washington, DC 20374-5088.
c. Maintain a master list of all current refueling tracks and anchors (both published and special) that fall within this area of responsibility, scheduling units, and assigned ATC facilities.
d. Ensure that the concerned ATC facilities are aware of the effective date of the track or anchor and any revisions thereto.

5−4−7. NGA RESPONSIBILITIES

a. Assign track and anchor numbers and provide them to the originator upon request. Each published track or anchor must be identified by the prefix “AR” followed by a number. Numbers must be assigned consecutively in their particular group.
b. Should the track or anchor be outside Class A airspace areas, submit the following information directly to the FAA Aeronautical Information Services (AIS), Aeronautical Data website at https://www.faa.gov/air_traffic/flight_info/aeronav/aero_data/ for publication on appropriate charts (by AIS) and assume responsibility for updating it as necessary.

1. Designated track or anchor number.

2. Geographical location of the track or anchor using NAVAID degree-distance definitions or geographical coordinates.
3. Location (State).
4. Track beginning.
5. Track end.
6. Altitudes.

NOTE−
Alaskan information must be submitted for inclusion in U.S. Government FLIP Supplement, Alaska.

5−4−8. EFFECTIVE DATE

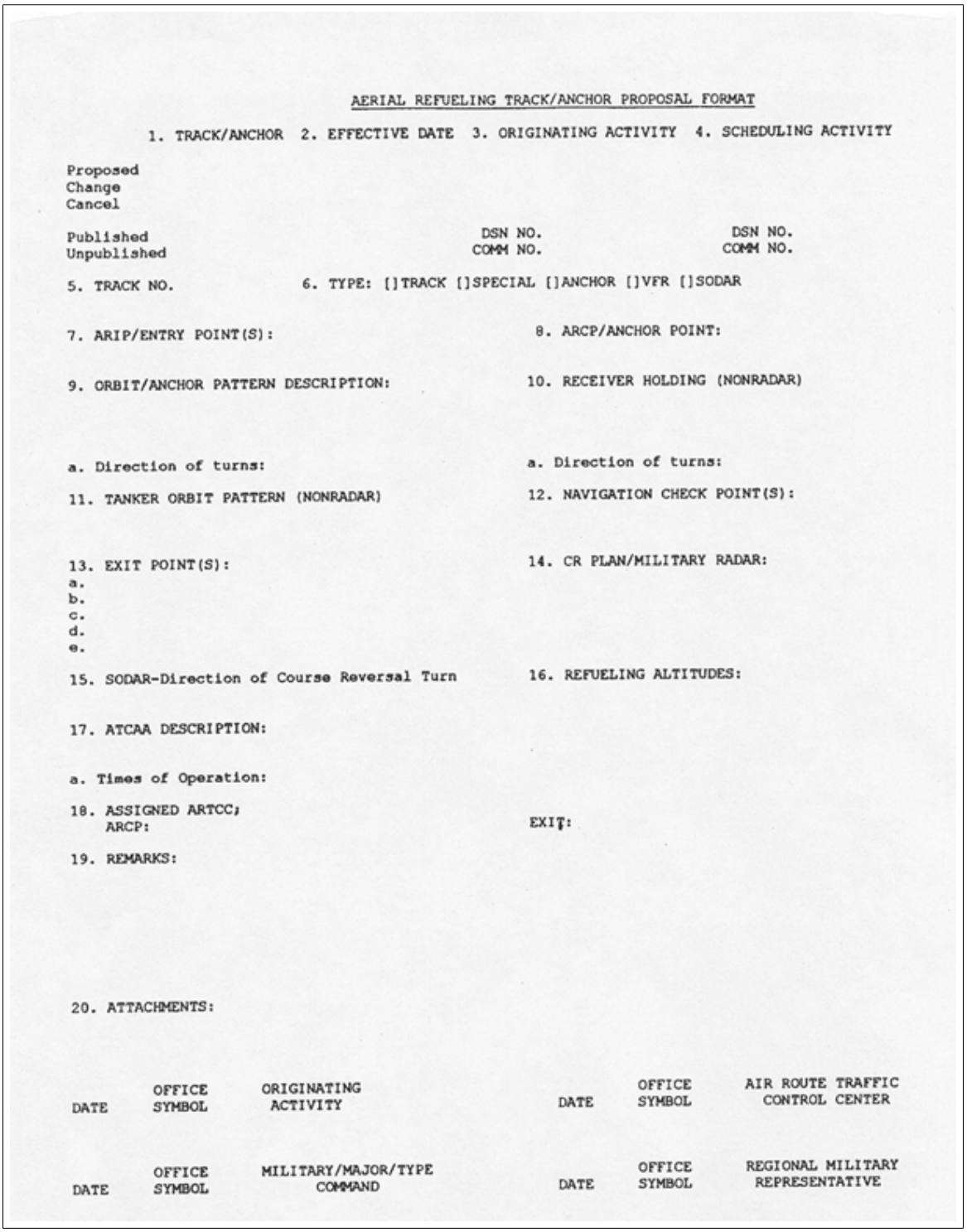
Aerial refueling tracks and anchors and revisions thereto must be effective upon the date of the DoD FLIP document publication.

5−4−9. REVISIONS TO TRACKS/ANCHORS

Revisions must be processed in the same manner as new proposals.

FIG 5−4−1

Aerial Refueling Track/Anchor Proposal Format



AERIAL REFUELING TRACK/ANCHOR PROPOSAL FORMAT

1. TRACK/ANCHOR 2. EFFECTIVE DATE 3. ORIGINATING ACTIVITY 4. SCHEDULING ACTIVITY

Proposed
Change
Cancel

Published
Unpublished

DSN NO.
COMM NO.

DSN NO.
COMM NO.

5. TRACK NO. 6. TYPE: []TRACK []SPECIAL []ANCHOR []VFR []SODAR

7. ARIP/ENTRY POINT(S):

8. ARCP/ANCHOR POINT:

9. ORBIT/ANCHOR PATTERN DESCRIPTION:

10. RECEIVER HOLDING (NONRADAR)

a. Direction of turns:

a. Direction of turns:

11. TANKER ORBIT PATTERN (NONRADAR)

12. NAVIGATION CHECK POINT(S):

13. EXIT POINT(S):
a.
b.
c.
d.
e.

14. CR PLAN/MILITARY RADAR:

15. SODAR-Direction of Course Reversal Turn

16. REFUELING ALTITUDES:

17. ATCAA DESCRIPTION:

a. Times of Operation:

18. ASSIGNED ARTCC;
ARCP:

EXIT:

19. REMARKS:

20. ATTACHMENTS:

DATE	OFFICE SYMBOL	ORIGINATING ACTIVITY	DATE	OFFICE SYMBOL	AIR ROUTE TRAFFIC CONTROL CENTER
DATE	OFFICE SYMBOL	MILITARY/MAJOR/TYPE COMMAND	DATE	OFFICE SYMBOL	REGIONAL MILITARY REPRESENTATIVE

Section 5. Operations

5−5−1. PROVISIONS FOR CONDUCTING AERIAL REFUELING

a. Aerial refueling is based on the requirement that participating aircraft operate and remain in specifically designated airspace.

1. Departure or other clearances which contain the track or anchor as a route element are not intended to authorize the aerial refueling operation itself.

NOTE−
A further specific ATC clearance for the conduct of aerial refueling is required except on an ALTRV.

2. Throughout the aerial refueling operation, controller-initiated heading assignments may not be effected without the concurrence of the tanker.

3. Each aircraft must receive a specific clearance prior to leaving the aerial refueling track/anchor. In the event of no clearance:

(a) The tanker(s) and receiver(s) will continue on the tanker's filed route and assigned block altitudes until a clearance to separate the flight can be obtained, or

(b) The aircraft will request an extension of the aerial refueling track.

NOTE−
Aerial refueling operations are terminated at the end of the refueling point unless an extension of the aerial refueling track is received.

(c) Aerial refueling operations are normally conducted on tracks or in anchor areas published in the DoD FLIP document “AP/1B.”

b. There are certain mission requirements and operational considerations which may necessitate en route refueling operations or the establishment of special tracks/anchors not published in the FLIP document or contained within MOA/ATCAA/joint-use restricted areas by establishment in letters of agreement.

1. En route refueling may be conducted between aircraft within a flight when the refueling is performed within the flights assigned altitude block/airspace. When this occurs, the ARTCC/CCF/HCF will be advised prior to commencing aerial refueling operations.

2. When special tracks/anchors must be established, the command processing the receiver aircraft must ensure compliance with the provisions set forth in Section 6 of this chapter.

c. All aerial refueling operations must be conducted on an IFR flight plan at assigned altitudes/flight levels except as provided for in paragraph 5−6−12, Flight Plan Requirements, of this chapter.

d. All aircraft conducting aerial refueling operations should request and be assigned at least three (3) consecutive altitudes/flight levels.

1. Refueling aircraft may use these altitudes/flight levels as required to accomplish aerial refueling operations. If additional altitudes are required to satisfy requirements, prior clearance must be obtained from the appropriate ATC facility.

NOTE−
Additional altitudes must not be requested/granted for practice of emergency break-away procedures.

2. The provisions of this paragraph do not apply when aircraft are operating in an ALTRV or when clearance has been granted by ATC for the aircraft to operate as an en route cell formation.

5−5−2. USER REQUIREMENTS

a. The user command requesting the establishment of a track/anchor must assign to a specific unit the responsibility for scheduling all refueling operations on the track or anchor. The scheduling unit must review the track/anchor for utilization to determine the need for retention.

b. FAA or theater command headquarters, as appropriate, must assign responsibility to a specific air traffic facility for coordinating aerial refueling operations with the scheduling unit for each track/anchor.

c. Intermediate commands must be responsible for developing standardized procedures for use by these units in scheduling aerial refueling operations.

d. Any unit planning to conduct aerial refueling operations must coordinate each operation with the unit assigned the responsibility for scheduling the track/anchor.

5−5−3. MARSA APPLICABILITY FOR AERIAL REFUELING

a. MARSA begins between the tanker and receiver(s) when the tanker advises ATC that it is accepting MARSA.

b. After MARSA has been declared, controller assigned course or altitude changes prior to rendezvous completion will automatically void MARSA and are to be avoided.

c. Once rendezvous is completed:

1. Headings and altitudes assignments may be made with the tanker concurrence with MARSA remaining in effect.

2. Each tanker must keep receiver(s) aircraft in either standard or nonstandard formation until further ATC clearances are received and approved separation is achieved.

3. Other nonparticipating aircraft may be cleared through the refueling block airspace with approved separation once the tanker and receiver(s) have proceeded down track.

d. MARSA ends between the tanker and receiver(s) when:

1. The tanker and receiver aircraft are vertically separated within the aerial refueling airspace,

2. Approved separation is established, and

3. ATC advises MARSA is terminated.

5−5−4. CRITERIA FOR SCHEDULING

a. Scheduling criteria to ensure adequate airspace for aircraft conducting aerial refueling on tracks must be as follows:

1. Simultaneous refueling in the same direction:

(a) Authorized for single tracks. A 2,000-foot altitude separation must be provided between assigned altitude blocks/airspace.

(b) Authorized for parallel tracks which have 30 NM separation between centerlines. Refueling operations may be accomplished on each track at the same altitudes. Multiple refueling may be accomplished on each track if the altitude separation required for single tracks is provided.

2. Simultaneous refueling in opposite directions:

(a) Not authorized on single tracks.

(b) May be authorized between single AR tracks, which are vertically separated by a minimum of 2,000 feet between altitude blocks.

NOTE−
The opposite direction procedure is not intended to apply to all aerial refueling tracks, due to airspace configuration, traffic volume, etc. However, ARTCC/CCF/HCFs are expected to evaluate individual tracks for applicability upon request. The processing of approved requests must be in accordance with the existing procedures in Section 4 of this chapter.

(c) Authorized for parallel tracks which have 30 NM separation between centerlines.

3. MARSA is applicable between refueling aircraft operating on parallel tracks at the same altitude.

4. When necessary to reverse the direction of use of a track, a mandatory exit time must be prescribed by the scheduling unit for the last refueling aircraft prior to reversing direction. This exit time must be the scheduled exit time plus 10 minutes. A 25-minute sterile time must be added to the mandatory exit time prior to scheduling the first tanker entry for the opposite direction refueling.

5. Minimum Entry Intervals:

(a) Point-Parallel Rendezvous - A 40-minute entry interval must be planned between tankers at the same altitude except when operating in an ALTRV. Tanker aircraft must arrive at the ARCP no earlier than ARCP minus 20 minutes and depart no later than ARCP plus 10 minutes unless specifically cleared by the appropriate ATC facility for an extended delay. If clearance for a longer delay cannot be granted or notification of receiver abort is received, the tanker must proceed down track until an amended ATC clearance can be granted. Receiver aircraft must arrive at the ARCP no earlier than ARCP minus 5 minutes and depart no later than ARCP plus 10 minutes.

(b) En Route Cell Rendezvous - A minimum 20-minute entry interval must be scheduled between air refueling cells at the same altitude and the same geographic point. Both tanker(s) and receiver(s) must arrive at the rendezvous point within +/- 5 minutes of the rendezvous control time. (See FIG 5−5−1, FIG 5−5−2, and FIG 5−5−3.)

(c) Mixed Rendezvous - Air refueling tracks scheduled for an en route rendezvous followed by a point-parallel or vice versa, the minimum entry interval must be 40 minutes.

b. Scheduling criteria to ensure adequate airspace for aircraft refueling within an anchor area must be as follows:

1. Single Anchors - Simultaneous refueling is authorized for single anchors when approved separation is applied.

2. Multiple Anchors - Simultaneous refueling may be accomplished in anchors which have 80 NM separation between anchor points.

3. Multiple aerial refueling in one anchor/anchor track - 2,000 feet vertical separation between altitude blocks must be planned and used.
4. Minimum Entry Intervals - A 10-minute interval must be maintained between the anchor area exit time of a tanker departing from an anchor and the anchor area entry time of a tanker arriving in the anchor at the same altitude.

NOTE−
The entry intervals outline in subparagraphs a and b are permissive and are not intended to preclude greater entry intervals which may be desirable or necessary to satisfy specific track/anchor restrictions or mission requirements.

c. Tankers may be scheduled to enter the track or anchor by direct routing to the ARCP or anchor point.

d. Tanker/receiver must be scheduled to depart the track or anchor at specified navigation checkpoints or exits. In event of no clearance, the tanker(s) and receiver(s) will continue on the tanker's filed flight plan until a clearance to separate the flight can be obtained, or request an extension of the aerial refueling track, as appropriate.

e. MARSA may be applicable between a refueling operation and other aircraft specifically identified in the refueling schedule or approved by the scheduling unit to transit the published track/anchor.

5−5−5. SCHEDULING RESPONSIBILITIES

a. Each aerial refueling track/anchor must have a designated military unit responsible for scheduling all military flights intending to use the track/anchor. If the designated military unit does not have a continuous point of contact – i.e., a unit subject to deployment or a unit not available during normal work days (ANG unit working Wednesday-Sunday) – then an alternate scheduling agency must be designated.

b. Each scheduling unit (primary or alternate) must:

1. Submit to the assigned ATC facility at least 24 hours in advance a daily refueling schedule for each track or anchor including the:
   (a) Requested refueling levels.
   (b) Requested time of use.
   (c) Call signs of tanker(s) and receiver(s).

NOTE−
The assigned ATC facility may advise the scheduling unit to discontinue submitting daily refueling schedules if concerned ATC facilities do not need advance information.

2. Advise the assigned ATC facility as soon as practicable of any cancellations to the schedule.
3. Obtain approval for the following from the assigned ATC facility:
   (a) The schedule as submitted.
   (b) Use of two altitude blocks simultaneously; e.g., 150B160 and 250B260.
   (c) En-route Cell Rendezvous operations.
4. Coordinate with other scheduling units to resolve all conflicts in altitudes and/or times for tracks/anchors which cross, underlie, or are parallel prior to submitting to the assigned ATC facility.

5. Notify other scheduling units when assigned tracks/anchors are to be used or crossed during No-Notice exercises.

6. Clearly indicate the following information on the unit flying schedules:

(a) Track or anchor scheduled entry time.

(b) ARCT/anchor point control time.

(c) ARCP/anchor point departure time.

(d) Track or anchor scheduled/mandatory exit time.

c. Receiver Unit Responsibility - Each receiver unit must:

1. Obtain refueling times for each desired track/anchor from the appropriate scheduling unit.

2. Provide call signs for the participating aircraft to the scheduling unit not later than 1600hours (scheduling unit time) on Tuesday of the week preceding the scheduled activity.

3. Promptly notify the scheduling unit of any canceled or delayed refueling.

d. ATC Facility Responsibility - The assigned ATC facility must forward the daily refueling schedule and any revisions to other concerned ATC facilities. In the event disapproval is necessary, suitable alternate times, altitudes, tracks, or anchors must be coordinated with the scheduling unit.

5−5−6. FLIGHT PLAN REQUIREMENTS

Instructions/information concerning the filing of flight plan data for aerial refueling operations is contained in the Flight Information Publication (FLIP) document. The following data must normally be included by refueling aircraft:

a. Refueling levels requested for the refueling operations. All aircraft require 1,000 feet separation between the lowest tanker altitude and the applicable receiver altitude from the track ARIP to ARCP or from the ARIP to anchor point. If this altitude separation cannot be provided, the participating aircraft are not authorized to proceed with the rendezvous.

b. ARCP/anchor point.

NOTE−
When operating in an air refueling anchor area, tankers are authorized to file directly to the anchor point without crossing an anchor area entry point.

c. ARIP.

NOTE−
Tankers conducting an en route rendezvous will also normally file to the ARIP.

d. Duration of delay at ARCP/anchor point.

e. Track or anchor number.

f. Track/anchor exit point.

5−5−7. TANKER AIRCRAFT/FORMATION COMMANDER RESPONSIBILITIES

Tanker aircraft or formation commander must be responsible for:

a. Remaining within the assigned aerial refueling track.

NOTE−
Aerial refueling will not take place until MARSA is declared.

b. Remaining on the published track (straight track or anchor track) unless otherwise coordinated with the ATC facility or through letter of agreement with the controlling agency.

NOTE−
Aerial refueling does not constitute sterilized airspace. ATC may separate nonparticipating aircraft from participating aircraft within a track/anchor using applicable minima. If aerial refueling is conducted in an ATCAA, procedures defined in the applicable LOA apply.

c. Notifying the appropriate ATC facility of all altitudes vacated and not anticipated for further use by refueling aircraft. Such altitudes must not be reoccupied without further ATC clearance.

d. Receiver navigation, regardless of the number of receivers, after rendezvous completion through completion of refueling operations (aerial refueling and MARSA have been terminated) except when under control responsibility of a military radar facility while in an anchor/anchor track area.

e. Maintaining communications with the appropriate ATC facility.

1. All communications during aerial refueling operations, including those concerning the receivers, must be between the ATC facility or military radar unit and tanker.

2. To the extent practical, receivers must establish communications with the tanker prior to or when departing the ARIP on the specified aerial refueling frequency.

3. The tanker must advise receivers if the clearance to conduct aerial refueling has or has not been received.

4. Tanker(s) will assume position reporting responsibility for the receivers upon rendezvous completion.

f. Requesting further en route clearance/altitude assignment:

1. From the ATC facility for both the receiver and tanker at least 5 minutes prior to refueling completion, in accordance with paragraph 5−5−9, ATC Clearance, except when both aircraft are operating on an approved altitude reservation (ALTRV).

2. Through the radar controller when operating in refueling anchors with a MRU. At least 5 minutes prior to completing refueling operations, the military radar facility must forward requests to the assigned ATC facility and subsequently relay ATC clearances for the tanker and receiver aircraft from the ATC facility.

g. Vertically positioning aircraft prior to reaching the planned exit point, to facilitate the safe and efficient transfer of responsibility from the military, under the provisions of MARSA, to the ATC facility upon completion of refueling operations. The vertical separation of receivers and tanker aircraft must be accomplished within the assigned altitudes.

h. Providing each receiver, upon request, with the aircraft's position at the completion of refueling operations. Additional information concerning amendments of changes to the receiver's ATC clearance must also be provided as appropriate.

i. Coordinate new aerial refueling track times with the scheduler if unable to meet the scheduled ARCT(s) and minimum entry intervals.

5−5−8. RECEIVER AIRCRAFT RESPONSIBILITIES

Receiver aircraft must be responsible for:

a. Initiating the request for altitude change in sufficient time to reach the required aerial refueling block altitude prior to the ARIP.

b. Squawking normal when separation from tanker is greater than three (3) miles.

c. Maintaining two-way radio contact with ATC until released by ATC to the tanker.

5−5−9. ATC CLEARANCE

The tanker commander must receive specific ATC clearance from the appropriate ATC facility for the following:

a. Entry to/exit from assigned aerial refueling altitude block.

b. Altitudes requested for tanker and receiver aircraft upon completion of aerial refueling.

c. Routing for each aircraft or formation flight when:

1. Exiting the refueling track prior to or beyond the exit point, or

2. Different from the flight plan routing.

d. Extending the refueling operation beyond the track/anchor exit point due to adverse winds, mission requirements, etc.

e. Use of altitudes in excess of those for which specific clearance has been granted (i.e., tobogganing).

NOTE−
During refueling, altitude and temperature conditions may exist which decrease the receiver's available thrust and maneuverability. In this event, the receiver may request a "toboggan" in order to receive a full fuel onload. The toboggan maneuver is accomplished by the tanker descending wings level at refueling airspeed and a constant rate of 200-300 FPM with the receiver maintaining the refueling contact.

5−5−10. RADAR VECTOR ASSISTANCE

Radar vector assistance for rendezvous may be given by the ATC facility when requested by participating aircraft when appropriate altitude separation is provided. Assistance must be terminated when the receiver has visual contact with the tanker.

5−5−11. ATC FACILITY RESPONSIBILITIES

The appropriate ATC facility must ensure that:

a. Approved separation is maintained until MARSA is declared by the tanker.

b. After MARSA is declared, receiver aircraft are released to tanker C/R frequency departing the ARIP, traffic conditions permitting, or unless otherwise coordinated.

NOTE−
It is essential that receivers be released to the tanker no later than the ARIP. If ATC cannot release the receivers, additional instructions must be provided immediately. Any delay in releasing the receivers significantly complicates the aerial refueling.

c. Upon request, receiver or tanker aircraft are provided assistance, to the extent possible, to confirm the other's position.

d. In the application of vertical separation based on altitude vacating reports, the altitude vacated must not be used until the aircraft has reported reaching the next IFR altitude.

e. If necessary to assign SODAR aircraft altitude blocks which are outside the vertical limits of the tracks, a vertical separation minimum of 2,000 feet will be maintained between assigned altitude blocks.

f. An ATC clearance is issued and acknowledged through the tanker aircrew for each aircraft or formation flight:

1. Refueling anchor.

2. Refueling track when exiting prior to/beyond the exit point, or if routing is different from the flight plan route.

g. An en route altitude assignment is issued for each aircraft or formation flight exiting a refueling track at the flight plan exit point.

h. Receiver aircraft that have been cleared to conduct air refueling and have departed the ARIP are issued instructions pertaining to the operation of the transponder in accordance with mileage parameters listed in the pertinent paragraphs on Military Aerial Refueling in FAA Order JO 7110.65, Air Traffic Control.

i. When all or part of the published activity will take place outside of applicable SUA or Class A airspace, provide approval, as appropriate, of the activity through the Special Use Airspace Management System (SAMS), which automatically generates a NOTAM.

5−5−12. COMMUNICATIONS FAILURE

Aircraft experiencing two-way communications failure during the conduct of aerial refueling must continue flight in accordance with the following procedures:

a. Squawk code 7600 for at least two (2) minutes prior to exiting the track or anchor. After exit, continue squawk in accordance with “Procedures for Two-Way Radio Failure IFR-VFR” set forth in the DoD Flight Information Handbook.

b. Tanker aircraft which have not received altitude instructions beyond the exit point must exit the track or anchor at the highest altitude specified in the clearance for the refueling portion of the flight and proceed in accordance with “Procedures for Two-Way Radio Failure IFR-VFR” set forth in the DoD Flight Information Handbook.

c. Receiver aircraft which have not received altitude instructions beyond the exit point must exit the track or anchor at the lowest altitude specified in the clearance for the refueling portion of

the flight and proceed in accordance with “Procedures for Two-Way Radio Failure IFR-VFR” as set forth in the DoD Flight Information Handbook.

FIG 5−5−1

En Route Cell Rendezvous for Air Refueling

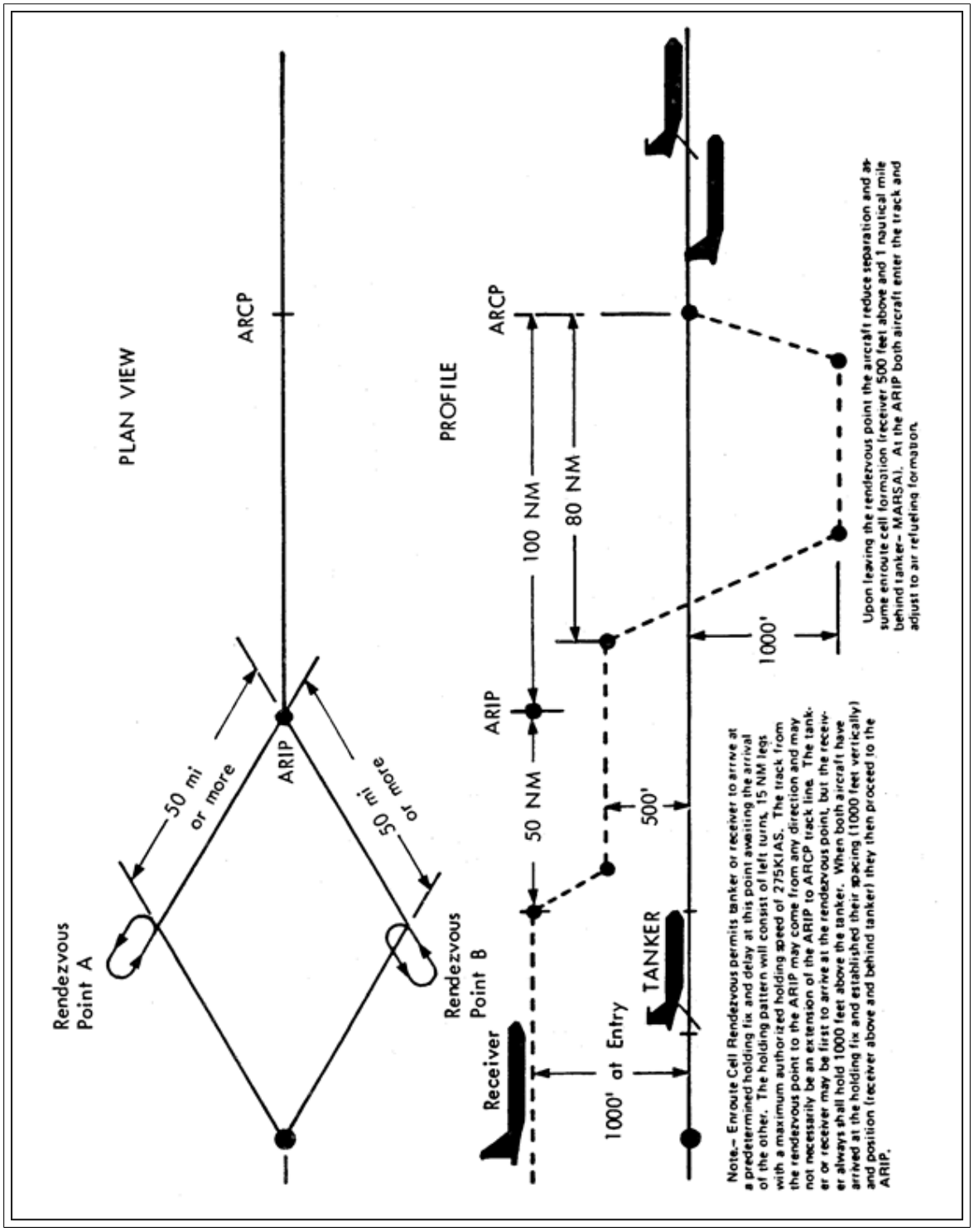
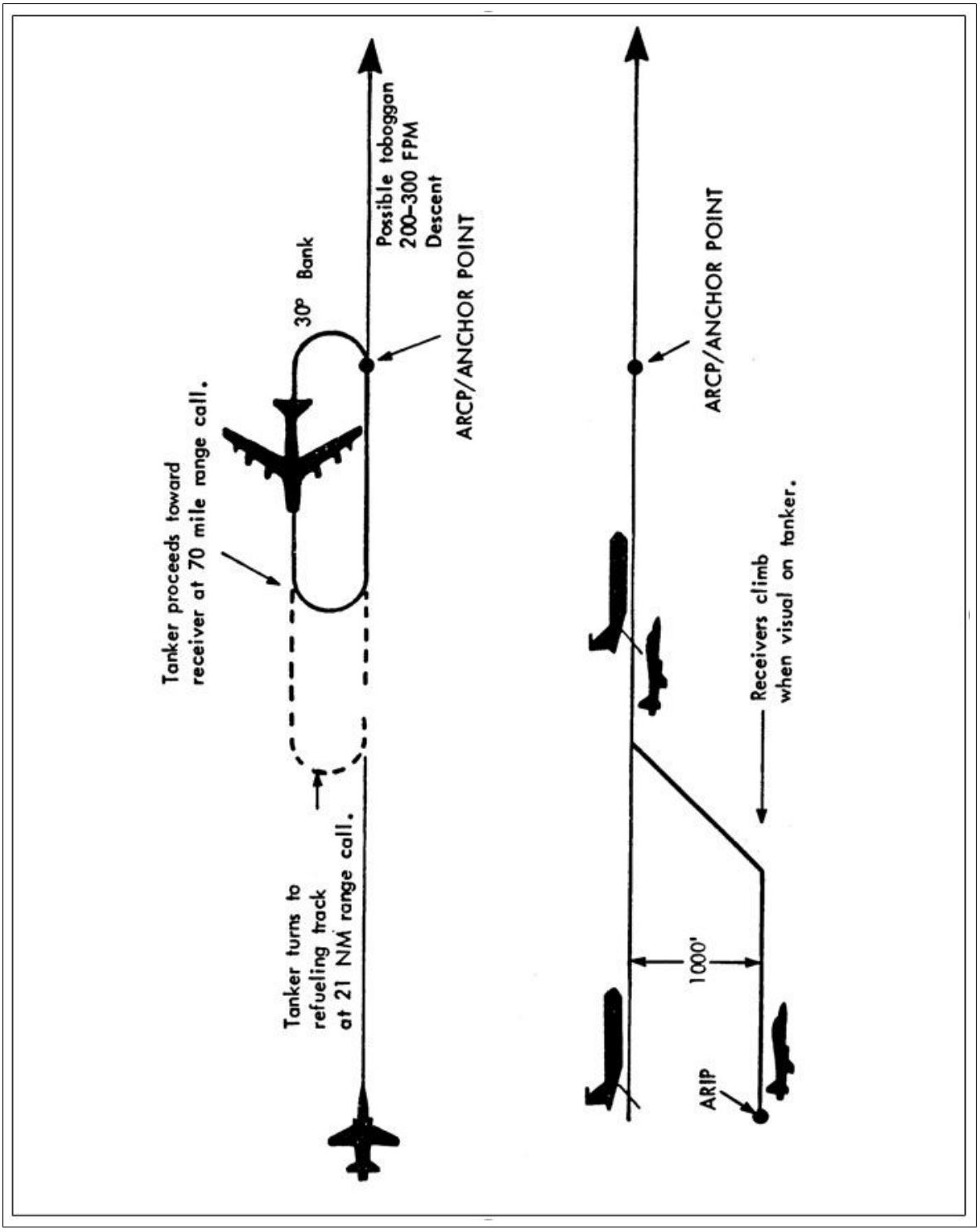


FIG 5−5−2

En Route Cell Rendezvous for Air RefuelingTurbojet Tanker/Tactical Fighter



Section 6. Special Refueling Requirements

5−6−1. PROVISIONS FOR SPECIAL TRACKS/ANCHORS

The U.S. Military and FAA embrace the concept of maximum use of published tracks/anchors. However, in recognition of the requirement for flexibility, the following special provisions are incorporated.

a. Where published tracks/anchors are inadequate for special mission/sortie, a special track/anchor may be established. Special tracks/anchors must not be published in the DoD FLIP planning document, but may be described in letters of agreement.

b. Special tracks/anchors may be established for one time use by direct coordination with the appropriate ATC facility.

c. Special tracks/anchors for other than one time use require approval of the major military command concerned and coordination with the Service Area military representative.

5−6−2. RESPONSIBILITY OF REQUESTING UNIT

Except when special tracks/anchors are requested in accordance with paragraph 5−6−6, Special Exercises, the requesting unit must be responsible for obtaining approval to transit or use:

a. SUA/ATCAA from the using agency. Assurance must be obtained from the using agency that no other activity is scheduled in the area at same time/altitudes.

b. A published refueling track or anchor from the assigned scheduling unit.

c. An MTR entry or exit, including associated tracks, from the designated scheduling unit.

NOTE−
Notification of such approval is not required by FAA.

5−6−3. OPERATIONS WITHIN AN ALTRV

Missions operating in an approved altitude reservation (ALTRV) may conduct aerial refueling operations within the ALTRV airspace. (See Chapter 4.)

5−6−4. OPERATIONS OUTSIDE AN ALTRV

Missions not operating in an ALTRV may conduct aerial refueling operations along special tracks/anchors within airspace approved for use as follows:

a. Units must submit an approval request directly to the ATC facility concerned at least 12 hours in advance, or as soon as possible, to permit coordination and receipt of approval.

b. The approval request must specify the following:

1. The portion of the route where refueling operations will be conducted.

2. ARCP patterns or rendezvous points if an En Route Cell Rendezvous is planned.

3. Altitudes requested.

4. Lateral dimensions of the airspace required.

5. Duration of operation.

6. Control times.

7. Any other information deemed necessary or requested.

c. The requirements for establishing special tracks/anchors are not applicable for refueling conducted between aircraft operating as an en route formation.

5−6−5. IN-FLIGHT REQUESTS

The tanker commander is responsible for coordinating all in-flight requests with other aircraft in the refueling operation prior to the submission of such request to ATC. The provisions of MARSA remain in effect during the execution of approved in-flight vectors unless separation responsibility is specifically assumed by the approving ATC facility. In-flight requests for radar vectors or alternate routes or altitudes to avoid weather or for emergency refueling may be approved only at the request of the tanker commander as follows:

a. Radar vectors or changes of altitude may be approved at any time.

b. Nonradar routes may be approved only after the refueling aircraft have passed the ARCP.

5−6−6. SPECIAL EXERCISES

Special tracks/anchors may be established for use during planned exercises to meet a specific mission requirement. This will be accomplished through a letter of agreement with the appropriate ATC facility and requires the approval of the major military command(s) concerned and coordination with the Service Area military representative.

5−6−7. ISSUE NOTAM

NOTAM/Ds must be issued for special tracks/anchors outside Class A airspace so as to define the refueling area as specifically as mission security will allow.

5−6−8. VFR HELICOPTER/TILTROTOR REFUELING OPERATIONS

Headquarters United States Air Force/Navy/Marine Corp/Army have stated a requirement to conduct VFR helicopter in-flight refueling operations at altitudes from 4,000 feet AGL down to 1,000 feet AGL at speeds below 210 knots.

5−6−9. VFR REFUELING TRACK ESTABLISHMENT

a. Military units may request establishment of a VFR helicopter refueling track when a determination has been made:

1. By appropriate military headquarters (major command/type command) that other alternatives have been explored; e.g., use of existing MOAs, restricted areas, or other published refueling tracks.

2. That coordination with the scheduling agencies of other military airspace/routes has been accomplished to develop mutually acceptable conflict resolution criteria/procedures.

3. That the number of tracks must be kept to the absolute minimum required to meet mission requirements.

b. The originator of the track must obtain a route designator for use during coordination from NGA/MCBB, Mail Stop L-27, 3200 South 2nd Street, St. Louis AFS, Missouri 63118, by letter, message (NGA ST. LOUIS AFS MO/MCBB) or telephone (DSN 693-4636 or commercial 314-263-4636) or FAX (DSN 693-4993 or commercial 314-263-4997). The number in the designator provided by NGA will be prefixed by an “X”; e.g., AR X800V, to indicate the number to be used for coordination purposes only. The prefix “X” will be deleted when published in

FLIP planning. The suffix "V" has been added to indicate a visual or VFR helicopter refueling track.

c. VFR published refueling tracks must:

1. Be operationally flight evaluated for the entire track to ensure compatibility with VFR obstacle clearance.

2. Be depicted on DoD FLIP AP/1B charts.

NOTE−
Following MAJCOM/TYCOM and FAA approval (reference paragraph 6−4−7, NGA Responsibilities), the Service Area military representative will forward the route description to NGA for publication in FLIP.

3. Be depicted on appropriate aeronautical charts.

NOTE−
The Air Traffic Service Area office in whose area the route originates is responsible for submitting the route description for publication. A charting request must be submitted to the FAA Aeronautical Information Services, Aeronautical Data website at https://www.faa.gov/air_traffic/flight_info/aeronav/aero_data/.

5−6−10. REFUELING TRACK DEFINITION

a. Track width - In all cases, the refueling track must be of sufficient size to contain all planned activities. Normally, VFR refueling tracks will be 4NM either side of centerline unless otherwise specified.

b. Track length - Normally 50-100 NM.

c. Track alignment - Track alignment criteria must be as follows:

1. Track widths must be designed to permit refueling aircraft to avoid Class B, C, D, airspace and Class E surface based areas below 3,000 feet AGL, scheduled air carrier airports, and high-density general aviation airports.

2. All VFR refueling tracks to be flown at/below 1,500 feet AGL should be designed to permit aircraft flying the track to avoid charted, uncontrolled airports by 3 NM or 1,500 feet. Where it is impracticable to comply with this criteria, procedures must be established to minimize conflict with airport traffic by maintaining liaison with airport owners/operators.

3. Avoid known VFR flyways.

4. Tracks should be aligned to minimize disturbance to people or property on the ground.

5−6−11. OPERATING PROCEDURES

a. The requestingunitmust notify the tie-in FSS in advance of anyplannedunpublished aerial refueling track activity that has been approved by the appropriate ATC facility.

b. Appropriate ATC facilities (en route and terminals), wherein radio and radar coverage exist along the VFR track, must provide radar advisory service (reference FAA Order JO 7110.65, Air Traffic Control) to tanker aircraft.

c. Upon notification of an unpublished aerial refueling track activity, the tie-in FSS must transmit a NOTAM/D in accordance with FAA Order 7930.2, Notice to Airmen (NOTAM).

d. FSSs must include pertinent VFR refueling activity in pilot briefings in accordance with FAA Order JO 7110.10, Flight Services.

5−6−12. FLIGHT PLAN REQUIREMENTS

a. Pilots departing on IFR clearance en route to a helicopter refueling track are required to file to the fix/radial/distance of their entry/alternate entry point of the track.

b. Pilots transitioning to IFR upon exiting the helicopter refueling track are required to have on file a previously filed IFR flight plan from the appropriate fix/radial/distance of their exit point.

NOTE−
Except in Alaska, composite IFR-VFR-IFR flight plans may be filed with appropriate FSS and BASEOPS. Stereo flight plans could be an advantage in flight planning.

5−6−13. WEATHER MINIMUMS

Operations on VFR refueling tracks must be conducted only when the weather is at or above VFR minimums.

5−6−14. ADHERENCE TO REFUELING TRACK

Pilots operating on VFR refueling tracks must be responsible for remaining within the lateral and vertical confines of the VFR refueling tracks.

5−6−15. FAA COORDINATION

a. Proposals for establishing VFR refueling tracks must be submitted in the format and with the data depicted in FIG 5−4−1 to the appropriate ARTCC/CCF/HCF with a copy to the appropriate Service Area military representative. In those airspace areas not under the direct jurisdiction of FAA, the theater command headquarters must develop procedures for coordination and approval of proposed tracks and anchors.

b. The ARTCC/CCF/HCF which received the request for establishment of an aerial refueling track must assume the responsibility for FAA internal coordination as necessary. Following ARTCC/CCF/HCF comment/concurrence, the originating unit will forward the final proposal to the military major/type command for approval. The military major/type command will forward the proposal to the Service Area military representative for final review, coordination, and publication.

c. The Air Traffic Service Area office must review each proposed VFR helicopter refueling route and coordinate it with other interested FAA Service Area offices. The Service Area review will include a determination that the proposed VFR refueling tracks are consistent with the criteria contained in this part. Terminal ATC facilities will be included in the development of tracks transiting their airspace.

d. Unusual requirements, not in accordance with this criteria, for limited/onetime-use VFR tracks, will be coordinated directly with appropriate military headquarters.

5−6−16. PUBLICATION/SCHEDULING

The military must designate a scheduling activity for each VFR refueling track. (See paragraph 3−2−1, Requirement.)

Chapter 6. Military Training Routes (MTR)

Section 1. General

6−1−1. PURPOSE

This chapter prescribes policy, criteria, administrative, and operating procedures pertaining to routes for military training/research, development, test and evaluation (RDT&E) conducted below 10,000 feet MSL, in excess of 250 KIAS. Although the MTR structure is intended for operations below 10,000 feet MSL, route segments may be defined at higher altitudes.

6−1−2. POLICY

The policy concerning military operations in excess of 250 KIAS below 10,000 feet MSL is specified in the Speed Authorization Granted to DoD. (See Appendix 4).

6−1−3. DEVIATIONS

a. The FAA Service Area office managers may authorize deviations from the provisions of this chapter when user requirements cannot be supported within established criteria. They may not waiver the provisions contained in the Speed Authorization Granted to DoD. (See Appendix 4).

b. Approved deviations from this chapter must be fully coordinated and must contain provisions to ensure an appropriate level of safety. Copies of approved deviations must be forwarded to FAA Headquarters, Mission Support Services, Airspace Rules and Regulations Team, by the originating FAA Service Area.

6−1−4. PUBLICATION

MTRs must be published as follows:

a. IFR En Route Low Altitude Chart - This chart depicts all IRs and those VRs that accommodate operations above 1,500 feet (AGL).

b. VFR Sectional Aeronautical Chart - It is intended that this chart will depict all areas of military training activities; i.e., IRs and VRs regardless of altitude, military operation areas, restricted, prohibited, warning, and alert areas.

c. DoD Flight Information Publication (FLIP) AP/1B and AP/3 – These publications, furnished by the DoD, are primarily for military users and contain detailed information on both IRs and VRs. The FLIP contains a description of these routes.

6−1−5. RECORD OF MILITARY TRAINING ROUTE (MTR) OPERATIONS

a. The Scheduling Activity responsible for activating an MTR must maintain a record of all MTR operations for the preceding calendar year.

1. The record of MTR operations must include the date, route, and aircraft information for each operation.

2. The record of MTR operations must be made available to the FAA Service Area upon request.

3. The FAA Service Area will review the record of MTR operations as needed.

b. ARTCC/CCF/HCFs must maintain MTR operational records as required in FAA Order JO 7210.3, Chapter 9, Facility Statistical Data, Reports, and Forms; Section 1, Operational Count Data.

6−1−6. FAA FORM 7110-4, MILITARY TRAINING ROUTE DATA

a. FAA Form 7110-4, Military Training Route Data, must be used for all requested proposed/revised Military Training Routes (MTRs) in accordance with the procedures in this chapter.

b. FAA Form 7110-4 is located on the MyFAA employee website at https://employees.faa.gov/tools_resources/forms/index.cfm/go/document.information/documentID/181590 and the FAA Aeronautical Information Services (AIS), Aeronautical Data website at https://www.faa.gov/air_traffic/flight_info/aeronav/aero_data/Data_Forms/.

Section 2. MTR Route Designation Criteria

6−2−1. LIMITATIONS

a. Routes must be limited to the minimum number necessary to support operational requirements as determined by the appropriate military major/type command.

b. To the extent practicable, routes must be designed to accommodate the maximum number of users and activities on the same route.

6−2−2. ROUTE IDENTIFICATION

a. Routes must have a designator composed of the prefix “IR” or “VR” followed by a number from the table in subparagraph e, indicating the FAA Service Area in which the route's entry point is located. Alternate route segments established in accordance with paragraph 6−4−5, Alternate Entry, Exit, and End Points, or paragraph 6−7−5, Alternate Entry/Exit/End Points, must be identified by using the basic/principal route designator followed by a letter suffix; e.g., IR101A, IR101B, VR102A, VR102B.

b. Route numbers must not be duplicated, regardless of whether they are IR or VR numbers. Assignment of route numbers must be by the Service Area military representatives.

c. MTRs that include one or more segments above 1,500 feet (AGL) must be identified by three number characters; e.g., IR206, VR207.

d. MTRs with no segment above 1,500 feet (AGL) must be identified by four number characters; e.g., IR1206, VR1207.

e. Route number assignments must be made from the following allocation:

TBL 6−2−1

Route Number Assignments

Region	MTR Numbers, One or More Segments Above 1,500 Feet AGL	MTR Numbers, All Routes at or Below 1,500 Feet AGL
Southern	001 thru 099	1001 thru 1099
Southwest	100 thru 199	1100 thru 1199
Western-Pacific	200 thru 299	1200 thru 1299
	980 thru 999	1980 thru 1999
Northwest Mountain	300 thru 499	1300 thru 1499
Central	500 thru 599	1500 thru 1599
Great Lakes	600 thru 699	1600 thru 1699
Eastern	700 thru 799	1700 thru 1799
New England	800 thru 899	1800 thru 1899
Alaska	900 thru 979	1900 thru 1979

f. If a route is in development, the route's originator must contact the appropriate military representative located in the FAA Service Area in which the route commences to obtain a route number.

g. MTRs are one-way routes. If the route is to be flown in the opposite direction, a separate route designator must be assigned.

Section 3. Publicity

6−3−1. INFORMATION TO THE PUBLIC

After Military Training Routes (MTR) are established, the FAA must notify the public with the description, location, and periods of use. At a minimum, the FAA must:

a. Ensure MTR information is available through FSS.

REFERENCE−
Aeronautical Information Manual, Para 5−1−1, Preflight Preparation.
Aeronautical Information Publication, ENR 1.10-1.1, Preflight Preparation.

b. Publicize the MTR program through pilot meetings and other outreach programs to the aviation communities.

c. Develop and ensure appropriate aeronautical charts depicting MTRs are publicly available.

NOTE−
IFR En Route Low Altitude Charts and VFR Sectional Charts are available for free download on the FAA Aeronautical Information Services, Digital Products website at https://www.faa.gov/air_traffic/flight_info/aeronav/digital_products/.

d. Include a description of the MTR program in the AIM and the AIP along with reference to the appropriate aeronautical publications, as well as other available methods for accessing MTR information.

REFERENCE−
Aeronautical Information Manual, Para 3−5−2, Military Training Routes.
Aeronautical Information Publication, ENR 5.2-4, Military Training Route (MTR).

Section 4. IR Route Definition

6−4−1. ROUTE WIDTH

Widths of route segments are determined by the military. The route width will be sufficient to contain all planned activities.

6−4−2. ROUTE ALIGNMENT

Route alignment criteria must be as follows:

a. All IRs to be flown at or below 1,500 feet AGL should be designed to permit aircraft flying the route to avoid charted, uncontrolled airports by 3 NM or 1,500 feet. Where it is impractical to comply with this criteria, procedures must be established by the scheduling/originating activity to minimize conflict with airport traffic; i.e., identify volume and type traffic, highlight need for increased vigilance commensurate with situation, maintain liaison with airport owner/operator, include appropriate cautionary note in route description: "Avoid flight within 1,500 feet or 3 NM of airport when practicable," etc.

b. Subsequent charting of airports within 3 NM of an MTR may require route realignment to conform to the criteria established in subparagraph a.

c. Routes should be aligned to avoid Class B, C, and D airspace.

d. During development of routes, consideration should be given to potential conflict with published and unpublished instrument procedures/routes.

e. Routes should be aligned so that disturbance to persons or property on the ground is minimized.

6−4−3. ALTITUDES

a. Altitudes must be established for each route segment. Routes must contain the minimum number of altitudes commensurate with mission requirements and may be specified singly, in blocks, or a range from which ATC assignment may be made. Minimum altitudes for each route segment must be established by the military. Altitude information must be reflected on FAA Form 7110−4 (see FIG 6−5−2 for sample form) as follows:

REFERENCE−
FAA Order JO 7610.14, Para 6−1−6, FAA Form 7110-4, Military Training Route Data.

1. IRs should depict the highest altitude in MSL terms. The lowest altitude may be depicted in either MSL or AGL terms.

2. An altitude block must be depicted as the lowest altitude followed by a "B" followed by the highest altitude.

EXAMPLE−
5 AGL B 20 MSL
40 MSL B 60 MSL
SFC B 50 MSL

3. A range of altitudes from which ATC may assign a single altitude must be depicted as the lowest altitude, in MSL terms, followed by a "-" followed by the highest altitude in MSL terms (when acceptable to the mission).

EXAMPLE−
20 MSL-50 MSL

b. Unless the route segment is clearly annotated, "for use in VMC conditions only," each route segment must contain an altitude that is suitable for flight in IMC and can be used in the event of an aircraft systems failure. This altitude must be referred to as the IFR altitude and may be contrary to 14 CFR section 91.177 (Minimum Altitude for IFR Operations) when specifically authorized by appropriate military authority. The IFR altitude must always be depicted in MSL terms. In no case will flight operations be conducted at altitudes less than those specified in 14 CFR section 91.119 (Minimum Safe Altitude, General). In the absence of an established IFR altitude, the IFR altitude is the highest altitude designated for the route segment as depicted in the route description.

c. All altitudes must be established by the military. The military may use other than FAA standards for establishing IFR altitudes for route segments.

d. When practical, the designated exit fix altitude must be within an area of ATC radio coverage. When it is determined that ATC impact or other constraints preclude the exit fix altitude from being established within radio coverage, an altitude below radio coverage may be utilized provided procedures for routinely exiting the route (i.e., pre-coordinated clearances, stereo routes, and actions to be taken by the pilot in the event twoway communications are lost) are covered in a letter of agreement.

6−4−4. RE-ENTRY SEGMENTS

Consistent with ATC capabilities, routes may have re-entry segments. To the extent practicable, re-entry segments should avoid ARTCC/CCF/HCF boundaries.

6−4−5. ALTERNATE ENTRY, EXIT, AND END POINTS

a. Any point on the route may be identified as an alternate entry/exit/end point. Entry points must precede exit points on the routes/alternate routes with which they are associated.

b. Whenever a route is modified by designating alternate entry/exit/end points, the route segments associated with the alternate points must be considered modifications to the basic/principal route and may be described and designated as alternate routes.

c. Any alternate route segments must meet all of the requirements pertinent to the establishment of new routes.

6−4−6. ROUTE REPORTING POINTS

a. Unless otherwise specified in the letter of agreement, the National Flight Data Digest (NFDD), and the DoD FLIP AP/1B route description, exit points must be mandatory reporting points.

b. Other mandatory reporting points may be established for ATC purposes. These must be kept to those absolutely essential in providing approved separation between the route user and other IFR traffic. These points must be specified in the letter of agreement, as appropriate, and the route description.

6−4−7. SPECIAL OPERATING PROCEDURES

Special operating procedures may be imposed, but must be held to the minimum required. These procedures may be applied on a route segment basis and need not apply to the entire route. Such restrictions must be a part of the narrative route description as published in the NFDD and DoD FLIP AP/1B (or AP/3). If ATC procedures are involved, they must be included in the letter of agreement governing the use of the route.

6−4−8. LOW ALTITUDE AIR-TO-AIR TRAINING (LOWAT)

a. LOWAT must be accomplished only on IRs specifically designated for this purpose.

b. The provisions for an equivalent level of safety for LOWAT training must be contained in a letter of agreement between the ARTCC/CCF/HCF and the military unit.

c. LOWAT maneuvers are not “classical intercepts,” but allow for observation and analysis of an aerial attack, initiation of the appropriate defensive response, and continuation of the primary mission with minimal interruption. LOWAT training maneuvers conducted on IRs must be limited to:

1. No more than a 90-degree turn will be performed on the IR.

2. LOWAT maneuvers will be terminated as soon as visual and/or radio contact is made by the defending aircraft.

3. Weather minimums on IRs at maneuvering altitudes must be 1,500 feet from clouds and 3 miles flight visibility.

d. LOWAT training must be limited to those aircraft with sophisticated operating airborne radar systems.

e. IRs designated for LOWAT will be coordinated on an individual basis, approved at FAA Washington Headquarters, published in DoD FLIP, and clearly identified as a designated LOWAT route.

Section 5. IR Coordination

6−5−1. ESTABLISHING OR REVISING IR ROUTES

a. Military units having a requirement to establish or revise a route must have that requirement validated by the appropriate military major/type command. As a part of the validation process, a determination must be made that other alternatives have been explored (e.g., use of existing MOAs, restricted areas, or other routes). This determination must be documented in writing and become a part of the route proposal.

b. All route requests or route amendments developed by the originating unit must be submitted on FAA Form 7110-4 (see FIG 6−5−2 for sample form). A letter of transmittal must contain sufficient information to allow each reviewing authority to adequately understand and evaluate the proposal/revision. For route revisions, complete FAA Form 7110-4 with only the changed/new data, route designation, and originating activity. Select "Modify" in the Action box.

REFERENCE−
FAA Order JO 7610.14, Para 6−1−6, FAA Form 7110-4, Military Training Route Data.

c. All route proposals must be illustrated on a current sectional chart (not required for revisions that do not effect route alignment) with routes depicted as follows:

1. Routes must be depicted by lines defining the route widths.

2. Altitudes must be depicted along each route segment and expressed in hundreds of feet AGL or MSL as appropriate. Altitude blocks or ranges must be indicated by separating the altitudes with a "B" for blocks or a dash "-" for ranges. (Refer to paragraph 6−4−3, Altitudes.)

3. Each point/fix, including turn points, must be identified in degrees, minutes, and seconds to the nearest tenth of a second, by sequential alphabetical lettering in accordance with the direction of flight.

d. The originating unit must coordinate the route proposal with other affected military organizations.

e. The ARTCC/CCF/HCF in whose area the route originates must be the focal point and coordinate with other ATC facilities.

f. A listing of all personnel and organizations coordinated with must become a part of the route proposal.

g. Once the ARTCC/CCF/HCF has concurred with an IR proposal, subsequent changes must be re-coordinated with the ARTCC/CCF/HCF and documented regardless of the level at which the change was made.

h. Prior to submission for publication, the military must conduct an operational flight evaluation of the entire route to ensure compatibility with obstacle clearance, navigation, communication, and special restriction requirements. Coordination with the appropriate ATC facilities is required.

i. Once ARTCC/CCF/HCF proponent agreement has been reached, proposals must be forwarded to the appropriate military major/type command headquarters for review and environmental certification.

j. If agreement between the proponent and the ATC facilities involved cannot be achieved after consideration of all feasible alternatives and compromises, the proponent must request

assistance from the appropriate military headquarters and the FAA Service Area military representative. A resolution must then be sought at a meeting attended by the proponent, the ATC facilities involved, military major/type command headquarters representatives, the FAA Service Area, and the military representatives. Should a resolution not be achieved, the military headquarters representatives may authorize the proponent to proceed with processing of a VR proposal in lieu of the disagreed IR.

k. FAAService Area Review action: IR proposals must be forwarded to the military representative at the FAA Service Area in which the routes originate. The IR proposal(s) must include copies of all environmental documentation supporting the proposal and the major/type command headquarters' environmental certification addressed in paragraph 6−5−1.i. above. The military representative must review the proposals for compliance with this criteria, coordinate with other military service representatives, and then submit them to the FAA Service Area office.

l. The FAA Service Area must:

1. Coordinate all proposals with other interested FAA Service Units.

2. Determine when proposals will increase the burden on civil users of the navigable airspace, and coordinate those proposals with the appropriate civil aviation user groups.

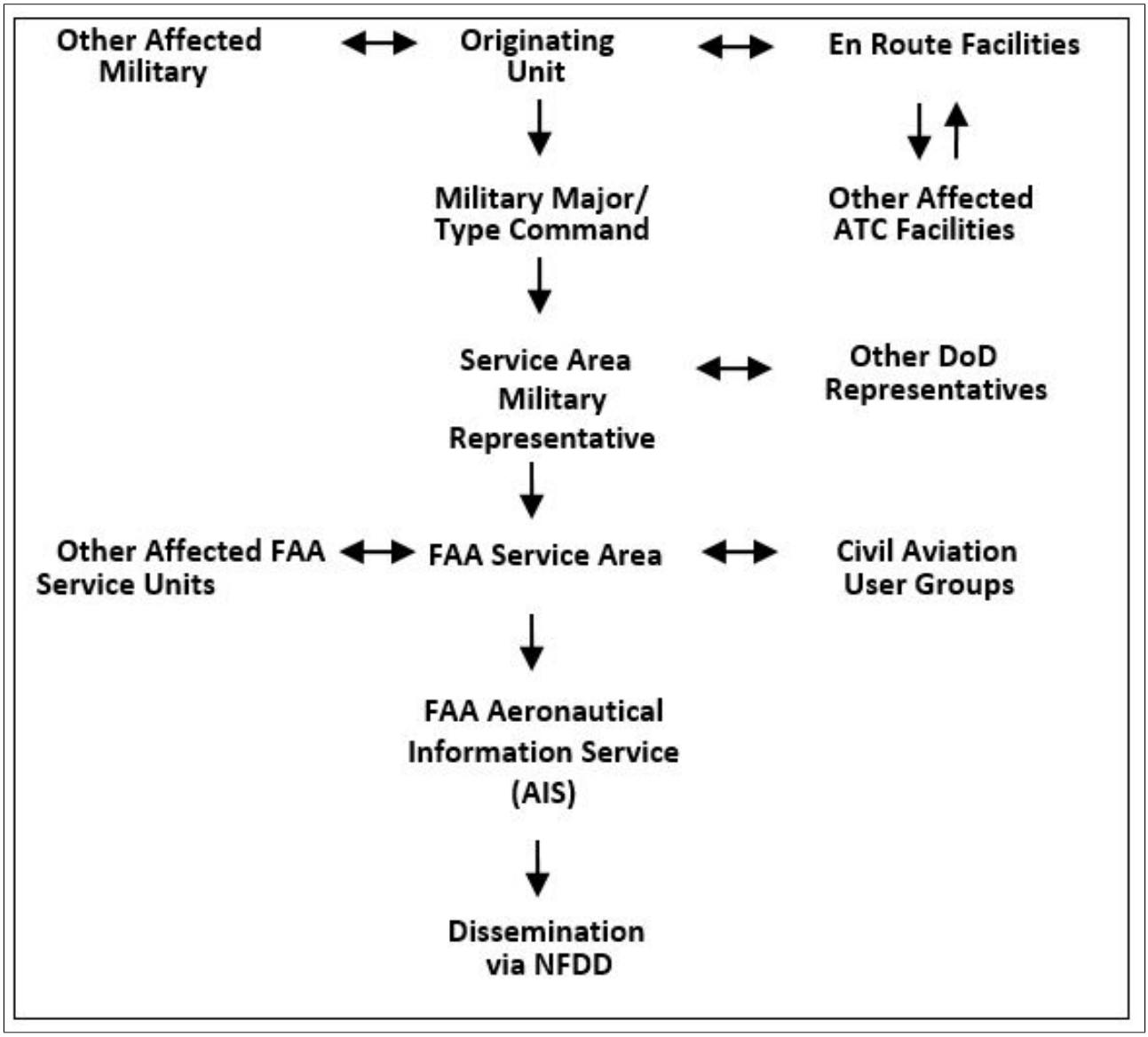
3. Approve or disapprove the proposal and notify the Service Area military representative, in writing, within 45 days of receipt of the original proposal.

m. The FAA Service Area office is the final approval authority for all IR proposals/revisions.

n. The block diagram below represents the normal coordination flow of a proposed IR.

FIG 6−5−1

Normal Coordination Flow of a Proposed IR



6−5−2. PUBLICATION

a. The FAA Service Area office in whose area the route originates must submit the approved FAA Form 7110-4 containing the route descriptive data to FAA Aeronautical Information Services (AIS), Aeronautical Data website at https://www.faa.gov/air_traffic/flight_info/aeronav/aero_data/, at least 58 days prior to the requested/required airspace effective date. Send a copy to the appropriate Service Area military representative.

1. AIS must issue the official, complete route description via the National Flight Data Digest (NFDD). It must be published in the same format as FAA Form 7110-4.

2. The DoD FLIP Area Planning booklets, AP/1B or AP/3, as appropriate, must be the official source of MTR descriptions for military users. It must be published in the same format as FAA Form 7110-4.

b. ARTCC/CCF/HCFs must review IR data published in the NFDD for accuracy and inform the appropriate FAA Service Area office whenever a disparity exists between that which was agreed to and that which was published.

c. The military is responsible for submitting IR data for publication in the DoD FLIP AP/1B booklet in accordance with DoD FLIP GP, Chapter 11. Military originating activities must review IR data published in the DoD FLIP AP/1B and AP/3 booklets and charts for accuracy and inform the appropriate Service Area military representative whenever a disparity exists between that which was submitted and that which was published.

d. Military originating activities and ARTCC/CCF/HCFs must ensure that IR data published in the DoD FLIP AP/1B and AP/3 booklets correlate with provisions contained in the letters of agreement governing the use of the route.

6−5−3. EFFECTIVE DATE

a. New routes are effective upon the Aeronautical Information Regulation and Control (AIRAC) date published in the National Flight Data Digest (NFDD) and the DoD FLIP Area Planning booklets, AP/1B or AP/3, as appropriate.

b. Revisions to existing routes are effective upon the AIRAC date published in the NFDD and the DoD FLIP Area Planning booklets, AP/1B or AP/3, and issued as a Flight Data Center (FDC) NOTAM.

This form must be completed by federal government employees only.

FIG 6−5−2

Instructions for Completing FAA Form 7110−4, Military Training Route Data

Administrative Details. Provide as follows:

1. Originating Activity (required). Enter the designation, address, and DSN and/or commercial phone number(s) for the Originating Activity or check "No Change" box if unchanged from original submission of the MTR.

2. Scheduling Activity. If the Scheduling Activity is different from the Originating Activity, enter the designation, address, and DSN and/or commercial phone number(s) for the Scheduling Activity. If the Scheduling Activity is the same as the Originating Activity, check the "Same as Originator" box. If unchanged from original submission of the MTR, check the "No Change" box.

3. Route Designation (required). Enter the VR or IR route number as assigned by the Service Center Military Representative.

4. Action (required). Select Establish, Modify, or Cancel from the drop-down list to identify the action for this MTR.

5. Hours of Operation. Enter the operational times of the MTR in hours using local or Coordinated Universal Time (UTC); and/or days. Other descriptive terms may also be entered (e.g., By NOTAM; Continuous; Daylight Hours). If unchanged from original submission of the MTR, check the "No Change" box.

6. Effective Date. Enter the effective date of the intended DOD FLIP AP/1B in which the MTR will be published. Unless a specific publication date for the MTR is needed, check the "Next Available Charting Date" box.

Route Description. Provide a complete description of the route including all of the various tracks as follows:

Exception: If unchanged from original submission of the MTR, check the "No Change" box.

1. Basic Route Description. The route from the en route altitude to the MTR and return to en route altitude.

a. Enter altitude(s) for each route segment, the letter of all action points, NAVAID identification (if entered), and latitude/longitude.

b. Enter applicable special communications and/or reporting procedures in the altitude data column below the route segment where it applies.

2. Alternate Entry Track. An alternate track from en route altitude to a designated entry point to the MTR.

a. Enter the words, "Alternate entry track to PT_" in altitude data column.

b. Enter on the next lines, altitude(s), points, NAVAID (if entered), and latitude/longitude data.

c. Enter applicable special communications and reporting procedures in the altitude data column.

3. Alternate Exit Track. An alternate track from a designated exit point to en route altitude.

a. Enter the words "Alternate exit track to PT_" in altitude data column.

b. Enter on the next lines, altitude(s), points, NAVAID (if entered), and latitude/longitude data.

c. Enter applicable communications and reporting procedures in the altitude data column.

4. Reentry track. The track to be followed from a designated exit point to reenter the MTR at a designated entry point.

a. Enter the words "Reentry track from PT_" in altitude data column.

b. Enter on the next lines, altitudes, points, NAVAID (if entered), and latitude/longitude data.

c. Enter applicable communications and reporting procedures in the altitude data column.

FIG 6−5−3

5. Other/Routes. Any other track/route established as part of the MTR.

a. Enter the identification of the track/route in the altitude data column (e.g., transition route, racetrack north, racetrack south, etc.).

Altitude Data Column:

1. Express all altitudes in hundreds of feet and identify as MSL or AGL (e.g., 50MSL, 10AGL).

2. Enter the altitude(s) for each route segment to be flown to the point in the adjacent column as follows:

a. A single altitude, which must be used for the entry route segment (e.g., 50MSL).

b. A block of altitudes within which all operations will be conducted. This consists of two altitudes separated by the letter "B" (e.g., 30AGLB80MSL).

c. A range of altitudes from which ATC will assign the altitude to be flown. This consists of two altitudes separated by a dash (e.g., 50MSL−80MSL).

d. An IFR altitude must be shown for each route segment. If the highest altitude established for the route segment is also the IFR altitude, no other entry is required. If the highest altitude is not the IFR altitude, enter a separate IFR altitude immediately after the route segment altitude(s) in parentheses e.g., 10MSL−20MSL (50MSL); 30MSL (50MSL).

Route Width Left/Right Columns:

1. Specify the width of all routes and tracks segments in terms of nautical miles left and right of track centerline. The Left/Right Route Width columns require a nautical mile entry for each track segment. Avoid using general descriptions (e.g., "BRAVO MOA") for a segment width in the Left/Right Route Width columns.

NOTE-
Additional information or general description regarding the width of route and track segments may be entered in the Route Width Section of this form.

Point (PT) Column. All action points published in the DoD FLIP AP/1B must be assigned a letter designator.

1. Identify the first 26 points by the letters A through Z; the second 26 points by the letters A through Z preceded by the letter A (e.g., AA, AB, AC); the third 26 points by the letters A through Z preceded by the letter B (e.g., BA, BB, BC).

2. Add a numerical suffix to the letter designator incrementally by one each time the point is reused (e.g., first time, P; second time, P−1; third time, P−2, etc.).

NAVAID Column (optional entry):

1. Enter a three letter NAVAID identifier for each navigation point from the following types: VOR/DME, TACAN, VORTAC.

2. MTR action points currently identified by a decommissioned NAVAID must be replaced with a commissioned NAVAID. If a NAVAID replacement is not provided, FAA Aeronautical Information Services (AIS) will remove the decommissioned NAVAID from the affected navigation point(s) and publish only the latitude/longitude coordinates for the point.

FIG 6−5−4

Latitude/Longitude Columns:

1. Enter the latitude and longitude of navigation points in degrees, minutes and seconds to the nearest tenth of a second (e.g., 47-27-30.2N, 99-02-30.0W). All geographical references must be based on North American Datum (NAD), in accordance with FAA Order 8260.19, Flight Procedures and Airspace.

NOTE-
FAA AIS will use the geographical coordinate values in the latitude/longitude column to compute radial/distance information and publish in the National Flight Data Digest (NFDD). NGA will publish the NFDD data in the DoD FLIP AP/1B.

2. If the point is entered as a NAVAID, enter the three-letter identifier instead of the geographical coordinate values.

NOTE-
FAA AIS will use the geographical coordinate values for the NAVAID stored in its data base and publish in the NFDD. NGA will publish the NFDD data in the DoD FLIP AP/1B.

Route Width Field:

1. Enter any additional information or general description regarding the width of route and track segments.

2. If unchanged from original submission of the MTR, check the "No Change" box.

Terrain Following Operations:

1. Explain procedures to be followed.

2. If appropriate, show point to point in sequential order, VFR or IFR criteria and altitudes; and other information as necessary.

3. If unchanged from original submission of the MTR, check the "No Change" box.

Special Operating Procedures:

1. Enter all special procedures and/or remarks for this route.

2. Procedures may be general in nature or specific to a route segment. Include the following: (1) turn radius instructions, if required; (2) all primary and alternate entry points; (3) all primary and alternate exit points.

3. If unchanged from original submission of the MTR, check the "No Change" box.

Route Origination:

1. Identify the Service Center and ARTCC where the route originates as follows:

a. Select the Service Center via drop-down list; and

b. Manually enter the identifier for the ARTCC.

NOTE-
Reverse routes may require concurrence from different Service Centers and ARTCCs.

Signature of Approving Officials:

1. For each Approving Official line, enter the office symbol; select concur or non-concur via drop-down list; and sign in the signature space.

FIG 6−5−5

FIG 6−5−2 Continued FAA Form 7110-4, Military Training Route Data - SAMPLE

ROUTE This form must be completed by federal government employees only.

FAA FORM 7110-4 MILITARY TRAINING ROUTE DATA

Route Designation: IR-501	ORIGINATING ACTIVITY (designation, address, and phone number) No Change: ☐	SCHEDULING ACTIVITY (designation, address, and phone number) Same as Originator: ☐ No Change ☐
Action: Establish	347 Rescue Wing, Detachment 1/RO 8707 North Golf Course St. MacDill AFB, FL 33621-5205	347 Rescue Wing, Detachment 1/ROA 8707 North Golf Course St. MacDill AFB, FL 33621-5205
Hours of Operation (hours and/or days; local or UTC) 0700-2400 Local, Daily No Change: ☐		
EFFECTIVE DATE (compatible with DOD FLIP AP/1B charting date) Next Available Charting Date: ☒	DSN: 968-2902/4642 Comm: 813-828-2902/4642	DSN: 968-4642 Comm: 813-828-4642

Route Description No Change: ☐)

ALTITUDE DATA	ROUTE WIDTH LEFT	ROUTE WIDTH RIGHT	POINT	NAVAID (optional)	LATITUDE	LONGITUDE
As Assigned to	8	3	A	MCF	27-30-00.0N	082-22-00.0W
05 AGL B 30 MSL to	5	5	B	LBV	27-21-43.2N	81-59-58.8W
05 AGL B 30 MSL to	5	5	C	LBV	27-18-00.0N	081-49-58.8W
05 AGL B 30 MSL to	5	5	D	LBV	26-54-01.2N	081-21-58.8W
30 MSL to	5	5	E	PHK	26-58-01.2N	081-07-58.8W
30 MSL to	4	4	F	PHK	27-10-43.2N	080-35-28.8W
05 AGL B 30 MSL to	4	4	G	TRV	27-18-30.0N	080-39-30.0W
05 AGL B 30 MSL to	3	3	H	TRV	27-30-00.0N	080-45-00.0W
05 AGL B 30 MSL to	3	3	I	TRV	27-43-00.0N	080-51-24.0W
05 AGL B 20 MSL to	3	3	J	TRV	27-50-30.0N	080-55-00.0W
05 AGL B 20 MSL to	3	3	K	ORL	28-04-00.0N	081-14-00.0W
05 AGL B 50 MSL to	6	4	L	ORL	28-00-00.0N	081-21-00.0W
05 AGL B 50 MSL to	6	4	M	ORL	27-46-00.0N	081-21-00.0W
(Excluding R-2901)						
Enter Avon North MOA if clearance into R-2901 is						
not received prior to L.						

SAMPLE

ROUTE WIDTH FIELD (Additional information regarding the width of routes or track segments.) No Change: ☐

8 NM left and 3 NM right of centerline from A to B;
5 NM either side of centerline from B to F;
4 NM either side of centerline from F to H;
3 NM either side of centerline from H to L;
6 NM left and 4 NM right of centerline from L to M.

FAA 7110-4 (07/24)

Page 1 of 4

FIG 6−5−6

SAMPLE ROUTE

TERRAIN FOLLOWING OPERATIONS (Explain procedures to be followed. If appropriate, show point to point in sequential order; VFR or IFR criteria and altitudes; and other information as necessary.) No Change: ☐

Contour flying and terrain following radar flying authorized from A to D and F to M. Minimum IMC altitude 1700' MSL from A to D and from F to M. Minimum IMC altitude 3000' MSL from D to F.

SPECIAL OPERATING PROCEDURES (Procedures may be general in nature or specific to a route segment.) No Change: ☐

(1) All requests for use of this route must be approved by the 347 Rescue Wing, Det 1/ROA Scheduling Activity a minimum of one day in advance during normal duty hours. Same day changes or cancellations shall be coordinated through the Scheduling Activity.
(2) Contact 347 Rescue Wing, Det1/RO Originating Activity during normal duty hours for hazard briefing prior to flying route.
(3) Alternate Entry: B and F when flight planned, and between H and I when entering from Marina MOA. (A is only authorized on departure from MacDill AFB, FL)
(4) This route is used for aircraft scheduled for entry into R-2901 with a specified range period. There are no Alternate Exit points.
(5) Entry/exit time windows for deconfliction with IR-046, IR-049, IR-050, IR-056, VR-1089, VR-1098 and other IR-051 traffic. For A/B Entry, enter NET 27 minutes prior to scheduled range start time (RST) and NLT 32 minutes prior to range end time (RET). For F Entry, enter NET 14 minutes prior to RST and NLT 19 minutes prior to RET. Flight must exit IR-051 NET the RST and NLT 10 minutes prior to RET. Maintain between 420-540 kts ground speed. Round entry outside time windows not authorized and requires rescheduling.
(6) Radar navigation authorized A to K.
(7) This route is deconflicted with IR-034, IR-046, IR-049, IR-050, IR-055, and IR-056. IR-051 is MARSA with them.
(8) Restrictions: Avoid overflight of hospital N27-12 W81-41 by 1 NM.
(9) IR-051 airspace coincides with VR-1006 from F to L. In VMC, See and Avoid.
(10) CAUTION: Be alert for light aircraft in vicinity of C, D, and along the Florida Turnpike.
(11) Minimum IMC altitude is 1700' MSL except from D to F where 3000' MSL is mandatory altitude. Numerous MTRs under IR-051 between D to F.
(12) 15 Oct-15 Mar/Migratory birds: From 1 hour before sunset to 1 hour after sunrise, minimum altitude is IMC altitude for entire route.
(13) Possible bird hazard area located approximately N27-20.6 W80-41.4. Avoid this area by 3 NM or above 2000' AGL.
(14) Use Caution: Entry Point A is within 2 NM of Class B and C airspace.
(15) Use Caution: Alternate Entry Point B is within 20 NM of Class B and C airspace.

SAMPLE

ROUTE ORIGINATION	
SERVICE CENTER: ESC / ARTCC: ZMA	

SIGNATURE OF APPROVING OFFICIALS

APPROVING OFFICIALS	OFFICE SYMBOL		SIGNATURE
ORIGINATING ACTIVITY		Concur	
MILITARY/MAJOR/TYPE COMMAND		Concur	
AIR ROUTE TRAFFIC CONTROL CENTER		Concur	
SERVICE CENTER MILITARY REPRESENTATIVE		Concur	
SERVICE CENTER OPERATIONS SUPPORT GROUP		Concur	

FAA 7110-4 (07/24) Page 2 of 4

Section 6. IR Route Use

6−6−1. SCHEDULING

a. Each IR route must have a designated military unit responsible for scheduling all military flights intending to use the IR route. If the designated military unit does not have a continuous point of contact; i.e., a unit subject to deployment or a unit not available during normal work days (ANG unit working Wednesday-Sunday), then an alternate scheduling agency must be designated. All flights on the IR route will be scheduled through the primary or alternate scheduling agency.

b. The scheduling agency must confirm the planned utilization of the route with theappropriate ATC facility(ies) at least 2 hours prior to use, unless otherwise agreed to in an LOA.The scheduling agency must cancel requests as soon as practical when it is determined that the route will not be used.

EXAMPLE−
IR101 0900-1000 2/F-14
0915-1000
SFC B-50 MSL
1000-1100 None
1100-1200 4/F-14
1105-1150
20 MSL-40 MSL

EXAMPLE−
IR102 0900-1000 1/T-38
0902-0944
30 MSL-40 MSL
1000-1100 1/F-14
1000-1015
SFC B-50 MSL
1100-1200 None

c. For special missions such as ORI, IR scheduling may occur well in advance of route use. In such cases, the scheduling unit may require a written confirmation prior to actual route utilization by the using unit.

6−6−2. LETTERS OF AGREEMENT * IR

a. A letter of agreement, when required, must be concluded between the military scheduling activity and the ARTCC/CCF/HCF in whose area the IR originates. This ARTCC/CCF/HCF responsibility may be performed by any affected ATC facility if so coordinated and agreed to. The letter of agreement, governing special conditions of use and procedures, must be authorized (signed) by the affected ATC facility air traffic manager and the military representatives of the originating/scheduling activity.

b. Each IR will have a designated military office responsible for scheduling all military flights, regardless of command/service, for use of the IR. IRs must not be used for military training

unless scheduled. When the use of an IR is requested by a military user, the military scheduling activity has the responsibility for scheduling the flight and advising the user of the operational procedures contained in the letter of agreement.

6−6−3. ADVISORY AND OPERATIONAL STATUS MESSAGES

When requested by the scheduling activity, ATC may relay advisory/operational messages to participating aircraft.

6−6−4. FLIGHT PLAN REQUIREMENTS

a. All IR operations must be conducted on IFR flight plans or approved altitude reservations.

b. Unless otherwise agreed to, flight plans must be filed in accordance with the following format:

1. The entry fix in terms of fix/radial/distance (FRD), route designator, and exit fix in terms of FRD followed by the balance of the route of flight. The entry and exit fix must be associated with a fix on the route, and the entry fix must be prior to the exit fix on the route.

EXAMPLE−
TNP355020.IR252.PKE107012

2. Routes having re-entries for a single Electronic Scoring Site (ESS) must contain the entry or alternate entry fix in terms of FRD, the route designator followed immediately by a plus sign (+), either the letter “R” (1st ESS) or “S” (2nd ESS), and a digit indicating the number of re-entries.

EXAMPLE−
(FRD) IR240+R2 (FRD)
(FRD) IR240+S3 (FRD)

3. Routes having re-entries for two ESS sites must contain the entry/alternate fix in terms of FRD, the route designator followed immediately by a plus sign (+), the letter “R” and a digit indicating the number of re-entries on the first ESS, immediately followed by a second plus sign (+), the letter “S” and a digit indicating the number of re-entries on the second ESS.

EXAMPLE−
(FRD) IR240+R2+S3 (FRD)

4. ESS routes must be entered and exited at the respective primary fix. Alternate ESS routes must be entered/exited at the alternate entry/exit fix. The routes must be identified by an individual name.

EXAMPLE−
(FRD) IR240+R2 (FRD)
(Primary)
(FRD) IR240A+R2 (FRD)
(Alternate)

5. Remarks.

(a) The remarks portion of a flight plan containing an IR must be consolidated into groups containing the following data if appropriate. Information contained in the route of flight section of the military flight plan need not be repeated in the remarks section.

(1) Group One.

[a] IR designator; e.g., IR101.

[b] The letter "E" and a four-digit time group indicating the entry/alternate entry time.

[c] The letter "X" and a four-digit time group indicating the exit/alternate exit time.

EXAMPLE−
IR101E1617X1815
IR102E1802X1845

(2) Group Two. Any other remarks not contained in Group One may be separated by blank spaces, dashes, or slant bars for the sake of clarity.

(b) Group One remarks must be formatted in consecutive sequence without blank spaces in accordance with the following:

(1) Flight plans where the entire route of flight remains within the ARTCC's area in which the flight departed:

[a] Clear weather symbol ( ).

[b] IR designator.

[c] Group One remarks.

[d] Group Two remarks if appropriate.

EXAMPLE−
IR101E1617X1815
MARSA . . . (etc.)

(2) Flight plans where the route of flight enters more than one ARTCC's area and an IR is completed before the aircraft exits the ARTCC's area in which the flight departed:

[a] Overcast weather symbol ( ).

[b] IR designator.

[c] Group One remarks.

[d] Clear weather symbol ( ).

[e] Group Two remarks if appropriate.

EXAMPLE−
IR101E1802X18450AR20
HFAKR1233 . . . (etc.)

(3) Flight plans where the route of flight enters more than one ARTCC's area and an IR is completed after the aircraft has exited the ARTCC's area where the aircraft departed:

[a] Clear weather symbol ( ).

[b] IR designator.

[c] Group One remarks.

[d] Group Two remarks if appropriate.

EXAMPLE−
IR101E1802X1845
MARSA . . . (etc.)

(4) Flight plans where the route of flight enters more than one ARTCC's area and an IR is completed after the aircraft has exited the ARTCC's area where the aircraft departed, and the Group Two remarks are concluded before exiting the ARTCC's area in which the flight departed.

[a] Overcast weather symbol ( ).

[b] Group Two remarks.

[c] Clear weather symbol ( ).

[d] IR designator.

[e] Group One remarks.

EXAMPLE−
AR20HFAKR1233 IR101E
1802X1845

6−6−5. IR USE DENIAL

ATC facilities should not deny the use of IRs. ATC delays may be imposed when conditions preclude route usage as scheduled. When delays are anticipated, ATC facilities must advise the pilot/scheduling unit of the expected delay and the reasons for the delay.

6−6−6. ROUTE ADHERENCE

Pilots must be responsible for:

a. Remaining within the confines of the published route width and altitude.

b. Obtaining a specific ATC entry clearance from the appropriate ATC facility prior to entering the IR.

c. Unless otherwise agreed to in a letter of agreement, obtaining an IFR ATC exit clearance prior to exiting the IR.

d. Adhering to the provisions of 14 CFR section 91.119 (Minimum Safe Altitude, General). Routes may be flown IFR contrary to 14 CFR section 91.177 (Minimum Altitude for IFR Operations) when specifically authorized by the appropriate military authority.

6−6−7. SPEED AUTHORIZATION

Flight must be conducted at the minimum speed compatible with mission requirements. When exiting an MTR below 10,000 feet MSL, the flight must comply with 14 CFR section 91.117 (aircraft speed) or the current authorization granted to DoD. (See Appendix 4, Speed Authorization Granted to DoD).

6−6−8. ENTRY/EXIT PROCEDURES

All IR entries and exits must be accomplished at published entry and exit points, or published alternate entry and exit points, unless the pilot amends/cancels their IFR flight plan.

6−6−9. COMMUNICATION FAILURE

Unless otherwise covered in a letter of agreement, each pilot who has a two-way radio communications failure when operating on an IR (between the entry and exit point) must comply as follows:

a. VFR Conditions. If the failure occurs in VFR conditions, or if VFR conditions are encountered after the failure, each pilot must continue the flight VFR and land as soon as practical. (14 CFR section 91.185b/DoD IFR Supplement.)

b. IFR Conditions. If the failure occurs in IFR conditions, or if subparagraph a above cannot be complied with, each pilot must:

1. Maintain to the exit/alternate exit point, the higher of the following:

(a) The minimum IFR altitude for each of the remaining route segment(s).

(b) The highest altitude assigned in the last ATC clearance.

2. Depart the exit/alternate exit point at the altitude determined in subparagraph 1 above; then climb/descend to the altitude filed in the flight plan for the remainder of the flight.

6−6−10. LOST COMMUNICATIONS TRANSPONDER OPERATIONS

Refer to transponder procedures in the DoD FLIP, the DoD IFR Supplement, and the AIM.

6−6−11. SEPARATION OF PARTICIPATING AIRCRAFT

a. To the extent practicable, IRs should be established for standard ATC services and approved separation applied between individual aircraft.

b. If the provisions of subparagraph a above cannot be applied because of mission requirements, crossing routes, or ATC limitations, routes may be designated for MARSA operations. The procedures for applying MARSA must be contained in the letter of agreement between the scheduling unit and the appropriate ATC facility. Specific MARSA operating procedures must be contained in the DoD FLIP AP/1B and AP/3 narrative description of the route.

NOTE−
ATC facilities' sole responsibility concerning the use of MARSA is to provide approved separation between participating and nonparticipating aircraft. (See paragraph 2−1−8, Use of Military Authority Assumes Responsibility for Separation of Aircraft (MARSA)).

c. When MARSA is provided through route scheduling and circumstances prevent the pilot from entering the route within established time limits, it must be the responsibility of the pilot to inform the ATC facility and advise of their intentions.

Section 7. VR Route Definition

6−7−1. ROUTE WIDTH

Widths of route segments must be defined by the military. In all cases, the route width must be of sufficient size to contain all planned activities. For cartographical purposes, the standard route width must be 5 NM.

6−7−2. ROUTE ALIGNMENT

Route alignment criteria must be as follows:

a. Route widths must be designed to avoid Class B and C airspace areas. Additionally, route widths must be designed to avoid Class D and E surface areas below 3,000 feet AGL.

b. All VRs to be flown at/below 1,500 feet AGL should be designed to permit aircraft flying the route to avoid charted, uncontrolled airports by 3 NM or 1,500 feet. Where it is impractical to comply with this criteria, procedures must be established by the scheduling/originating agency to minimize conflict with airport traffic; i.e., identify volume and type of traffic, highlight need for increased vigilance commensurate with the situation, maintain liaison with airport owner/operator, include appropriate cautionary note in route description: “Avoid flight within 1,500 feet or 3 NM of airport, when practicable,” etc.

c. Subsequent charting of airports within 3 NM of an MTR may require route alignment to conform to the criteria established in subparagraph b.

d. Routes should be aligned to avoid Class B airspace.

e. During development of routes, consideration should be given to potential conflict with published and unpublished instrument procedures/routes.

f. Routes must be aligned so that disturbance to persons or property on the ground is minimized.

6−7−3. ALTITUDES

Altitudes must be established for each route segment. Routes must contain the minimum number of altitudes commensurate with mission requirements and may be specified singly, or in block. Minimum altitudes for each route segment must be established by the military. Altitude information must be reflected on FAA Form 7110-4 as follows:

a. The lowest altitude may be depicted in either MSL or AGL terms. The highest altitudes may be depicted in AGL terms at 1,500 feet and below, but all altitudes above 1,500 feet AGL must be depicted in MSL terms.

b. An altitude block must be depicted as the lowest altitude, followed by a “B,” followed by the highest altitude.

> ***EXAMPLE−***
> *SFC B 50 MSL*
> *4 MSL B 15 MSL*
> *SFC B 15 AGL*

6−7−4. ROUTE ENTRY AND EXIT POINTS

Route entry and exit points should be compatible with ATC requirements for operating IFR to and from the route.

6−7−5. ALTERNATE ENTRY/EXIT/END POINTS

a. Any point on the route may be identified as an alternate entry/exit/end point. Entry points must precede exit points on the routes/alternate routes with which they are associated. Additionally, compatibility with ATC requirements for operating IFR to/from the route must be considered.

b. Whenever a route is modified by designating alternate entry/exit/end points, the route segments associated with the alternate points must be considered modifications to the basic/principal route and may be described and designated as alternate routes.

c. Any alternate route segments must meet all of the requirements pertinent to the establishment of new routes.

6−7−6. SPECIAL OPERATING PROCEDURES

Special operating procedures may be imposed but must be held to the minimum required. These procedures may be applied on a route segment basis and need not apply to the entire route. Such procedures must be a part of the narrative route description as published in the NFDD and the DoD FLIP AP/1B and AP/3.

Section 8. VR Coordination

6−8−1. ESTABLISHING OR REVISING VR ROUTES

a. Military activities may request establishment of a VR above 1,500 feet AGL when:

1. A determination has been made by appropriate military headquarters that other alternatives have been explored; e.g., use of existing IRs, existing MOAs, restricted areas, or other routes; and

2. An IR request cannot be approved or an established IR has been proven to be unsatisfactory and has been so documented by the route proponent and respective ATC facility; and

3. The requirement has been validated by the appropriate military major/type command headquarters and documented in writing. This determination must become part of the route proposal.

b. Military activities establishing routes to be flown entirely at or below 1,500 feet AGL and in visual meteorological conditions need not attempt to establish an IR as outlined in subparagraph a2.

c. Route proposals must be:

1. Coordinated with other affected military organizations.

2. Operationally flight-evaluated for the entire route to ensure compatibility with obstacle clearance, navigability, etc.

3. Forwarded to the appropriate military major/type command headquarters for approval or disapproval and verification of environmental certification.

d. Following approval, the military headquarters must forward the proposal to the military representative at the appropriate FAA Service Area in which the route originates. All route requests or route amendments must be submitted on FAA Form 7110-4 (see FIG 6−5−2 for sample form).

REFERENCE−

FAA Order JO 7610.14, Para 6−1−6, FAA Form 7110-4, Military Training Route Data.

e. The military representative must review the proposals for compliance with this criteria, coordinate with other representatives, and then submit them to the appropriate FAA Service Area.

f. The appropriate FAA Service Area must:

1. Review documentation associated with route proposals.

2. Coordinate all proposals with other interested FAA Service Area offices.

3. Determine if further actions may feasibly result in future agreement on use of the associated IR route.

4. Determine when proposals will increase the burden on civil users of the navigable airspace, and coordinate those proposals with the appropriate civil aviation user groups.

5. Notify the Service Area military representatives, in writing, of their findings within 45 days of receipt of the original proposal.

g. Final approval authority for the establishment of VRs rests with the appropriate military major/type command headquarters.

h. All route proposals must be illustrated on a current sectional chart (not required for revisions which do not effect route alignment) with the routes depicted as follows:

1. Lines defining the route widths.

2. Altitudes along each route segment expressed in hundreds of feet AGL or MSL, as appropriate. Altitude blocks must be indicated by separating the altitudes in accordance with paragraph 6−7−3, Altitudes.

3. Each point/fix, including turn points, must be identified by sequential alphabetical lettering.

6−8−2. PUBLICATION

a. The appropriate FAA Service Area in whose area the route originates must submit the approved FAA Form 7110-4 containing the route descriptive data to the FAA Aeronautical Information Services (AIS) Aeronautical Data website at https://www.faa.gov/air_traffic/flight_info/aeronav/aero_data/, at least 58 days prior to the requested/required airspace effective date. Send a copy to the appropriate Service Area military representative.

1. AISmust issue the official, complete route description via the National Flight Data Digest (NFDD). It must be published in the same format as FAA Form 7110-4.

2. The DoD FLIP area planning booklets, AP/1B or AP/3, as appropriate, must be the official source of MTR descriptions for military users. It must be published in the same format as FAA Form 7110-4.

b. The military is responsible for submitting VR data for publication in the DoD FLIP AP/1B booklet in accordance with DoD FLIP GP, Chapter 11. Military originating activities must review VR data published in the DoD FLIP AP/1B and AP/3 booklets and charts for accuracy and inform the appropriate Service Area military representative whenever a disparity exists between that which was submitted and that which was published.

6−8−3. EFFECTIVE DATE

a. New routes are effective upon the Aeronautical Information Regulation and Control (AIRAC) date published in the National Flight Data Digest (NFDD) and the DoD FLIP Area Planning booklets, AP/1B or AP/3, as appropriate.

b. Revisions to existing routes are effective upon the AIRAC date published in the NFDD and the DoD FLIP Area Planning booklets, AP/1B or AP/3, and issued as a Flight Data Center (FDC) NOTAM.

Section 9. VR Route Use

6−9−1. SCHEDULING

a. Each VR route must have a designated military unit responsible for scheduling all military flights intending to use the VR route. If the designated military unit does not have a continuous point of contact; i.e., a unit subject to deployment or a unit not available during normal work days (ANG unit working Wednesday-Sunday), then an alternate scheduling agency must be designated. All flights on the VR route will be scheduled through the primary or alternate scheduling agency.

b. The scheduling agencymust confirm the planned utilization of the route with theappropriate ATC facility(ies) and, unless otherwise agreed**,** accomplish this at least 2 hours prior to use. The scheduling agency must cancel requests as soon as practical when it is determined that the route will not be used.

EXAMPLE−
VR101 0900-1000 2/F-14
0915-1000
SFC B-50 MSL
1000-1100 None
1100-1200 4/F-14
1105-1150
20 MSL-40 MSL
VR102 0900-1000 1/T-38
0902-0944
30 MSL-40 MSL
1000-1100 1/F-14
1000-1015
SFC B-50 MSL
1100-1200 None

6−9−2. COMPLIANCE

It is the responsibility of the scheduling activity to ensure that all VR users are knowledgeable of the respective route procedures. Individual users are responsible for compliance.

6−9−3. FLIGHT PLAN REQUIREMENTS

a. Pilots departing on IFR clearances to fly VRs are required to file to the fix/radial/distance of their entry/alternate entry point of the route.

b. Pilots transitioning to IFR upon exiting the VR are required to have on file a previously filed IFR flight plan from the appropriate fix/radial/ distance of their exit point.

NOTE−
Composite IFR-VFR-IFR flight plans may be filed with the appropriate FSS. Stereotype flight plans could be an advantage to flight planning.

6−9−4. ROUTE ADHERENCE

Pilots of flights on VRs must be responsible for remaining within the lateral and vertical confines of the route.

6−9−5. SPEED AUTHORIZATION

Flights must be conducted at the minimum speed compatible with mission requirements. When exiting an MTR below 10,000 feet MSL, the flight must comply with 14 CFR section 91.117 (aircraft speed) or current authorization issued to DoD. (See Appendix 4, Speed Authorization Granted to DOD).

6−9−6. WEATHER MINIMUMS

Operations on the route must be conducted only when the weather is at or above VFR minima, except that:

a. Flight visibility must be 5 miles or more; and

b. Flights must not be conducted below a ceiling of less than 3,000 feet AGL.

6−9−7. TRANSPONDER PROCEDURES

Pilots of aircraft operating on a VR route will adjust their transponder to code 4000 unless otherwise assigned by ATC.

Chapter 7. Miscellaneous Flight Activities and Requirements

Section 1. Aircraft Arresting System, Single Frequency Approach (SFA), Simulated Flameout (SFO)/Emergency Landing Pattern (ELP) Operations, Celestial Navigation (CELNAV) Training

7−1−1. OPERATION OF AIRCRAFT ARRESTING SYSTEMS

These instructions are applicable only at joint-use FAA locations which employ the USAF web barrier and hook cable arresting systems. Normally, the barriers will be maintained in the down position. However, at those locations where appropriate local military authority determines that the barrier/cable must be maintained in a raised position due to existing or forecasted freezing weather conditions or temporary malfunctioning of the activating mechanism, the FAA facility must:

a. Issue a Notice to Airmen (NOTAM) advising that the barriers/cable is in the raised position. This is in addition to the military outage NOTAM required by barrier agreement and appropriate Air Force Instructions, but they may be combined where feasible.

b. Notify the appropriate Flight Standards District Office (FSDO).

7−1−2. ARRESTING SYSTEMS CONTROL PANELS

FAA requires adequate lights and controls in the tower cab at all locations with installed barriers/cables. The following minimum requirements have been established with regard to tower cab barrier control panels:

a. Switches or control buttons must be safely covered to prevent accidental activation.

b. The arresting system position lights installed in the tower must be of sufficient intensity to be seen in full daylight and must give positive indication of barrier/cable position “up” or “down” and not just that power has been applied to the erecting mechanism. Lack of power indication must be considered a malfunctioning of the system, and the control of aircraft must be conducted in accordance with raised arresting system instructions contained herein.

7−1−3. ACTION REQUIRED BY FACILITY AIR TRAFFIC MANAGER

The following action is required by the facility Air Traffic manager:

a. A letter of agreement for the operation of aircraft arresting systems must be drafted and approved by the FAA Service Area office and the appropriate military commander. This agreement is not effective until such time as the facility air traffic manager is advised in writing by the military commander that the arresting system is available as specified in the letter of agreement.

b. Operational agreements for aircraft arresting systems are not restricted to, but must include, the following information:

1. This agreement must become effective when the FAA facility air traffic manager receives notice in writing from the base commander that:

(a) The barrier/cable has been accepted from the contractor and is commissioned and fully operational; or

(b) The barrier/cable is available on a limited basis for emergency use. In the event the barrier/cable has not been accepted from the contractor, this notification must be accompanied by a written statement from the contractor authorizing the emergency use of the barrier/cable and waiving any claim against FAA for damage to the arresting system as the result of such use.

(c) A Notice to Airmen has been issued specifying conditions in (a) and (b).

c. Prior to the receipt of the foregoing letter from the base commander, the tower arresting system controls must be de-energized by the military and placarded "INOPERATIVE" by the chief controller and must not be activated by tower personnel under any circumstances.

d. During unscheduled outages due to failure of tower controls or control lines to the facility or upon notification by tower personnel of a malfunction of the barrier/cable mechanism or remote control system and if the military desires the arresting system to be raised and lowered, the military crew at the barrier/cable site must have full and final responsibility for operating the arresting system. The arresting system crew must maintain a listening watch on appropriate air/ground frequencies and have transmit/receive capability with the tower on the ground control frequency in order to keep tower personnel informed of the position of the arresting system.

e. To eliminate a requirement for the pilot to change from the controlling agency frequency where ground controlled intercept/ground controlled approach (GCI/GCA) hand-offs are employed, the tower must operate the arresting system at the request of the GCA unit. Where an approach control facility releases aircraft to a GCA unit, the tower at the airport of destination must operate the arresting system at the request of the approach control unit or the GCA unit at the destination airport.

f. If malfunctioning of the barrier/cable mechanism or remote control system occurs, tower personnel must notify base operations immediately.

7−1−4. PUBLICATION OF INSTALLATION

The local military authority will initiate action to notify Aeronautical Information Services (AIS) and the St. Louis Air Force Station, Missouri 63118 of the original commissioning. Subsequently, this information will be published in the National Flight Data Digest and the Flight Information Publication Supplement.

7−1−5. SINGLE FREQUENCY APPROACH (SFA)

When SFA procedures are implemented by terminal facilities providing radar approach control service to airports where military single-piloted turbojet aircraft are regularly based, ensure that the following conditions are met:

a. Communications capability will meet normal demands without increasing aircraft delays.

b. At least five discrete ultra-high frequency (UHF) frequencies are available for this use.

c. The radar approach controller retains jurisdiction over the rotation of three frequencies between himself and the GCA controller.

d. A letter of agreement is completed by the FAA facility Air Traffic manager with local military authorities covering ATC procedures, use of frequencies, etc.

7−1−6. SIMULATED FLAMEOUT (SFO)/EMERGENCY LANDING PATTERN (ELP) OPERATIONS

At locations where SFO/ELP maneuvers are conducted, the facility air traffic manager must issue a letter of agreement with the appropriate military authority and adjacent facilities as required. The letter of agreement must include at least the following issues:

a. A complete description of the SFO/ELP procedure. (High-key altitude MSL, airspeed during procedure, direction of turns, and low-key altitude MSL will be obtained from the military for all types of aircraft planning to utilize this procedure. The SFO/ELP maneuvering airspace area should be visible from the normal local control position in the control tower.)

b. The weather conditions that must exist before issuance of approval by the tower. (Ceiling must be at least 1,000 feet above the approved high-key altitude, and flight and ground visibility must be reported to be at least 5 miles.)

c. A statement to the effect that a practice SFO/ELP may be disapproved because of traffic or other reasons either before or after the start of the maneuver.

d. A statement indicating the provision of this service by the tower does not in any way absolve the pilot from their responsibility to comply with 14 CFR sections 91.111 and 91.113, other appropriate subparts of 14 CFR Part 91, and/or applicable military regulations.

e. Pilots utilizing SFO/ELP procedures in T-6, T-41, T-51, U-2, and TR-1 aircraft are authorized to deviate from the weather conditions prescribed in subparagraph b as follows:

1. Ceiling must be at least 500 feet above the approved high-key altitude; and

2. Flight and ground visibility must be reported to be at least 3 miles.

NOTE−
SFO/ELP procedures conducted above 10,000 feet MSL must be in accordance with 14 CFR section 91.155.

7−1−7. CELESTIAL NAVIGATION (CELNAV) TRAINING

a. Within conterminous U.S., CELNAV training is restricted to transponder-equipped aircraft within areas of ARTCC radar coverage.

b. Because CELNAV training procedures require a pilot to deviate from the course requirements of title 14, CFR, part 91, section 91.181, pilots must obtain ATC approval before discontinuing conventional navigation to begin CELNAV training.

c. Pilots are also required to advise ATC when discontinuing CELNAV training and resuming conventional navigation.

d. Pilots engaged in CELNAV training must advise ATC before initiating any heading change of more than 20 degrees.

e. Pilots must remain within 30 NM of the assigned course unless otherwise authorized by ATC.

f. ATC approves flight plans specifying CELNAV only when requested for USAF or USN aircraft.

Section 2. USAF Undergraduate Flying Training (UFT)/Pilot Instructor Training (PIT)/Introduction to Fighter Fundamentals

7−2−1. DEFINITIONS

The term UFT includes:

a. Flight Screening Program (FSP).

b. Undergraduate Pilot Training/Specialized Undergraduate Pilot Training (UPT/SUPT).

c. Euro-NATO Joint Jet Pilot Training (ENJJPT).

d. Specialized Undergraduate Navigator Training (SUNT).

7−2−2. KEY OPERATIONAL CONSTRAINTS

a. Sortie Duration: T-38 sorties normally average 1 hour and 20 minutes. T-6 sorties normally average 1 hour and 30 minutes. T-1 sorties normally average 3 hours.

b. Student Pilot Solo Operations.

1. Instrument flight: Certified solo students may penetrate cloud layers in climb and descent only. In level flight, expect requests for revised clearances to avoid clouds. Solo students may request an amended clearance to permit deviation from assigned course as necessary to remain in visual meteorological conditions (see FAA Order JO 7110.65, Air Traffic Control). Solo student requests for deviations are time-critical and air traffic control must approve these requests as soon as possible. If a student pilot refuses to accept a radar vector or clearance, make a record of the occurrence (including the pilot's reasons for refusal, if known), and retain it at the facility for 6 months.

2. Diverts: Unplanned diversions may require solos to land at other than military installations. UFT instructor pilots may require access to FAA air traffic control facilities to act as safety observers in support of these solo missions. Instructor pilot access authorization and activity limitations must be defined in appropriate documents by affected facilities.

c. T-38 Icing Restrictions: T-38s cannot operate at altitudes where icing is forecast. When encountering ice (not forecast), expeditious assignment of an altitude above or below the icing level is critical because engine failure is probable.

7−2−3. RADAR SERVICE REQUIREMENTS

a. Air traffic control facilities must provide IFR radar surveillance and separation service from points on or near Air Education and Training Command (AETC) bases or auxiliaries to defined training areas and from training area return points where approach control service can be discontinued via hand-off to ground controlled approach (GCA), tower, or runway supervisory unit (RSU). IFR service is also required to and from the local auxiliary fields and boondock instrument practice sites.

b. AETC training flights operating in the en route system to and from airports outside local training areas must be provided IFR separation service.

c. A minimum number of sorties must be flown VFR in accordance with the syllabus training requirements. VFR advisory service must be provided to these flights to the extent practicable.

7−2−4. MERGING TARGET VS APPROVED SEPARATION

Application of merging target procedures must be outlined in a letter of agreement between the controlling agency and the using agency. UFT/PIT/Introduction to Fighter Fundamentals aircraft must be provided approved separation until established in the MOA/ATCAA. Once established within the MOA/ATCAA, these flights may be provided merging target procedures.

7−2−5. AIRSPACE REQUIREMENTS

Below 18,000 feet MSL, training areas must be contained within MOAs. In Class A Airspace, training areas must be contained within ATCAA. The goal is to warn other IFR and VFR traffic of the high volume and nature of traffic operating therein. Under SUPT, the T-38 and T-1 will use the same geographical working areas, and operations must be segregated by sterilized block times.

a. NAVAID definition: Individual T-1, T-6, and T-38 training areas must be defined by VORTAC/TACAN arcs and radials. Conspicuous ground features also identify each area.

b. Training area size: Training area sizes are varied to accommodate the type of flying (contact, formation, instrument, etc.). Area configuration must be adjusted only when necessary and letters of agreement are revised. T-6 training areas must provide a minimum of 100 square nautical miles of usable airspace. T-38 and T-1 training areas must provide a minimum of 200 square nautical miles of usable airspace.

c. Altitude blocks. As a minimum:

1. T-6 training areas must extend downward from FL 240 at least 11,000 feet and be subdivided into two blocks of 5,000 feet.

2. T-38 high altitude training areas must extend above FL 240 at least 4,000 feet and low areas must extend at least 12,000 feet below FL 240.

3. T-1 high altitude training areas must extend above FL 240 at least 4,000 feet and low areas must extend 4,000 feet below FL 240.

d. Number of areas: Coupled with smooth flow scheduling, the following minimum numbers of local training areas guarantee successful completion of AETC mission without saturating airspace. As a minimum:

1. T-6: 18 training areas (9 high/9 low).

2. T-38/T-1: 16 training areas (5 high/11 low).

3. PIT airspace requirements: PIT requires less training area than SUPT. As a minimum:

(a) T-6: (7 high/6 low).

(b) T-38/T-1: (5 high/10 low).

e. Area distance: Fuel capacities and syllabus constraints require fuel-efficient training areas. T-6 training areas must be within 60 NM of the main base. T-38 and T-1 training areas must be within 100 NM of the main base.

f. Segregation: T-6 and T-38 low areas are not intermixed but may be separated with buffers. Do not arbitrarily establish buffers as a prerequisite for the provision of IFR separation in MOA subareas. However, buffers may be established for valid operational reasons. T-38/T-1 operations may operate in adjacent training areas contained in the same MOA.

g. ARTCC/CCF/HCFs and FSSs in and around the training areas are aware of the activity in the local area and must give the appropriate advisories to civil pilots when contacted.

7−2−6. MTR REQUIREMENTS

UPT/SUPT operations require access to at least six MTRs. Each UPT/SUPT wing must have at least four of these routes.

7−2−7. COMMUNICATION REQUIREMENTS

UPT/SUPT operations require adequate air/ground communications. Flight training requires extensive instructor/student interphone communication. Prudence dictates that ground initiated instructions or advice must be streamlined to limit interruptions and avoid derogation of the training mission.

7−2−8. SCHEDULING

At some bases, a longer scheduling interval may occasionally be necessary, but in the interest of maintaining present safety and flexibility, the minimum scheduling interval must be 3 minutes.

7−2−9. STEREOTYPE ROUTING/FLIGHT PLANS

While radar vectoring provides flexibility, it decreases a controller's capacity to provide service. Monitoring of stereotype routes is preferred because it provides more effective use of controller as well as instructor/student time and talent. To cope with the high volume of traffic, the following must be provided:

a. Stereotyped departure routes from pickup points on or near the airport to training areas and other en route points.

b. Stereotyped turboprop/turbojet en route descents from training areas or en route points to GCA, tower, or RSU hand-off for each runway and direction of operation.

c. Flight plan filing and processing must be streamlined to the extent that the flight identification and two or three words are sufficient to tell the controller where an aircrew wants to go and what the aircrew wants to do.

7−2−10. LETTERS OF AGREEMENT (LOAS)

Emergency, lost communications and all local procedures must be documented in LOAs. Because of the volume of traffic and the complexity of operation, letters of agreement must be carefully prepared and updated frequently to ensure timely improvements in service and safety.

7−2−11. AUTHORIZATIONS

The procedures used in UFT/PIT/Introduction to Fighter Fundamentals conform with 14 CFR part 91 (except where waived/exempted) and FAA Order JO 7110.65, Air Traffic Control, as supplemented by appropriate LOA processed in accordance with FAA Order JO 7210.3, Facility Operation and Administration. Authorized deviations are as follows:

a. Solo student pilot flying IFR as indicated in paragraph 7−2−2b.

b. Exemption 49D to 14 CFR sections 91.153 and 91.169, Alternate Airport Requirements.

c. T-38/T-1 airspeeds in excess of 250 KIAS below 10,000 feet MSL are authorized by competent military authority in accordance with FAA JO Order 7110.65 and the Speed Authorization Granted to DOD. (See Appendix 4).

d. Merging target procedures: When UPT/PIT/Introduction to Fighter Fundamentals aircraft are established in MOA/ATCAA and airspace limitations would derogate mission requirements if IFR separation were applied, the following radar procedures may be used during VFR weather conditions provided procedures have been established in a LOA.

1. Issue radar traffic information to aircraft whose targets are likely to merge unless the aircraft are known to be separated vertically.
2. Issue directions using “work [direction]” control techniques to ensure the radar targets of aircraft previously issued as traffic do not touch.
   (a) Work [direction] - an air traffic control instruction whereby the pilot will continue a maneuver to completion then turn toward the specified direction.
   (b) Work [direction] Immediately - an air traffic control instruction whereby the pilot will break off a maneuver and immediately turn toward the specified direction.

NOTE−
Air Education Training Command assumes responsibility for the consequences of application of merging target procedures.

e. Exemption No. 2861A to 14 CFR section 91.121, Single Altimeter Setting For Frequent Transit of FL 180. (See Appendix 4, Grant of Exemption No. 2861A).

REFERENCE−
FAA Order JO 7110.65, Paragraph 2−7−2, Altimeter Setting Issuance Below Lowest Usable FL

Section 3. Military Formation Flight

7−3−1. PURPOSE

This section prescribes policy, configurations, and separation standards for military formation flight.

7−3−2. POLICY

The DoD has a continuing requirement, inherent through the nature of its mission, to operate aircraft in formation flight. In the interest of the public and the aviation community, it is imperative that controllers be knowledgeable of the various formation tactics employed by DoD aircraft.

7−3−3. FORMATIONS

A formation is defined as more than one aircraft that, by prior arrangement between the pilots, operates as a single aircraft with regard to navigation and position reporting. Separation between aircraft within the formation is the responsibility of the flight leader and the pilots of the other aircraft in the flight. This includes transition periods when aircraft within the formation are maneuvering to attain separation from each other to effect individual control and during join up or breakaway.

a. Standard Formation. A formation in which a proximity of no more than 1 mile laterally or longitudinally and within 100 feet vertically from the flight leader is maintained by each wingman.

b. Nonstandard Formation. 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 a special activity.

7−3−4. FORMATION DEPARTURE

A formation departure consists of more than one aircraft at intervals of 1 minute or less which, by prior arrangement between the pilots, operate as a single aircraft with regard to navigation and position reporting. The departure portion of the flight may terminate at a preplanned breakup point which may be located up to, but not beyond, the planned initial level-off at cruise altitude. Formation flight requirements of paragraph 7−3−3 apply.

7−3−5. CELL FORMATION

A cell formation flight is defined as two or more aircraft with the same intended route of flight maintaining station-keeping operations by either or both visual and electronic means. Formation flight requirements of paragraph 7−3−3 apply.

7−3−6. NONSTANDARD FORMATION TACTICS

Some aircraft, due to their size and maneuverability, normally operate within a nonstandard cell formation. Bomber and tanker aircraft operating in a cell, operate with 1 nautical mile spacing (B-52 uses 2 nautical miles between cell members in trail and 500 feet vertical separation as illustrated in FIG 7−3−1 and FIG 7−3−2).

NOTE−
Controllers must not use the flight leader's Mode C readout for separation purposes. Asking the flight leader to "say altitude" only verifies the lead aircraft altitude.

a. Formation Departure Procedures.

1. B-52/KC-135/KC-10. Always operate in a nonstandard cell formation.

(a) Take-off interval: Normally, 1 minute between individual cell aircraft. KC-10 interval may be greater than 1 minute when individual aircraft gross weight will vary more than 100,000 pounds. The KC-10 flight leader will establish the interval and notify ATC what interval is being used.

(b) Intermediate level-off: Block altitude is required for any intermediate level-off altitude assigned by ATC. Wing aircraft "stack down" is with 500 feet vertical separation between each cell aircraft and close to en route longitudinal spacing. Vertical and longitudinal spacing may be greater than normal until level-off at cruise altitude is attained. Controllers must not use flight leader's Mode C readout for separation purposes until verification of formation configuration.

(c) En route formation: Non-standard with wing aircraft "stacked up" with 500 feet vertical separation and 1 nautical mile interval between aircraft as shown in FIG 7−3−1. The first aircraft maintains the base altitude assigned.

2. B-1. Always operated in a nonstandard cell formation.

(a) Take-off interval: One minute between individual aircraft.

(b) Intermediate level-off: Block altitude is required for any intermediate level-off altitude assigned by ATC. Wing aircraft "stack down" with 500 feet vertical separation and close to 1 nautical mile longitudinal spacing. Separation and spacing may be greater until level-off cruise altitudes are attained. Controllers must not use flight leader's Mode C readout for separation purposes until verification of formation configuration.

(c) En route formation: Nonstandard with wing aircraft "stacked down" with 500 feet vertical separation and 1 nautical mile longitudinal spacing between aircraft as shown in FIG 7−3−2. The last aircraft maintains the base altitude assigned.

b. En Route Cell Formation Procedures.

1. En route cell formations operate in the non-standard formation configuration indicated in sub-paragraph a and shown in FIG 7−3−1 and FIG 7−3−2 except during aerial refueling. Aerial refueling formation configurations are shown in FIG 7−3−3, FIG 7−3−4, FIG 7−3−5, FIG 7−3−6, FIG 7−3−7, FIG 7−3−8, FIG 7−3−9, FIG 7−3−10, and FIG 7−3−11, Air Refueling Formation.

2. Cell formation leaders are responsible for obtaining ATC approval to conduct formation flight operations in a nonstandard formation configuration.

3. Unless otherwise directed by ATC, all aircraft within a cell formation will squawk the ATC assigned Mode 3A/C beacon code until established within the assigned altitude block and closed to the proper en route cell interval. When cell configuration requires an interval greater than 3 nautical miles between the formation leader and the last aircraft in the cell, both the formation leader and the last aircraft will squawk the assigned Mode 3A/C beacon code.

4. After level-off at cruise altitude, should separation between the cell leader and any other aircraft exceed the ATC authorized dimensions for the nonstandard formation, the aircraft outside the formation limits will no longer be considered a part of the cell. The pilot of such aircraft must immediately notify the formation leader of the aircraft's position and request individual control from ATC until the aircraft is reestablished within the formation.

7−3−7. CELL SEPARATION STANDARDS

Separation standards applied to a nonstandard cell formation must be as indicated in the following:

a. A single altitude/flight level must not be assigned to a nonstandard cell formation without concurrence of the formation leader.

b. Air traffic control must meter other air traffic so as to permit assignment of sufficient altitudes to a nonstandard formation flight to allow intra-cell vertical spacing of 500 feet between each aircraft in the formation.

c. En route longitudinal intra-cell spacing for a nonstandard formation is 1 nautical mile (B-52, 2 nautical miles) between individual cell aircraft. Air traffic control must apply approved separation criteria between the nonstandard formation envelope and other non-formation air traffic.

7−3−8. NONSTANDARD FORMATION NOTIFICATION AND APPROVAL

When military requirements dictate that large aircraft will conduct nonstandard formation flight, notification and approval must be accomplished by the following methods:

a. The formation leader must indicate the number and type aircraft in the appropriate item of the military flight plan. In addition, “nonstandard cell formation” will be listed as the first entry in flight plan remarks.

b. The formation leader must notify ATC upon initial contact that cell operations are being conducted in a nonstandard formation, and if required, advise ATC of the intra-cell separation and spacing being employed.

c. During the departure phase of flight, the formation leader must not report level at an ATC assigned altitude or within an altitude block until all formation aircraft have attained the assigned altitude block.

7−3−9. AERIAL REFUELING FORMATION

Aerial refueling formations are always nonstandard and require additional airspace over a nonstandard cell formation as shown in FIG 7−3−3, FIG 7−3−4, FIG 7−3−5, FIG 7−3−6, FIG 7−3−7, FIG 7−3−8, FIG 7−3−9, FIG 7−3−10, and FIG 7−3−11.

a. As shown by the illustrations in these figures, aerial refueling cells normally have a frontal width equal in nautical miles to the number of tanker aircraft contained within the cell. However, when the total number of receiver aircraft exceeds the number of tankers, the frontal width is correspondingly increased by 1 nautical mile for each additional receiver aircraft, but will not exceed 5 nautical miles.

b. Controllers should exercise caution during en route, on course, or buddy refueling operations to ensure nonparticipating air traffic is provided sufficient lateral, longitudinal, or vertical separation from the refueling formation envelope to meet approved separation criteria.

FIG 7−3−1

En Route Cell (Stacked Up)

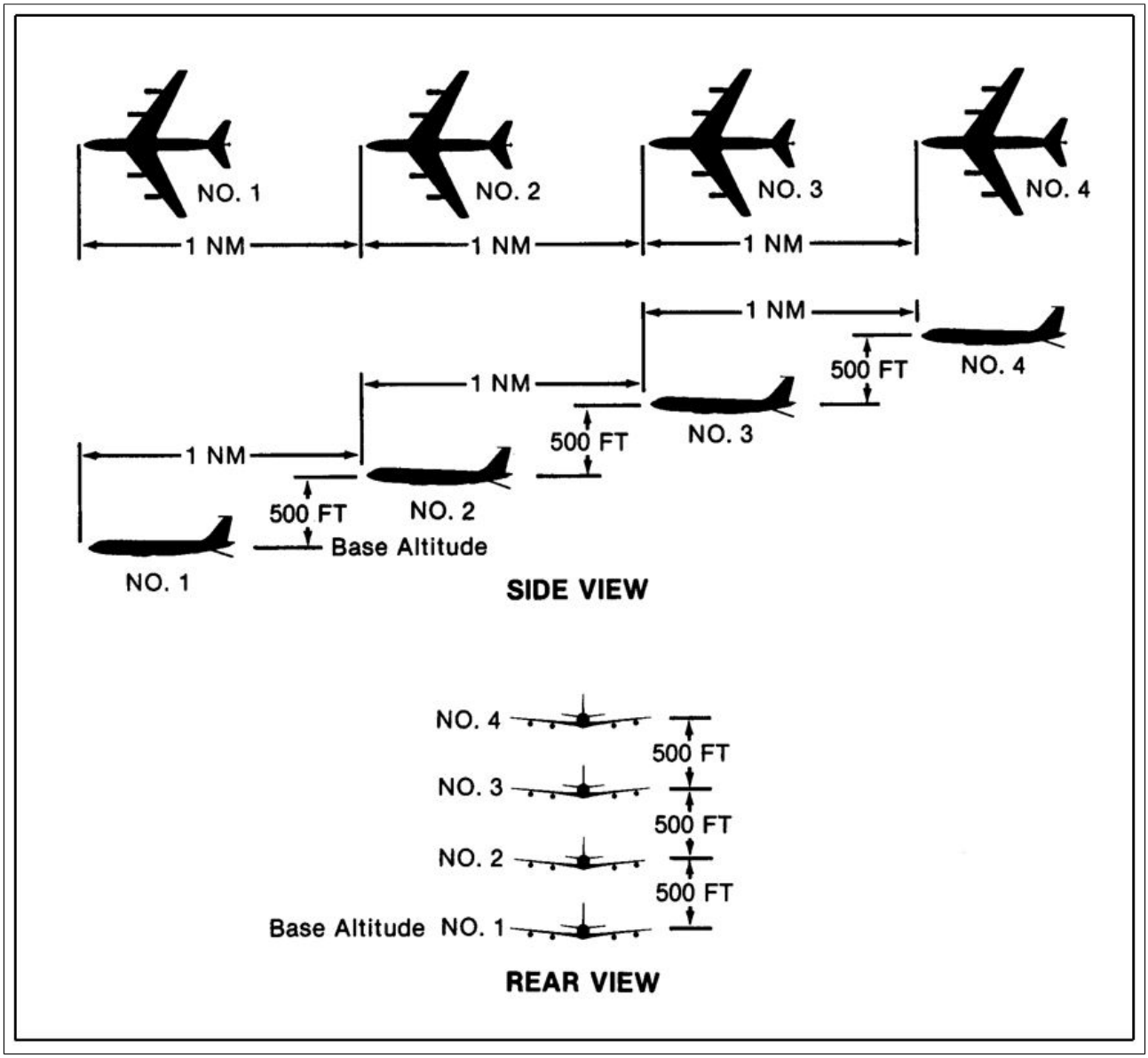


FIG 7−3−2

En Route Cell (Stacked Down)

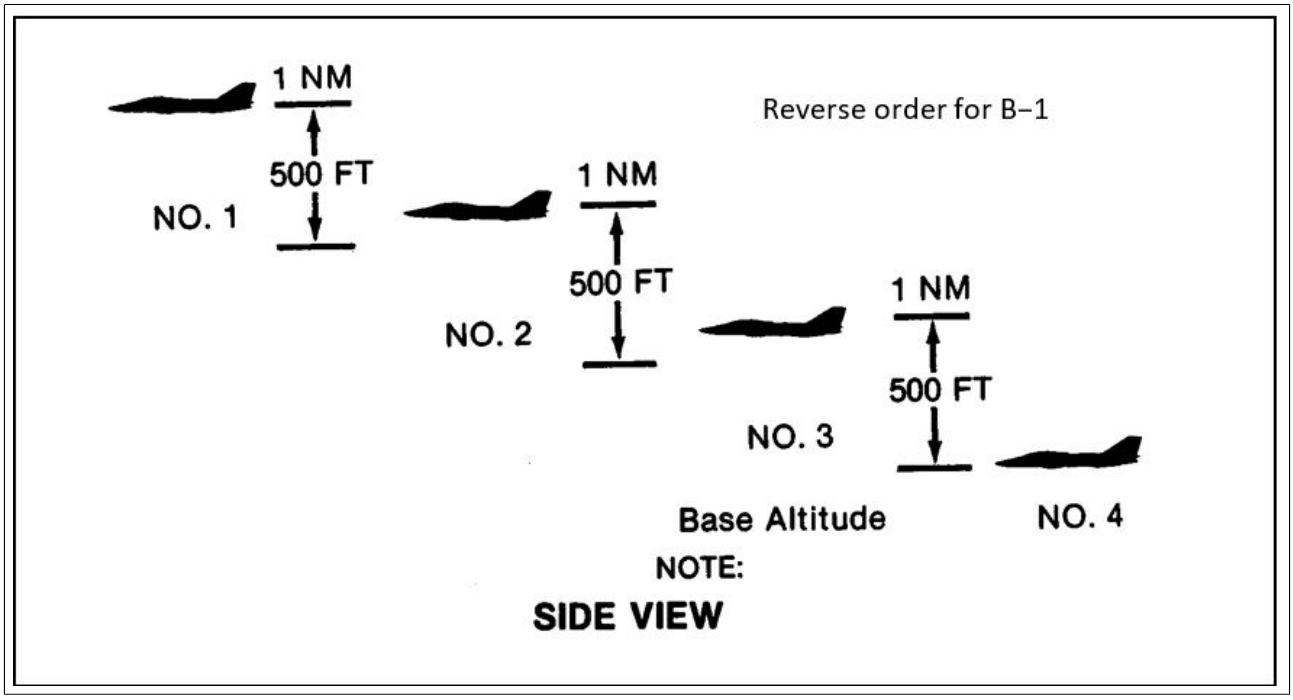


FIG 7−3−3

FIG 7−3−3

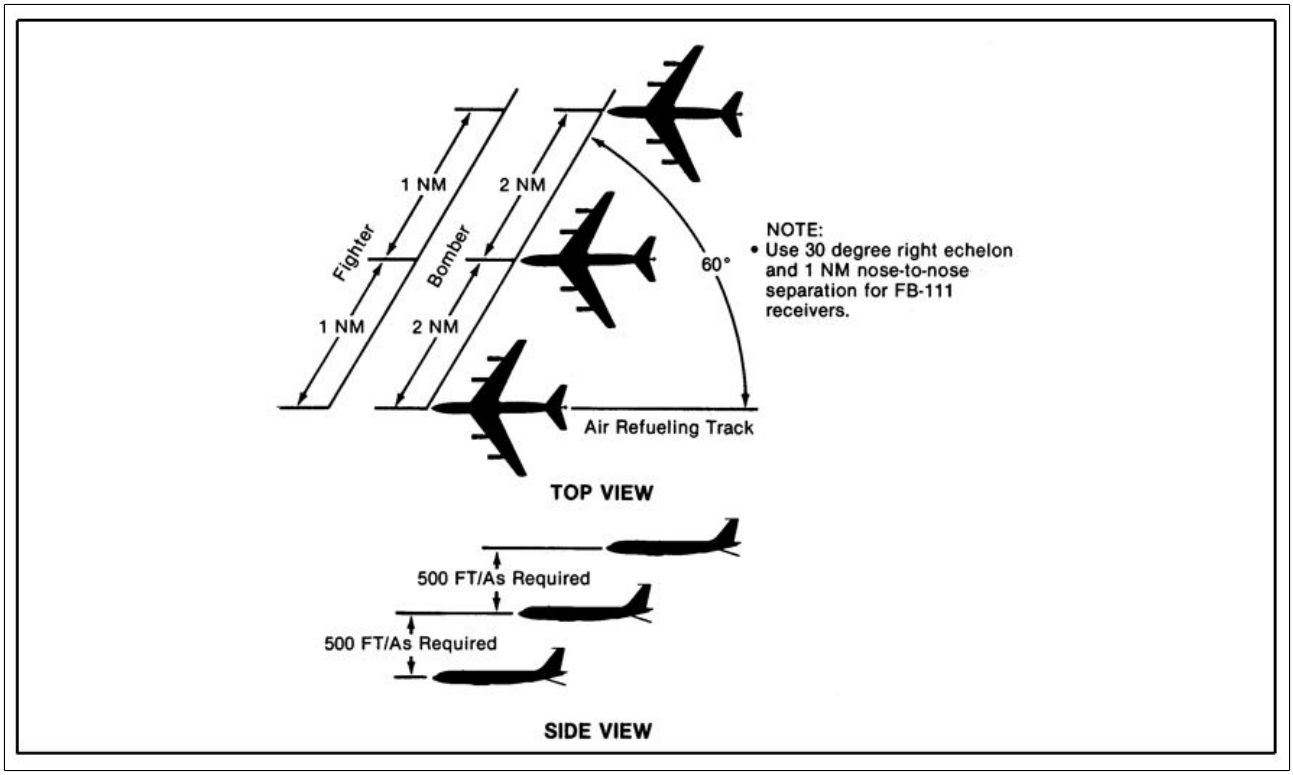


FIG 7−3−4

One Tanker/Three Receivers Air Refueling Visual Formation

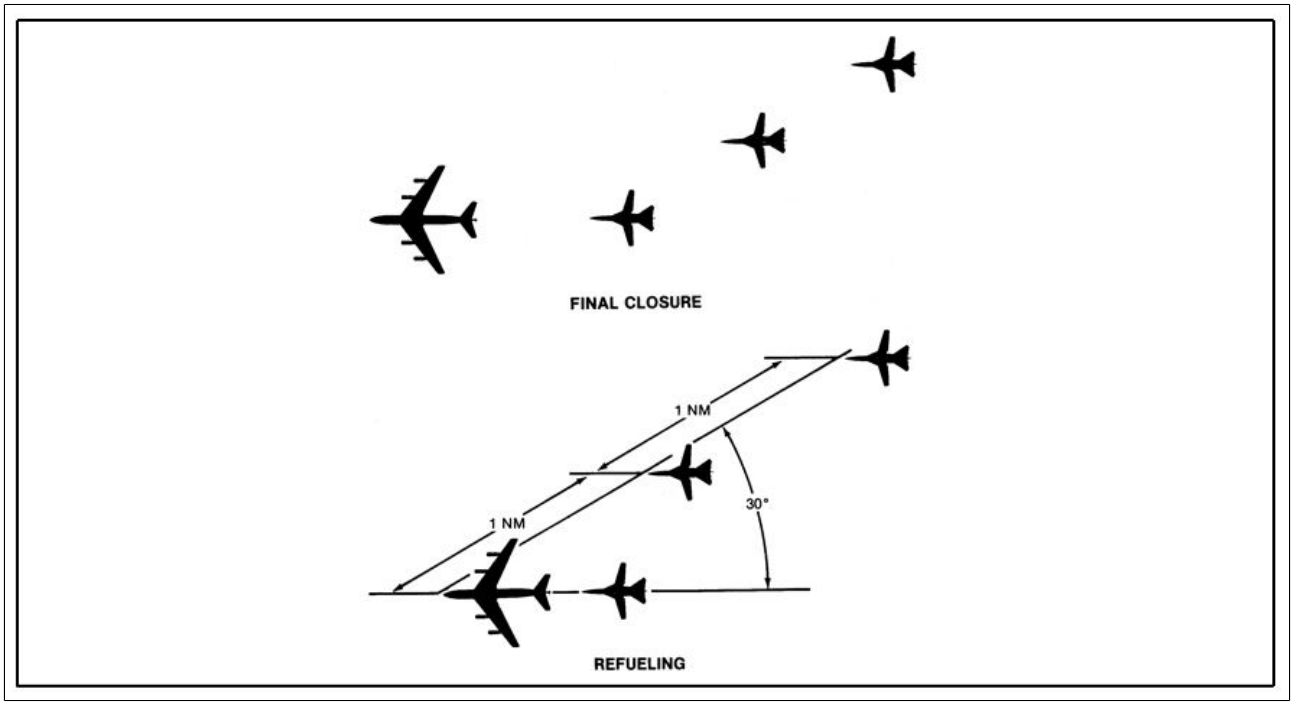


FIG 7−3−5

Tanker/Receiver Formation during Final Closure (One Tanker/One Receiver)

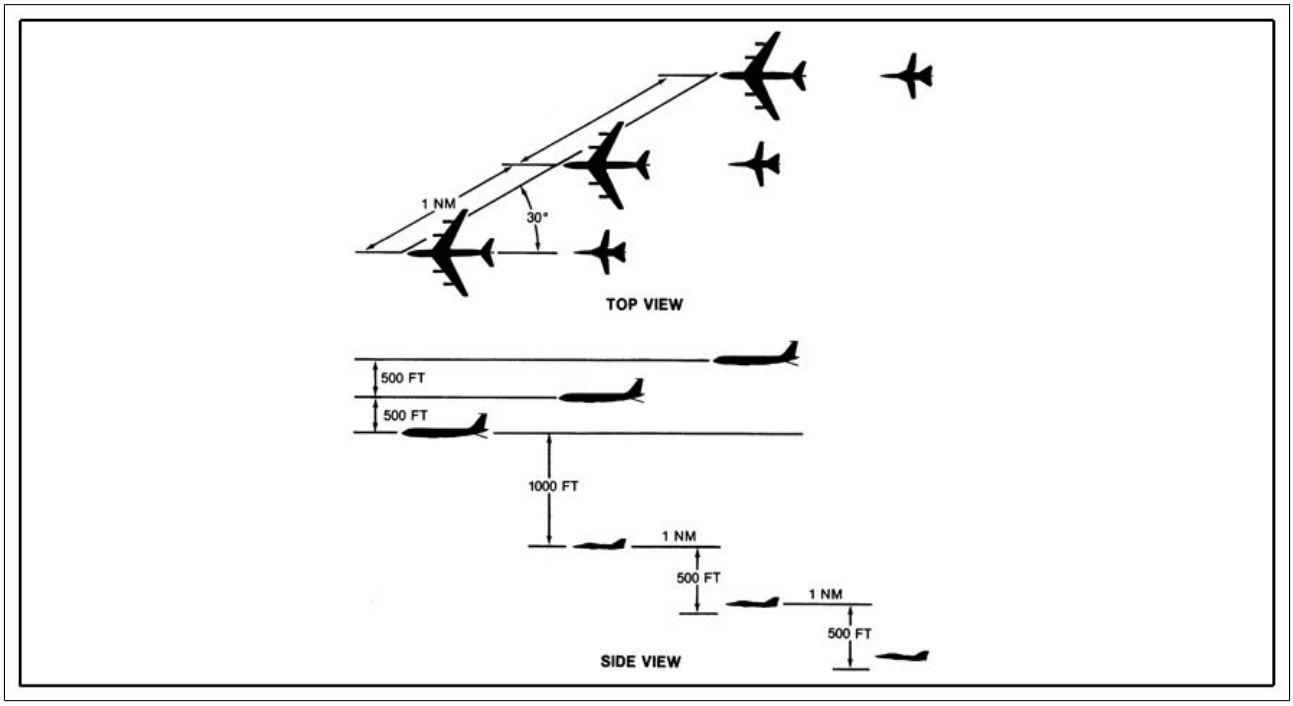


FIG 7−3−6

One Tanker/Three Receivers Air Refueling Cell Formation

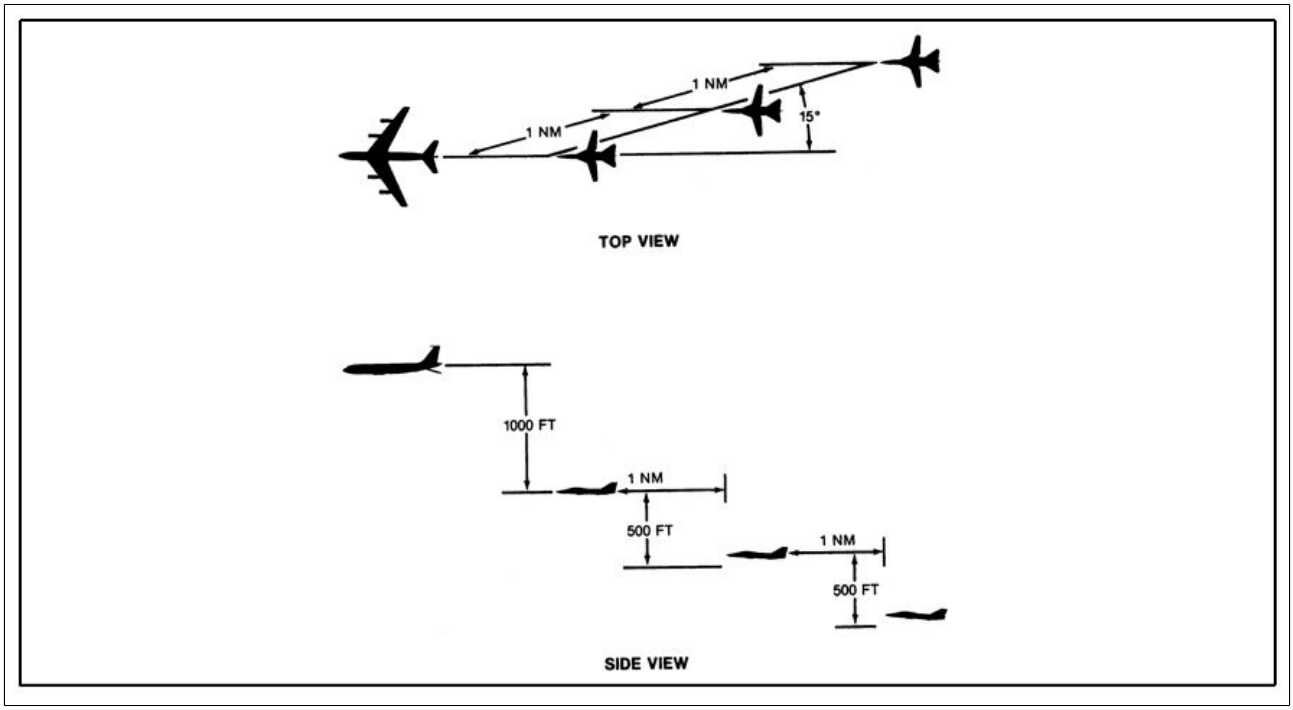


FIG 7−3−7

Receiver Formation (Six Receivers)

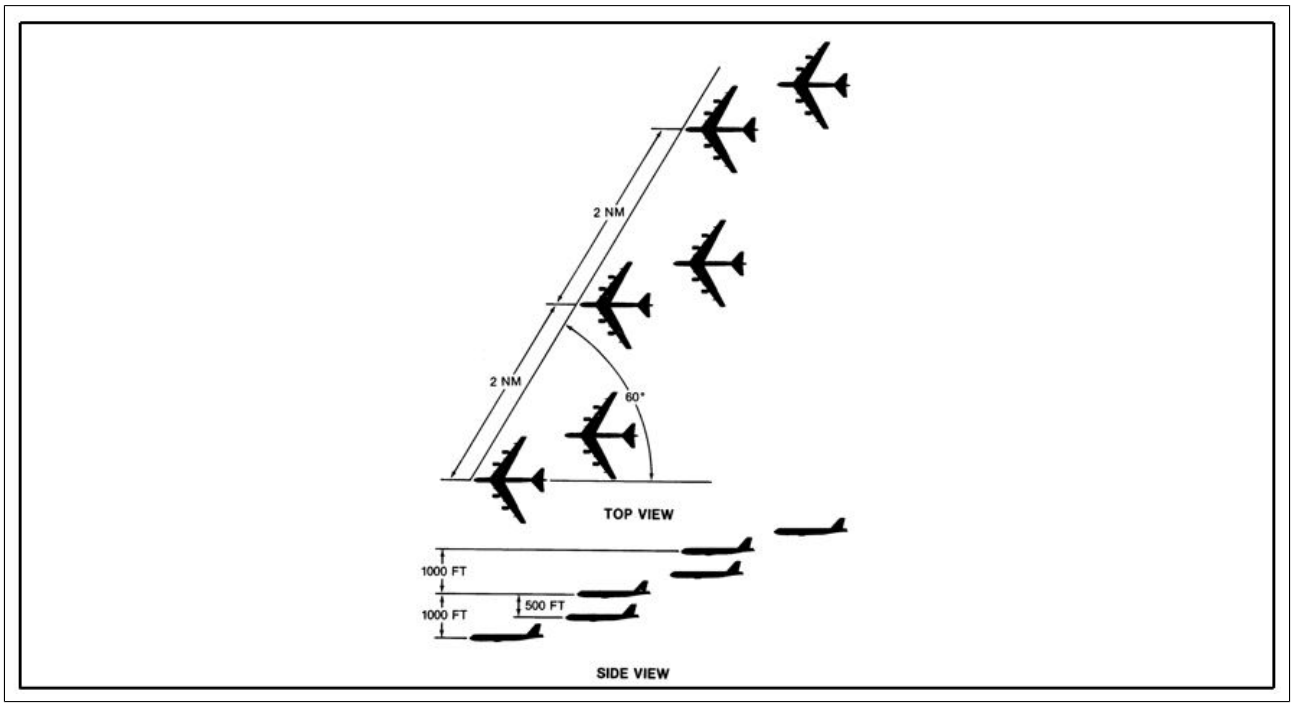


FIG 7−3−8

Receiver Formation (Three Receivers) and Formation Procedures (One Tanker/Three or More Receivers)

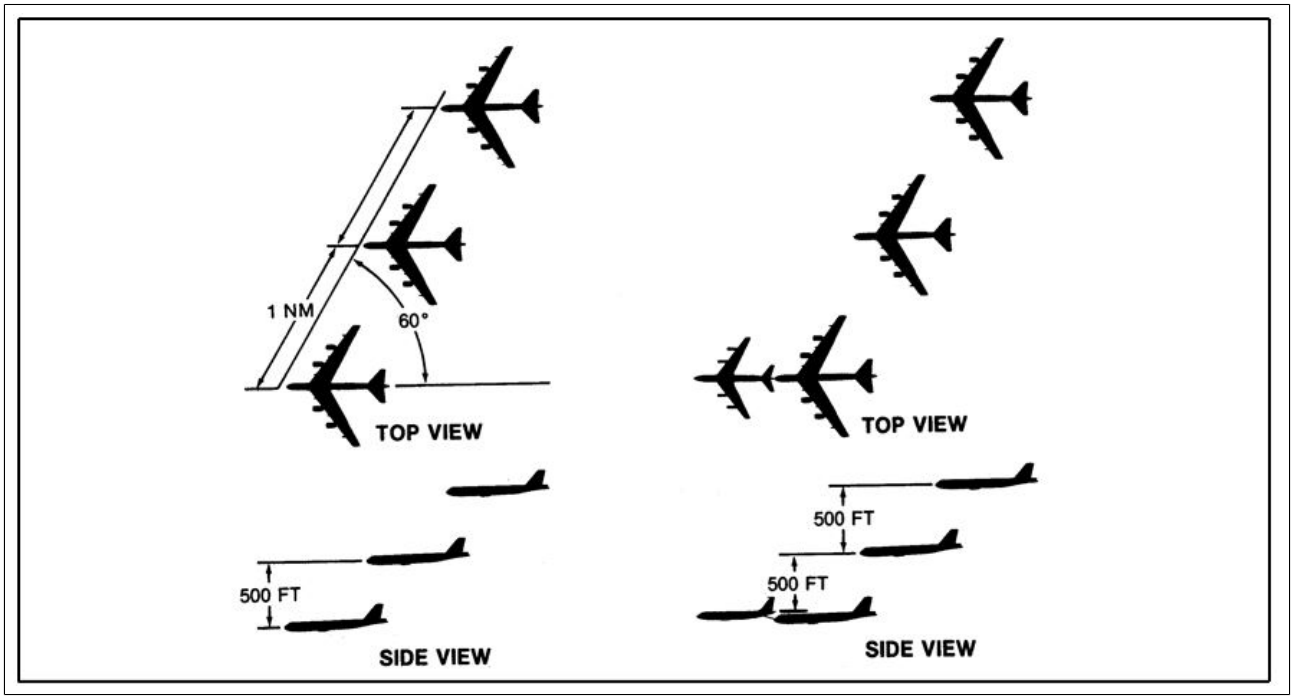


FIG 7−3−9

Formation Procedures (Three Tankers/Three Receivers)

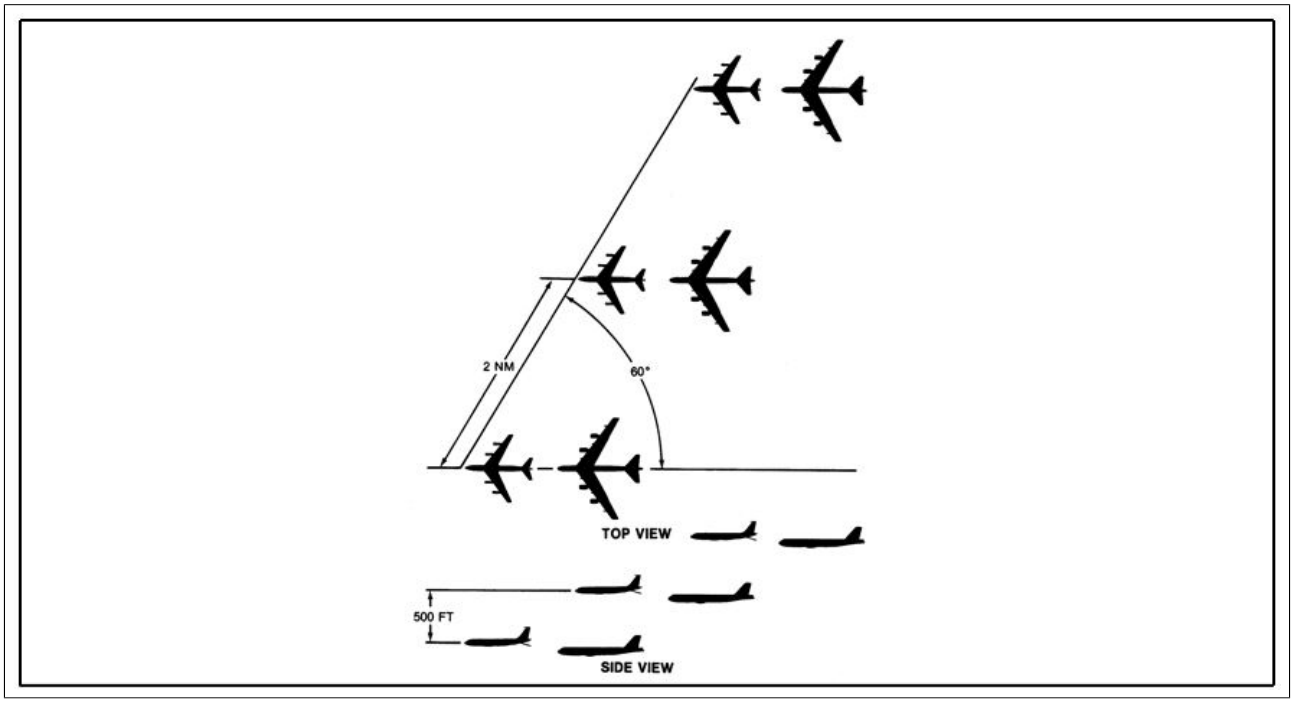


FIG 7−3−10

Formation Procedures (Three Tankers/Six Receivers)

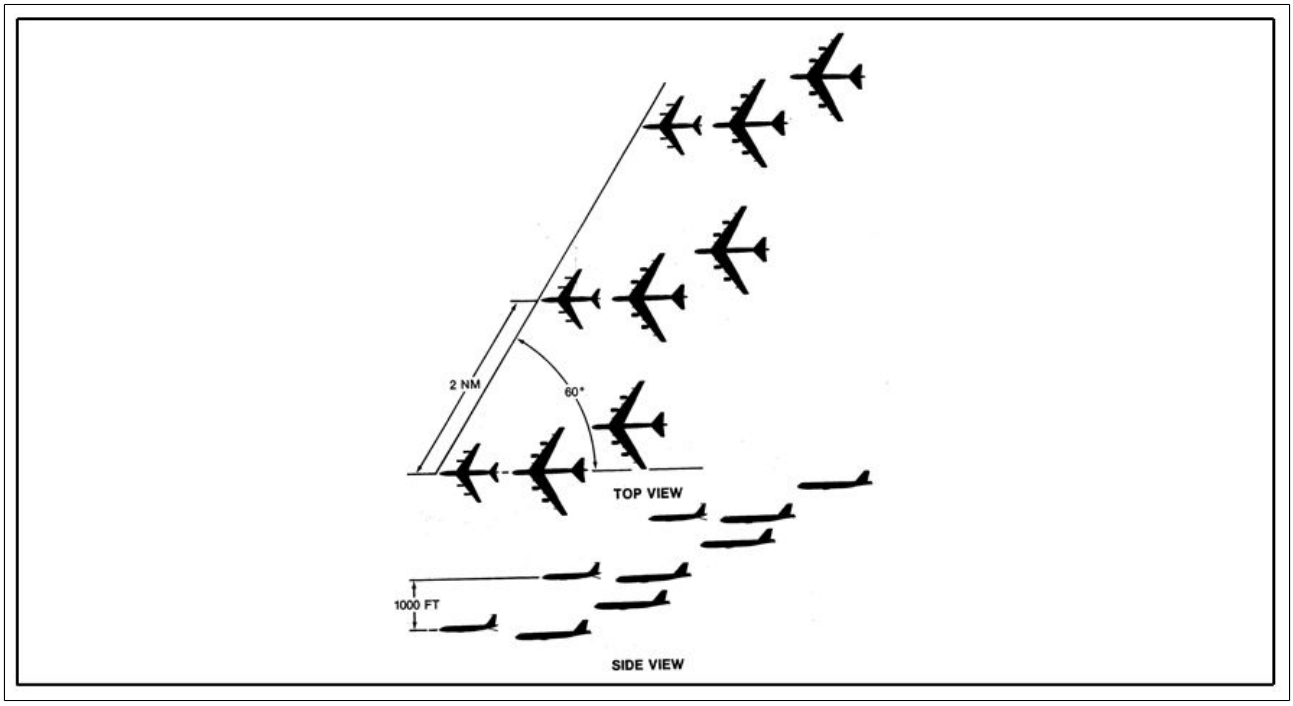
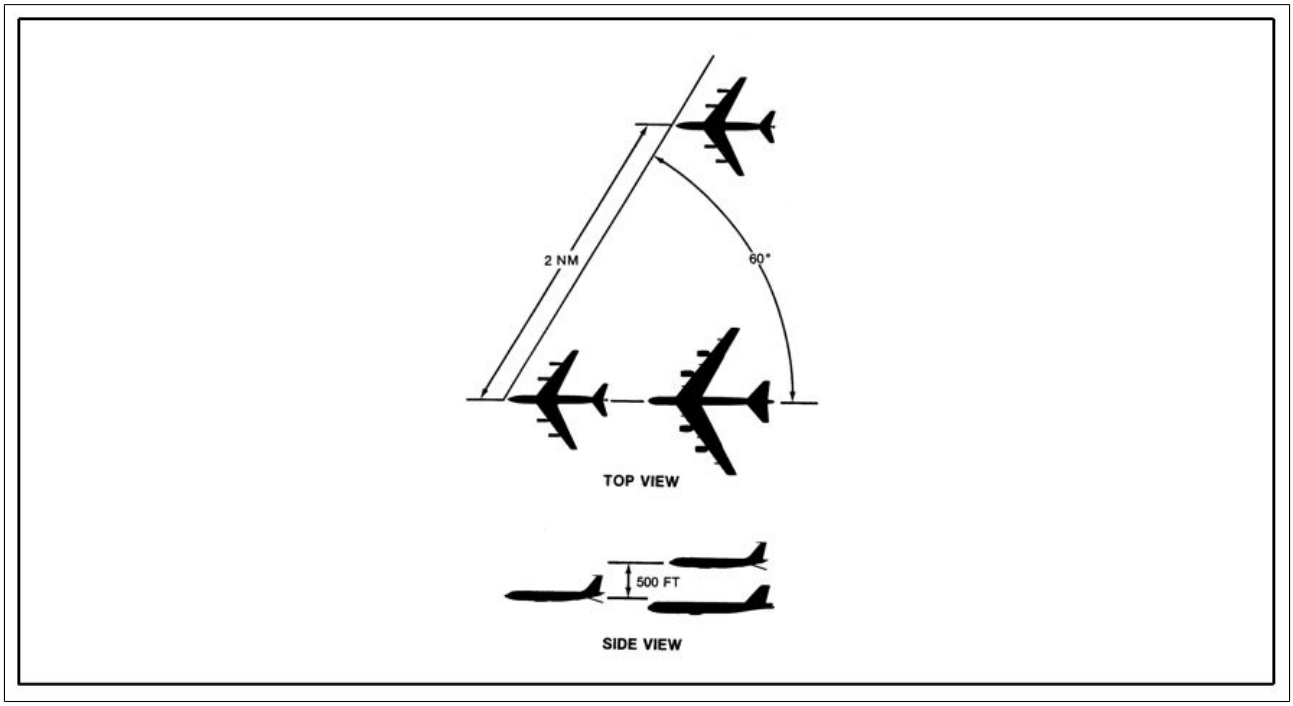


FIG 7−3−11

Formation Procedures (Two Tankers/One Receiver)



Section 4. Special Interest Flights

7−4−1. GENERAL

a. State Department designated special interest flights (SIF) are defined as flight operations in U.S. territorial airspace by any of the following:

1. Aircraft registered in a U.S. State Department designated special interest country;

2. Aircraft designated as a state aircraft by a State Department designated special interest country;

3. Aircraft operating with the ICAO three-letter designator (call sign) assigned to a company or entity in a State Department designated special interest country. SIF operators certified for U.S. commercial operations under 14 CFR part 129 do not require authorized flight routings. Non-Part 129 SIFs require FAA route authorization prior to flight and route monitoring during flight in U.S. territorial airspace.

4. Any foreign aircraft to which SIF procedures are applied following 14 CFR section 99.7, Special Security Instructions.

NOTE−
Current special interest countries and Part 129 operators are listed under the Countries section of the General Information posted on the FAA SIF website. Access to the FAA SIF website (http://aspm.faa.gov/sif) is for United States and Canadian Government agencies only. Contact the FAA System Operations Support Center (SOSC) (commercial 202-267-8115, fax 202-267-9208, or email 9-ATOR-HQ-RT-REQ@faa.gov) for website access information and authorization or for any comments or questions regarding the General Information available through the link at the bottom of the FAA SIF website Planned Flights page.

b. Prior to proposed non-Part 129 SIF takeoff time, the SOSC must post the routing authorization on the FAA SIF website. If the FAA SIF website is inaccessible, or when the routing is approved less than 6 hours before the proposed takeoff time, the SOSC must pass the routing information to the System Operations Security Domestic Events Network (DEN) Air Traffic Security Coordinators (ATSC), and the concerned ARTCC/CCF/HCF/ATCTs via fax, email, or electronic message; and verbal notification (if less than 6 hours before the proposed takeoff time).

1. For planning purposes, the SOSC routes non-Part 129 SIF aircraft on ARTCC/CCF/HCF-preferred routing to the maximum extent possible. Otherwise, non-Part 129 SIF aircraft are routed on published airways when practicable.

NOTE−
Deviations from non-Part 129 SIF routings are allowed when approved by System Operations Security and the procedures are contained in Standard Operating Procedures or a Letter of Agreement.

2. The SOSC must email or fax approved non-Part 129 SIF routing authorizations to the flight operators. ARTCC/CCF/HCF/ATCTs may contact the SOSC if courtesy copies of routing authorizations are desired.

c. For resolution of non-Part 129 SIF routing or procedural issues prior to flight, ARTCC/CCF/HCF/ATCTs must contact the SOSC directly at 202-267-8115. The SOSC must resolve routing

issues and reissue routing authorizations as required. ATC facilities must not issue a clearance to aircraft until all routing issues have been resolved. SIF procedural issues regarding this order must be referred to Strategic Operations Security.

d. The Washington Operations Center Complex (WOCC), DEN, and National Capital Region Coordination Center (NCRCC) must relay all calls regarding the status or processing of non-Part 129 SIF routing authorizations to the SOSC directly at 202-267-8115.

e. For resolution of issues concerning any SIF operation in progress, ARTCC/CCF/HCF/ATCTs must contact the DEN ATSC at (540) 422-4423/4424/4425.

7−4−2. APPLICATION

a. The air traffic manager must ensure controllers are aware of expected non-Part 129 SIF authorized flight routings. Approved routings for non-Part 129 SIF aircraft must be confirmed on the FAA SIF website. If there is no routing for a non-Part 129 SIF flight on the website, do not issue a clearance to the aircraft, and contact the SOSC in accordance with paragraph 7−4−1.

b. Controller-initiated deviations to non-Part 129 SIF authorized flight routings through United States territorial airspace are permissible for safety of flight reasons only. Facilities must report controller-initiated routing deviations as soon as possible to the DEN ATSC. Weather-related deviations that are requested by non-Part 129 SIF pilots must be coordinated through the DEN as soon as possible.

NOTE−
Vectoring non-Part 129 SIF arrivals and departures for preferred routings is authorized and is not a DEN reporting event.

c. Pilot-initiated deviations from non-Part 129 SIF authorized flight routings (except for weather) are not permissible. Controllers will request that non-Part 129 SIF aircraft return to approved route/reroute of flight whenever deviations are noted and immediately report deviations to the DEN ATSC.

d. The DEN ATSC must ensure the appropriate NORAD Air Defense Sector, U.S. Customs and Border Protection (CBP)/Air Marine Operations Center (AMOC), and WOCC are alerted and that procedures in chapter 7 of FAA Order JO 7610.4 (Sensitive Procedures and Requirements for Special Operations) are followed when any of these conditions occur involving any SIF aircraft:

REFERENCE−
FAA Order JO 7610.4, Chapter 7,Procedures for Handling Suspicious Flight Situations and Hijacked Aircraft

1. The aircraft refuses to comply with any authorized message.
2. Communication with the aircraft is established, but the aircraft identification cannot be immediately correlated with a known flight plan. (Attempt flight plan correlation when time permits.)
3. The aircraft deviates from its approved route of flight and refuses to return to it when so requested.
4. The aircraft refuses a reroute when so cleared or deviates from its reroute and refuses to return to it when requested.
5. The aircraft makes an emergency or unscheduled landing in the United States.

Chapter 8. Military Radar Unit Duties, Responsibilities, and Procedures

Section 1. General

8−1−1. MILITARY RADAR UNIT (MRU)/AIRBORNE RADAR UNIT (ARU)/ AIRBORNEWARNING AND CONTROL SYSTEM (AWACS)

MRU/ARU/AWACS are not commissioned ATC facilities. Therefore, they must not be authorized nor requested to provide ATC services. Military command and control functions, including traffic advisories, will be provided to participating military/military contract aircraft operating within activated Airspace. The activated Airspace will be released to the MRU by the appropriate ATC facility, as identified in FAA Order JO 7400.10, Special Use Airspace, and in accordance with Letters of Agreement (LOA).

NOTE−
The pilot in command is responsible to ensure that their operation is contained within the assigned ATCAA/SUA and must maintain last ATC assigned altitude and route of flight until entering active ATCAA/SUA.

8−1−2. MILITARY RADAR UNIT (MRU)

An MRU may be used for radar monitoring in planned exercises or daily training under the following conditions:

a. The MRU will assist aircraft under its jurisdiction to remain within the ATCAA/SUA released to the unit by ATC.

b. The use of an MRU and the associated ATCAA/SUA must be fully coordinated with the affected ATC facilities.

c. Radar correlation checks and two-way communication with ATC must be accomplished prior to providing services in released airspace.

NOTE−
Radar correlation checks are accomplished daily unless there is a change in equipment status.

8−1−3. AIRBORNE RADAR UNIT (ARU)

An ARU may be used for radar monitoring or as an extension of an MRU in planned exercises or daily training under the following conditions:

a. The ARU will assist aircraft under its jurisdiction to remain within the ATCAA/SUA released to the unit by ATC through the MRU.

b. The use of an ARU and the associated ATCAA/SUA must be fully coordinated between the MRU and the affected ATC facilities.

c. Radar correlation checks and two-way communication with the MRU must be accomplished by ARU crew prior to providing services in airspace released to ARU.

8−1−4. AIRBORNE WARNING AND CONTROL SYSTEM (AWACS)

An AWACS may be used as an MRU in planned exercises or daily training under the following conditions:

a. The AWACS will assist aircraft under its jurisdiction to remain within the airspace released to the unit by ATC.

b. The use of the AWACS and the associated ATCAA/SUA is fully coordinated with affected air traffic control facilities.

c. When the AWACS cannot establish direct two-way communication with ATC for transfer of flight information, a ground-based MRU/ADCF may be designated to facilitate coordination. Ground-based MRU/ADCFs must be identified in letters of procedure/agreement with affected ATC facilities before being used in this capacity.

8−1−5. ADDITIONAL AWACS RESPONSIBILITIES

In addition to the responsibilities specified in paragraph 8−1−4, the following responsibilities/ requirements/limitations apply to the AWACS aircraft for MRU operations.

a. AWACS orbit areas must be established and oriented to ensure continuous communications capability both with the appropriate ATC facilities and the aircraft under AWACS jurisdiction in designated airspace.

b. The AWACS must not provide services below FL 180 within U.S. airspace or in offshore airspace in which domestic ATC service is exercised, unless the AWACS's primary and secondary (IFF) radars are operational.

c. All missions in which the AWACS will function as an MRU/ARU must be fully coordinated through the 552nd Air Control Wing with the appropriate ATC facility(s) at least 4 days prior to mission execution using a mutually agreed-upon checklist of the necessary data to be coordinated. In the event of dynamic AWACS mission changes the ATC facility(s) may allow AWACS to coordinate MRU/ARU operations inside of the 4 day coordination window.

d. Radar correlation must be accomplished by AWACS crew prior to providing services in airspace released to AWACS. The following procedures apply:

1. AWACS radar will conduct an internal system cross-correlation check. If internal system cross checks cannot be validated, the AWACS will be treated as an ARU or the mission terminated until validation can be completed.

2. The AWACS mission crew must notify the appropriate ARTCC/CCF/HCF or control facility of the internal system correlation check accuracy.

3. In the event AWACS primary/secondary radar, computer, or Navigation Computer System (NCS) is inoperable due to a malfunction, another internal correlation check will be accomplished prior to resumption as an MRU.

4. In the event the AWACS radar system is inoperable for any reason, another correlation check must be required prior to resumption as a MRU.

e. Scrambles must not be initiated by the AWACS for active air defense missions. This does not preclude the coordination of scrambles through the NORAD Region/Sector or the testing of mutually developed procedures for AWACS issued scramble orders.

f. AAMS information will not be provided to the AWACS mission crew by the ARTCC/CCF/ HCF.

8−1−6. TACTICAL MONITOR (TM)

An MRU/ARU/AWACS may be used as a TM in planned exercises or daily training under the following conditions:

a. Responsibility for the ATC released airspace lies with the military aircraft that scheduled and are flying within the SUA/ATCAA. These aircraft must comply with Autonomous Operations for air traffic control purposes while in the SUA/ATCAA.

b. TMs do not accept responsibility for SUA/ATCAA.

c. TMs will provide necessary tactical information/guidance for the military aircraft operating in SUA/ATCAA to complete mission training.

8−1−7. TRANSFER OF FLIGHT INFORMATION

The MRU/ARUs will not be involved in the transfer of control of aircraft to/from an ATC facility. Transfer of flight information must be accomplished directly between the MRU/ARU and the appropriate ATC facility as specified in a letter of agreement.

a. Flight information must be transferred prior to the aircraft entering and/or leaving the ATCAA/SUA.

b. MRU/ARU must transfer communications of participating aircraft to ATC as soon as practical after the Transfer of Flight Information has been accomplished. In the event the transfer of flight information from the MRU/ARU to the ATC facility cannot be accomplished, the MRU/ARU will assist the flight in remaining within the assigned ATCAA/SUA. The MRU/ARU must retain communications with and radar-monitor the aircraft until further clearance is received from ATC.

NOTE−
In the event communication cannot be established with ATC, the MRU will instruct the flight to contact the ATC facility and request instructions prior to exiting the ATCAA/SUA.

8−1−8. FAA RESPONSIBILITY

Where control of military activities is delegated to MRUs, qualified FAA personnel must provide technical assistance, as required/requested, to familiarize military personnel with applicable procedures and related responsibilities. Where assigned, the NORAD/Pacific Air Forces (PACAF) air defense liaison officer (ADLO) or AWACS ADLO must be responsible for this function. At other locations, the FAA Service Area must designate the office or facility responsible for this function. Where service cannot be provided within currently available resources, FAA Service Areas/facilities should initiate appropriate programming action to support the training/research, development, test and evaluation (RDT&E) activity.

8−1−9. ATC FACILITIES RESPONSIBILITY

a. The following applies to VFR non-participating aircraft penetration of active MOA/Warning Areas.

1. ATC facilities providing radar advisory service to VFR non-participating aircraft must alert them of the active MOA/Warning Area. If the pilot indicates that the aircraft will penetrate the areas, ATC must advise the MRU of the VFR penetration and transfer flight information on the VFR non-participating aircraft to the MRU.

2. The MRU/ARU must pass the flight information to all affected participating aircraft.
3. It is the pilot's responsibility for separation from non-participating aircraft.

b. For separation between participating aircraft and non-participating IFR aircraft transiting Restricted Areas, ATCAAs and Warning Areas, ATC facilities must:

1. Provide separation between participating and non-participating IFR aircraft cleared to transit an ATCAA/SUA. Such separation must be accomplished by coordination with the MRU at least 5 minutes prior to the ATCAA/SUA boundary penetration to obtain from the MRU a release to ATC of altitude(s) and/or flight level(s) throughout the entire ATCAA/SUA. ATCAA/SUA sub-areas may be used in separation if depicted on all involved units radars. ATC will transfer flight information of non-participating aircraft to the MRU.

NOTE−
ATC retains the authority to recall delegated airspace as specified in a LOA.

2. Coordinate, track/log spill-in/out aircraft as required.

NOTE−
For spill outs not involving a loss of separation, see the reporting requirements in JO 7210.632 (Air Traffic Organization Occurrence Reporting).

3. The following are APPLICABLE TO USAF/USN ATC FACILITIES ONLY.
   (a) Provide IFR services to participating aircraft within the ATCAA/SUA as required.
   (b) Provide ATC advisory service when the MRU/ARU loses radar or communication capability as coordinated.
   (c) Actively monitor airspace for spill-in/out aircraft.

8−1−10. RELEASE OF AIRSPACE

Airspace may be released to an MRU in accordance with a letter of agreement to accommodate training/RDT&E activity requiring military radar control provided:

a. ATC must resolve all conflicts prior to releasing ATCAA/SUA to the MRU.
b. The MRU must provide external boundary calls to participating aircraft to assist the pilot in remaining within airspace boundaries.
c. The Using Agency assumes responsibility for separation of participating aircraft within the ATCAA/SUA.
d. MRUs will assist participating aircraft in avoiding all observed non-participating traffic through the issuance of radar traffic information.
e. The MRU must confirm the assigned altitude block within the ATCAA/SUA with participating aircraft upon initial contact/airspace entry to ensure each is familiar with the vertical airspace limits.

8−1−11. MILITARY RESPONSIBILITY

The Using Agency must be responsible for ensuring that equipment performance and staffing of the MRU are adequate for proper execution of the letter of agreement. The MRU must:

a. Have two-way, direct access (voice page), recorded communications with ATC facility at all times.

1. In the event transfer of flight information from MRU to ATC facility cannot be accomplished in a timely manner, MRU will assist the flight in remaining within the assigned area and must retain communications with and radar monitor the aircraft until further clearance is received from the ATC facility.

2. When communications cannot be established, instruct aircraft to contact the ATC facility prior to exiting ATCAA/SUA.

b. Provide radar traffic advisory service to participating military aircraft.

c. Provide external ATCAA/SUA boundary calls to participating aircraft, under its jurisdiction, to assist the pilot in remaining within the limits of altitudes and within the boundary of airspace released to the unit by ATC as specified in paragraph 8−1−10, Release of Airspace.

d. Immediately advise the controlling agency whenever participating aircraft cannot remain within the boundary of the allocated airspace via a "Whiskey Alert".

1. The phrase "WHISKEY ALERT" via direct communications will be used to preface any call notifying ATC/MRU/ARU that a spill out/in is imminent or taking place.

2. WHISKEY ALERT notification must include the following information:

(a) Location

(b) Code

(c) Altitude

(d) Intentions/coordination to resolve conflicts

(e) Heading (time permitting)

(f) Call sign/type (time permitting)

e. Provide military command and control functions as directed by military authorities.

f. Relay all ATC clearances verbatim and preface each clearance with "ATC clears".

g. Advise the associated ATC facility whenever the activities within the delegated airspace are terminated.

h. Issue weather as coordinated with ATC Facility.

i. If received, provide Pilot Reports (PIREPS) to ATC facility for forwarding to METRO.

j. Inform ATC facility of communication and/or radar loss at MRU affecting mission operations.

k. Return to ATC facility any portion of ATCAA/SUA airspace not required to complete missions.

l. Return airspace to ATC facility as directed.

m. Provide check-in/area brief services as outlined in LOA.

n. Not direct or approve uncoordinated changes to altitude, route of flight, or squawk on aircraft prior to entering ATCAA/SUA.

o. Coordinate with ATC facility any special handling requirements/requests from aircraft.

8−1−12. RADAR MALFUNCTION AT MRU/ARU

a. MRU/ARU must immediately notify all aircraft in the ATCAA/SUA of the radar outage.

b. MRU must immediately notify ATC Facility of the radar outage affecting mission operations and implement established procedures per LOA.

8−1−13. RADAR MALFUNCTION AT ATC FACILITY

a. ATC Facility must:

1. Immediately notify MRU of the radar outage.

2. Inform MRU all aircraft exiting ATCAA/SUA will be required to exit VFR (below flight level 180) or in accordance with LOA procedures.

b. MRU/ARU must:

1. Immediately notify all aircraft in the ATCAA/SUA that ATC Facility has had a radar failure.

2. Inform all participating aircraft to exit ATCAA/SUA VFR (below flight level 180) or in accordance with LOA procedures.

8−1−14. COMMAND AND CONTROL

MRUs may be authorized to provide military command and control service within ATCAA/SUA to military aircraft participating in daily training/RDT&E activities or planned exercises when the following conditions are met:

a. The staffing and personnel qualifications of the MRU meets acceptable standards as determined jointly by FAA and military.

b. The radar presentation and equipment performance of the unit is adequate for the service being provided as determined jointly by FAA and military.

c. MRUs have adequate video mapping, map overlays, or computer-generated displays on radar scopes to show lateral limits of the area, common reference points, and other pertinent data as determined locally by the military/FAA facility involved.

d. Two-way, direct access (voice page), recorded communications are provided by the military between the MRU and each ATC facility sharing a common boundary with the area in which training/RDT&E activity is being conducted. For AWACS MRU operations, adequate communications must be established between the AWACS mission crew and the ATC facility operating positions affected to support the mission activity to be conducted. AWACS mission requirements must not exceed the ATC communication capability.

NOTE−

Command and Control (C2) is not an air traffic control function. Command and Control is defined as "The exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of the mission. Command and control functions are performed through an arrangement of personnel, equipment, communications, facilities, and procedures employed by a commander in planning, directing, coordinating, and controlling forces and operations in the accomplishment of the mission. [JP1-A]"

8−1−15. SEPARATION BETWEEN PARTICIPATING AND NONPARTICIPATING AIRCRAFT

ATC facilities must provide separation between nonparticipating IFR aircraft cleared to transit an ATCAA/SUA. Such separation must be accomplished by coordination with the MRU at least 5 minutes prior to the ATCAA/SUA boundary penetration to obtain from the MRU a release to ATC of altitude(s) and/or flight level(s) throughout the entire ATCAA/SUA. A transfer of flight information of nonparticipating aircraft will be effected with the MRU by ATC.

NOTE−
ATC retains the authority to take back the airspace as specified in a letter of agreement.

Section 2. Intercept Training Activities

8−2−1. AREA OF OPERATION

Intercept training activities, except for NORAD/PACAF air defense exercises/evaluations, must be conducted under the following conditions:

a. Within Restricted Areas, Warning Areas, Military Operations Areas, and at FL 180 and above in ATCAAs within the United States and its territorial waters.

b. Participating aircraft must display transponder codes as assigned by ATC at all times unless otherwise coordinated.

c. Transponder-off operations must not be conducted except as authorized in an FAA Headquarters approved exemption to 14 CFR section 91.215.

8−2−2. RADAR SURVEILLANCE

a. Intercept training activities must be conducted under the surveillance of an MRU including AWACS aircraft to the extent such coverage or capability is available.

b. When MRU capability does not exist, ATC radar facilities should provide radar surveillance when staffing and workload permits. The details of radar coverage areas and the services to be provided will be included in a letter of agreement between the appropriate ATC facilities and military operational units.

Section 3. FAA/Military Joint Evaluations/Site Visits

8−3−1. PURPOSE

Provide joint FAA/military evaluations/site visits of MRUs every 2 years unless otherwise required. The SUA-using agency may conduct a site visit to review operational procedures contained in the LOA/LOP and discuss other operational concerns.

8−3−2. SCOPE OF EVALUATION/SITE VISIT

The FAA/military must ensure that the following actions are taken prior to an MRU evaluation/site visit:

a. Furnish the MRU facility with the names and security clearances of participating evaluation/site visit personnel.

b. Brief the MRU facility staff on the scope and intent of the evaluation/site visit.

c. Ensure that adequate activity is scheduled at the MRU facility to achieve evaluation/site visit objectives.

8−3−3. ADVANCE COORDINATION

Arrangements for proposed evaluations/site visits must normally be coordinated 30 days in advance. However, evaluation of specific problem areas may be conducted on short notice as mutually agreed.

8−3−4. OBJECTIVES

Evaluation/site visit objectives are as follows:

a. Evaluate/review the adequacy of authorized services.

b. Evaluate/review the application of established procedures.

c. Evaluate/review the currency of operational procedures and agreements.

d. Detect and report for corrective action any weakness in applicable training programs.

> ***NOTE−***
> *Checklists should be incorporated into existing LOAs and should contain items a. through c. above.*

8−3−5. BASIC EVALUATION TEAM/SITE VISIT

The team must consist of at least one FAA air traffic representative (ATREP) and at least one military representative, except for site visits conducted at NORAD/PACAF air defense sectors where an air defense liaison officer (ADLO) must be the FAA air traffic control team lead. The military representative will be at the discretion of the SUA-using agency.

8−3−6. “TRUSTED AGENTS”

Military and FAA personnel conducting evaluations/site visits during exercises must be designated “trusted agents.” Evaluations/site visits must be conducted in a manner that will not interfere with the mission of the MRU involved.

8−3−7. OUT*BRIEFING

An out-briefing must be conducted at the conclusion of the evaluation/site visit, and the joint DoD-FAA team will brief on their respective portion of the evaluation/site visit. The out-briefing should be attended by the appropriate supervisory personnel of the MRU concerned.

8−3−8. PREPARE JOINT REPORT

Evaluation/site visit reports must be handled as follows:

a. A joint report must be prepared at the conclusion of the evaluation/site visit. The report must contain factual comments pertinent to items in Paragraph 8−3−4, Objectives.

b. The report must not be considered complete, nor must it be distributed, until signed by appropriate military and FAA representatives of the evaluation/site visit team.

c. Items that require follow-up action must be specified.

d. Follow-up actions must be initiated within 20 working days from the date of the report.

e. FAA Service Areas and the military services must be responsible for distribution of reports within their respective agencies.

f. Separate minority reports may be filed if either FAA or military representatives disagree with the consolidated report.

Chapter 9. Air Traffic Control Assigned Airspace (ATCAA) Procedures

Section 1. General

9−1−1. PURPOSE

This chapter establishes policy and prescribes uniform procedures to request an Air Traffic Control Assigned Airspace (ATCAA) within the National Airspace System (NAS). ATCAAs can be requested by either military or non-military users. Non-military activities which may require the creation of an ATCAA include, but are not limited to, operations such as high-performance aircraft testing, glider operations, or space launch and reentry operations.

9−1−2. TERMS

The following terms will be used throughout this chapter:

a. ATCAA with Special Use Airspace (SUA). An ATCAA that is established and used in conjunction with SUA. These ATCAAs are normally established above the SUA, beginning at Flight Level (FL) 180. These ATCAAs with SUA are also referred to as a SUA/ATCAA complex.

b. Stand-alone ATCAA. An ATCAA that is established independently for a separate purpose and not associated with SUA. These ATCAAs can extend anywhere from the surface to FL600, although their floor is normally FL180.

c. Controlling Agency. The controlling agency is the ATC facility, normally an FAA ARTCC, that exercises control of the airspace when the ATCAA is not active. For ATCAAs that cross ATC facility boundaries, the controlling agency should be the ATC facility which controls the preponderance of airspace within which the ATCAA is established. However, a military ATC facility may be assigned as the controlling agency, subject to the concurrence of the Service Center OSG and the concerned ARTCC.

NOTE−
A military ATC facility controlling agency must coordinate ATCAA approval recommendations with the Service Center OSG for their concurrence prior to establishing or amending an ATCAA.

d. Using Agency. The using agency is the military unit or other organization whose activity established the requirement for the ATCAA and is responsible for ensuring:

1. The airspace is used only for its designated purpose.

2. Proper scheduling procedures are established and utilized.

3. The controlling agency is informed of changes in scheduled activity, to include the completion of activities for the day.

4. A point of contact is made available to enable the controlling agency to verify schedules, coordinate access for emergencies, weather diversions, etc., and recall the airspace when required.

9−1−3. POLICY

a. If an ATCAA with SUA is being established or modified at the same time as the SUA, the impact of the use of the ATCAA should be evaluated jointly with proposals for the SUA. Proponents should follow the process laid out in FAA Order JO 7400.2, Chapter 21, Section 3, SUA Proposals.

b. All requests to establish or modify an ATCAA will be processed by the controlling agency and coordinated with any other affected ATC facilities. The controlling agency is the approving agency for the use of an ATCAA.

c. DoD ATCAAs in the NAS will have a floor at or above FL180.

1. Any DoD activities below FL180 in NAS airspace, which require dedicated airspace, must be conducted in the appropriate type of SUA and not within an ATCAA. Follow the procedures defined in FAA Order JO 7400.2 for SUA proposal actions.

2. DoD ATCAAs may extend below FL180 in international airspace where the U.S. provides ATC services and where a warning area is not appropriate.

d. For any ATCAA proposals—civil or military—it is the proponent's responsibility to ensure the proposal content is complete in accordance with this Order before the ATCAA proposal is submitted to the controlling agency. The controlling agency is responsible to ensure all required actions are completed before the ATCAA can be established or modified.

e. The ATCAA proposal request should include an informal preliminary environmental feasibility assessment for the proposed use of the ATCAA. Prior to the airspace proposal being approved by the FAA, all ATCAA proponents are required to conduct a formal NEPA environmental review of potential impacts of proposed actions that will take place in the ATCAA. National Environmental Policy Act (NEPA) reviews will be processed by the responsible Service Center Environmental Protection Specialist (EPS). See paragraph 9−3−1 for required NEPA actions.

f. ATCAAs will be effective once the FAA NEPA adoption, controlling agency decision, and a Letter of Agreement are signed by all responsible parties.

Section 2. Procedures

9−2−1. ATCAA PROPOSAL COORDINATION

a. The ATCAA proponent will submit their ATCAA proposal to the controlling agency, pre-coordinating with any other affected ATC facilities. The ATCAA proposal, coordination, and approval actions will be based on the type of ATCAA requested:

1. ATCAA with SUA. For an ATCAA to be established or modified at the same time as an associated SUA, the proponent must submit the ATCAA information with the SUA proposal in accordance with FAA Order JO 7400.2, Chapter 21, Section 3, SUA Proposals. The FAA's Service Center EPS requires both the ATCAA and the SUA information to complete a thorough environmental review per paragraph 9−3−1 below. As part of this process, the controlling agency will continue to serve as the approval authority for the ATCAA portion of the proposal.

2. Stand-alone ATCAA. For a stand-alone ATCAA to be established or modified, the proponent must submit the proposal directly to the controlling agency responsible for the airspace the ATCAA falls within. Proponents should use paragraph 9−2−2 of this order when preparing the proposal and must clearly justify why an ATCAA is needed.

b. The controlling agency, in coordination with any other affected ATC facilities, must evaluate all ATCAA proposals for potential aeronautical impacts on non-participating air traffic and facility operations.

c. As the ATCAA aeronautical proposal is being developed, the using and controlling agencies are encouraged to pre-coordinate the draft proposal with the Service Center Operations Support Group (OSG) to address subsequent environmental review requirements.

d. ATCAAs should be designed to limit the amount of airspace to the minimum required to meet the need of the proponent. ATCAAs should be designed with subdivisions, laterally and/or vertically, to maximize the ATCAA utilization and minimize the impact to the NAS and other airspace users.

e. After accomplishing an aeronautical review, the controlling agency must submit ATCAA proposals they support to the Service Center EPS for environmental review in accordance with the process outlined in paragraph 9−3−1 of this order.

f. The controlling agency will ensure an approved ATCAA is entered into the Military Airspace Data Entry/Special Use Airspace Management System (MADE/SAMS) and is available for scheduling prior to use of the ATCAA.

g. In the event a proponent's ATCAA proposal concept has failed to receive ATC facility(ies) concurrence, constructive feedback or operationally feasible alternatives/mitigations, the proponent should coordinate with the Service Center MILREP and FAA ATREP to resolve the concern.

9−2−2. ATCAA PROPOSAL CONTENT

For all ATCAA requests, the proponent must provide the following data to the controlling agency:

a. Proponent's Transmittal Letter. Summarize the proposal and provide a point of contact for further information. Military proposals must include a military representative endorsement.

b. Area Description. Using the guidelines in FAA Order JO 7400.2, Chapter 21, Section 1 and Section 2, describe the proposed area as follows:

1. Title. State name of proposed ATCAA area(s).

2. Boundaries. A description of the proposed ATCAA boundary and any subdivisions.

NOTE–
All geographic coordinates must be based on North American Datum 83 (NAD 83).

3. Altitudes. State the floor and ceiling of the proposed ATCAA. List altitudes 18,000 feet mean sea level (MSL) and above as flight levels. List altitudes below 18,000 feet MSL as feet above MSL. Where terrain considerations or other factors would make the use of an MSL altitude impractical, the floor of the area may be described in feet above ground level (AGL).

4. Times of use. State the times of use to be published for the area(s). Include an estimate of the expected ATCAA usage in number of hours per day and days per year. In cases where the unit plans to use the airspace during different blocks of time each day, describe those planned operations to provide as accurate a picture as possible of the projected daily use of the airspace.

5. Controlling agency. State the FAA or military ATC facility to be designated as the controlling agency for the proposed ATCAA.

6. Using agency. State the organization to be designated as the using agency for the proposed ATCAA. Specify the military service, unit or organization, and location. For non-military using agencies, specify the organization name and location.

c. Airspace Statement of Need and Justification.

1. Describe the purpose and need for the proposed ATCAA. Sufficient justification must be provided to support approval of the proposal. Additionally, any known or anticipated aeronautical impact(s) on other airspace users must be considered and addressed in the proposal, including proposed mitigations, if any, to lessen the impact(s).

(a) For new ATCAA areas, explain why the requirement cannot be met by using or modifying an existing ATCAA. List ATCAAs that were considered and explain why each area is not acceptable.

(b) For proposals to increase the dimensions or times of use of an existing ATCAA, explain the need for the increase.

(c) Coordinate with the Service Center Environmental Specialist to ensure the Airspace Statement of Need and Justification is consistent with the Statement of Purpose and Need and alternatives in the applicable NEPA document.

d. Special Use Airspace (SUA). State whether the ATCAA is requested to support proposed or existing SUA, including the SUA dimensions and times of use.

NOTE–
1. SUA information is requested in the proposal solely to assist the FAA in evaluating the overall aeronautical impact of the ATCAA proposal.

2. *ATCAAs below FL180 and ALTRVs must not be used as a substitute for SUA when conducting activities for which a SUA is designed to contain. Since ATCAAs and ALTRVs are not depicted on aeronautical charts, they do not inform the flying public of the location of the activity as is*

provided by charted SUA. Additionally, ATCAAs and ALTRVs are not to be used as an interim solution while a SUA proposal is pending.

e. Activities. List all activities to be conducted in the proposed ATCAA. Include the following information:

1. The number and types of aircraft that will normally use the area.

2. A listing of the specific activities and the maximum altitudes required for each type of activity planned.

3. State whether supersonic flight will be conducted.

f. Environmental and Land Use Information. In coordination with the Service Center OSG EPS, furnish the name, organization, and mailing address of the person to whom comments on environmental and land use aspects of the proposal may be sent.

g. Safety Considerations. Include an explanation of the following items, if applicable:

1. Measures taken to ensure containment of the activities within the proposed area.

2. Procedures for handling malfunctions.

h. Proposal Pre-Coordination. List the ATC facilities, military units, and/or other organizations contacted in developing the ATCAA proposal.

i. Environmental Documents. Submit applicable environmental documents in accordance with paragraph 9−3−1 of this order. If the environmental review is incomplete, indicate the status and estimated completion date.

j. Other. Include any additional information that should be considered by the FAA in making its determination of the proposal.

9−2−3. ATCAA PROPOSAL SCHEDULING

a. Specific procedures and conditions for scheduling and activating each ATCCA subdivision should be spelled out in a Letter of Agreement prior to the use of ATCAA.

b. Only the ATCAA subdivisions needed to meet mission requirements should be scheduled

c. ATCAA should be scheduled for the minimum time needed to complete the mission and returned to the controlling agency when the ATCAA is no longer required for its designated purpose.

Section 3. Environmental Impact Analysis Procedures for ATCAAs

9−3−1. ENVIRONMENTAL REVIEW PROCESS FOR ATCAA PROPOSALS

a. The establishment, modification, and use of ATCAAs are Federal Actions subject to NEPA review and documentation requirements. Compliance with FAA Order 1050.1, Environmental Impacts: Policies and Procedures and FAA Order JO 7400.2, Procedures for Handling Airspace Matters, Chapter 32, Environmental Matters, is required for a proponent to use FAA-regulated airspace. For the FAA to fulfill its NEPA documentation requirements, the proponent is responsible for providing the FAA with their NEPA documentation of their proposed ATCAA use, whether stand-alone or with SUA.

b. The proponent must conduct their own environmental impact review and documentation of their proposed actions to take place in the ATCAA in accordance with its agency's NEPA implementing regulations. Prior to the proponent's issuance of an environmental decision (i.e., Categorical Exclusion (CATEX), Environmental Assessment/Finding of No Significant Impact (EA/FONSI), Environmental Impact Statement/Record of Decision (EIS/ROD)), the proponent should involve the FAA's EPS as early as possible in the development of its NEPA documentation.

c. If the ATCAA is being created or modified along with associated SUA, the proponent's entire SUA-ATCAA use proposal will be evaluated by the Service Center EPS for environmental impacts according to the process described in FAA Order JO 7400.2, Chapter 21, Section 3, SUA Proposals; FAA Order 1050.1, Environmental Impacts: Policies and Procedures; and FAA Order JO 7400.2, Chapter 32, Environmental Matters.

d. All ATCAA proponents are required to include an environmental impact analysis of their proposed actions in the ATCAA proposal. When the proponent's use of an ATCAA is part of a broader proposed action, the proposed use of the ATCAA should be included in the proponent's Description of Proposed Action and Alternatives in their NEPA document. FAA's review of the proponent's NEPA documents will be conducted by the responsible Service Center EPS in accordance with the requirements of FAA Order 1050.1 and FAA Order JO 7400.2, Chapter 32, Environmental Matters.

e. Proposals to establish or modify ATCAA without changes to associated SUA are submitted directly to the controlling agency. To accomplish the required NEPA review, the controlling agency will provide the Service Center OSG with the ATCAA use request and controlling agency recommendation.

f. The Service Center EPS must support development of the proponent's NEPA documentation of their proposed actions that include the proponent's use of ATCAA(s) and prepare the FAA's NEPA adoption documentation in accordance with FAA Order 1050.1, paragraph 8-2, Adoption of Other Agencies NEPA Documents, and FAA Order JO 7400.2, Chapter 32, Environmental Matters.

g. The proponent must provide all relevant technical data (e.g., aeronautical information, aircraft noise data, noise modeling results, etc.) related to the proposed use of the ATCAA (and proposed use of other FAA-regulated airspace that may be part of the proponent's proposed action) as necessary to support the FAA's environmental impact review for adoption of the proponent's NEPA documents.

h. Approval authority for environmental decisions in the FAA's NEPA adoption document (i.e., CATEX, EA/FONSI, EIS/ROD) associated with the proponent's use of the ATCAA is in accordance with FAA Order JO 7400.2, Chapter 32, Appendices 4 and 8.

i. Once the FAA has adopted the proponent's NEPA document, the controlling agency may then make an approval determination.

Appendix 1. Abbreviations

As used in this order, the abbreviations set forth below must have the meanings indicated.

Abbreviation	Meaning
ACC	Air Combat Command
ADCF	Air Defense Control Facility
ADIZ	Air Defense Identification Zone
ADLO	Air Defense Liaison Officer
ADMIS (number)	Aircraft Departing at (number of minutes/seconds) Intervals
ADS	Air Defense Sector
ADS-B	Automatic Dependent Surveillance-Broadcast
AIM	Aeronautical Information Manual
AIP	Aeronautical Information Publication
AIRFL	Air Refuel or Aerial Refueling
ALTRV	Altitude Reservation
ALTRV APVL	Altitude Reservation Approval
AMC	Air Mobility Command
ANG	Air National Guard
ANR	Alaskan NORAD Region
AOC	Aircraft Operations Center (NOAA)
APREQ	Approval Request
APVL	Approval
ARCP	Air Refueling Control Point
ARCT	Air Refueling Control Time
ARIP	Air Refueling Initial Point

Abbreviation	Meaning
ARTCC	Air Route Traffic Control Center
ARU	Airborne Radar Unit
ASR	Airport Surveillance Radar
ATC	Air Traffic Control
ATCAA	ATC Assigned Airspace
ATCSCC	Air Traffic Control System Command Center
ATM	Air Traffic Management
ATM	Air Traffic Manager
ATREP	FAA Air Traffic Representative
ATSC	Air Traffic Security Coordinator
AVANA (UTC)	ALTRV Approval Void for Aircraft Not Airborne by (time)
AWACS	Airborne Warning and Control System
BNDD	Bounded
BR	Branch Route
C2	Command and Control
CARCAH	Chief, Aerial Reconnaissance Coordination, All Hurricanes
CARF	Central Altitude Reservation Function
CBP	Customs Border Protection
CCF	Combined Control Facility
CEDAR	Comprehensive Electronic Data Analysis and Reporting Program
CELNAV	Celestial Navigation Training
CFA	Controlled Firing Area
CFR	Code of Federal Regulations
CLMB	Climb
CMB	Climb

Abbreviation	Meaning
CMN	Common
CMPS	Compress
CONUS	Continental United States
CTA	Control Area
CTA/FIR	U.S. Control Airspace/Flight Information Region
DEN	Domestic Events Network
DHS	Department of Homeland Security
DoD	Department of Defense
DOD	Department of Defense
DPRT	Departure or Depart
DRCT	Direct
DSN	Defense Switched Network
DSND	Descend
DVFR	Defense Visual Flight Rules
EFTO	Encrypt For Transmission Only
ELP	Emergency Landing Pattern
ENCAN	Enter Canadian Airspace
ENJJPT	Euro-NATO Joint Jet Pilot Training
ESCAT	Emergency Security Control of Air Traffic
ESS	Electronic Scoring Site
ETD	Estimated Time of Departure
EUCARF	European Central Altitude Reservation Facility
EWO	Emergency War Order
EXCAN	Exit Canadian Airspace
FAA	Federal Aviation Administration

Abbreviation	Meaning
FACSFAC	Fleet Area Control and Surveillance Facility
FIR	Flight Information Region
FLIP	Flight Information Publication
FRD	Fix/radial/distance
FRMN	Formation
FSDO	Flight Standards District Office
GCA	Ground Controlled Approach
GCI	Ground Controlled Intercept
HCF	Honolulu Control Facility
IBASF (number)	Interval Between Aircraft in Stream Formation is (minutes)
ICAO	International Civil Aviation Organization
IFPFP	Individual Flight Plan From This Point
IFR	Instrument Flight Rules
IMC	Instrument Meteorological Conditions
IP	Initial Point
IR	IFR Military Training Route
JATOC	Joint Air Traffic Operations Command
JCAT	JATOC Crisis Action
JCS	Joint Chiefs of Staff
KIAS	Knots Indicated Air Speed
LOA	Letter of Agreement
LOP	Letter of Procedure
LOWAT	Low Altitude Air-to-Air Training
LVLOF	Level Off
MARSA	Military Authority Assumes Responsibility for Separation of Aircraft

Abbreviation	Meaning
MHz	Megahertz
MILREP	Military Representative
MITO	Minimum Interval Takeoff
MOA	Military Operations Area
MOR	Mandatory Occurrence Report
MRU	Military Radar Unit
MTR	Military Training Route
NAS	National Airspace System
NAVREP	Navy Representative to the FAA
NCR	National Captial Region
NCRCC	National Capital Region Coordination Center
NFDD	National Flight Data Digest
NGA	National Geospatial-Intelligence Agency
NHOP	National Hurricane Operations Plan
NMS	NOTAM Management Service
NOAA	National Oceanic and Atmospheric Administration
NOPAR	Do Not Pass to Air Defense Radar
NORAD	North American Aerospace Defense Command
NWSOP	National Winter Storm Operations Plan
ORI	Operational Readiness Inspection
PACAF	Pacific Air Forces
PACMARF	Pacific Military Altitude Reservation Facility
PADS	Pacific Air Defense Sector
PAR	Precision Approach Radar
PR	Partial Route

Abbreviation	Meaning
RAPCON	Radar Approach Control Facility (USAF, USN and USMC)
RATCF	Radar Air Traffic Control Facility (USN and USMC)
RAVEC	Radar Vector to a Geographical Point
RCVR	Receiver Aircraft for Air Refueling
RDT&E	Research, Development, Test, and Evaluation
REQ	Request
ROMES	Reference Our Message
RSU	Runway Supervisory Unit
RTE	Route
SAR	Search and Rescue
SFA	Single Frequency Approach
SFC	Surface
SFO	Simulated Flameout
SIDOR	Standard Instrument Departure from Optimum Runway
SIF	Special Interest Flight
SODAR	Simultaneous Opposite Direction Aerial Refueling
SOSC	System Operations Support Center
SPINS	Special Instructions
SUA	Special Use Airspace
TAS	True Airspeed
TOI	Track of Interest
TSA	Transportation Security Administration
UA	Unmanned Aircraft
UAS	Unmanned Aircraft System
UFT	Undergraduate Flying Training

Abbreviation	Meaning
UPT	Undergraduate Pilot Training
USA	United States Army
USAF	United States Air Force
USCG	United States Coast Guard
USINDOPACOM	U.S. Indo-Pacific Command
USMC	United States Marine Corps
USN	United States Navy
UTC	Coordinated Universal Time
VFR	Visual Flight Rules
VMC	Visual Meteorological Conditions
VR	VFR Military Training Route
WOCC	Washington Operations Center Complex
WRA	Weather Reconnaissance Area
WX RECON	Weather Reconnaissance

Appendix 2. Definitions

A-DEFINITIONS

Active Air Defense Mission. One or more aircraft, which in the interest of national security or flight safety, are employed to identify and determine the intentions of an airborne object and respond as necessary.

Air Defense Control Facility (ADCF). A military radar unit (ADS/AWACS) primarily used for air defense, including air sovereignty and counterdrug operations. ADCFs are the only MRUs authorized to direct interceptors. Specifically designated military units, when identified, may provide augmentation for NORAD and function as ADCFs.

Air Defense Identification Zone (ADIZ). An area of airspace over land or water in which the ready identification, location, and control of all aircraft (except for Department of Defense and law enforcement aircraft) is required in the interest of national security. (14 CFR section 99.3)(Refer to the AIM for ADIZ procedures.)

Air Defense Sector (ADS). A geographical subdivision of an air defense region. (32 CFR section 245.5).

Air Refueling Control Point (ARCP). The geographical point over which the receiver arrives in the observation/refueling position with respect to the assigned tanker.

Air Refueling Initial Point (ARIP). The geographical point at which the receiver aircraft enters the refueling track/anchor, initiates radio contact with the tanker, and begins maneuver to rendezvous.

Air Route Traffic Control Center (ARTCC). A facility established to provide air traffic control service to aircraft operating on IFR flight plans within controlled airspace and principally during the en route phase of flight. When equipment capabilities and work load permit, certain advisory/assistance services may be provided to VFR aircraft.

Air Traffic Clearance (Clearance). An authorization by air traffic control, for the purpose of preventing collision between known aircraft, for an aircraft to proceed under specified traffic conditions within controlled airspace. (14 CFR section 1.1)

> ***NOTE−***
> *For convenience, the term "air traffic clearance" is frequently abbreviated to "clearance" when used in appropriate contexts.*

> ***NOTE−***
> *The abbreviated term "clearance" may be prefixed by the words taxi, takeoff, departure, en route, approach or landing to indicate the particular portion of flight to which the air traffic clearance relates.*

Air Traffic Control (ATC). A service operated by appropriate authority to promote the safe, orderly, and expeditious flow of air traffic. (14 CFR section 1.1)

Air Traffic Control System Command Center (ATCSCC). An Air Traffic Tactical Operations facility responsible for monitoring and managing the flow of air traffic throughout the NAS, producing a safe,

orderly, and expeditious flow of traffic while minimizing delays. The following functions are located at the ATCSCC:

a. Central Altitude Reservation Function (CARF). Responsible for coordinating, planning, and approving special user requirements under the Altitude Reservation (ALTRV) concept. (See Altitude Reservation.)

b. Airport Reservation Office (ARO). Monitors the operation and allocation of reservations for unscheduled operations at airports designated by the Administrator as High Density Airports. These airports are generally known as slot controlled airports. The ARO allocates reservations on a first come, first served basis determined by the time the request is received at the ARO. (Refer to 14 CFR part 93.)

c. U.S. Notice to Airmen (NOTAM) Office. Responsible for collecting, maintaining, and distributing NOTAMs for the U.S. civilian and military, as well as international aviation communities. (See Notice to Airmen.)

d. Weather Unit. Monitor all aspects of weather for the U.S. that might affect aviation including cloud cover, visibility, winds, precipitation, thunderstorms, icing, turbulence, and more. Provide forecasts based on observations and on discussions with meteorologists from various National Weather Service offices, FAA facilities, airlines, and private weather services.

e. Air Traffic Organization (ATO) Space Operations and Unmanned Aircraft System (UAS); the Office of Primary Responsibility (OPR) for all space and upper class E tactical operations in the National Airspace System (NAS). (Pilot/Controller Glossary.)

Airborne Radar Unit (ARU). An airborne radar unit used as an extension of a military radar unit during planned exercises and daily training missions.

Airborne Warning and Control System (AWACS). An airborne military radar unit engaged in radar surveillance and/or control of aircraft for the purpose of training, exercise, air defense, and counterdrug operations.

Airspace Reservation. The term used in oceanic ATC for airspace utilization under prescribed conditions normally employed for the mass movement of aircraft or other special user requirements which cannot otherwise be accomplished. Airspace reservations must be classified as either "moving" or "stationary."(See Moving Airspace Reservation.) (See Stationary Airspace Reservation.) (See Altitude Reservation.)

Alert Area. Special use airspace established to inform pilots of a specific area wherein a high volume of pilot training activities or an unusual type of aerial activity is conducted. (14 CFR section 1.1)

Alternate Entry Track. A track along which en route descent is made to an intermediate point on an MTR.

Alternate Penetration Fix. The fix from which the MTR Alternate Entry Track begins. This fix must be described by reference to a ground based navigational aid.

Alternate Route (AR). A preplanned departure track designed to allow receivers to depart in one direction and tanker support to depart in another direction from the same airport with the intent to rendezvous for scheduled aerial refueling.

Altitude Reservation (ALTRV). Airspace utilization under prescribed conditions normally employed for the mass movement of aircraft or other special user requirements which cannot otherwise be accomplished. ALTRVs are approved by the appropriate air traffic facility. ALTRVs must be classified as either "moving" or "stationary." (See Moving Altitude Reservation.) (See Stationary Altitude Reservation.) (See Air Traffic Control System Command Center)

Altitude Reservation East (ARE). A unit established by Transport Canada responsible for the processing of altitude reservation requests in Gander, Moncton, Montreal, and Toronto Area Control Centers (ACC).

Altitude Reservation West (ARW). A unit established by Transport Canada responsible for the processing of altitude reservation requests in Vancouver, Edmonton, and Winnipeg Area Control Centers (ACC).

Anchor Area. A defined area encompassing both a racetrack shape aerial refueling track and its protected airspace.

Anchor Point. A designed reference point upon which an anchor refueling track is oriented.

Associated Tracks. MTR Alternate Entry, Primary Entry, Climb-out, and Re-entry tracks.

ATC Assigned Airspace (ATCAA). Airspace of defined vertical/lateral limits, assigned by ATC, for the purpose of providing air traffic segregation between the specified activities being conducted within the assigned airspace and other IFR air traffic.

Automatic Dependent Surveillance-Broadcast (ADS-B). A surveillance system in which an aircraft or vehicle to be detected is fitted with cooperative equipment in the form of a data link transmitter. The aircraft or vehicle periodically broadcasts its GNSS-derived position and other required information such as identity and velocity, which is then received by a ground-based or space-based receiver for processing and display at an air traffic control facility, as well as by suitably equipped aircraft. (Pilot/ Controller Glossary)

AVANA. (ALTRV APVL void for aircraft not airborne by (time)) used by ATC to advise an aircraft that the ALTRV is automatically canceled at a specified time.

B-DEFINITIONS

Branch Route (BR). A track of an ALTRV that is defined from the breakaway point from a common route to the next fix or the final destination.

Broad Front. This activity is used to occupy a frontal width (as measured perpendicular to the direction of the flight) greater than what is normally allowed.

C-DEFINITIONS

Canadian Altitude Reservation Unit (CARU). A unit established by the Ministry of Transport of Canada responsible for the processing of altitude reservation requests in Canadian airspace.

Canadian NORAD Region (CANR). (See NORAD Region).

Cell Formation. A nonstandard formation of two or more aircraft with the same intended route of flight, maintaining station keeping operations by visual/electronic means.

Central Altitude Reservation Function (CARF). A function at the Air Traffic Control System Command Center (ATCSCC), established to conduct the volume of coordination, planning, and approval of special user requirements under the ALTRV concept.

Chief, Aerial Reconnaissance Coordination, All Hurricanes (CARCAH) Unit. CARCAHis a remote operating unit of the 53rd Weather Reconnaissance Squadron. CARCAH's mission is to coordinate all tropical cyclone operational reconnaissance requirements at the National Hurricane Center (NHC) and theCentral Pacific Hurricane Centerfor the North Atlantic, Caribbean, Gulf of America, and the North Pacific east of the International Date Line in accordance with theNational Hurricane Operations Plan (NHOP). In addition, during the winter, CARCAH coordinates the Atlantic and Pacific winter storm requirements in support of theNational Winter Season Operations Plan (NWSOP).

Climb-out Fix. The point in space where en route operation is resumed after climb-out from an MTR. This fix must be described by reference to a ground-based navigational aid.

Climb-out Track. An MTR Associated Track beginning at the route Exit Point and permitting a climbing departure from the Exit Point to the Climb-out Fix.

Command and Control (C2). The exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of the mission. Command and control functions are performed through an arrangement of personnel, equipment, communications, facilities, and procedures employed by a commander in planning, directing, coordinating, and controlling forces and operations in the accomplishment of the mission. [JP1-A]

Common Route (CR). The receivers planned common route in an ALTRV from point of departure to destination excluding branch route or other join-up tracks.

Continental United States (CONUS). All United States territory of the 48 contiguous states (does not include Alaska and Hawaii), including the adjacent territorial waters within 12 miles of the coast of the 48 contiguous states. (32 CFR section 245.5)

Continental United States NORAD Region (CONR). (See NORAD Region).

Controlled Airspace. An airspace of defined dimensions within which air traffic control service is provided to IFR flights and to VFR flights in accordance with the airspace classification.

> ***NOTE−***
> *Controlled airspace is a generic term that covers Class A, Class B, Class C, Class D, and Class E airspace.*

Controlled Firing Area (CFA). Special use airspace established to contain activities, which if not conducted in a controlled environment, would be hazardous to nonparticipating aircraft. (14 CFR section1.1)

Controlling Agency. The controlling agency is the FAA ATC facility that exercises control of the airspace when a SUA area is not activated. A military ATC facility may be assigned as the controlling agency, subject to the concurrence of the Service Center OSG and the concerned ARTCC. A controlling agency must be designated for each joint-use SUA area. (Refer to FAA Order JO 7400.2, Procedures for Handling Airspace Matters.)

D-DEFINITIONS

DD-175/DD-1801. A domestic/international military flight plan.

Defense Area. Any airspace of the contiguous United States that is not an ADIZ in which the control of aircraft is required for reasons of national security.

Defense Emergency. An emergency condition that exists when:

a. A major attack is made upon U.S. forces overseas or on allied forces in any theater and is confirmed by either the commander of a command established by the Secretary of Defense or higher authority; or

b. An overt attack of any type is made upon the United States and is confirmed either by the commander of a command established by the Secretary of Defense or higher authority.

Defense Visual Flight Rules (DVFR). A flight within an ADIZ conducted by any aircraft (except for Department of Defense and law enforcement aircraft) in accordance with visual flight rules in part 91 of this title. (14 CFR section 99.3) (See Air Defense Identification Zone.) (Refer to the AIM for ADIZ procedures.)

Domestic Event Network (DEN). FAA-sponsored 24/7 interagency telephonic conference dedicated to real-time coordination of air traffic management (ATM) security-related incidents in the NAS. The purpose of the DEN is to provide timely notification to the appropriate authority that there is an ATM security-related problem, suspicious situation, or incident.

E-DEFINITIONS

Egress Point. The geographical point at which the refueling track terminates.

Entry Point. A point which denotes the beginning of a particular route of flight; i.e., MTR.

European Central Altitude Reservation Facility (EUCARF). A USAF facility established for the purpose of processing altitude reservations within its area of responsibility.

Exit Point. A point which denotes the end of a particular route of flight; i.e., MTR, air refueling track, etc.

F-DEFINITIONS

Fleet Area Control and Surveillance Facility (FACSFAC). A U.S. Navy fixed ground facility which manages offshore and inland operating areas including warning areas, restricted areas, and other assigned airspace.

Flight Level (FL). A level of constant atmospheric pressure related to a reference datum of 29.92 inches of mercury. Each is stated in three digits that represent hundreds of feet. For example, flight level 250 represents a barometric altimeter indication of 25,000 feet; flight level 255, an indication of 25,500 feet. (14 CFR section 1.1)

Flight Plan. Specified information, relating to the intended flight of an aircraft, that is filed electronically, orally or in writing with an FSS, third-party vendor, or an ATC facility. (Pilot/controller Glossary) (Refer to the AIM.)

Flush. A term that launches military aircraft in a minimum time.

Formation Flight. More than one aircraft which, by prior arrangement between the pilots, operate as a single aircraft with regard to navigation and position reporting. Separation between aircraft within the formation is the responsibility of the flight leader and the pilots of the other aircraft in the flight. This includes transition periods when aircraft within the formation are maneuvering to attain separation from each other to effect individual control and during join up and breakaway.

a. A standard formation is one in which a proximity of no more than 1 mile laterally or longitudinally and within 100 feet vertically from the flight leader is maintained by each aircraft.

b. Nonstandard formations are those operating under any of the following conditions:

1. When the flight leader has requested and ATC 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 designated for a special activity.

H-DEFINITIONS

HAWK. A no-notice exercise in which an aircraft on a NOPAR flight plan or ALTRV tests the detection, identification, and reporting functions of the air defense forces (ADCFs and interceptor/ flight units).

I-DEFINITIONS

IFR Military Training Routes (IR). Routes used by the Department of Defense and associated Reserve and Air Guard units for the purpose of conducting low-altitude navigation and tactical training in both IFR and VFR weather conditions at airspeeds in excess of 250 KIAS below 10,000 feet MSL.

Intercept. The encounter with or tracking of an airborne object, normally as a result of a flight path preplanned to effect such encounter in the shortest practicable time.

Interceptor. An airplane engaged for the sole purpose of performing an intercept.

Interceptor Training Flight. The flight of one or more aircraft for the development and maintenance of proficiency for both air and ground components related to the intercept mission.

J-DEFINITIONS

JATOC Crisis Action Team (JCAT). A surged element of the JATOC responsible for serving as ATO's primary national level communications and coordination hub for significant incidents, such as hurricanes and other natural disasters. (Refer to FAA Order JO 7200.25, Joint Air Traffic Operations Command (JATOC).)

Joint Air Traffic Operations Command (JATOC). The JATOC integrates Service Units at all levels enabling a unified FAA Air Traffic Organization (ATO) response effort to significant incidents and other major events or natural disasters that adversely impact the NAS or national security. The JATOC will address constraints, risks, and threats to the NAS and communicate this information to ATO leadership and appropriate stakeholders. (Refer to FAA Order JO 7200.25, Joint Air Traffic Operations Command (JATOC).)

M-DEFINITIONS

Maneuver Area. A designated area within an MTR where aircraft may deviate within the corridor to perform operational requirements.

Military Authority Assumes Responsibility for Separation of Aircraft (MARSA). A condition whereby the military services involved assume responsibility for separation between participating military aircraft in the ATC system. It is used only for required IFR operations which are specified in letters of agreement or other appropriate FAA or military documents.

Military Operations Area (MOA). Special use airspace of defined vertical and lateral dimensions established outside Class A airspace to separate or segregate certain nonhazardous military activities from IFR traffic and to identify for VFR traffic where these activities are conducted. (14 CFR section 1.1)

Military Radar Unit (MRU). Any fixed or mobile ground based unit under the operational jurisdiction of the military services excluding commissioned ATC facilities. This includes AWACS aircraft that meet the requirements of this order. MRUs will provide services in accordance with letters of agreement with the appropriate ATC facilities; however, MRUs must not provide ATC services.

Military Representative (MILREP). DoD Military Representatives (MILREPs) are FAA's principal points of contact for DoD aviation, airspace, and air traffic control matters; and are instrumental in providing effective liaison and agency interoperability. MILREP positions are embedded with various FAA lines of business at both FAA Headquarters and FAA Service Center offices.

Military Training Route (MTR). Routes developed for use by the military for the purpose of conducting low-altitude, high-speed training.

Mode. The letter or number assigned to a specific pulse spacing of radio signals transmitted or received by ground interrogator or airborne transponder components of the Air Traffic Control Radar Beacon System (ATCRBS). Mode A (military Mode 3) and Mode C (altitude reporting) are used in air traffic control. (Refer to the AIM.)

Mode S code. The unique ICAO aircraft address code used in ADS-B systems associated with the registration of an aircraft.

Moving Airspace Reservation. The term used in oceanic ATC for airspace that encompasses oceanic activities and advances with the mission progress; i.e., the reservation moves with the aircraft or flight. (See Moving Altitude Reservation.)

Moving Altitude Reservation. An altitude reservation which encompasses en route activities and advances with the mission progress; i.e., the reservation moves with the aircraft or flight.

N-DEFINITIONS

National Airspace System (NAS). The common network of U.S. airspace; air navigation facilities, equipment and services, airports or landing areas; aeronautical charts, information and services; rules, regulations and procedures, technical information, and manpower and material. Included are system components shared jointly with the military. (Pilot/Controller Glossary)

National Flight Data Digest (NFDD). A daily (except weekends and Federal holidays) publication of flight information appropriate to aeronautical charts, aeronautical publications, Notices to Airmen, or other media serving the purpose of providing operational flight data essential to safe and efficient aircraft operations.

National Hurricane Operations Plan (NHOP). The Office of the Federal Coordinator for Meteorological Services and Supporting Research (OFCM) works with Federal agency stakeholders to plan hurricane observing and reconnaissance in preparation for each hurricane season. The NHOP focuses heavily on the planning, execution, and use of aerial reconnaissance conducted by the Air Force Reserve Command's 53rd Weather Reconnaissance Squadron (WRS) and NOAA's Aircraft Operations Center (AOC); addresses meteorological satellite, weather radar, and ocean observing; and a number of other, related topics.

National Winter Season Operations Plan (NWSOP). The purpose of the NWSOP is to coordinate the efforts of the Federal meteorological community to provide enhanced weather observations of severe winter storms that impact the coastal regions of the United States. This plan focuses on the coordination of requirements for winter storm reconnaissance observations provided by the Air Force Reserve Command's 53rd Weather Reconnaissance Squadron and NOAA's Aircraft Operations Center.

NORAD Region. A geographical subdivision of the area for which NORAD is responsible.

NORAD Sector. A geographical subdivision of a NORAD region.

North American Aerospace Defense Command (NORAD). A United States and Canada bi-national organization charged with the missions of aerospace warning, aerospace control and maritime warningfor North America. Aerospace warning includes the detection, validation, and warning of attack against North America whether by aircraft, missiles, or space vehicles, through mutual support arrangements with other commands.

Notice to Airmen (NOTAM). A notice containing information (not known sufficiently in advance to publicize by other means) concerning the establishment, condition, or change in any component (facility, service, or procedure, or hazard in the National Airspace System) the timely knowledge of which is essential to personnel concerned with flight operations.

a. NOTAM (D). The classification of NOTAMs containing information concerning the establishment, condition, or change in any aeronautical facility, en route navigational aids, services, procedures, hazards and civil public-use airports listed in the Chart Supplement.

b. Flight Data Center (FDC) NOTAM. The classification of NOTAMs containing flight information that is normally regulatory in nature including, but not limited to, changes

to IFR charts, procedures, and airspace usage. For example, FDC NOTAMs with the keyword SECURITY are used for Department of State advisories, Special Federal Aviation Regulations (SFARs), advisories of national emergency, national security actions, special security instructions, and Air Defense Identification Zone (ADIZ) procedures.

c. CARF NOTAM. A NOTAM issued by CARF associated with a CARF approved ALTRV for a Stationary ALTRV or for a moving ALTRV in which AIRFL occurs below FL 180 or when the activity covers a broad frontal width. Also a NOTAM issued by ARTCCs for weather reconnaissance/research flights in Weather Reconnaissance Areas (WRA).

d. International NOTAM. The classification of NOTAMs received from other countries and available in the NOTAM Service.

e. Military NOTAM. The classification of NOTAMs issued by the U.S. Air Force, Army, Marine Corps, Navy, and Coast Guard against navigational aids and airports. Military units issue NOTAMs pertaining to their bases and airspace based on the guidelines set forth in Air Force Instruction Interservice Publication 11-208/AR 95-10/OPNAVINST 3721.20, DoD Notice to Airmen (NOTAM) System.

O-DEFINITIONS

Oceanic Airspace. Airspace over the oceans of the world, considered international airspace, where oceanic separation and procedures per the International Civil Aviation Organization are applied. Responsibility for the provisions of air traffic control service in this airspace is delegated to various countries, based generally upon geographic proximity and the availability of the required resources. (Pilot/Controller Glossary)

Offshore/Control Airspace Area. Designated international airspace between the U.S. territorial 12 mile limit and the oceanic CTA/FIR boundary, within signal coverage of domestic radio navigational aid or ATC radar coverage, in which domestic (U.S.) ATC procedures are applied. Offshore/Control Airspace Areas may be classified as either Class A airspace or Class E airspace. (80 FR 37710, Designation of Oceanic Airspace)

Orbit Area. This activity is used to occupy an expanded area used for holding or maneuvering of aircraft.

P-DEFINITIONS

PACAF Region. A geographical subdivision of the area for which PACAF is responsible.

Pacific Air Forces (PACAF). Both a USAF Major Command and the Air Component of the Unified U.S. Indo-Pacific Command (USINDOPACOM).

Pacific Island Air Defense Region (PIADR). A geographical subdivision of the USINDOPACOM area for which the Air Component Commander is responsible for air defense.

Pacific Military Altitude Reservation Facility (PACMARF). A USAF facility established for the purpose of coordinating altitude reservations within its area of responsibility.

Partial Route (PR). A track of an ALTRV that begins at the international boundary for aircraft inbound from an international airport to the CONUS or a track that is connected to a DD-175/DD-1801 (domestic flight plan).

Participating Aircraft. Only those aircraft engaged in, and a part of, the activity being conducted.

Penetrating Traffic. Traffic whose protected airspace, as defined in pertinent regulations, infringes upon another authority's area of jurisdiction or responsibility when measured from the center line of the route of flight or the edge of a stationary ALTRV boundary

Primary Entry Track. A track along which en route descent is made to the entry point of an MTR.

Primary Penetration Fix. The fix from which the Primary Entry Track of an MTR begins. This fix must be described by reference to a ground-based navigational aid.

Prohibited Area. Airspace designated under 14 CFR part 73 within which no person may operate an aircraft without the permission of the using agency.

R-DEFINITIONS

Radar Advisory. The provision of advice and information based on radar observations.

Radar Contact.

a. Used by ATC to inform an aircraft that it is identified on the radar display and radar flight following will be provided until radar identification is terminated. Radar service may also be provided within the limits of necessity and capability. When a pilot is informed of radar contact by ATC, the pilot automatically discontinues reporting over compulsory reporting points.

b. The term an air traffic controller uses to inform the transferring controller that the target being transferred is identified on the radar display. (See Radar Service.) (Refer to the AIM.)

Radar Service. A term which encompasses one or more of the following services based on the use of radar which can be provided by a controller to a radar identified aircraft.

a. Radar Separation. Radar spacing of aircraft in accordance with established minima.

b. Radar Navigational Guidance. Vectoring aircraft to provide course guidance.

c. Radar Monitoring. The radar flight following of aircraft, whose primary navigation is being performed by the pilot, to observe and note deviations from its authorized flight path, airway, or route. When being applied specifically to radar monitoring of instrument approaches; i.e., with precision approach radar (PAR) or radar monitoring of simultaneous ILS approaches, it includes advice and instructions whenever an aircraft nears or exceeds the prescribed PAR safety limit or simultaneous ILS no transgression zone.

Re-entry Track. An associated track commencing from a defined point on an MTR from which low-level re-entry can be achieved for the purpose of executing additional runs through segments of an MTR.

Refueling Level. A block of consecutive altitudes/ flight levels from ARIP to exit point within which entry into the refueling track, maneuvering to rendezvous, and transfer of fuel will be accomplished.

Rendezvous. A planned arrival of two or more aircraft over a predetermined point terminating in a visual contact prior to effecting a refueling hookup or conducting other activities requiring proximate operations.

Reporting Point. A geographical location in relation to which the position of an aircraft is reported. (Refer to the AIM.)

Restricted Area. Special use airspace designated under 14 CFR part 73 within which the flight of aircraft, while not wholly prohibited, is subject to restriction.

S-DEFINITIONS

Scramble. Departure of an aircraft training for or for the purpose of participating in an air defense mission.

Scramble Order. A command and authorization for flight requiring immediate takeoff.

Search and Rescue (SAR). A service which seeks missing aircraft and assists those found to be in need of assistance. It is a cooperative effort using the facilities and services of available federal, state, and local agencies. The U.S. Coast Guard is responsible for coordination of search and rescue for the Maritime Region, and the U.S. Air Force is responsible for search and rescue for the Inland

Region. Information pertinent to search and rescue should be passed through an air traffic facility or be transmitted directly to the Rescue Coordination Center by telephone.

Separation Minima. The minimum longitudinal, lateral, or vertical distances by which aircraft are spaced through the application of air traffic control procedures.

Special Activity Airspace (SAA). Airspace with defined dimensions within the National Airspace System wherein limitations may be imposed upon operations for national defense, homeland security, public interest, or public safety. Special activity airspace includes but is not limited to the following; Air Traffic Control Assigned Airspace (ATCAA), Altitude Reservations (ALTRV), Military Training Routes (MTR), Air Refueling Tracks and Anchors, Temporary Flight Restrictions (TFR), Special Security Instructions (SSI), etc. Special Use Airspace (SUA) is a subset of Special Activity Airspace.

Special Instructions (SPINS). For purposes of this order, SPINS provide amplifying instructions for execution of military exercises and other training activities, such as the application of MARSA, type of aircraft involved, etc.

Special Use Airspace. Airspace of defined dimensions identified by an area on the surface of the earth wherein activities must be confined because of their nature, or wherein limitations may be imposed upon aircraft operations that are not a part of those activities, or both. (14 C.F.R. Section 73.3) Types of special use airspace:

a. Alert Area.
b. Controlled Firing Area.
c. Military Operations Area.
d. National Security Area.
e. Prohibited Area.
f. Restricted Area.
g. Warning Area.

Spill-Out. An excursion of an IFR or VFR military aircraft, or a civil aircraft contracted to the military, including remotely operated aircraft, from the exterior boundary of SAA allocated to military using agencies into other controlled airspace without coordination or prior approval.

Stationary Airspace Reservation. The term used in oceanic ATC for airspace that encompasses activities in a fixed volume of airspace to be occupied for a specified time period. Stationary Airspace Reservations may include activities such as special tests of weapons systems or equipment; certain U.S. Navy carrier, fleet, and anti-submarine operations; rocket, missile, and drone operations; and certain aerial refueling or similar operations. (See Stationary Altitude Reservation.)

Stationary Altitude Reservation (Stationary ALTRV). An altitude reservation which encompasses activities in a fixed volume of airspace to be occupied for a specified time period. Stationary ALTRVs may include activities such as special tests of weapons systems or equipment; certain U.S. Navy carrier, fleet, and anti-submarine operations; rocket, missile, and drone operations; and certain aerial refueling or similar operations.

Stereo-route. Pre-coordinated route of flight which may be stored in the ARTCC/CCF computer.

Stream Formation. Two or more aircraft or cells of aircraft operating on the same route with more than one (1) minute but not more than 15 minutes longitudinal spacing between aircraft (or cells), laterally contained within the route width to be protected, and utilizing normally 3,000 consecutive feet of altitude.

T-DEFINITIONS

Tactical Monitor (TM). A term used to identify a military unit that provides tactical information/ guidance to aircraft flying autonomously within SUA. A Tactical Monitor is not responsible for containing aircraft within SUA.

Tanker Orbit Point. A geographical location along the planned refueling track where the tanker may hold prior to effecting rendezvous with the receiver aircraft.

Territorial Airspace of the United States. (See U.S. Territorial Airspace)

Traffic Advisories. Advisories to alert pilots to other known or observed air traffic which may be in such proximity to the position or intended route of flight of their aircraft to warrant the pilot's attention. Such advisories may be based on:

a. Visual observation;
b. Observation of radar identified and nonidentified aircraft targets on an ATC radar display; or
c. Verbal reports from pilots or other facilities.

NOTE−
The word "traffic" followed by additional information, if known, is used to provide such advisories; e.g., "Traffic, 2 o'clock, one zero miles, southbound, eight thousand."

NOTE−
Traffic advisory service will be provided to the extent possible depending on higher priority duties of the controller or other limitations; e.g., radar limitations, volume of traffic, frequency congestion, or controller workload. Radar/ nonradar traffic advisories do not relieve the pilot's responsibility to see and avoid other aircraft. Pilots are cautioned that many times the controller is unable to give traffic advisories concerning all traffic in the aircraft's proximity; in other words, when a pilot requests or is receiving traffic advisories, the pilot should not assume that all traffic will be issued. (Refer to the AIM.)

Trusted Agent. A designated point of contact used to limit distribution of close hold information. Trusted agents are most commonly used for NOPAR exercises/evaluations, No-Notice and ORI missions. The list of trusted agents must be kept to a minimum required to accomplish coordination.

U-DEFINITIONS

Uncontrolled Airspace. Airspace in which aircraft are not subject to controlled airspace (Class A, B, C, D, or E) separation criteria. (Pilot/Controller Glossary).

United States (U.S.). The States, the District of Columbia, Puerto Rico, and the possessions, including the territorial waters and the airspace of these areas. (14 C.F.R. Section 1.1)

U.S. Controlled Airspace. All airspace over the territory of the United States, extending 12 nautical miles from the coastline of U.S. territory; any airspace delegated to the United Statesfor U.S. control by other countries or under a regional air navigation agreement; or any international airspace, or airspace of undetermined sovereignty, for which the United States has accepted responsibility for providing United Statesservices. (14 CFR section 187.3)

U.S. Territorial Airspace. For purposes of this order, the airspace over the U.S., its territories, and possessions, and the airspace over the territorial sea of the U.S., which extends 12 nautical miles from the baselines of the U.S., determined in accordance with international law. (Refer to the AIM)

U.S. Indo-Pacific Command (USINDOPACOM). A unified command whose area of responsibility extends from the west coast of the Americas to the east coast of Africa and from the Arctic to the Antarctic.

Unmanned Aircraft System (UAS). An unmanned aircraft and its associated elements related to safe operations, which may include control stations (ground, ship, or air based), control links, support equipment, payloads, flight termination systems, and launch/recovery equipment. It consists of three elements: unmanned aircraft, control station, and data link. (Pilot/Controller Glossary)

Using Agency. The using agency is the military unit or other organization whose activity established the requirement for the SUA. Refer to FAA Order JO 7400.2, Procedures for Handling Airspace Matters, for using agency responsibilities.

V-DEFINITIONS

VFR Military Training Routes (VR). Routes used by the Department of Defense and associated Reserve and Air Guard units for the purpose of conducting low altitude navigation and tactical training under VFR at airspeeds in excess of 250 KIAS below 10,000 feet MSL.

W-DEFINITIONS

Warning Area. A warning area is airspace of defined dimensions extending from 3 nautical miles outward from the coast of the United States that contains activity that may be hazardous to nonparticipating aircraft. The purpose of such warning area is to warn nonparticipating pilots of the potential danger. A warning area may be located over domestic or international waters or both. (14 CFR section 1.1)

Weather Reconnaissance (WX RECON). Missions flown by the 53rd Weather Reconnaissance Squadron (WRS) under the TEAL call sign and National Oceanic and Atmospheric Administration (NOAA) Aircraft Operations Center (AOC) under the NOAA call sign for the purpose of gathering meteorological data from specific millibar levels in both tropical and winter weather systems.

Weather Reconnaissance Area (WRA). A WRA is airspace with defined dimensions and published by a NOTAM, which is established to support weather reconnaissance/research flights from the 53rd Weather Reconnaissance Squadron (WRS) and National Oceanic and Atmospheric Administration (NOAA) Aircraft Operations Center (AOC). A WRA may only be established in airspace within U.S. Flight Information Regions (FIRs) outside of U. S. territorial airspace. Air traffic control (ATC) services are not provided within WRAs.

Whiskey Alert. A term used over a voice-page hot line to alert a controlling agency that a spill out situation is imminent.

Appendix 3. Documents Pertinent to System Operations Security

Document No.	Document	Page
1	Memorandum of Agreement between the National Oceanic and Atmospheric Administration Aircraft Operations Center, U.S. Air Force Reserve Command 53rd Weather Reconnaissance Squadron, and the Federal Aviation Administration Air Traffic Organization in Support of the National Hurricane Operations Plan	Appendix 3-2
2	FAA/DoD Memorandums – Guidance for DoD Reimbursable Support to the FAA	Appendix 3-13

Appendix 3. Document 1

MEMORANDUM OF AGREEMENT
BETWEEN THE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION AIRCRAFT OPERATIONS CENTER, U.S. AIR FORCE RESERVE COMMAND 53RD WEATHER RECONNAISSANCE SQUADRON,
AND
THE FEDERAL AVIATION ADMINISTRATION AIR TRAFFIC ORGANIZATION
IN SUPPORT OF THE NATIONAL HURRICANE OPERATIONS PLAN

A. PURPOSE: The purpose of this Memorandum of Agreement (MOA) is to establish responsibilities for the National Oceanic and Atmospheric Administration (NOAA) Aircraft Operations Center (AOC), U.S. Air Force Reserve Command (AFRC) 53rd Weather Reconnaissance Squadron (WRS), and the Federal Aviation Administration (FAA) Air Traffic Organization (ATO), which are hereinafter referred to as the "Parties", to enable NOAA AOC and the 53rd WRS to conduct weather reconnaissance and research operations and to assume the responsibility for separating participating manned aircraft, and to use unmanned aircraft as weather instruments within a Weather Reconnaissance Area (WRA). The procedures and agreements contained herein, which apply to the Atlantic Ocean, Gulf of Mexico, Caribbean Sea, and the Pacific Ocean, are operationally executed through Letters of Agreement (LOA) between responsible Air Traffic Control (ATC) facilities and the NOAA AOC, 53rd WRS, and, as applicable, Special Use Airspace (SUA) Using Agencies.

B. AUTHORITY: The NOAA AOC enters into this MOA under the authority of the Weather Service Organic Act, 15 United States Code (USC) § 313 and 49 USC § 44720. The AFRC 53rd WRS enters into this MOA under the authority of the *National Hurricane Operations Plan (NHOP)*. The FAA enters into this MOA under the authority of 49 USC § 106(f) and §106(m).

C. BACKGROUND: The Department of Commerce, through NOAA, is charged with the overall responsibility to implement a responsive, effective national tropical cyclone warning service, including weather reconnaissance/research flights. The AFRC, through the 53rd WRS, and the U.S. Department of Transportation, through the FAA, also play roles in this NOAA led mission. The roles and responsibilities of these agencies are codified in the NHOP and in this MOA.

D. DEFINITIONS:

1. A Weather Reconnaissance Area (WRA) is airspace with defined dimensions and published by Notice to Airmen (NOTAM), which is established to support weather reconnaissance/research flights. ATC services are not provided within WRAs.[1] Only participating weather reconnaissance/research aircraft from NOAA AOC and 53rd WRS are permitted to operate within a WRA. A WRA may only be established in airspace within U. S. Flight Information Regions (FIRs) outside of U.S. territorial airspace.
2. A "Participating Aircraft" is defined for the purposes of this MOA and related documents[2] as a NOAA AOC/53rd WRS manned aircraft listed in the Tropical Cyclone

[1] The FAA may provide ATC services to participating flights in transit to and from WRAs, but will not provide ATC services, specifically including separation, to these flights within a WRA.
[2] Including the NHOP's Chapter 6 and any executing LOAs.

1

Plan of the Day (TCPOD) or tasked with an unscheduled operational mission that is conducted in a WRA.

E. ACTIVITIES:

1. Activities covered under this MOA are limited to NOAA AOC and AFRC 53rd WRS manned flight operations conducted in accordance with the NHOP, applicable LOAs, and as described in a published NOTAM for a WRA.

2. Unmanned Aircraft Systems (UAS) used for purposes of collecting weather data within a WRA must be operated in accordance with limitations described in the NHOP CHAPTER 6, AIRCRAFT OPERATIONS. No other UAS operations are permitted within a WRA.

F. RESPONSIBILITIES:

1. NOAA AOC must:

(a) Enter into LOAs (using the template provided in attachment 1) with ATC facilities, the 53rd WRS, and, as applicable, the appropriate Special Use Airspace (SUA) using agencies.

(b) Provide coordinated procedures and training for aircrews of NOAA AOC participating aircraft to operate in a WRA. These procedures must include, but not be limited to: minimum lateral and vertical separation; methods of determining such separation; and aircraft-to-aircraft communication phraseology when operating in a WRA.

(c) Provide procedures and training for aircrews of NOAA AOC participating aircraft to use communication, navigation and surveillance (CNS) equipment that will support safe operations within a WRA.

(d) Identify aircraft and define minimum functioning CNS equipment that must be used under this MOA.

(e) Ensure the appropriate separation procedures, described in paragraph G of this MOA, for use within specific WRAs are briefed to aircrews of NOAA AOC participating aircraft.

2. AFRC 53rd WRS must:

(a) Enter into LOAs (using the template provided in attachment 1) with ATC facilities, the NOAA AOC, and, as applicable, the appropriate SUA using agencies.

(b) Provide coordinated procedures and training for 53rd WRS aircrews to operate in a WRA. These procedures must include, but not be limited to: minimum lateral and vertical separation; methods of determining such separation; and aircraft-to-aircraft communications phraseology when operating in a WRA.

(c) Provide procedures and training for 53rd WRS aircrews to use communication, navigation and surveillance equipment that will support safe operations within a WRA.

(d) Identify aircraft and define minimum functioning CNS equipment that must be used under this MOA.

(e) Ensure the appropriate separation procedures, described in paragraph G of this MOA, for use within specific WRAs are briefed to aircrews of 53rd WRS participating aircraft.

3. FAA must:

(a) Enter into LOAs (using the template provided in attachment 1) with NOAA AOC, the AFRC 53rd WRS, and, as applicable, the appropriate SUA using agencies. This action will be taken by ATC facilities that are responsible for airspace in which the participating aircraft will operate.

(b) Receive and coordinate WRA NOTAM request.

(c) Issue WRA NOTAMs in support of the NHOP (using the template provided in attachment 2).

(d Provide ATC services to participating aircraft in accordance with FAA Order 7110.65, *Air Traffic Control*, FAA Order 7610.4, *Special Operations*, and appropriate LOAs in support of NHOP as follows:

(1) Until participating aircraft report entering the NOTAM-defined WRA NOTAM airspace; and

(2) When participating aircraft report exiting the NOTAM-defined WRA airspace.

(e) Prevent non-participating aircraft receiving ATC services from entering the WRA during the effective time of the WRA as published in the NOTAM.

3. PROCEDURES:

1. Chief Aerial Reconnaissance Coordination All Hurricanes (CARCAH): The CARCAH must advise aircrews when participating aircraft will be in the WRA and brief call signs and mission information.

2. WRA NOTAM Request:

(a) NOAA AOC or the 53rd WRS must submit, in accordance with the NHOP, a request for a WRA NOTAM to the en route ATC facility,[3] which is responsible for the airspace in which the subject weather reconnaissance/research flights will be operated, and the Air Traffic Control System Command Center (ATCSCC) as soon as practical prior to the start of the mission. The request must contain detailed information regarding the geographic definition of the WRA and altitude information.

(b) NOAA AOC or the 53rd WRS must coordinate with the en route ATC facility, which received and agreed to support the aforementioned request, and the ATCSCC, to request FAA support of any proposed changes to the defined WRA.

3. Flight Plan Filing: Participating aircraft must file a flight plan, as soon as practicable, that includes a delay time in the WRA. Failure to include a delay time will result in flight plan cancellation.

4. Participitating Aircraft Arrival to a WRA:

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[3] Specifically includes FAA Air Route Traffic Control Centers (ARTCC), Center Radar Approach Controls (CERAP), and, in select cases, Combined Control Facilities (CCF) such as the Honolulu Control Facility (HCF).

(a) Participating aircraft must use ATC services in transit to and from the WRA.

(b) Prior to entering the WRA, the arriving aircraft must obtain the position and altitude of each aircraft already in the WRA and verify the defined dimensions of the WRA, including center coordinates and maximum radius.

(c) Arriving aircraft will enter the WRA at FL150,[4] unless otherwise coordinated with ATC and the other participating aircraft.

5. Participating Aircraft Operations within a WRA: The following actions will be taken by aircraft, in accordance with the NHOP, to de-conflict operations and enhance situational awareness with other aircraft while operating within a WRA:

(a) Set 29.92 (inches Hg) in at least one pressure altimeter per aircraft.

(b) Contact (Primary: VHF 123.05 MHz; Secondary: UHF 304.8 MHz; Back-up: HF 4701 KHz) the other participating aircraft and confirm, at a minimum, the pressure altitude, location relative to the WRA center point position, true heading, and operating altitudes.

(c) Monitor the contact frequencies indicated above during the duration of the flight and maintain communication with all other participating aircraft at all times.

(d) The WRA center coordinates will be used for the duration of the flight. If a WRA is moved due to operational reasons, a different WRA center point will be coordinated between all participating aircraft and impacted ATC facilities as soon as possible.

(e) If any aircraft is unable to maintain assigned altitude(s), immediately notify all participating aircraft and take actions to ensure sufficient vertical and/or lateral separation is maintained or attained as soon as practical.

(f) Use "see and avoid" principles to the maximum extent possible within the WRA. Aircraft must periodically broadcast GPS position reports to other participating aircraft within the WRA and use air-to-air TACAN and cockpit displays/maps to maintain awareness of other aircraft locations.

6. Separation between participating aircraft within a WRA:

(a) Aircraft 10 NM or more from other aircraft operating in the same WRA must maintain vertical separation within the WRA of at least 1,000 feet between their operating altitudes or block altitudes, or as specified in the applicable LOA.

(b) Aircraft less than 10 NM from other aircraft operating in the same WRA, must apply vertical separation of at least 2,000 feet between operating altitudes or block altitudes, or as specified in the applicable LOA. Aircraft may use air-to-air TACAN and TCAS to assist with visual acquisition. Reduced vertical separation may be applied with concurrence from other aircraft within the WRA.

NOTE- *The 53Rd WRS may apply Military Assumes Responsibility for Separation of Aircraft (MARSA), in accordance with FAA Order 7110.65 and FAA Order 7610.4, between 53rd WRS aircraft within the WRA. MARSA may not be applied between 53rd WRS aircraft and NOAA AOC aircraft.*

The upper limit of WRAs may be negotiated between NOAA AOC, 53rd WRS, and the responsible FAA en route ATC. While the template NOTAM indicates SFC-15,000 feet, the WRA ceiling may be lowered, especially when established closer to land where ATC services are provided at lower altitudes.

4

7. Altitude changes between participating aircraft within the WRA:

(a) Aircraft must initiate communications with each other prior to altitude changes and maintain two-way aircraft-to-aircraft communications throughout the duration of the altitude change.

(b) Aircraft must ensure positive lateral separation (in accordance with sub-paragraphs (d), (e), and (f) in this section) prior to descending or climbing through the altitude(s) of other aircraft by reference to the WRA center point using the appropriate aircraft navigation systems.

(c) An altitude change is complete when the aircraft changing altitude advises the other aircraft, and receives an acknowledgement, that the altitude to which it was climbing or descending is reached and maintained.

(d) Aircraft that are not in visual contact and separated by 30NM or more, as indicated by the appropriate aircraft navigation systems, may transition through the altitude of other participating aircraft.

(e) Aircraft that are not in visual contact and separated by less than 30 NM, as indicated by the appropriate aircraft navigation systems, must confirm with each other that they are not on converging courses prior to an altitude change.

(f) Aircraft that are in visual contact may apply visual separation in accordance with the following procedures:

(1) The aircraft that initiates visual separation must advise the other aircraft that the aircraft is in sight and will maintain visual separation from it.

(2) The observed aircraft must acknowledge the use of visual separation by the initiating aircraft prior to the altitude change.

(3) The aircraft changing altitude must advise the other aircraft upon reaching and maintaining the altitude to which it was climbing or descending.

(4) Visual separation may be discontinued when the altitude change is complete according to sub-paragraph (c) in this section.

8. Participating Aircraft Departure from a WRA:

(a) Prior to departing the WRA, aircraft will establish communications with the appropriate ATC facility and request an IFR clearance.

(b) Prior to departing the WRA, aircraft will verify and maintain vertical and lateral separation from other participating aircraft in the WRA.

(c) Aircraft will depart the WRA at FL140, unless otherwise coordinated with ATC and other aircraft in the WRA.[5]

(d) Departing aircraft will report, "leaving (tropical activity name) WRA," to other aircraft in the WRA.

[5] See footnote 4 for information on WRAs with lowered ceilings.

NOTE- The tropical activity name (as identified by the National Hurricane Center) provides identification of the WRA. Examples: Isabelle WRA, Sandy WRA, Tropical Storm Emily WRA, etc.

(e) Should an aircraft lose communications with the other participating aircraft within a WRA, it will maintain the last altitude that was coordinated with the other aircraft until it departs the WRA.

(f) If navigation systems become unreliable, the flight crew will terminate the mission and depart the WRA at the last coordinated altitude, or as coordinated with ATC if radio communications are available.

H. FUNDS AND OTHER RESOURCES: This MOA neither documents nor provides for the exchange of funds or other resources, including personnel, among the Parties, nor does it make any commitment of funds or other resources. Each Party makes appropriate resource and funding decisions under their own authorities in order to maximize the benefits of the partnership and cooperation under this MOA.

I. PERSONNEL: Each Party is responsible for all costs of its personnel engaged in activiuties covered by this MOA, including pay and benefits, support, and travel. Each Party is responsible for supervision and management of its personnel.

J. GENERAL PROVISIONS:

1. This MOA supersedes any existing MOAs, memorandums of agreement, or other agreements between the Parties, insofar as any such document is inconsistent with this MOA.

2. Nothing in this MOA is intended nor may be construed to limit or affect in any way the authority or legal responsibilities of the Parties.

3. Nothing in this MOA is intended nor may be construed to obligate the Parties to any current or future expenditure of resources in advance of the availability of appropriations from Congress. This MOA does not obligate the Parties to expend funds on any particular activity, even if funds are available.

4. Specific activities implemented pursuant to this MOA that involve the transfer of funds, services, or property between the Parties will require the execution of separate agreements.

5. POINTS OF CONTACT: The following points of contact will be used by the Parties to communicate in the implementation of this MOA. Each Party may change its point of contact upon reasonable notice to the other Party.

(a) FOR NOAA AOC: Commanding Officer, Aircraft Operations Center

(b) FOR AFRC 53rd WRS: Commander, 403rd Operations Group

(c) FOR FAA ATO: Manager, Strategic Operations Security

6. This MOA is not transferrable.

K. DURATION AND MODIFICATIONS: This MOA shall remain in effect unless cancelled by one of the Parties. This MOA may be jointly reviewed upon request by a signatory Party, and

may be modified by mutual written consent of the undersigned. Joint reviews should be completed prior to the annual Interdepartmental Hurricane Conference.

L. **EFFECTIVE DATE:** This MOA becomes effective beginning on the day after the last Party signs.

Attachments
1. WRA Letter of Agreement Template
2. WRA NOTAM Template

APPROVED

14 March 2018
Date

Robert H. Sweet
Manager, Strategic Operations Security,
Air Traffic Organization, System Operations Security
Federal Aviation Administration

Duane W. Freer

March 16, 2018
Date

Virginia Boyle
Air Traffic Manager, Air Traffic Control System Command Center
Air Traffic Organization, System Operations Services
Federal Aviation Administration

March 19. 2018
Date

Ron Singletary
Group Manager, Technical Advisory Group
Air Traffic Organization, Air Traffic Services
Federal Aviation Administration

13APR18
Date

Captain Timothy Gallagher
Commanding Officer, Aircraft Operations Center
National Oceanic and Atmospheric Administration

16 Apr 18
Date

Colonel Brian A. May
Commander, 403rd Operations Group
U.S. Air Force Reserve Command

ATTACHMENT 1

LETTER OF AGREEMENT TEMPLATE
BETWEEN
[INSERT NAME AND LOCATION ID OF FAA EN ROUTE ATC FACILITY OR FACILITIES]
AND THE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION AIRCRAFT OPERATIONS CENTER AND
U.S. AIR FORCE RESERVE COMMAND 53RD WEATHER RECONNAISSANCE SQUADRON

SUBJECT: PARTICIPATING WEATHER RECONNAISSANCE / RESEARCH AIRCRAFT OPERATIONS WITHIN WEATHER RECONNAISSANCE AREAS

1. PURPOSE: To define responsibilities and procedures for the National Oceanic and Atmospheric Administration (NOAA) Aircraft Operations Center (AOC) and the U.S. Air Force Reserve Command (AFRC) 53rd Weather Reconnaissance Squadron (53rd WRS) to conduct weather reconnaissance/research operations with participating manned aircraft in a Weather Reconnaissance Area (WRA) within the Flight Information Region (FIR) of the Federal Aviation Administration (FAA) Air Traffic Control (ATC) facility or facilities identified in paragraph two of this Letter of Agreement (LOA).

2. SCOPE: This LOA is applicable to [insert name and location ID of ATC facility or facilities], NOAA AOC, and the 53rd WRS. The provisions of this LOA are only applicable in United States controlled FIRs.

3. AUTHORITY: [insert location ID of ATC facility or facilities], NOAA AOC, and 53rd WRS enter into this agreement under the authority of the trilateral Memorandum of Agreement (MOA), *Memorandum of Agreement Between the National Oceanic and Atmospheric Administration Aircraft Operations Center, U.S. Air Force Reserve Command 53rd Weather Reconnaissance Squadron, and the Federal Aviation Administration Air Traffic Organization in Support of the National Hurricane Operations Plan.*

4. RESPONSIBILITIES:

   a. The NOAA AOC and 53rd WRS must:

      (1) Ensure that all operations personnel are briefed on the provisions of this LOA.

      (2) Submit, when logistically possible, a pre-planning package to [insert location ID of ATC facility or facilities] and the Air Traffic Control System Command Center (ATCSCC) a minimum 2 hours prior to planned mission start. The package should contain information on aircraft call signs, beacon codes, geographic definition of proposed mission area, and other pertinent mission information.

      (3) Submit a WRA Notice to Airmen (NOTAM) request to the en route ATC facility[6], which is responsible for the airspace in which the weather reconnaissance/research flight will be

[6] Specifically includes FAA Air Route Traffic Control Centers, Center Radar Approach Controls (CERAP), and, in select cases, Combined Control Facilities (CCF) such as the Honolulu Control Facility (HCF).

operated, and the Air Traffic Control System Command Center (ATCSCC) as soon as practical prior to the start of mission. The request must contain detailed information regarding the geographic definition and altitude information of the WRA.

(4) Coordinate with the responsible en route ATC facility and the ATCSCC to request FAA support of any proposed changes to the defined WRA.

(5) Ensure that pilots operating under the provisions of this LOA are responsible for remaining within the vertical and lateral confines of the airspace as defined in the published WRA NOTAM.

(6) Ensure that pilots understand their responsibility for separation from Visual Flight Rules (VFR) and Instrument Flight Rules (IFR) aircraft operating in uncontrolled airspace.

***NOTE**: Operations within offshore and oceanic airspace include areas of uncontrolled airspace. Aircraft may encounter non-participating, untracked aircraft operating under VFR or IFR at and below 5,500 feet MSL.*

b. [insert location ID of ATC facility or facilities] must:

(1) Ensure that all ATC personnel are briefed on the provisions of this LOA.

(2) Review the Tropical Cyclone Plan of the Day (TCPOD) at www.nhc.noaa.gov/reconlist.shtml by 1830 UTC.

(3) Coordinate, as necessary, with other affected ATC facilities to ensure a complete understanding of each facility's responsibilities and procedures.

(4) Coordinate requested WRAs with the NOAA AOC, 53rd WRS, and impacted Special Use Airspace (SUA) Using Agencies.

***NOTE** –SUA Using Agencies determine if Department of Defense (DOD) operational requirements are compatible with the establishment of a WRA and should define de-confliction procedures for SUA that may not be released.*

(5) Establish WRAs by published NOTAMs.

(6) Prevent non-participating aircraft receiving ATC services from entering the WRA during the effective time of the WRA as published in the NOTAM.

(7) Submit a signed copy of the LOA to ATO System Operations Security (9-ATOR-HQ-IFOS@faa.gov) for recordkeeping purposes.

. PROCEDURES:

a. [insert location ID of ATC facility or facilities] Procedures:

(1) Provide ATC services to and from the WRA in accordance with FAA Order 7110.65, *Air Traffic Control*, FAA Order 7610.4, *Special Operations*, the trilateral MOA cited in Section 3 of this LOA, and applicable ATC facility Standard Operating Procedures (SOP).

(2) Provide NOAA AOC and 53rd WRS participating aircraft with a clearance into the WRA in accordance with the trilateral MOA cited in Section 3 of this LOA.

(3) Provide an IFR clearance to participating aircraft requesting to depart the WRA.

b. Participating Aircraft Procedures: Pilots request entry to and departure from the WRA according to the trilateral MOA cited in Section 3 of this LOA.

9

6. DURATION AND MODIFICATIONS: This LOA shall remain in effect unless cancelled by one of the Parties. This LOA may be jointly reviewed upon request by either Party, and may be modified by mutual written consent of the undersigned.

7. EFFECTIVE DATE: This LOA becomes effective beginning on the day after the last Party signs.

APPROVED BY:

_____ _____

(Name) Date
Air Traffic Manager
(ATC Facility)

_____ _____

(Name) Date
Commanding Officer, Aircraft Operations Center
National Oceanic and Atmospheric Administration

_____ _____

(Name) Date
Commander, 403rd Operations Group,
U.S. Air Force Reserve Command

_____ _____

(Name) Date
(Using Agency Title),
(DOD Component)

10

Appendix 3. Document 1 (continued)

ATTACHMENT 2

WRA NOTAM TEMPLATE

!!CARF X/XXXX (APPLICABLE ARTCSS(s)) (AXXXX/XX)…AIRSPACE (HURRICANE/TYPHOON/TROPICAL STORM) (NAME OF TROPICAL DISTURBANCE) WEATHER (WX) RECONNAISSANCE FLIGHTS WI THE WX RECONNAISSANCE AREA (WRA) DEFINED AS XXX NM RADIUS OF XXXXXXNXXXXXXXW (ARTCCS/CERAPS/HCF AND SUA USING AGENCIES MUST COORDINATE TO PUBLISH ANY REQUIRED AIRSPACE CUT OUTS) SFC-XXX. VERTICAL MANEUVERING AND RELEASE OF WEATHER INTRUMENTS ARE EXPECTED. NONPARTICIPATING AIRCRAFT SHOULD AVOID THE WRA. IFR AIRCRAFT CAN EXPECT REROUTES. FOR ANY QUESTIONS REGARDING THIS WRA NOTAM PLEASE CONTACT XXX AT (XXX) XXX-XXXX (ARTCC IDENTIFIER AND TELEPHONE NUMBER)

TIME-TIME

NOTES-

1. WRAs may only be established in airspace within U.S. FIRs outside of U.S. territorial airspace (12 NM).
2. Cut-outs should include Class B, Class C, Class D, and SUA, as applicable.
3. Distance (NM) for the WRA radius must be coordinated. It will be dependent on the WRA location and ATC operational requirements.
4. If more than one WRA is required, the WRA boundaries must be no closer than the lateral separation standards required for aircraft operations defined in FAA JO 7110.65 and Letters of Agreement.
5. WRA NOTAM must utilize CARF identifier for widest domestic and international dissemination.
6. The ARTCC responsible for originating the NOTAM should include their contact information.

Document 2

Appendix 3. Document 2

FAA/DoD Memorandums – Guidance for DoD Reimbursable Support to the FAA

OFFICE OF THE SECRETARY OF DEFENSE
1000 DEFENSE PENTAGON
WASHINGTON, D.C. 20301-1000

September 19, 2017

MEMORANDUM FOR DIRECTOR, SYSTEM OPERATIONS SECURITY, AIR TRAFFIC, FEDERAL AVIATION ADMINISTRATION

SUBJECT: Cancellation of 2003 Memorandum of Understanding between Federal Aviation Administration and Department of Defense for DOD Reimbursable Personnel Support to DOT/FAA

This memorandum is in response to your notification cancelling the 2003 Memorandum of Understanding (MOU) between our Departments for DoD support to DOT/FAA (see attached). I concur with your assessment and the termination of the MOU effective September 11, 2017.

This termination does not preclude the Federal Aviation Administration (FAA) from requesting support on a case-by-case basis. FAA may continue to submit individual requests in accordance with Department of Defense Instruction 1000.17, "Detail of DoD Personnel to Duty Outside the Department of Defense," subject to availability of resources and personnel. Personnel currently detailed to FAA under the 2003 MOU will remain in place until the scheduled end date of their current detail at which time requests for their replacement or extension will be submitted on an individual basis. If you have any questions, please contact Sandra Simmons at (703) 692-7048.

Hallock N. Mohler, Jr.
CAPT, USN
Executive Secretary

Attachments:
As stated

cc:
OUSD(AT&L) (H. Knipes)
SAF/AAR (J. Williams)
USN (LCDR J. Chuma)

U.S. Department
of Transportation
Federal Aviation Administration

September 8, 2017

MEMORANDUM FOR DEPARTMENT OF DEFENSE EXECUTIVE SECRETARY

SUBJECT: Cancellation of 2003 Memorandum of Understanding between Federal Aviation Administration and Department of Defense for DOD Reimbursable Personnel Support to DOT/FAA

Dear Captain Hallock Mohler:

On September 29, 2014, the DOD Executive Secretary sent a letter to the FAA Administrator requesting the FAA to update the 2003 Memorandum of Understanding (MOU) between FAA and DOD for Reimbursable Personnel Support.

The FAA has completed an analysis of this request, and has decided to exercise the termination process in section VI of the subject MOU. FAA hereby provides written notice to DOD of its intent to cancel the 2003 MOU between Federal Aviation Administration and Department of Defense for DOD Reimbursable Personnel Support to DOT/FAA. Per the provisions in section VI, the MOU is considered cancelled 30 days after receipt by the DOD Executive Secretary.

The FAA still considers it essential to national security and the DOD that military personnel continue to present DOD's perspective and provide their expertise as members of the FAA staff. FAA lines of business (LOBs)/staff offices which require DOD Reimbursable Support will now coordinate directly with your office for that support, in place of an overarching MOU, to proceed with individual MOUs on a case-by-case basis, pending availability of resources and personnel, and in accordance with the process outlined in Department of Defense Instruction (DODI) 1000.17, Detail of DoD Personnel to Duty Outside the Department of Defense.

Sincerely,

Brian Throop

Director (Acting), System Operations Security
Air Traffic Organization

Enclosures: FAA-141002-011 IMOU pdf

Appendix 4. Documents Pertinent to Mission Support Services

Document No.	Document	Page
1	Memorandum of Agreement between Department of Transportation, Federal Aviation Administration, and the U.S. Army - the U.S. Navy - the U.S. Air Force	Appendix 4-2
2	Memorandum of Agreement (MOA) between the Federal Aviation Administration (FAA) and the Department of Defense (DoD) for Military Representatives to FAA	Appendix 4-5
3	Speed Authorization Granted to DoD	Appendix 4-10
4	Grant of Exemption No, 2861A – Single Altimeter Setting for Frequent Transit of FL180	Appendix 4-12

Appendix 4. Document 1

MEMORANDUM OF AGREEMENT BETWEEN DEPARTMENT OF TRANSPORTATION, FEDERAL AVIATION ADMINISTRATION, AND THE U.S. ARMY—THE U.S. NAVY—THE U.S. AIR FORCE

WHEREAS, by virtue of Section 307(b)(4) of the Federal Aviation Act of 1958 (49 U.S.C. 1348 (b)(4)), the Administrator of the Federal Aviation Administration (hereinafter referred to as the FAA) is authorized to provide necessary facilities and personnel for the regulation and protection of air traffic.

WHEREAS, by virtue of Section 303(d) of the Federal Aviation Act of 1958 (49 U.S.C. 1344 (d)), the Administrator of the FAA may make such provision as he shall deem appropriate authorizing, with its consent, the performance of any function under Section 307 (b) of the Act by any other Federal department; and

WHEREAS, there are three separate agreements now in effect between the FAA and the Army, Navy, and Air Force, respectively, relating to the operation of air traffic control facilities on military installations; and

WHEREAS, all parties to the three existing agreements wish to supersede such agreements with this separate agreement between the FAA and the three military services;

NOW, THEREFORE, all parties to this agreement mutually agree as follows:

Article I. Determination of Operational Responsibility

A. In keeping with requirements of national defense and with due regard for budgetary, manpower and all other pertinent considerations, the general allocation of responsibility for the operation of each military facility subject to this agreement shall be mutually determined at the national level between the FAA and the appropriate military service. To facilitate the determination of operational responsibility, recommendations concerning the operation of air traffic control facilities will be made at the local level by appropriate FAA and military personnel.

B. Unless agreement is reached to the contrary, the military services shall provide airport traffic control service (visual flight rules) at those military airports where the cognizant military authority deems that such service is required and said airports are not served by an FAA, State, municipal, or other non-Federal tower.

C. When it is mutually agreed to be more advantageous to establish independent military and FAA approach control facilities, the approach control authority for the military terminal area ordinarily will be delegated to the military. Prior to approval by FAA of this delegation of authority, the military facility must be equipped to transmit and receive on all frequencies necessary to control all categories of IFR traffic normally operating in the area. Additionally, a Letter of Agreement relating to the control of air traffic shall be consummated between the appropriate local military authority and the appropriate FAA air route traffic control center.

D. The FAA is authorized to assign an Air Traffic Representative (ATREP) to each military approach control facility covered in Article 1., Section C. The function of the ATREP is set out in detail in Article IV.

E. At all military locations not served by an ATREP, authorized FAA personnel may make evaluations of military approach control facilities and those military towers and military ASR/PAR units that exchange control of air traffic directly with FAA facilities. These evaluations are to be conducted at such times as are mutually agreeable to the FAA and the cognizant local military authority. The purpose of such evaluations is to determine whether equipment performance and staffing are adequate for the service being provided; whether personnel qualifications, Certification and performance meet acceptable standards; and whether procedures utilized are consistent with the agreements provided for in Article 1.C and Article V. All deficiencies which may affect flight safety shall be reported to cognizant military authority for timely corrective action.

F. Delegation of approach control authority may be temporarily suspended by a representative of the FAA area manager or the ATREP if such action is deemed necessary in the interest of flight safety. The commanding officer (or his designated representative) of the affected military installation shall be notified prior to the time suspension action is taken and informed of the reasons therefore.

G. Withdrawal of any delegation of authority covered by this agreement shall not be authorized prior to approval of FAA and the appropriate military service at the national level.

Appendix 4. Document 1 (continued)

Article II. FAA Operations on Military Installations

A. Where mutually agreed, the FAA will provide exclusive air traffic control services and staffing on military installations. Unless agreed to the contrary, where a military facility is located near an FAA approach control facility, the FAA will perform the approach control function from the FAA facility for both the military and non-military facilities.

B. At jointly-staffed air traffic control facilities located on military installations, unless agreed to the contrary, the FAA will staff the approach control (surveillance radar) function and the military service will staff and be responsible for the precision approach radar (PAR) function.

C. The FAA shall have full authority and responsibility for the operation of its authorized functions.

D. The basic radar system approved for use in the radar approach control function is of the airport surveillance radar (ASR) type. Proposals for use of radar systems other than the ASR shall be submitted to the Washington Office of the FAA for review. This clause shall not affect those terminal facilities currently utilizing other radar systems, nor is it intended to limit the use of ARSR or other slower RPM systems to supplement ASR equipment.

Article III. Cross-Training at Jointly-Staffed ATC Facilities

In the best interest of the FAA and military services, it is essential that organized cross-training be accomplished; accordingly cross-training programs shall be implemented and training shall be conducted to the maximum extent possible.

A. At the request of the responsible local military authority, the FAA will provide on-site approach control training to designated military personnel. Qualification and training shall be carried out in accordance with FAA regulations and procedures. Military personnel who successfully complete the training program and receive appropriate FAA certificates and ratings are not required to maintain currency on approach control positions. However, qualified military controllers, where current by FAA and military supervisors, may be assigned to approach control positions without direct supervision.

B. At the request of the FAA facility Air Traffic Manager the appropriate military authority will provide on-site precision approach radar (PAR) training to designated FAA personnel. Qualification and training shall be carried out in accordance with military regulations and procedures. FAA personnel are not required to maintain currency on PAR positions. However, qualified FAA controllers, when current by military standards and when agreeable to both military and FAA supervisors, may be assigned to PAR control positions without direct supervision.

Article IV. FAA Air Traffic Representatives

A. The ATREP is responsible to the Area Air Traffic Branch. His function is described as follows:

1. To serve as liaison officer between the military and the FAA and between the military and civil users; to resolve local air traffic problems between military and civil users of the terminal area in order that both are afforded the maximum service possible; and, to conduct frequent liaison with FAA, civil and military personnel to determine the adequacy of ATC service is being rendered.

2. To serve as technical advisor to the military in all phases of air traffic control in order to improve ATC service.

3. To evaluate the amount of airspace required for air traffic control in terminal areas, and to coordinate approval of airport traffic patterns.

4. To continuously review existing air traffic control and communications procedures and practices, and to recommend action for their revision to improve efficiency.

5. To participate in appropriate intra-military meetings in which the FAA has an interest.

6. To encourage lecture and training programs for base pilots and civil air user groups, and to recommend changes, if necessary, to improve the air traffic control facility training program and to obtain maximum utilization of personnel.

7. To administer Control Tower Operator Exams and issue appropriate FAA certificates and ratings.

8. To participate frequently in flights of various types of unit-equipped military aircraft (in which flight as a passenger or crew member is permitted) for the purpose of evaluating, from the pilot's viewpoint, air traffic control services being rendered and the performance characteristics of aircraft employed at the base.

B. The ATREP will be an FAA signatory to agreements made pursuant to Article I., Section C.

Article V. Local Agreements at FAA-Staffed Military Installations

At military installations where FAA staffing is provided in whole or in part, a local memorandum of agreement shall be signed between FAA and appropriate military authority. The purpose of the local agreement is to further implement this agreement. Such agreements should cover details such as oper-

ational concepts, staffing, training, maintenance of equipment, utilization of space, parking and janitorial service, and security.

Article VI. Financing

A. Salary, travel and training expenses of FAA Air Traffic Representatives, Air Traffic Controllers, and other personnel furnished by the FAA, pursuant to this Agreement, will be borne by the FAA.

B. Salary, travel and training expenses of military and civilian personnel furnished by the DOD, pursuant to this Agreement, will be borne by the appropriate DOD component.

C. The cost of providing normal support (utilities, office space furniture, parking space, janitorial services and supplies, etc.) to FAA personnel at jointly-staffed air traffic control facilities located on military installations, pursuant to this Agreement, will be borne by the host DOD component authority exercising jurisdiction over the military installation involved.

D. Except as otherwise specifically agreed between the parties concerned, the cost of procuring new equipment and joint facilities to accommodate primarily a military requirement, pursuant to this Agreement, will be borne by the host component of the DOD.

E. The cost of procuring new facilities and equipment to accommodate primarily an FAA requirement, pursuant to this Agreement, will be borne by the FAA.

F. Except as otherwise specifically agreed between the parties concerned, the cost of installing and maintaining equipment will be borne by the party to this Agreement which has the responsibility for the air traffic control function being performed.

G. Agreements which include financing arrangments, other than the three separate agreements referred to in the preamble to this agreement, are not superseded by this article.

Article VII. Miscellaneous Provisions

A. Local military authority will determine the security clearances required of FAA personnel. FAA personnel will be subject to military security requirements and base regulations.

B. The military services shall inform the FAA at the earliest practicable date of plans to deactivate military bases at which FAA personnel are assigned. The FAA shall inform the appropriate military service at the earliest practicable date of plans to reduce services at or to abandon ATC facilities on military installations.

C. Differences which may arise and remain unresolved at the local level will be resolved through appropriate channels of the signatories to this Memorandum of Agreement.

The FAA and the three military services agree to be bound by all provisions of this agreement as indicated by the signature of their duly authorized officials.

UNITED STATES ARMY
By(s) A.S. Collins, Jr.
Title Asst. Chief of Staff for Force Development
Date 10 June 1969

UNITED STATES NAVY
By(s) Thomas F. Connolly
Title Deputy Chief of Naval Operations (Air)
Date 2 June 1969

UNITED STATES AIR FORCE
By(s) John W. Vogt, Maj. Gen. USAF
Asst. Deputy Chief of Staff Plans and Operations
Date 26 June 1969

DEPARTMENT OF TRANSPORTATION, FEDERAL AVIATION ADMINISTRATION
By(s) D.D. Thomas
Title Deputy Administrator
Date 17 July 1969

Appendix 4. Document 2

MEMORANDUM OF AGREEMENT (MOA) BETWEEN

THE FEDERAL AVIATION ADMINISTRATION (FAA)
AND THE DEPARTMENT OF DEFENSE (DOD)
FOR MILITARY REPRESENTATIVES TO FAA

This is a MOA between the DoD and the FAA. When referred to collectively, the DoD and the FAA are referred to as the "Parties."

1. BACKGROUND: As an air navigation service provider, the DoD shares responsibility with the FAA to manage the National Airspace System (NAS). In order to meet critical national security requirements, it is essential for the FAA to closely coordinate daily operational plans, procedures, policies, programs, and activities with the military. Also, under certain emergency conditions, Executive Order 11161, as amended by Executive Order 11382, may transfer specified FAA functions to the DoD. In the event of a transfer, interagency relationships must be understood in advance; therefore, embedded DoD Military Representatives (MILREPs) are instrumental to achieve effective liaison and agency interoperability. The MILREP positions are the FAA's principal points of contact for DoD aviation, airspace, and air traffic control matters.

2. AUTHORITIES: The FAA enters into this MOA pursuant to the authority of Title 49 U.S. Code (U.S.C.) Section 106(l) and (m). The DoD enters into this MOA pursuant to DoD Directive 5030.19 and DoD Instruction 4000.19.

3. PURPOSE: This MOA establishes and defines the roles, responsibilities, and relationships of the Parties regarding MILREPs at both Headquarters (HQ) FAA and FAA Regional Service Area offices that are co-located with FAA Service Centers. The MILREP responsibilities are accomplished with various FAA lines of business at both the HQ FAA and Regional office levels.

4. UNDERSTANDINGS OF THE PARTIES:

4.1. The FAA will—

4.1.1. Sponsor MILREPs for access and other requirements at HQ FAA and FAA Regional Offices. Sponsorship will be provided by the Vice President, Mission Support (AJV-0) for MILREPs assigned to HQ FAA, and by FAA Regional Administrators for MILREPs assigned at the Regional levels.

4.1.2. Provide all assigned MILREPs full facility security access credentials as required for building access and access to all other facilities (e.g., secured areas) for MILREPs to adequately conduct their duties.

4.1.3. Provide administrative office space to the MILREPs, commensurate with FAA equivalent standards, to include custodial services, utilities, and maintenance to allow the MILREPs to adequately conduct their duties.

Appendix 4. Document 2 (continued)

4.1.4. Provide communications and Information Technology (IT) support and maintenance to the MILREPs, commensurate with FAA equivalent standards, to include:

4.1.4.1. Provide computers/laptops (provision for two monitors as necessary), printers, associated peripherals, and use of licensed software, to include operating system and applications, on the FAA network. Select MILREPs will be considered Supervisors and will be afforded Supervisor status in their respective line of business for automation updates.

4.1.4.2. The ability for MILREPs to transfer files, e-mail archives, and other data as appropriate, from the FAA network to the DoD network when MILREPs are reassigned or otherwise cease performing in the MILREP capacity.

4.1.4.3. Provide commercial local and long distance telephone service, message handling, facsimile or facsimile scanner, secure telephone, IT equipment, and network access with appropriate rights and privileges for conducting interagency business in FAA facilities. To facilitate communications with MILREPs when on travel or during after-hours emergencies, the local FAA sponsor will consider providing FAA cellular support to their MILREPs, such as integrating FAA or compatible DoD-owned devices on the FAA network. Additionally, allow DoD access to install Defense Switched Network (DSN) telephone service in FAA facilities, as required.

4.1.4.4. Installation of unique DoD required software program(s) as required, with applicable FAA compliance and network security review.

4.1.4.5. Technical information support to MILREPs to provide ability to archive DoD-specific information, to include email, correspondence, and other types of data.

4.1.4.6. Provide access to existing FAA secure/classified network computer terminals and organizational email address as required, with applicable FAA compliance and network security review. NOTE: The majority of MILREP communications are on unclassified networks, but access to classified networks may be necessary for periodic communications.

4.1.5. Provide the MILREPs with logistics support to include office supplies, office furniture, and IT equipment.

4.1.6. Provide the MILREPs with access to classified storage, up to "TOP SECRET" level, as required.

4.1.7. Provide the MILREPs with access to General Services Administration (GSA) vehicles/motor pools, personal vehicle parking spaces, and FAA-sponsored transportation commensurate with FAA equivalent standards.

4.2. The DoD will—

4.2.1. Establish and provide appropriate personnel to staff MILREP offices at HQ FAA and Regional Service Area offices. Manpower authorizations may vary due to individual Military Service staff reorganizations, and will be updated during periodic reviews of this MOA.

Table 1. Current DoD MILREP Authorizations

Military Service MILREP	HQ	East*	Central	West**
Air Force	1	2***	1	2***
Army	2	3	3	5
Navy	1	2	2	2
Marine Corps	1	1	-	1

*All Eastern Service Area MILREPs also cover Puerto Rico and U.S. Virgin Islands
** All Western Service Area MILREPs also cover Alaska, Hawaii, Guam and Kwajalein
*** USAF MILREPs include one full-time Active Duty and one part-time Reservist (two total)

4.2.1.1. MILREPs assigned to Regional Service Area HQs will represent associated districts.

4.2.2. Provide appropriate personnel support for MILREPs, to include Individual Service Support Agreements with the nearest military installation(s), as required.

4.2.3. Provide for MILREPs to have access to DSN telephone service, as required.

4.2.4. Ensure MILREPs are informed of DoD issues and coordinate with FAA staff on all matters of mutual interest. FAA MILREPs will keep their Military Service HQ elements, the DoD Policy Board on Federal Aviation (PBFA), and/or applicable FAA offices aware of operational, technical, and administrative aviation/airspace related matters that could mutually impact the FAA and the DoD.

5. PERSONNEL: Each Party is responsible for costs of its personnel, to include pay, benefits, and travel. Each Party is responsible for supervision and management of its personnel.

6. GENERAL PROVISIONS:

6.1. POINTS OF CONTACT: The following points of contact will be used by the Parties to communicate in the implementation of this MOA. Each Party may change its points of contact upon reasonable notice to the other Party.

6.1.1. For the FAA—

6.1.1.1. HQ FAA Mission Support Services; (202) 267-8261.

6.1.2. For the DoD—

3

Appendix 4. Document 2 (continued)

6.1.2.1. Air Force: HQ USAF/A3OJ; Chief, Military/Civil Aviation Integration Division, (703) 693-4427.

6.1.2.2. Army: Commander, U.S. Army Aeronautical Services Agency (USAASA); (703) 806-4862.

6.1.2.3. Navy: Director, OPNAV N98/Naval Airspace and Air Traffic Control Standards & Evaluation Agency (NAATSEA); (703) 695-8534.

6.1.2.4. Marine Corps: HQ Marine Corps Aviation, APX; (202) 267-8439.

6.2. CORRESPONDENCE: All correspondence to be sent and notices to be given pursuant to this MOA will be addressed to the following:

6.2.1. For the FAA: FAA Mission Support Services (AJV-0), FAA HQ, 800 Independence Ave., SW, Suite 400E, Washington DC 20591.

6.2.2. For the DoD: Attention DoD Policy Board on Federal Aviation (PBFA) Secretariat, 1480 Air Force Pentagon, Washington DC 20330; (202) 404-2955; osd.pentagon.ousd-atl.mbx.dod-pbfa-secretariat@mail.mil.

6.3. FUNDS AND MANPOWER: This MOA does not document nor provide for the exchange of funds or manpower between the Parties nor does it make any commitment of funds or resources.

6.4. MODIFICATION OF MOA: This MOA may only be modified by the written agreement of the Parties, duly signed by their authorized representatives. This MOA will be reviewed every five years, on or around the anniversary of its effective date.

6.5. DISPUTES: Any disputes relating to this MOA will, subject to any applicable law, Executive Order, directive, or instruction, be resolved by consultation between the Parties.

6.6. TERMINATION OF UNDERSTANDING: This MOA may be terminated by either Party upon 180 days advanced written notice to the other Party.

6.7. TRANSFERABILITY: This MOA is not transferable except with the written consent of the Parties.

6.8. ENTIRE UNDERSTANDING: It is expressly understood and agreed that this MOA embodies the entire understanding between the Parties regarding this MOA's subject matter.

6.9. EFFECTIVE DATE: This MOA takes effect beginning on the day after the last Party signs.

6.10. EXPIRATION DATE: This MOA will expire 10 years from the date the last Party signs.

4

Appendix 4. Document 2 (continued)

6.11. CANCELLATION OF PREVIOUS MOA: This MOA cancels and supersedes the previously signed MOA between the same Parties with the subject "MILITARY REPRESENTATIVES," and effective date of May 21, 2013.

APPROVED:

FOR THE FAA—

Angela McCullough
Vice President, Mission Support Services

7/11/19
(Date)

FOR THE DOD—

Rowayne A. Schatz, Jr., SES
DoD PBFA Executive Director

23 JUL 2019
(Date)

Document 3

SPEED AUTHORIZATION GRANTED TO DOD

U.S. Department
of Transportation
**Federal Aviation
Administration**

System Operations Services
800 Independence Avenue, SW.
Washington, DC 20591

DEC 05 2008

Mr. Gerald F. Pease Jr.
Department of Defense Policy Board
on Federal Aviation
1480 Air Force Pentagon 5D756
Washington, DC 20330-1480

Dear Mr. Pease:

Title 14, Code of Federal Regulations (CFR), part 91, section 91.117, requires that unless otherwise authorized by the Administrator, no person may operate an aircraft below 10,000 feet MSL at an indicated airspeed greater than 250 knots (288 m.p.h.).

The regulation grants an exception to aircraft having flight characteristics which preclude safe operation at speeds below 250 knots by providing that if the minimum safe airspeed for anyparticular operation is greater than the maximum speed prescribed, the aircraft may operate at that minimum safe airspeed.

In recognition of the fact that certain operational and training requirements cannot be met under the terms of the regulation, the Department of Defense (DOD), since May 18, 1978, has been authorized to operate aircraft below 10,000 feet mean sea level (MSL) at an indicatedairspeed of more than 250 knots to the extent such high-speed operations were necessary to accomplish operational and training requirements.

Our authorization of May 18, 1978 is rescinded and reissued as follows:

Operations below 10,000 feet MSL at an indicated airspeed in excess of 250 knots, in noncompliance with CFR, section 91.117, are authorized for the United States and foreign military aircraft, including Reserve and Air National Guard aircraft, under the following conditions:

a. Within restricted areas.

b. Within military operations areas.

c. When operating within large-scale or on short-term special missions, coordination will be effected to ensure awareness on the part of the nonparticipating flying public.

d. When operating on DOD/FAA mutually developed and published instruments routes (IR).

e. When operating on DOD developed and published visual routes (VR).

f. In the event provisions a through e cannot be complied with, the appropriate military headquarters may authorize flight operations within defined airspace in noncompliance with CFR, section 91.117, as it is considered necessary to accomplish the national defense mission. This provision is intended to accommodate speed requirements on an interim basis within a defined area for which an area/route proposal has been coordinated and concurred with by the appropriate military/FAA regional authority, but not yet published.

g. If the airspeed required or recommended in the aircraft flight manual to maintain safe maneuverability is greater than the maximum speed described in CFR, section 91.117, the aircraft may be operated at that speed. Where the required or recommended speed is given as range, the lower part of the speed range should be used consistent with good operating practice. This provision is primarily to accommodate climbs/descents and terminal area operations.

This authorization is effective immediately.

Sincerely



F. D. Hatfield
Director of System Operations Security
Air Traffic Organization

Appendix 4. Document 4

Grant of Exemption No. 2861A - Single Altimeter Setting for Frequent Transit of FL180

NOTE−
This exemption originally applied to 14 CFR 91.81, Altimeter Settings, but now applies to 14 CFR 91.121, Altimeter Settings. However, the wording in the current CFR is identical to the original and the exemption continues.

Exemption No. 2861A

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
WASHINGTON, D.C. 20591

* *

In the matter of the petition of

DEPARTMENT OF DEFENSE — Regulatory Docket 18309

to provide an amended Exemption from Section 91.81 of the Federal Aviation Regulations

* *

GRANT OF EXEMPTION

By letter dated January 17, 1980, the Department of Defense (DOD) petitioned the Federal Aviation Administration (FAA) to amend Exemption No. 2861 to enable DOD aircraft to use either the standard altimeter setting of 29.92 inches Hg. or a current station altimeter setting while conducting aerial training maneuvers in certain special use airspace.

On October 17, 1979, the FAA issued Exemption No. 2861 to the DOD to provide DOD aircraft relief from altimeter setting provisions of Federal Aviation Regulation (FAR) Section 91.81. Under the exemption, DOD aircraft are not required to change altimeter settings during high speed maneuvers which result in rapid transits of flight level (FL) 180 that occur while conducting serial training exercises within military operations areas (MOAs) or restricted areas. Condition 3 of the exemption imposes the use of a standard altimeter setting of 29.92 inches Hg. A summary of the DOD petition to amend the exemption was published in the Federal Register on February 28, 1980 (45 FR 13245). No comments were received.

FAR Section 91.81(a)(1) requires, in part, that each aircraft operated below 18,000 feet mean sea level (MSL) maintain cruising altitude by reference to an altimeter that is set to the current reported altimeter setting of a station along the route and within 100 nautical miles of the aircraft. When the aircraft is operated at or above 18,000 feet MSL, the altimeter must be set to 29.92 inches Hg., as required by FAR Section 91.81(a)(2).

Exemption No. 2861 permits DOD aircraft to transit FL 180 contrary to the altimeter setting provisions of FAR Section 91.81 while operating under the exemption in MOAs and restricted areas. An MOA is an airspace assignment of defined vertical and lateral dimensions established outside positive control airspace to separate/segregate certain military activities from instrument flight rule (IFR) traffic and to identify for visual flight rule (VFR) traffic where these activities are conducted. High speed tactical operations are conducted within these MOAs. Restricted areas, designated under FAR Part 73, are often joint use and IFR/VFR operations may be authorized by the controlling air traffic control (ATC) facility when utilized by the using agency.

In addition to MOAs and restricted areas referred to in Exemption 2861, this exemption covers DOD training maneuvers conducted in Air Traffic Control Assigned Airspace (ATCAA). ATCAAs are described in the Pilot/Controller Glossary of FAA Order 7110.65B, "Air Traffic Control," as airspace of defined vertical/lateral limits, assigned by ATC, for the purpose of providing air traffic segregation between the specified activities being conducted within the assigned airspace and other IFR air traffic. ATCAAs are given consideration herein in light of the fact that MOAs are generally established only up to but not including FL 180, which is below positive control area (PCA) where ATC controls all air traffic. Military operations conducted above FL 180 in accordance with the provisions of this exemption shall be contained within ATCAAs, wherein use of station pressure altimeter settings require prior relief from Section 91.81(a)(2).

While Exemption No. 2861 relieved DOD aircraft from making frequent altimeter setting changes, it did impose the condition that only the 29.92 inches Hg. setting be used by aircraft operating under the exemption. It was believed this condition would be especially advantageous to those operating under the exemption since their altitude calculation procedures would be the same wherever the operation occurred, resulting in safety benefits. It was believed this standardization would aid in preserving the integrity of charted boundaries and altitudes while placing full reliance and responsibility on user pilots to remain well within the geographical and altitude limits of the special use airspace areas. However, self-containment became more of a problem than anticipated. The DOD petitioned, contending that the condition was overly restrictive and resulted in numerous requests to use station altimeter settings for reasons of flight safety. The petitioner stated that many DOD flights conducted in MOAs require operations near the terrain in which case the altimeter setting of 29.92 inches Hg. could result in inadequate terrain clearance.

It should be noted that in an earlier exemption, Exemption No. 2082, the U.S. Air Force was provided general relief from altimeter setting requirements of Section 91.81. In absence of any other altimeter setting conditions, the earlier exemption permitted use of either the standard 29.92 or the current station altimeter setting. The DOD requests this same flexibility, as expressed by their operating units' preference to use station altimeter settings and the professed operational difficulty in maintaining adequate terrain clearance.

In addition to DOD preference, FAA regions reported the controlled use of station altimeter settings by Air Force aircraft operating under the previous exemption was successful and the regions have asked that the provision be reinstated. In light of the past success of operations under Exemption No. 2082 and the reluctance of DOD aircraft to use the standard 29.92 setting, the mandatory requirement to use 29.92 inches Hg. is considered unnecessary. Therefore, the option to select a station altimeter setting, subject to appropriate altitude and boundary safety provisions in a letter of agreement with the controlling ATC facility, should be extended to DOD.

In consideration of the foregoing, I find that an exemption, subject to certain conditions and limitations, is in the public interest. Therefore, pursuant to the authority contained in Section 307(e) of the Federal Aviation Act of 1958, as amended, which has been delegated to me under Section 11.53 of the Federal Aviation Regulations, the Department of Defense is hereby granted an exemption from provisions of Section 91.81 of the Federal Aviation Regulations to the extent necessary to conduct those high speed tactical maneuvers that include rapid transits of FL 180 as follows:

1. For the purposes of this exemption, Air Traffic Control Assigned Airspace (ATCAA) is defined as that airspace of defined vertical/lateral limits, assigned by ATC, for the purpose of providing air traffic segregation between the specified activities being conducted within the assigned airspace and other controlled air traffic.

2. This exemption applies only to aircraft conducting DOD approved training involving high speed tactical maneuvers in established MOAs, restricted areas, and ATCAAs.

3. All operations under this exemption must be conducted within the boundaries and altitudes of established MOAs, restricted areas, and ATCAAs. In addition, they must be conducted under a letter of agreement with the ATC facility having jurisdiction over the airspace areas to include provision for safe altitude clearance between DOD aircraft and other aircraft operating within, above, and below MOAs, restricted areas, and ATCAAs.

4. The DOD is responsible for assuring all operations conducted under this exemption are accomplished within the boundaries and altitudes of the MOAs, restricted areas, and ATCAAs with appropriate clearance of terrain, obstacles, other aircraft and persons and property on the ground.

5. This exemption supersedes Exemption No. 2861 issued to the Department of Defense dated October 17, 1979.

This exemption is effective immediately and shall continue in effect until superseded or rescinded by the Federal Aviation Administration.

/s/ Ramon A. Alvarez
Acting Director,
Air Traffic Service

Issued in Washington, D.C., on
June 30, 1980.

BRIEFING GUIDE



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

FOR OFFICIAL USE ONLY

Initiated By: AJR–0
Vice President, System Operations Services

Table of Contents

Paragraph Number	Title	Page
8-1-8.	FAA RESPONSIBILITY	BG-3
8-2-1.	AREA OF OPERATION	BG-3
8-3-5.	BASIC EVALUATION TEAM/SITE VISIT	BG-3

1. PARAGRAPH NUMBER AND TITLE: 8–1–8. FAA RESPONSIBILITY

8–2–1. AREA OF OPERATION

8–3–5. BASIC EVALUATION TEAM/SITE VISIT

2. BACKGROUND: To clarify the roles of United States Indo-Pacific Command (USINDOPACOM) and Pacific Air Forces (PACAF), USINDOPACOM is the geographic Unified Combatant Command and PACAF is its operational air component command.

3. CHANGE:

OLD	**NEW**
8-1-8. FAA RESPONSIBILITY	**8-1-8. FAA RESPONSIBILITY**
Where control of military activities is delegated to MRUs, qualified FAA personnel must provide technical assistance, as required/requested, to familiarize military personnel with applicable procedures and related responsibilities. Where assigned, the NORAD/U.S. Indo−Pacific Command (USINDOPACOM) air defense liaison officer (ADLO) or AWACS ADLO must be responsible for this function. At other locations, the FAA Service Area must designate the office or facility responsible for this function. Where service cannot be provided within currently available resources, FAA Service Areas/facilities should initiate appropriate programming action to support the training/research, development, test and evaluation (RDT&E) activity.	Where control of military activities is delegated to MRUs, qualified FAA personnel must provide technical assistance, as required/requested, to familiarize military personnel with applicable procedures and related responsibilities. Where assigned, the NORAD/**Pacific Air Forces (PACAF)** air defense liaison officer (ADLO) or AWACS ADLO must be responsible for this function. At other locations, the FAA Service Area must designate the office or facility responsible for this function. Where service cannot be provided within currently available resources, FAA Service Areas/facilities should initiate appropriate programming action to support the training/research, development, test and evaluation (RDT&E) activity.

OLD	**NEW**
8-2-1. AREA OF OPERATION	**8-2-1. AREA OF OPERATION**
Intercept training activities, except for NORAD/USINDOPACOM air defense exercises/evaluations, must be conducted under the following conditions:	Intercept training activities, except for NORAD/**PACAF** air defense exercises/evaluations, must be conducted under the following conditions:

OLD	NEW
8-3-5. BASIC EVALUATION TEAM/SITE VISIT	**8-3-5. BASIC EVALUATION TEAM/SITE VISIT**
The team must consist of at least one FAA air traffic representative (ATREP) and at least one military representative, except for site visits conducted at NORAD/USINDOPACOM air defense sectors where an air defense liaison officer (ADLO) must be the FAA air traffic control team lead. The military representative will be at the discretion of the SUA−using agency.	The team must consist of at least one FAA air traffic representative (ATREP) and at least one military representative, except for site visits conducted at NORAD/**PACAF** air defense sectors where an air defense liaison officer (ADLO) must be the FAA air traffic control team lead. The military representative will be at the discretion of the SUA−using agency.