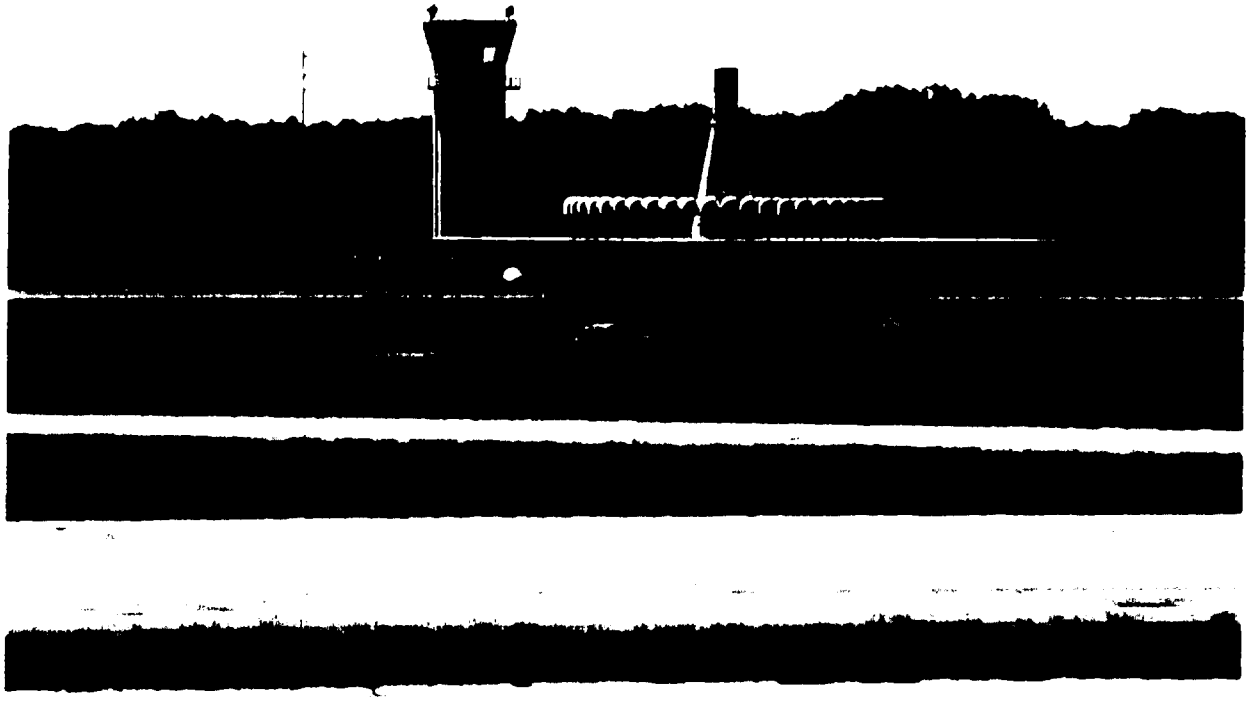
U.S. Department
of Transportation

**Federal Aviation
Administration**

7110.10P
Flight Services



Providence Tower and VORTAC at the Theodore Francis Green State Airport

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FLIGHT SERVICES

7110.10P

FOREWORD

This order prescribes air traffic control procedures and phraseology for use by personnel providing air traffic control services. Controllers are required to be familiar with the provisions of this order that pertain to their operational responsibilities and to exercise their best judgment if they encounter situations not covered by it.

Bill G. Peacock
Director of Air Traffic

Date 9/21/01

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TABLE OF CONTENTS

Chapter 1. Introduction

Section 1. General

Paragraph		Page
1-1-1.	PURPOSE	1-1-1
1-1-2.	DISTRIBUTION	1-1-1
1-1-3.	CANCELLATION	1-1-1
1-1-4.	EXPLANATION OF CHANGES	1-1-1
1-1-5.	EFFECTIVE DATE	1-1-1
1-1-6.	RECOMMENDATION FOR PROCEDURAL CHANGES	1-1-1
1-1-7.	SUBSCRIPTION INFORMATION	1-1-1

Section 2. Terms of Reference

1-2-1.	WORD MEANINGS	1-2-1
1-2-2.	NOTES	1-2-1
1-2-3.	7110.10 CHANGES	1-2-1
1-2-4.	ABBREVIATIONS	1-2-1
1-2-5.	EXAMPLES	1-2-1
1-2-6.	PHRASEOLOGY	1-2-1

Section 3. Responsibility

1-3-1.	PROCEDURAL APPLICATIONS	1-3-1
1-3-2.	DUTY PRIORITY	1-3-1
1-3-3.	DUTY FAMILIARIZATION AND TRANSFER OF POSITION RESPONSIBILITY	1-3-1

Chapter 2. Broadcast Procedures

Section 1. General

2-1-1.	TYPES OF BROADCASTS	2-1-1
2-1-2.	SPEECH RATE	2-1-1
2-1-3.	INTERRUPTION OF BROADCAST	2-1-1
2-1-4.	REDUCING RECORDED WEATHER INFORMATION SERVICES	2-1-1
2-1-5.	ANNOUNCING MISSING ITEMS	2-1-1
2-1-6.	WEATHER REPORT PHRASEOLOGY	2-1-1
2-1-7.	CURRENT DATA	2-1-5

Section 2. Transcribed Weather Broadcasts (TWEB)

2-2-1.	GENERAL	2-2-1
2-2-2.	CONTENT	2-2-1
2-2-3.	TESTING TWEB EQUIPMENT	2-2-2
2-2-4.	SERVICE MAY BE SUSPENDED	2-2-2
2-2-5.	MONITORING	2-2-2

Paragraph Page

Section 3. VOR TWEB

2-3-1. GENERAL 2-3-1
2-3-2. CONTENT 2-3-1
2-3-3. MONITORING (VOR) 2-3-1

Section 4. Telephone Information Briefing Service (TIBS) for Automated Flight Service Stations (AFSS)

2-4-1. GENERAL 2-4-1
2-4-2. AREA/ROUTE BRIEFING PROCEDURES 2-4-1
2-4-3. MONITORING 2-4-2

Section 5. Hazardous Inflight Weather Advisory Service (HIWAS)

2-5-1. GENERAL 2-5-1
2-5-2. PRIORITY 2-5-1
2-5-3. CONTENT 2-5-1
2-5-4. BROADCAST PROCEDURES 2-5-1
2-5-5. SUSPENSION 2-5-2

Chapter 3. Pilot Briefing

Section 1. General

3-1-1. DEFINITION 3-1-1
3-1-2. PREDUTY REQUIREMENTS 3-1-1
3-1-3. PREFLIGHT BRIEFING DISPLAY 3-1-1
3-1-4. WEATHER DISPLAY PRODUCTS 3-1-1
3-1-5. FORECASTS, WARNINGS, AND ADVISORIES 3-1-3
3-1-6. UNAVAILABILITY OF DATA 3-1-3
3-1-7. TYPE OF BRIEFING TO BE CONDUCTED 3-1-3
3-1-8. RECORDING PILOT BRIEFINGS 3-1-3

Section 2. Preflight Pilot Briefing

3-2-1. CONDUCT OF STANDARD BRIEFING 3-2-1
3-2-2. CONDUCT OF ABBREVIATED BRIEFING 3-2-2
3-2-3. CONDUCT OF OUTLOOK BRIEFING 3-2-3

Chapter 4. Inflight Services

Section 1. General

4-1-1. INFLIGHT SERVICES 4-1-1
4-1-2. EN ROUTE FLIGHT ADVISORY SERVICE (EFAS/FLIGHT WATCH) 4-1-1
4-1-3. OPERATIONAL PRIORITY 4-1-1
4-1-4. INFLIGHT WEATHER BRIEFING 4-1-1
4-1-5. INFLIGHT EQUIPMENT MALFUNCTIONS 4-1-1

Paragraph Page

Section 2. Data Recording

4-2-1. TYPES OF DATA RECORDED 4-2-1
4-2-2. METHODS OF RECORDING DATA 4-2-1
4-2-3. IFR/VFR/DVFR FLIGHT PLAN RECORDING 4-2-2
4-2-4. PILOT WEATHER REPORTS 4-2-3
4-2-5. LOGGING AIRCRAFT CONTACTS AND INFLIGHT BRIEFINGS INTO M1FC 4-2-3
4-2-6. FLIGHT PROGRESS STRIPS (FAA FORMS 7230-21 AND 7233-5) 4-2-4
4-2-7. FLIGHT PROGRESS STRIPS AND ENTRY DATA 4-2-4
4-2-8. AIRCRAFT CONTACTS 4-2-6
4-2-9. CONTROL SYMBOLOGY 4-2-6

Section 3. Radio Communications

4-3-1. FREQUENCY USE 4-3-1
4-3-2. AUTHORIZED TRANSMISSIONS 4-3-1
4-3-3. RADIO MESSAGE FORMAT 4-3-1
4-3-4. ABBREVIATED TRANSMISSION 4-3-1
4-3-5. ROUTINE RADIO CONTACTS 4-3-2
4-3-6. RADIO COMMUNICATIONS TRANSFER 4-3-3
4-3-7. ATC CLEARANCES, ADVISORIES, OR REQUESTS 4-3-4
4-3-8. DEPARTURE REPORTS 4-3-4
4-3-9. IFR FLIGHT PROGRESS REPORTS 4-3-5
4-3-10. ARRIVAL/MISSED APPROACH REPORTS 4-3-5
4-3-11. NONDELIVERY OF MESSAGES 4-3-5
4-3-12. BROADCAST (BLIND TRANSMISSION) OF MESSAGES 4-3-5
4-3-13. PENETRATION OF CLASS A AIRSPACE OR PROHIBITED/RESTRICTED AREA 4-3-5

Section 4. Local Airport Advisory

4-4-1. GENERAL 4-4-1
4-4-2. LAA ELEMENTS AND PHRASEOLOGY 4-4-1
4-4-3. CHARTS 4-4-2
4-4-4. AUTHORIZED LAA FREQUENCY 4-4-2
4-4-5. REQUEST FOR LAA AT AIRPORT WHERE LAA SERVICE IS UNAVAILABLE 4-4-3
4-4-6. TRAFFIC CONTROL 4-4-3
4-4-7. AIRCRAFT EQUIPMENT CHECKS 4-4-3

Section 5. Special VFR Operation

4-5-1. AUTHORIZATION 4-5-1
4-5-2. REQUESTS FOR SPECIAL VFR CLEARANCE 4-5-1
4-5-3. VISIBILITY BELOW 1 MILE 4-5-2
4-5-4. PREDESIGNED SPECIAL VFR CLEARANCES 4-5-3

Paragraph Page

Section 6. En Route Flight Advisory Service (EFAS)

4-6-1. GENERAL 4-6-1
4-6-2. POSITION RESPONSIBILITIES 4-6-1
4-6-3. OPERATING PROCEDURES 4-6-1
4-6-4. FREQUENCIES 4-6-1
4-6-5. NWS SUPPORT TO EFAS 4-6-1
4-6-6. PILOT WEATHER REPORTS 4-6-2
4-6-7. GRAPHIC WEATHER DISPLAY 4-6-2
4-6-8. INTERRUPTIONS TO SERVICE 4-6-3
4-6-9. EMERGENCIES 4-6-3

Chapter 5. Emergency Services

Section 1. General

5-1-1. EMERGENCY DETERMINATION 5-1-1
5-1-2. RESPONSIBILITY 5-1-1
5-1-3. OBTAINING INFORMATION 5-1-1
5-1-4. COORDINATION 5-1-1
5-1-5. PROVIDING ASSISTANCE 5-1-1
5-1-6. RECORDING INFORMATION 5-1-2
5-1-7. SAFE ALTITUDES FOR ORIENTATIONS 5-1-2

Section 2. Operations

5-2-1. INFORMATION REQUIREMENTS 5-2-1
5-2-2. FREQUENCY CHANGES 5-2-1
5-2-3. AIRCRAFT ORIENTATION 5-2-1
5-2-4. ALTITUDE CHANGE FOR IMPROVED RECEPTION 5-2-1
5-2-5. ALERTING CONTROL FACILITY 5-2-1
5-2-6. VFR AIRCRAFT IN WEATHER DIFFICULTY 5-2-1
5-2-7. AIRCRAFT POSITION PLOTS 5-2-2
5-2-8. EMERGENCY LOCATOR TRANSMITTER (ELT) SIGNALS 5-2-2
5-2-9. EXPLOSIVE CARGO 5-2-2
5-2-10. EXPLOSIVE DETECTION DOG HANDLER TEAMS 5-2-2
5-2-11. INFLIGHT EQUIPMENT MALFUNCTIONS 5-2-3
5-2-12. NAVY FLEET SUPPORT MISSIONS 5-2-3
5-2-13. COUNTRIES IN THE SPECIAL INTEREST FLIGHT PROGRAM 5-2-3
5-2-14. MINIMUM FUEL 5-2-3
5-2-15. AIRCRAFT BOMB THREATS 5-2-4
5-2-16. SECURITY CONTROL OF AIR TRAFFIC AND NAVIGATION AIDS (SCATANA) 5-2-5

Section 3. Direction Finder (DF) Service

5-3-1. ACTIONS REQUIRED 5-3-1
5-3-2. VFR DF SERVICE 5-3-1
5-3-3. DF FIXING BY NET 5-3-2
5-3-4. DF FIXING BY ONE FACILITY 5-3-2
5-3-5. EMERGENCY DF APPROACH PROCEDURE 5-3-2

Paragraph Page

Section 4. ADF/VOR Orientation

5-4-1. ACTIONS REQUIRED 5-4-1
5-4-2. ADF ORIENTATION/ADF CROSSFIX 5-4-1
5-4-3. VOR ORIENTATION/VOR CROSSFIX 5-4-2
5-4-4. GUIDANCE TO AIRPORT 5-4-4

Chapter 6. Flight Data

Section 1. General

6-1-1. COMMUNICATIONS SERVICE 6-1-1
6-1-2. FLIGHT PLANS 6-1-1
6-1-3. FLIGHT PLAN DATA 6-1-1
6-1-4. PART-TIME FSS CLOSURE ACTION 6-1-2

Section 2. Flight Plan Proposals

6-2-1. FLIGHT PLAN RECORDING 6-2-1
6-2-2. OUTBOUNDS DEPARTING FROM OUTSIDE FLIGHT PLAN AREA 6-2-4
6-2-3. ALASKA SPECIAL INSTRUCTIONS 6-2-4
6-2-4. M1FC ENTRY OF MILITARY IFR MULTI-LEG STOPOVER FLIGHT PLAN 6-2-4
6-2-5. M1FC ENTRY OF MILITARY VFR STOPOVER FLIGHT PLAN 6-2-5

Section 3. IFR Flight Plan Handling

6-3-1. DOMESTIC IFR FLIGHT PLANS 6-3-1
6-3-2. NOTIFYING ARTCC 6-3-1
6-3-3. IFR FLIGHT PLAN CONTROL MESSAGES 6-3-2
6-3-4. COORDINATE RNAV ROUTES 6-3-8

Section 4. Flight Plan Handling

6-4-1. FLIGHT PLAN ACTIVATION 6-4-1
6-4-2. DEPARTURE REPORT MESSAGE 6-4-1
6-4-3. ACKNOWLEDGING NUMBERED MESSAGES 6-4-1
6-4-4. FLIGHT NOTIFICATION MESSAGE 6-4-1
6-4-5. SUSPENSING FLIGHT NOTIFICATION MESSAGES 6-4-3
6-4-6. ACKNOWLEDGING FLIGHT NOTIFICATION MESSAGES 6-4-4
6-4-7. ACTION BY ADDRESSEES 6-4-4
6-4-8. MAJOR FLIGHT PLAN CHANGES FROM EN ROUTE AIRCRAFT 6-4-5
6-4-9. CHANGE IN ETA 6-4-6
6-4-10. FLIGHT PLAN CLOSURE 6-4-6
6-4-11. MILITARY FLIGHTS TO/FROM U.S. 6-4-7

Section 5. Military Operations

6-5-1. MILITARY TRAINING ACTIVITY 6-5-1
6-5-2. AERIAL REFUELING TRACKS 6-5-2
6-5-3. SPECIAL MILITARY FLIGHTS 6-5-2
6-5-4. MILITARY FOREIGN FLIGHTS 6-5-2
6-5-5. USAF/USN UNDERGRADUATE PILOTS 6-5-2
6-5-6. MESSAGE HANDLING 6-5-2

Paragraph Page

Section 6. IFR/DVFR ADIZ Flight Plans

6-6-1. AIRCRAFT MOVEMENT INFORMATION SERVICES (AMIS) WITHIN AN ADIZ-IFR 6-6-1
6-6-2. AMIS WITHIN AN ADIZ-DVFR 6-6-1
6-6-3. FORWARDING DVFR INFORMATION 6-6-1
6-6-4. STOPOVER DVFR FLIGHT PLANS 6-6-1
6-6-5. ADDRESSING DVFR FLIGHT PLAN MESSAGES 6-6-1

Section 7. Law Enforcement Messages

6-7-1. LAW ENFORCEMENT ALERT MESSAGES (LEAM) 6-7-1
6-7-2. INITIATING LEAM'S 6-7-1
6-7-3. FSDPS RESPONSIBILITIES 6-7-1

Section 8. Nonemergency Parachute Jumping

6-8-1. COORDINATION 6-8-1
6-8-2. PREJUMP RADIO COMMUNICATIONS 6-8-1

Chapter 7. International Operations

Section 1. Messages and Formats

7-1-1. GENERAL 7-1-1
7-1-2. AIR TRAFFIC SERVICE (ATS) MESSAGES 7-1-1
7-1-3. CATEGORIES OF MESSAGES 7-1-1
7-1-4. SERVICE MESSAGES 7-1-2
7-1-5. TRANSMISSION VIA NADIN 7-1-2
7-1-6. TRANSMISSION OF ATS MESSAGES 7-1-2
7-1-7. ORIGINATING MESSAGES 7-1-3
7-1-8. ADDRESSING MESSAGES 7-1-4
7-1-9. FLIGHT PLAN FORMS AND INSTRUCTIONS 7-1-4
7-1-10. ICAO ATS MESSAGE FORMAT 7-1-5
7-1-11. FLIGHT PLAN CHANGES AND CANCELLATIONS 7-1-5
7-1-12. AIR MOBILE SERVICE (AMS) 7-1-5
7-1-13. AIREP'S (POSITION REPORTS) 7-1-6
7-1-14. AIREP SPECIALS (ARS) 7-1-9
7-1-15. ARTCC RELAY OF VFR MESSAGES 7-1-9

Section 2. Customs Notification and ADIZ Requirements

7-2-1. FLIGHT PLAN/CUSTOMS REQUIREMENTS 7-2-1
7-2-2. INBOUND PRIVATE AIRCRAFT: CUSTOMS REQUIREMENTS 7-2-1
7-2-3. INBOUND PRIVATE AIRCRAFT: ADIZ REQUIREMENTS 7-2-2

Section 3. Alerting Service

7-3-1. GENERAL 7-3-1
7-3-2. ALERTING PHASES. 7-3-1
7-3-3. ALERTING MESSAGE CONTENTS 7-3-1

Paragraph **Page**

Section 4. Canadian Movement and Control Messages (Transborder Flights Only)

7-4-1. GENERAL 7-4-1
7-4-2. INBOUNDS FROM CANADA 7-4-1
7-4-3. OUTBOUNDS TO CANADA 7-4-1
7-4-4. OUTBOUNDS TO CANADA DEPARTING FROM OUTSIDE FLIGHT PLAN AREA 7-4-2
7-4-5. IFR FLIGHT PLANS DEPARTING FROM CANADIAN AIRPORTS 7-4-3
7-4-6. SEARCH AND RESCUE MESSAGES 7-4-3

Section 5. Mexican Movement and Control Messages (Transborder Flights Only)

7-5-1. GENERAL 7-5-1
7-5-2. INBOUNDS FROM MEXICO 7-5-1
7-5-3. OUTBOUNDS TO MEXICO 7-5-1
7-5-4. MEXICAN REGIONAL FLIGHT DISPATCH OFFICE TELEPHONE NUMBERS .. 7-5-2

Chapter 8. Search and Rescue (SAR) Procedures for VFR Aircraft

Section 1. General

8-1-1. RESPONSIBILITY FOR SAR ACTION 8-1-1
8-1-2. OVERDUE AIRCRAFT ON FLIGHT PLAN 8-1-1
8-1-3. OVERDUE AIRCRAFT NOT ON FLIGHT PLAN 8-1-1

Section 2. Overdue Aircraft Action

8-2-1. INITIAL ACTION/QALQ 8-2-1
8-2-2. ACTION BY DEPARTURE STATION ON RECEIPT OF QALQ 8-2-1
8-2-3. CANCELLATION OF THE QALQ 8-2-2

Section 3. Information Requests (INREQ's)

8-3-1. INREQ 8-3-1
8-3-2. ACTION UPON RECEIPT OF INREQ 8-3-1
8-3-3. CANCELLATION OF INREQ 8-3-2

Section 4. Alert Notices (ALNOT's)

8-4-1. ALNOT 8-4-1
8-4-2. ACTION UPON RECEIPT OF ALNOT 8-4-1
8-4-3. REPORTING ALNOT STATUS TO RCC 8-4-2
8-4-4. CANCELLATION OF ALNOT 8-4-2

Section 5. Other SAR Actions

8-5-1. CONTACT WITH AIRCRAFT CROSSING HAZARDOUS AREA 8-5-1
8-5-2. CANADIAN TRANSBORDER 8-5-1

Paragraph Page

Chapter 9. FAA Weather Services

Section 1. General

9-1-1. PURPOSE 9-1-1
9-1-2. SCHEDULED TRANSMISSION TIMES 9-1-1
9-1-3. DISTRIBUTION 9-1-1

Section 2. Pilot Weather Report (UA/UUA)

9-2-1. GENERAL 9-2-1
9-2-2. PREPARATION FOR TRANSMISSION 9-2-1
9-2-3. RESPONSIBILITY 9-2-1
9-2-4. PIREP DISPLAY 9-2-1
9-2-5. SOLICITING PIREP'S 9-2-1
9-2-6. RECORDING OF PIREP DATA 9-2-1
9-2-7. DATA TO BE INCLUDED IN PIREP'S 9-2-1
9-2-8. REPORTING TURBULENCE IN PIREP'S 9-2-2
9-2-9. REPORTING ICING CONDITIONS IN PIREP'S 9-2-2
9-2-10. MEANS USED TO SOLICIT PIREP'S 9-2-2
9-2-11. PIREP CLASSIFICATION 9-2-2
9-2-12. PIREP HANDLING 9-2-3
9-2-13. OFFSHORE COASTAL ROUTES 9-2-3
9-2-14. PIREP PREPARATION 9-2-3
9-2-15. PIREP FORMAT 9-2-3
9-2-16. PIREP ENCODING 9-2-7
9-2-17. PIREP ORDER 9-2-7

Section 3. Radar Weather Report (SD/ROB)

9-3-1. GENERAL 9-3-1
9-3-2. SCHEDULE 9-3-1
9-3-3. DISTRIBUTION 9-3-1

Section 4. Winds and Temperature Aloft Forecast (FD)

9-4-1. GENERAL 9-4-1
9-4-2. LEVELS FORECAST 9-4-1
9-4-3. SCHEDULES 9-4-1
9-4-4. DISTRIBUTION 9-4-1

Section 5. Aviation Terminal Forecast (TAF)

9-5-1. GENERAL 9-5-1
9-5-2. TERMINAL FORECAST SCHEDULES 9-5-1
9-5-3. DISTRIBUTION 9-5-1

Section 6. Aviation Area Forecast (FA)

9-6-1. GENERAL 9-6-1
9-6-2. AVIATION AREA FORECAST (FA) SCHEDULE 9-6-1
9-6-3. DISTRIBUTION 9-6-1

Paragraph **Page**

Section 7. Severe Weather Forecasts

9-7-1. GENERAL 9-7-1
9-7-2. DISTRIBUTION 9-7-1
9-7-3. SEVERE WEATHER OUTLOOK NARRATIVE (AC) 9-7-1

Section 8. Flight Advisories (SIGMET/WS-AIRMET/ WA-Convective SIGMET/WST)

9-8-1. GENERAL 9-8-1
9-8-2. DISTRIBUTION 9-8-1

Section 9. Transcribed Weather Broadcast (TWEB)

9-9-1. GENERAL 9-9-1
9-9-2. CROSS-COUNTRY ROUTES 9-9-1

Section 10. Meteorological Impact Statement (MIS)

9-10-1. GENERAL 9-10-1
9-10-2. CRITERIA 9-10-1
9-10-3. DISTRIBUTION 9-10-1

Section 11. Center Weather Advisory (CWA)

9-11-1. GENERAL 9-11-1
9-11-2. CRITERIA 9-11-1
9-11-3. DISTRIBUTION 9-11-2

Chapter 10. Data Communication Systems

Section 1. General

10-1-1. TYPES OF DATA ACCEPTABLE ON FAA DATA COMMUNICATIONS SYSTEMS 10-1-1
10-1-2. PRIORITY MESSAGES 10-1-1
10-1-3. GENERAL NOTICES 10-1-1
10-1-4. GROUP CODES 10-1-1
10-1-5. MESSAGE FORMATS 10-1-2
10-1-6. WMSCR NEGATIVE RESPONSE MESSAGES 10-1-3

Paragraph Page

Chapter 11. Airport Lighting and Visibility Aids

Section 1. General

11-1-1. AIRPORT LIGHTING 11-1-1
11-1-2. OBSTRUCTION LIGHTS 11-1-1
11-1-3. ROTATING BEACON 11-1-1
11-1-4. APPROACH LIGHTS 11-1-1
11-1-5. ALS INTENSITY SETTINGS 11-1-1
11-1-6. SEQUENCED FLASHING LIGHTS 11-1-1
11-1-7. RUNWAY EDGE LIGHTS 11-1-1
11-1-8. CHANGING LIGHTED RUNWAYS 11-1-2
11-1-9. SIMULTANEOUS APPROACH AND RUNWAY EDGE LIGHT OPERATION 11-1-2
11-1-10. MALSR ODALS 11-1-2
11-1-11. HIRL ASSOCIATED WITH MALSR 11-1-2
11-1-12. MEDIUM INTENSITY RUNWAY LIGHTS 11-1-3
11-1-13. HIGH INTENSITY RUNWAY, RUNWAY CENTERLINE, AND TOUCHDOWN ZONE LIGHTS 11-1-3
11-1-14. HIRL CHANGES AFFECTING RVR 11-1-3
11-1-15. HIGH SPEED TURNOFF LIGHTS 11-1-3
11-1-16. RUNWAY END IDENTIFIER LIGHTS 11-1-3
11-1-17. TAXIWAY LIGHTS 11-1-3
11-1-18. VISUAL APPROACH SLOPE INDICATORS (VASI'S) 11-1-3
11-1-19. VISIBILITY AIDS - GENERAL 11-1-4
11-1-20. RVR/RVV 11-1-4
11-1-21. OPERATION OF LANDING DIRECTION INDICATOR 11-1-4

Chapter 12. Interphone Communications

Section 1. General

12-1-1. PURPOSE 12-1-1
12-1-2. INTERPHONE TRANSMISSION PRIORITIES 12-1-1
12-1-3. PRIORITY INTERRUPTION 12-1-1
12-1-4. MESSAGE INITIATION 12-1-1
12-1-5. MESSAGE TERMINATION 12-1-2

Chapter 13. NAVAID Monitoring

Section 1. General

13-1-1. PURPOSE 13-1-1
13-1-2. DUTIES 13-1-1
13-1-3. MALFUNCTIONS 13-1-1
13-1-4. AIRCRAFT REPORTED MALFUNCTIONS 13-1-1
13-1-5. ADJUSTMENTS TO NAVAID'S 13-1-1
13-1-6. NAVAID FLIGHT CHECK 13-1-1
13-1-7. MONITORING OF NAVAID'S BY AIRWAY FACILITIES PERSONNEL 13-1-2

Paragraph **Page**

Chapter 14. Phraseology

Section 1. General

14-1-1. PURPOSE 14-1-1
14-1-2. PHRASEOLOGY 14-1-1
14-1-3. WORDS AND PHRASES 14-1-1
14-1-4. ANNOUNCING MISSING ITEMS 14-1-1
14-1-5. ICAO PHONETICS 14-1-1
14-1-6. RELAY OF ATC COMMUNICATIONS 14-1-2
14-1-7. EXPEDITIOUS COMPLIANCE 14-1-2
14-1-8. WEATHER PHRASEOLOGY 14-1-2
14-1-9. WEATHER REMARKS 14-1-6
14-1-10. WEATHER ADVISORIES 14-1-8
14-1-11. RAREP'S 14-1-9
14-1-12. WINDS AND TEMPERATURES ALOFT FORECAST (FD) 14-1-10
14-1-13. NUMBER USAGE 14-1-10
14-1-14. FACILITY IDENTIFICATION 14-1-12
14-1-15. AIRCRAFT IDENTIFICATION 14-1-13
14-1-16. AIRCRAFT TYPES 14-1-16
14-1-17. AIRCRAFT EQUIPMENT CODES 14-1-17
14-1-18. AIRWAYS AND ROUTES 14-1-17
14-1-19. NAVAID TERMS 14-1-17
14-1-20. NAVAID FIXES 14-1-18
14-1-21. RUNWAY CONDITIONS 14-1-18

Appendices

APPENDIX A. PILOT/CONTROLLER GLOSSARY PCG-1
APPENDIX B. ICAO FLIGHT PLANS B-1
APPENDIX C. Q SIGNALS C-1

INDEX I-1

EXPLANATION OF CHANGES

Direct questions through appropriate facility/region staff to the Office of Primary Interest (OPI)

a. Editorial/format changes were made throughout this order. Revision bars were not used due to the insignificant nature of these changes. (ATA-10)

Chapter 1. Introduction

Section 1. General

1-1-1. PURPOSE

This order prescribes procedures and phraseology for use by air traffic personnel providing flight services. Flight service specialists are required to be familiar with the provisions of this order that pertain to their operational responsibilities and to exercise their best judgment if they encounter situations that are not covered.

1-1-2. DISTRIBUTION

This order is distributed to selected offices in Washington headquarters, regional offices, the William J. Hughes Technical Center, the Mike Monroney Aeronautical Center, all air traffic field facilities, international aviation field offices, and interested aviation public.

1-1-3. CANCELLATION

Order 7110.10N, Flight Services, effective February 24, 2000, is canceled.

1-1-4. EXPLANATION OF CHANGES

Changes incorporated into this basic order as well as changes submitted in the future are found in the explanation of changes page(s). It is advisable to retain these page(s) throughout the duration of the basic order. If further information is desired, direct questions through the appropriate facility/region staff to ATP-300.

1-1-5. EFFECTIVE DATE

a. This order is effective February 21, 2002.

b. This order and its changes are scheduled to be published to coincide with AIRAC dates. The effective dates will be:

Publication Schedule		
Basic or Change	Cutoff Date for Submission	Effective Date of Publication
Change 1	2/21/02	8/8/02
Change 2	8/8/02	2/20/03
Change 3	2/20/03	8/7/03
7110.10R	8/7/03	2/19/04

c. Facilities shall notify regional distribution officers if orders or changes are not received at least 30 days prior to effective dates.

1-1-6. RECOMMENDATION FOR PROCEDURAL CHANGES

a. Submit recommended changes directly to the facility management.

b. Procedural changes will not be made to this order until software for Model 1 Full Capacity (M1FC) and AIS has been adapted to accomplish the revised procedures.

1-1-7. SUBSCRIPTION INFORMATION

This publication may be purchased from the U.S. Government Printing Office. Address subscription inquiries to:

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Section 2. Terms of Reference

1-2-1. WORD MEANINGS

As used in this manual, the words listed below have the following meanings:

a. "Shall" or an action verb in the imperative sense means a procedure is mandatory.

b. "Should" means a procedure is recommended.

c. "May" or "need not" means a procedure is optional.

d. "Will" means futurity, not a requirement for application of a procedure.

e. Singular words include the plural.

f. Plural words include the singular.

g. "Aircraft" means the airframe, crew members, or both.

h. "Altitude" means indicated altitude mean sea level (MSL), flight level (FL), or both.

i. "Miles" means nautical miles unless otherwise specified and means statute miles in conjunction with visibility.

j. "Time," when used for ATC operational activities, is the hour and the minute/s in Coordinated Universal Time (UTC). Change to the next minute is made at the minute plus 30 seconds, except time checks are given to the nearest quarter minute. The word "local" or the time zone equivalent shall be stated when local time is given during radio and telephone communications. The term "ZULU" may be used to denote UTC.

1-2-2. NOTES

Statements of fact or of an explanatory nature and relating to the use of directive material have been identified and worded as "Notes."

1-2-3. 7110.10 CHANGES

a. Each reprinted, revised, or additional page will show the change number and the effective date of the change.

b. Bold lines in the margin of the text will mark the location of all changes except editorial corrections.

1-2-4. ABBREVIATIONS

Abbreviations authorized for use in the application of the procedures in this order are those contained in FAAO 7340.1, *Contractions*.

NOTE-
In this order, the abbreviation M1 identifies Model 1 Full Capacity procedures. AIS identifies AIS procedures.

1-2-5. EXAMPLES

Any illustration used which serves to explain subject material is identified as an "Example."

1-2-6. PHRASEOLOGY

Phraseology depicted in this order is mandatory.

NOTE-
Exceptions to this para are referenced in para 5-1-1, and para 14-1-2 Note.

Section 3. Responsibility

1-3-1. PROCEDURAL APPLICATIONS

Apply the procedures in this order, except when other procedures are contained in a letter of agreement (LOA) or other appropriate FAA documents, provided they only supplement this order and any standards they specify are not less than those in this order.

NOTE-
1. Pilots are required to abide by applicable provisions of 14 CFR or any other pertinent regulations regardless of the application of any procedure in this order.

2. FAAO 7210.3, Facility Operation and Administration, contains administrative instructions pertaining to these letters and documents.

1-3-2. DUTY PRIORITY

Because there are many variables involved, it is impossible to provide a standard list of duty priorities that apply to every situation. Each set of circumstances must be evaluated on its own merit, and when more than one action is required, personnel shall exercise their best judgment based on the facts and circumstances known to them. Action which appears most critical from a safety standpoint should be performed first.

a. The following order of duty priorities is offered as a guideline.

1. Emergency Situations.
2. Inflight Services.
3. Preflight Services.

b. Emergency situations are those where life or property is in immediate danger. Inflight services are those provided to or affecting aircraft in flight or otherwise operating on the airport surface. This includes services to airborne aircraft, such as NAVAID monitoring and restoration, LAA, delivery of ATC clearances, advisories or requests, issuance of military flight advisory messages, EFAS, NOTAM's, SAR communications searches, flight plan handling, transcribed or live broadcasts, weather observations, PIREP's, and pilot briefings. Preflight services are those which directly affect aircraft operations but which are provided prior to actual departure and usually by telephone. These include pilot briefings, recorded data, flight plan filing/processing, and aircraft operational reservations.

1-3-3. DUTY FAMILIARIZATION AND TRANSFER OF POSITION RESPONSIBILITY

The transfer of position responsibility shall be accomplished in accordance with appropriate facility directives each time the operational responsibility for a position is transferred from one specialist to another. The relieving specialist and the specialist being relieved shall share equal responsibility for the completeness and accuracy of the position relief briefing.

a. *Purpose.* This para prescribes the method and the step-by-step process for conducting a position relief briefing and transferring position responsibility from one specialist to another.

b. *Discussion.*

1. In all operational facilities, the increase in traffic density and the need for the expeditious movement of air traffic without compromising safety have emphasized the importance of the position relief process. Major problems occur whenever there is a heavy reliance upon memory unsupported by routines or systematic reminders. This procedure addresses the complete task of transferring position responsibility and the associated relief briefing.

2. Position relief unavoidably provides added workload for specialists at the time of relief. The intent of this procedure is to make the transfer of position responsibility take place smoothly and to ensure a complete transfer of information with a minimum amount of workload. The method takes advantage of a self-briefing concept in which the relieving specialist obtains needed status information by reading from the Status Information Areas to begin the relief process. Up-to-the-minute information relating to the provision of flight services to pilots and aircraft in flight requires verbal exchanges between specialists during the relief process. The method also specifies the point when the transfer of position responsibility occurs.

3. In the final part of the relief process, the specialist being relieved monitors and reviews the position to ensure that nothing has been overlooked or incorrectly displayed and that the transfer of

position responsibility occurred with a complete briefing.

c. *Terms.* The following terms are important for a complete understanding of this procedure:

1. Status Information Areas. Manual or automated displays of the current status of position-related equipment and operational conditions or procedures.

2. Written Notes. Manually recorded items of information kept at designated locations on the positions of operation are elements of Status Information Areas.

3. Checklist. An ordered listing of items to be covered in a position relief.

d. *Precautions.*

1. Specialists involved in the position relief process should not rush or be influenced to rush.

2. During position operation, each item of status information which is or may be an operational factor for the relieving specialist should be recorded as soon as it is operationally feasible so that it will not be forgotten or incorrectly recorded.

3. Extra care should be taken when more than one specialist relieves or is being relieved from a position at the same time; e.g., combining or decombining positions.

e. *Responsibilities.* The specialist being relieved shall be responsible for ensuring that any pertinent status information of which he/she is aware is relayed to the relieving specialist and is either:

1. Accurately displayed in the Status Information Areas for which he/she has responsibility, or

2. Relayed to the position having responsibility for accurately displaying the status information. Prior to accepting responsibility for a position, the relieving specialist shall be responsible for ensuring that any unresolved questions pertaining to the operation of the position are resolved. The specialists engaged in a position relief shall conduct the relief process at the position being relieved, unless other procedures have been established and authorized by the facility air traffic manager.

f. *Step-By-Step Process of Position Relief.*

1. Preview of the Position

RELIEVING SPECIALIST

(a) Follow the checklist and review the Status Information Areas.

NOTE-
This substep may be replaced by an authorized preduty briefing provided an equivalent review of checklist items is accomplished.

(b) Observe position equipment, operational situation, and the work environment.

(c) Listen to voice communications and observe other operational actions.

(d) Observe current and pending aircraft and vehicular traffic and correlate with flight and other movement information.

(e) Indicate to the specialist being relieved that the position has been previewed and that the verbal briefing may begin.

NOTE-
Substeps (b), (c), and (d) may be conducted concurrently or in order.

2. Verbal Briefing

SPECIALIST BEING RELIEVED

(a) Review with the relieving specialist, the checklist, Status Information Areas, written notes, and other prescribed sources of information, and advise of known omissions, updates, and inaccuracies. Also brief the relieving specialist on the abnormal status of items not listed on the Status Information Areas, as well as on any items of special operational interest calling for verbal explanation or additional discussion.

(b) Brief on traffic, if applicable.

(c) Completely answer any questions asked.

(d) Observe overall position operation. If assistance is needed, provide or summon it as appropriate.

(e) Sign off the position in accordance with existing directives or otherwise indicate that the relief process is complete.

REFERENCE-
FAAO 7210.3, Para 2-2-3, Duty Familiarization and the Transfer of Position Responsibility.

RELIEVING SPECIALIST

(f) Ask questions necessary to ensure a complete understanding of the operations situation.

(g) Make a statement or otherwise indicate to the specialist being relieved that position responsibility has been assumed.

(h) Sign on the position unless a facility directive authorizes substep (g) above.

(i) Check, verify, and update the information obtained in steps 1 and 2.

g. Check position equipment in accordance with existing directives.

Chapter 2. Broadcast Procedures

Section 1. General

2-1-1. TYPES OF BROADCASTS

Weather and flight information shall be broadcast/recorded by one or more of the following categories:

a. Transcribed Weather Broadcast (TWEB).

b. Telephone Information Briefing Service (TIBS).

c. Hazardous Inflight Weather Advisory Service (HIWAS).

d. Meteorological Information for Aircraft in Flight (VOLMET ICAO).

2-1-2. SPEECH RATE

Data shall be spoken at a rate of 100 to 120 words-per-minute.

2-1-3. INTERRUPTION OF BROADCAST

Interrupt broadcast only when you believe that a pilot requires immediate attention; e.g., to issue an airport advisory. When a pilot calls during a broadcast:

a. Broadcast for a short interval on the frequency to which the pilot is listening simultaneously with the broadcast frequencies, and complete the aircraft contact immediately after the broadcast.

b. If the pilot repeats the call, interrupt the broadcast and answer the call.

2-1-4. REDUCING RECORDED WEATHER INFORMATION SERVICES

Recorded weather information services (TWEB, VOR TWEB, and TIBS) may be reduced during the hours of 1800-0600 local time only. Resumption of full broadcast service should be adjusted seasonally to coincide with daylight hours. During the period of reduced broadcast, record a statement indicating when the broadcast will be resumed and to contact Flight Service for weather briefing and other services.

PHRASEOLOGY-
THE (TWEB/TIBS) RECORDING IS SUSPENDED. REGULAR RECORDED WEATHER SERVICE WILL BE RESUMED AT (time) ZULU/ (time) LOCAL. FOR PILOT WEATHER BRIEFING AND OTHER SERVICES CONTACT A FLIGHT SERVICE FACILITY. CALL 1-800-WX-BRIEF.

2-1-5. ANNOUNCING MISSING ITEMS

With the exception of RVR, announce the word "MISSING" when any items or components of a weather report are not reported, or in place of unreadable or obviously incorrect items or portions of weather reports. If the complete report is not available for broadcast, state the location and the word "MISSING." When appropriate, instead of speaking the name of several locations with missing reports, announce: "OTHER SCHEDULED REPORTS MISSING."

NOTE-
On occasion, a parameter from an automated observation may be reported as missing in the body of the report but is available as a manually reported parameter in the remarks section. When the report is spoken, include the manually reported element in its proper sequence within the report.

2-1-6. WEATHER REPORT PHRASEOLOGY

Use the following phraseology and procedures for radio-telephone communications and broadcast of surface weather observations:

a. *Location.*

1. Announce the geographic name (not the identifier) once for broadcasts.

2. When the location name is duplicated within 500 miles, follow the location name with the state name.

EXAMPLE-
"Wilmington, North Carolina."
"Wilmington, Delaware."

3. When weather reports originate at more than one airport at the same geographical location, identify the airport.

EXAMPLE-
"Chicago Midway."
"Chicago O'Hare."

4. Where it is considered necessary and is requested by the military base commander, broadcast military observations by stating the location, the name of the airport if different, and the controlling military branch.

EXAMPLE-
"Fort Riley, Marshall Army Air Field."
"Andrews Air Force Base."
"Norfolk Naval Air Station."

b. *Automated Observation.* If AUTO appears after the date/time element, follow the location announcement with the phrase "AUTOMATED."

PHRASEOLOGY-
(Location) AUTOMATED.

c. *Special Reports.* If a special report is available at the time of the broadcast, follow the location with the words "SPECIAL REPORT, (last two digits of the time) OBSERVATION."

d. *Wind Direction and Speed.* Announce wind direction and speed by stating the word WIND followed by the separate digits of the wind direction to the nearest 10 degrees and the separate digits of the speed. A "G" between two wind speed values is announced as GUSTS. Broadcast local wind as it appears in the report. Announce the variability of wind at the end of the wind group. (See TBL 2-1-1.)

TBL 2-1-1

Wind Direction and Speed

Wind	*Phraseology*
VRB04KT	WIND VARIABLE AT FOUR.
00000KT	WIND CALM.
26012KT	WIND TWO SIX ZERO AT ONE TWO.
29012KT 260V320	WIND TWO NINER ZERO AT ONE TWO WIND VARIABLE BETWEEN TWO SIX ZERO AND THREE TWO ZERO.
30008KT	WIND THREE ZERO ZERO AT EIGHT.
36012G20KT	WIND THREE SIX ZERO AT ONE TWO GUSTS TWO ZERO.

e. *Visibility.* Announce visibility as follows: (See TBL 2-1-2.)

TBL 2-1-2

Visibility

Contraction	*Phraseology*
M$^{1}/_{4}$SM	VISIBILITY LESS THAN ONE QUARTER.
0SM	VISIBILITY ZERO.
$^{1}/_{16}$SM	VISIBILITY ONE SIXTEENTH.
$^{1}/_{8}$SM	VISIBILITY ONE EIGHTH.
$^{3}/_{4}$SM	VISIBILITY THREE QUARTERS.
1$^{1}/_{2}$SM	VISIBILITY ONE AND ONE-HALF.
8SM	VISIBILITY EIGHT.
25SM	VISIBILITY TWO FIVE.

NOTE-
When visibility is less than 3 miles and variable, the variable limits will be reported in the remarks.

f. *RVR.* When RVR is reported, announce in accordance with TBL 2-1-3. Omit RVR when it is not reported. Do not announce as missing.

TBL 2-1-3

RVR

Contraction	*Phraseology*
R16/M0600FT	RUNWAY ONE SIX VISUAL RANGE LESS THAN SIX HUNDRED.
R17L/2400V 3000FT	RUNWAY ONE SEVEN LEFT VISUAL RANGE VARIABLE BETWEEN TWO THOUSAND FOUR HUNDRED AND THREE THOUSAND.
R28L/3500FT	RUNWAY TWO EIGHT LEFT VISUAL RANGE THREE THOUSAND FIVE HUNDRED.
R35R/P6000FT	RUNWAY THREE FIVE RIGHT VISUAL RANGE MORE THAN SIX THOUSAND.
Note: "R-V-R" may be spoken in lieu of "visual range."	

g. *Weather Elements.* Table 2-1-4 depicts sample phraseology for weather element contractions. Intensity refers to precipitation, not descriptors. Proximity is spoken after the phenomenon to which it refers. Descriptors are spoken ahead of weather phenomenon with the exception of "showers" which is spoken after the precipitation. Table TBL 2-1-8 contains a complete list of weather elements and appropriate phraseology.

TBL 2-1-4

Examples of combining intensity, descriptors and weather phenomenon.

Contractions	*Phraseology*
BLSN	BLOWING SNOW.
FZDZ	FREEZING DRIZZLE.
FZRA	FREEZING RAIN.
-FZRAPL	LIGHT FREEZING RAIN, ICE PELLETS.
MIFG	SHALLOW FOG.
SHRA	RAIN SHOWERS.
+TSRA	THUNDERSTORM, HEAVY RAIN (SHOWERS)[1].
TSRA	THUNDERSTORM, RAIN.
+TSRAGR	THUNDERSTORM, HEAVY RAIN, HAIL.
-SHRA	LIGHT RAIN SHOWERS.
SHSN	SNOW SHOWERS.
VCSH	SHOWERS IN THE VICINITY.

[1]Since thunderstorms imply showery precipitation, "showers" may be used to describe precipitation that accompany thunderstorms.

h. *Ceiling and sky coverage.*

1. Broadcast Sky Coverage in the same order as reported on the weather observation. Announce ceiling as follows: (See TBL 2-1-5.)

TBL 2-1-5

Ceiling and Sky coverage

Contraction	*Phraseology*
BKN000[1]	SKY PARTIALLY OBSCURED.
BKN000[2]	CEILING LESS THAN FIVE ZERO BROKEN.
FEW000[1]	SKY PARTIALLY OBSCURED.
FEW000[2]	FEW CLOUDS AT LESS THAN FIVE ZERO.
SCT000[1]	SKY PARTIALLY OBSCURED.
SCT000[2]	LESS THAN FIVE ZERO SCATTERED.
(lowest layer aloft) BKN/ OVC	(precede with) CEILING.
VV	INDEFINITE CEILING.

[1] Surface-based obscurations. Requires remarks, i.e. RMK FG SCT000, FU BKN000, etc.

[2] No remark means the layer is aloft.

2. State cloud heights in tens, hundreds and/or thousands of feet. (See TBL 2-1-6.)

TBL 2-1-6

Cloud heights

Number	*Phraseology*
000[1]	ZERO.
003	THREE HUNDRED.
018	ONE THOUSAND EIGHT HUNDRED.
200	TWO ZERO THOUSAND.

[1] Spoken as zero only when used with VV.

NOTE-
When the ceiling is less than 3,000 feet and variable, the variable limits will be reported in the remarks.

3. Announce sky conditions as indicated. (See TBL 2-1-7.)

TBL 2-1-7

Sky conditions

Contraction	*Phraseology*
BKN	(height) BROKEN.
CLR[1]	CLEAR BELOW ONE TWO THOUSAND.
FEW	FEW CLOUDS AT (height).
SCT	(height) SCATTERED.
SKC	CLEAR.
OVC	(height) OVERCAST.

[1] Automated weather reports.

TBL 2-1-8

Weather Elements

QUALIFIER				WEATHER PHENOMENA					
INTENSITY or PROXIMITY 1		DESCRIPTOR 2		PRECIPITATION 3		OBSCURATION 4		OTHER 5	
-	Light	MI	Shallow	DZ	Drizzle	BR	Mist	PO	Well-Developed Dust/Sand Whirls
		BC	Patchy	RA	Rain	FG	Fog	SQ	Squalls
	Moderate (No Qualifier)	DR	Low Drifting	SN	Snow	FU	Smoke	FC +FC	Funnel Cloud, Tornado or Waterspout
		BL	Blowing	SG	Snow Grains	DU	Dust	SS	Sandstorm
+	Heavy	SH	Showers	IC	Ice Crystals	SA	Sand	DS	Duststorm
		TS	Thunderstorm	PL	Ice Pellets	HZ	Haze		
VC	In the Vicinity	FZ	Freezing	GR	Hail	PY	Spray		
		PR	Partial	GS	Small Hail or Snow Pellets (< 1/4")	VA	Volcanic Ash		
				UP	*Unknown Precipitation				

*** Automated stations only.**

4. The following are examples of broadcast phraseology of sky and ceiling conditions: (See TBL 2-1-9.)

TBL 2-1-9

Sky and ceiling conditions

Condition	*Phraseology*
BKN000 BKN010 BKN050 RMK FG BKN000	SKY PARTIALLY OBSCURED, CEILING ONE THOUSAND BROKEN, FIVE THOUSAND BROKEN. FOG OBSCURING FIVE TO SEVEN EIGHTS OF THE SKY.
BKN010	CEILING ONE THOUSAND BROKEN.
SCT000 SCT020 OVC035 RMK FG SCT000	SKY PARTIALLY OBSCURED, TWO THOUSAND SCATTERED, CEILING THREE THOUSAND FIVE HUNDRED OVERCAST. FOG OBSCURING THREE TO FOUR EIGHTS OF THE SKY.
SCT020 OVC250	TWO THOUSAND SCATTERED, CEILING TWO FIVE THOUSAND OVERCAST.
VV000	INDEFINITE CEILING ZERO.
VV012	INDEFINITE CEILING ONE THOUSAND TWO HUNDRED.

i. *Temperature and Dew Point.* Announce temperature and dew point in degrees Celsius. Temperatures below zero are preceded with an M and are announced by prefixing the word MINUS to the values. When the temperature and dew point spread is greater than 3 degrees, broadcast only the temperature. (See TBL 2-1-10.)

TBL 2-1-10

Temperature and Dew Point

Value	*Phraseology*
02/M01	TEMPERATURE TWO, DEW POINT MINUS ONE.
14/09	TEMPERATURE ONE FOUR.
36/34	TEMPERATURE THREE SIX, DEW POINT THREE FOUR.

j. *Altimeter Setting.* Announce the four digits of the altimeter setting. (See TBL 2-1-11.)

TBL 2-1-11

Altimeter Setting

	Phraseology
A2989	ALTIMETER TWO NINER EIGHT NINER.
A3025	ALTIMETER THREE ZERO TWO FIVE.

k. *Remarks.* Announce pertinent remarks. Do not broadcast additive data or other information intended for NWS analysis or processing that does not contribute to the description of the weather occurring at the station. (See TBL 2-1-12.)

TBL 2-1-12

Remarks

Remarks	*Phraseology*
ACSL OVR RDG SW	STANDING LENTICULAR ALTOCUMULUS OVER RIDGE SOUTHWEST.
FG SCT000	FOG OBSCURING THREE TO FOUR EIGHTHS OF SKY.
FU SCT012	SMOKE LAYER ONE THOUSAND TWO HUNDRED SCATTERED.
SCT020 V BKN	TWO THOUSAND SCATTERED VARIABLE BROKEN.
SHRA E	RAIN SHOWERS, EAST.
TS OHD MOV E LTGCG	THUNDERSTORM OVERHEAD MOVING EAST. LIGHTNING CLOUD TO GROUND.
VIS 3/4V1 1/2	VISIBILITY VARIABLE BETWEEN THREE QUARTERS AND ONE AND ONE HALF.
VIS NE 3 S 2	VISIBILITY NORTHEAST THREE, SOUTH TWO.

2-1-7. CURRENT DATA

An aviation surface report is considered current for 1 hour beyond the standard time of observation (H+00) unless superseded by a special or local observation or by the next hourly report. Do not broadcast obsolete data.

Section 2. Transcribed Weather Broadcasts (TWEB)

2-2-1. GENERAL

a. This transcribed broadcast service provides continuous aeronautical and meteorological information on L/MF and VOR facilities.

b. At TWEB equipment (FAA 5210) locations controlling two or more VOR's, the one used least for ground-to-air communications, preferably the nearest VOR, may be used as a TWEB outlet simultaneously with the NDB facility. Where this is accomplished, capability to manually override the broadcast shall be provided for emergency communications.

2-2-2. CONTENT

The sequence, source, and content of transcribed broadcast material shall be:

a. *Introduction.*

PHRASEOLOGY-
TRANSCRIBED AVIATION WEATHER BROADCAST PREPARED AT (time) ZULU.

b. *Synopsis.* Prepared by selected Weather Service Forecast Offices (WSFO's) and stored in the Weather Message Switching Center (WMSC).

c. *Adverse Conditions.* Extracted from WST, WS, WA, CWA, and AWW.

PHRASEOLOGY-
WEATHER ADVISORIES ARE IN EFFECT FOR (adverse conditions) OVER (geographical area).

d. *TWEB Route Forecasts.* Include valid time of forecasts prepared by WSFO's and stored in WMSC.

PHRASEOLOGY-
ROUTE FORECAST/S VALID UNTIL (time) ZULU.

e. *Winds Aloft Forecast.* Broadcast winds aloft forecast for the location nearest to the TWEB. The broadcast should include the levels from 3,000 to 12,000 feet, but shall always include at least two forecast levels above the surface.

PHRASEOLOGY-
WINDS ALOFT FORECAST VALID UNTIL (time) ZULU. (Altitude).

(Altitude) (direction) AT (speed).

(Altitude) (direction) AT (speed).

(Altitude) (direction) AT (speed).

f. *Radar Reports (RAREP's).* Use local or pertinent RAREP's. If the facility has access to real time weather radar equipment, summarize observed data using the RAREP's to determine precipitation type, intensity, movement, and height.

g. *Surface Weather Reports.* Record surface reports as described in para 2-1-6. Broadcast surface reports for the parent station and not more than 25 weather reporting points.

1. Broadcast local reports first, then the remainder of the reports beginning with the first station east of true north and continuing clockwise around the TWEB location.

2. Announce the location name of a surface report once.

(a) Surface weather broadcast introduction:

PHRASEOLOGY-
AVIATION WEATHER, (4 digits of time), ZULU OBSERVATIONS.

(b) Special weather reports:

PHRASEOLOGY-
(Location name) SPECIAL REPORT (last 2 digits of time) OBSERVATION, (weather report).

h. *Density Altitude.* Include temperature and the statement "CHECK DENSITY ALTITUDE" as part of the surface weather broadcast for any station with a field elevation of 2,000 feet MSL or above that meets the following criteria: (See TBL 2-2-1.)

TBL 2-2-1
Density Altitude

Field Elevation	*Temperature (C)*
2,000-2,999	29 degrees or higher
3,000-3,999	27 degrees or higher
4,000-4,999	24 degrees or higher
5,000-5,999	21 degrees or higher
6,000-6,999	18 degrees or higher
7,000-higher	16 degrees or higher

i. *PIREP's.* Summarize PIREP's and, if the weather conditions meet soliciting requirements, append a request for PIREP's.

1. Summary.

PHRASEOLOGY-
PILOT WEATHER REPORTS SUMMARY (text).

2. Request for PIREP's, if applicable. (See para 9-2-5.)

PHRASEOLOGY-
PILOT WEATHER REPORTS ARE REQUESTED (location, area) FOR (cloud tops, icing, turbulence, etc.). CONTACT FLIGHT WATCH OR A FLIGHT SERVICE STATION.

NOTE-
Delete reference to FLIGHT WATCH when not available at the time of broadcast.

j. *ALNOT Alert Announcement*, if applicable.

PHRASEOLOGY-
OVERDUE AIRCRAFT ALERT, (time) ZULU (aircraft identification), (color), (type), DEPARTED (airport) VIA (route), (destination). LAST KNOWN POSITION (state last known position). THIS AIRCRAFT IS OVERDUE. ALL AIRCRAFT ARE REQUESTED TO MONITOR ONE TWO ONE POINT FIVE FOR E-L-T SIGNAL. INFORM THE NEAREST F-A-A FACILITY OF ANY INFORMATION REGARDING THIS AIRCRAFT.

k. *Closing statement.*

PHRASEOLOGY-
FOR NOTAM'S, MILITARY TRAINING ACTIVITY, OR OTHER SERVICES, CONTACT A FLIGHT SERVICE STATION.

2-2-3. TESTING TWEB EQUIPMENT

When TWEB equipment is to be tested, broadcast an advisory to this effect. Care shall be exercised to ensure no obsolete information is broadcast during a testing period.

2-2-4. SERVICE MAY BE SUSPENDED

TWEB service may be suspended:

a. For routine maintenance only during periods when weather conditions within 100 miles of the broadcast outlet are equal to or better than a ceiling of 3,000 feet and visibility of 5 miles.

b. When the equipment fails. If a malfunction occurs in the recording or control unit but the tape transport unit remains operative, continue broadcasting current data. Remove data as it becomes obsolete.

2-2-5. MONITORING

a. At TWEB equipment locations, listen to at least one complete TWEB cycle each hour. Check for completeness, accuracy, speech rate, and proper enunciation. Correct any noted irregularities.

b. If practical:

1. The control facility shall monitor the transmissions through local outlet.

2. The AFSS/FSS associated with a remote outlet shall monitor the transmissions for a sufficient period each hour to assure voice quality and clarity.

c. Promptly correct or inform the TWEB facility of any irregularities.

Section 3. VOR TWEB

2-3-1. GENERAL

This transcribed broadcast service provides continuous aeronautical and meteorological information on VOR facilities using ATIS-type equipment.

2-3-2. CONTENT

The sequence and content of transcribed broadcast material shall be:

a. Introduction.

PHRASEOLOGY-
TRANSCRIBED AVIATION WEATHER BROADCAST PREPARED AT (time) ZULU.

b. Adverse conditions extracted from WST's, WS's, WA's, CWA's, and AWW's.

PHRASEOLOGY-
WEATHER ADVISORIES ARE IN EFFECT FOR (adverse conditions) OVER (geographic area).

c. Surface reports (including PIREP's) for the parent station and a maximum of five adjacent stations. Record surface reports as described in para 2-1-6, Weather Report Phraseology. Announce the location name of a surface report once. Introduction denoted in subpara 2-2-2g2(a), Phraseology.

d. Density Altitude. Include temperature and the statement "CHECK DENSITY ALTITUDE" if any of the stations meet the criteria listed in subpara 2-2-2h.

e. Terminal forecast information for the parent station and for one other location (facility option) including valid time for the forecast involved.

PHRASEOLOGY-
TERMINAL FORECAST FOR (location). VALID UNTIL (time) ZULU (forecast text).

f. PIREP request, if applicable. (See subpara 9-2-5, Soliciting PIREP's.)

PHRASEOLOGY-
PILOT WEATHER REPORTS REQUESTED (location, area) FOR (icing, turbulence, cloud tops, etc.). CONTACT FLIGHT WATCH OR A FLIGHT SERVICE STATION.

NOTE-
Delete all reference to FLIGHT WATCH when not available at time of broadcast.

g. ALNOT alert announcement, if applicable. (See subpara 2-2-2j, Phraseology.)

h. Closing statement.

PHRASEOLOGY-
FOR NOTAM's, MILITARY TRAINING ACTIVITY, OR OTHER SERVICES, CONTACT A FLIGHT SERVICE STATION.

2-3-3. MONITORING (VOR)

At VOR TWEB equipment locations, listen to at least one complete TWEB cycle each hour and correct any noted irregularities.

i. Inform the pilot when DF service is terminated and provide the (CTAF) frequency, if appropriate, and the local altimeter setting.

PHRASEOLOGY-
D-F ORIENTATION SERVICE TERMINATED. COMMON TRAFFIC ADVISORY FREQUENCY (frequency) ALTIMETER (setting).

NOTE-
Service may be terminated when airport is in sight, the desired fix or location is reached, practice steers or approaches are discontinued, etc.

j. Notify DF net when service is terminated.

5-3-3. DF FIXING BY NET

When the DF net is in operation, determine the aircraft's position as follows:

a. Tell the pilot to transmit for 10 seconds.

b. Plot the bearings obtained from two or more antenna sites. Inform the pilot of the aircraft's position, and the safe altitude for orientation in that area.

NOTE-
The ARTCC or AFSS/FSS designated as DF net control is responsible for evaluating and plotting bearings received from individual antenna sites.

5-3-4. DF FIXING BY ONE FACILITY

One DF facility can determine an aircraft's location by:

a. Plotting the position from a VOR or ADF and an observed DF bearing.

b. Time method.

1. Determine the aircraft's heading and DF bearing.

2. Tell the pilot to turn left or right, whichever requires the lesser amount of turn, to a heading perpendicular to the DF bearing.

3. After turn is completed, tell the pilot to transmit (normally 5-10 seconds). Observe the DF bearing.

4. One minute later, request another transmission. Determine bearing and turn aircraft toward the DF site.

5. Divide the difference in bearings (steps 3 and 4) into 60. The result is the number of minutes the aircraft is from the DF site.

NOTE-
One station DF fixing is based on zero winds.

EXAMPLE-
Original bearing of 360 and aircraft heading of 200, the pilot should be advised to turn right to a heading of 270. Observe bearing, wait 1 minute, and observe bearing. If the first bearing (after completion of turn) was 337 and the second bearing was 325, a difference of 12, the aircraft is 5 minutes from the DF site.

c. Distance method.

1. Use the procedures specified in steps 1 through 4 in subpara 5-3-4b.

2. Request the aircraft's true airspeed.

3. Compute the distance by dividing the bearing change (for 1 minute) into the airspeed figure.

EXAMPLE-
140 airspeed divided by 10 (bearing change for 1 minute) = 14 miles from DF site.

d. After the aircraft's position is determined, provide this information, and the safe altitude for orientation in that area.

5-3-5. EMERGENCY DF APPROACH PROCEDURE

a. Under emergency conditions where a standard instrument approach cannot be executed, provide DF guidance and instrument approach service, if available, as follows:

1. Obtain and relay ATC clearance including radio failure procedures.

2. Issue destination airport weather.

3. Provide guidance as specified in VFR DF Service, para 5-3-2, except delete the VFR requirement. To avoid large turns over the DF site, the aircraft should be guided to pass over the DF site established on the course that the pilot will maintain on the outbound leg of the approach.

PHRASEOLOGY-
TURN LEFT/RIGHT, HEADING (degrees) FOR D-F GUIDANCE AND APPROACH TO THE (name) AIRPORT. MAINTAIN (altitude specified by ATC). WHEN A REQUEST FOR TRANSMISSION IS RECEIVED, PRESS YOUR MICROPHONE BUTTON FOR THE SPECIFIED NUMBER OF SECONDS FOLLOWED BY YOUR AIRCRAFT IDENTIFICATION.

Section 4. Telephone Information Briefing Service (TIBS) for Automated Flight Service Stations (AFSS)

2-4-1. GENERAL

a. TIBS provides a continuous telephone recording of meteorological and/or aeronautical information.

1. TIBS shall contain:

(a) Area and/or route briefings.

(b) Airspace procedures, if applicable.

(c) Special announcements, if applicable.

2. TIBS should also contain, but not be limited to:

(a) Surface observations (METAR's).

(b) Terminal forecasts (TAF's).

(c) Winds/temperatures aloft forecasts.

NOTE-
User needs should dictate the content of these recordings.

b. Each AFSS shall provide at least four route and/or area briefings. As a minimum, area briefings should encompass a 50 NM radius. Each briefing should require the pilot to access no more than two channels which shall be route and/or area specific. Pilots shall have access to NOTAM data through one of the following:

1. Area or route briefings.

2. On separate channels which are designated specifically for NOTAM's.

3. By access to a briefer.

c. Separate channels shall be designated for each route, area, local meteorological/aeronautical information, special event, airspace procedures, etc.

EXAMPLE-

201	*Houston local area (75 NMR)*
202	*Houston to New Orleans*
203	*Houston to Brownsville*
204	*Houston to Midland*
205	*Houston to Dallas/Ft. Worth*
206	*Houston area surface observations*
207	*Houston area terminal forecasts*
208	*Houston to Shreveport*
209-224	*(Facility discretion as user needs dictate)*

2-4-2. AREA/ROUTE BRIEFING PROCEDURES

Service is provided 24 hours a day, but may be reduced in accordance with para 2-1-4. Recorded information shall be updated as conditions change; e.g., conditions improve from IFR to MVFR or from MVFR to VFR, or conditions decrease from VFR to MVFR or from MVFR to IFR. Area and route forecast channels shall be updated whenever material is updated.

a. Introduction. State the preparation time and the route and/or the area of coverage. The service area may be configured to meet the individual facility's needs; e.g., 50 NM radius, route oriented.

PHRASEOLOGY-
THIS RECORDING PREPARED AT (time) LOCAL or (time) ZULU. BRIEFING SUMMARY FOR:

A (number of miles) NAUTICAL MILE RADIUS OF (location),
or
THE ROUTE FROM (location) TO (location).

b. Adverse Conditions. Summarize WST, WS, WA, CWA, AWW, and any other available information that may adversely affect flight in the route/area.

PHRASEOLOGY-
WEATHER ADVISORIES ARE IN EFFECT FOR (adverse conditions) OVER (geographic area) (text).

c. VFR Not Recommended Statement. Include this recommendation when current or forecast conditions, surface or aloft, in your judgment would make flight under visual flight rules doubtful.

PHRASEOLOGY-
V-F-R FLIGHT NOT RECOMMENDED (location) DUE TO (conditions).

d. Synopsis. A brief statement describing the type, location, and movement of weather systems and/or masses which might affect the route or the area. This element may be combined with adverse conditions and/or the VNR element, in any order, when it will help to more clearly describe conditions.

e. Current Conditions. Summarize the current weather conditions over the route/area. Include PIREP's on conditions reported aloft and radar reports or a summary of observed radar echoes from

local equipment. Specific departure/destination observations may be included.

NOTE-
When communicating weather information on the TIBS broadcast or telephone, specialists may announce cloud heights in either group form or in hundreds or thousands of feet, such as, seventeen thousand or one seven thousand.

f. Density Altitude. Include the statement "CHECK DENSITY ALTITUDE" as part of the surface weather broadcast for any weather reporting point with a field elevation of 2,000 feet MSL or above that reaches the criteria found in TBL 2-2-1.

g. En Route Forecast. Summarize from appropriate data; e.g., FA's, prognosis charts, weather advisories. Provide the information in a logical order; i.e., climb out, en route, and descent.

h. Winds Aloft. Summarize winds aloft as forecast for the route/area as interpolated from forecast data for the local and/or the adjacent reporting locations for levels through 12,000 feet. The broadcast should include the levels from 3,000 to 12,000 feet, but shall always include at least two forecast levels above the surface.

i. Request for PIREP's. When weather conditions within the area or along the route meet requirements for soliciting PIREP's (para 9-2-5), include a request in the recording.

PHRASEOLOGY-
PILOT WEATHER REPORTS ARE REQUESTED. CONTACT FLIGHT WATCH OR A FLIGHT SERVICE STATION.

NOTE-
Delete all reference to FLIGHT WATCH when not available at time of broadcast.

j. NOTAM information that affects the route/area may be included as part of the briefing, on a separate channel, or obtained by direct contact with a pilot weather briefer.

k. Military Training Activity. Include a statement in the closing announcement to contact a briefer for information on military training activity.

l. ALNOT Alert Announcement, if applicable. (See subpara 2-2-2j, Phraseology.)

m. Closing Announcement. The closing announcement shall be appropriate for the facility equipment and the mode of operation; e.g., refer to the appropriate channel or briefer for NOTAM and military training activity information.

2-4-3. MONITORING

Meteorological recordings shall be monitored immediately after recording and as necessary to insure accuracy of data. Nonmeteorological recordings shall be monitored and checked for quality and accuracy immediately after recording and once each shift. After each recording, the TIBS shall be checked for availability by calling 1-800-WX-BRIEF or a locally designated phone number. Subsequent checks may be accomplished using local monitoring.

Section 5. Hazardous Inflight Weather Advisory Service (HIWAS)

2-5-1. GENERAL

a. Hazardous Inflight Weather Advisory Service (HIWAS) is a continuous broadcast of inflight weather advisories including summarized AWW's, SIGMET's, convective SIGMET's, CWA's, AIRMET's, and urgent PIREP's.

b. The HIWAS broadcast area is defined as that area within 150 NM of HIWAS outlets assigned to your facility.

2-5-2. PRIORITY

HIWAS broadcast shall not be interrupted/delayed except for emergency situations, when an aircraft requires immediate attention, or for reasonable use of the voice override capability on specific HIWAS outlets in order to use the limited RCO to maintain en route communications. The service shall be provided 24 hours a day.

a. Make the following announcement if there are no hazardous weather advisories in the HIWAS broadcast area.

PHRASEOLOGY-
THIS RECORDING PREPARED AT (time) ZULU. THERE ARE NO HAZARDOUS WEATHER ADVISORIES WITHIN A ONE-FIVE-ZERO NAUTICAL MILE RADIUS OF THIS HIWAS OUTLET.

b. The update recording shall be completed as soon as practicable, but not more than 15 minutes from time of receipt of new hazardous weather information.

2-5-3. CONTENT

Record hazardous weather information occurring within the HIWAS broadcast area. The broadcast shall include the following elements:

a. Statement of introduction including the appropriate area(s) and a recording time.

PHRASEOLOGY-
HIWAS WITHIN A ONE-FIVE-ZERO NAUTICAL MILE RADIUS OF (geographic area) RECORDED AT (time) ZULU (text).

NOTE-
Border facilities shall append "in domestic U.S. airspace" to the geographical area text in the introduction statement.

b. Summary of WST's, WS's, WA's, UUA's, AWW's, CWA's, and any other weather such as isolated thunderstorms that are rapidly developing and increasing in intensity, or low ceilings and visibilities that are becoming widespread which are considered significant and are not included in a current hazardous weather advisory.

c. Request for PIREP's, if applicable. (See para 9-2-5.)

PHRASEOLOGY-
PILOT WEATHER REPORTS ARE REQUESTED.

d. Recommendation to contact AFSS/FSS/FLIGHT WATCH for additional details concerning hazardous weather.

PHRASEOLOGY-
CONTACT FLIGHT WATCH OR FLIGHT SERVICE FOR ADDITIONAL DETAILS.

NOTE-
Delete all reference to FLIGHT WATCH when not available at time of broadcast.

2-5-4. BROADCAST PROCEDURES

AFSS's/FSS's with broadcast weather outlet coverage totally within commissioned HIWAS areas shall:

a. Discontinue the TWEB procedures contained in Chapter 2, Section 3.

b. Continue TWEB on NDB's in accordance with Chapter 2, Section 3.

c. Upon receipt of new hazardous weather information:

1. HIWAS facilities shall update the HIWAS broadcast.

2. Make a HIWAS update announcement once on all communications/NAVAID frequencies except on emergency, EFAS, and navigational frequencies already dedicated to continuous broadcast services. Delete reference to Flight Watch when those services are closed.

PHRASEOLOGY-
ATTENTION ALL AIRCRAFT, HAZARDOUS WEATHER ADVISORY UPDATE FOR (geographical area) IS AVAILABLE ON HIWAS, OR CONTACT FLIGHT WATCH, OR FLIGHT SERVICE.

d. In the event that a HIWAS broadcast area is out of service, make the following announcement on all communications/NAVAID frequencies except on emergency, EFAS, and navigational frequencies already dedicated to continuous broadcast services:

PHRASEOLOGY-
ATTENTION ALL AIRCRAFT, HAZARDOUS WEATHER ADVISORY UPDATE IS AVAILABLE FROM FLIGHT WATCH OR FLIGHT SERVICE.

NOTE-
Simultaneous announcements may cause hetrodyne problems on multiple outlets having the same frequency and announcements may have to be rebroadcast to insure compliance.

2-5-5. SUSPENSION

HIWAS broadcasts shall not be suspended for routine maintenance during periods when weather advisories have been issued for the HIWAS outlet area.

Chapter 3. Pilot Briefing

Section 1. General

3-1-1. DEFINITION

Pilot weather briefings are defined as "The translation of weather observations and forecasts, including surface, upper air, radar, satellite, and pilot reports into a form directly usable by the pilot or flight supervisory personnel to formulate plans and make decisions for the safe and efficient operation of aircraft." These briefings shall also include information on NOTAM's, flow control, and other items as requested.

3-1-2. PREDUTY REQUIREMENTS

Before assuming pilot briefing duties, familiarize yourself sufficiently with aeronautical and meteorological conditions to effectively provide briefing service. This includes:

a. General locations of weather causing systems and general weather conditions for the entire contiguous United States and/or other briefing areas, as appropriate; e.g., Alaska, Hawaii, Mexico, Canada, Puerto Rico.

b. Detailed information of current and forecast weather conditions for the geographical area deemed significant by the facility air traffic manager.

c. Other pertinent items; e.g., NOTAM's, MTR/MOA activity.

REFERENCE-
Accomplish this in accordance with Para 1-3-3 and pertinent facility directives.

3-1-3. PREFLIGHT BRIEFING DISPLAY

Provide a preflight briefing display for specialist/pilot use. The contents and method of display shall be based on individual facility requirements; e.g., available equipment, space. Additional displays, as required, shall be provided to ensure availability of information at all inflight and preflight positions. At the discretion of facility management, provide a separate display for pilot use. All material in such displays shall be kept updated.

REFERENCE-
Enhance facsimile charts in accordance with Para 3-1-4.

3-1-4. WEATHER DISPLAY PRODUCTS

a. The weather graphic display should include, but not necessarily be limited to, the following analysis, prognosis, and data products:

1. Weather Depiction.
2. Surface Analysis.
3. Forecast Winds Aloft.
4. Current Winds Aloft.
5. National Radar Summary.
6. 850 MB.
7. 700 MB.
8. 500 MB.
9. 300 MB.
10. 200 MB.
11. Composite Moisture Stability Chart (Lifted Index, Precipitable Water, Freezing Level-Mean Relative Humidity).
12. 12- and 24-hour low level significant weather prognosis.
13. High level significant weather prognosis.
14. 36- and 48-hour surface prognosis.

NOTE-
Because of presentation limitations and techniques, some interim system products may not take on the same appearance as conventional facsimile products. During the transition into a national graphic weather display system (GWDS) program, some flexibility of product display, format, and content may be authorized.

b. The utility of charts is greatly enhanced by coloring and shading. Use the symbols and colors shown in subparas 3d and e, on all weather chart displays. Facsimile products used for closed circuit television (CCTV) may be highlighted to accentuate the displays. In addition, to allow for the greatest contrast between shaded areas and symbology, different colors may be required to enhance color weather graphic systems.

c. Map features. (See FIG 3-1-1.)

d. Precipitation and obstruction to vision. (See FIG 3-1-2.)

FIG 3-1-1

MAP FEATURES CHART

TYPE	SYMBOL	COLOR
Cold front		Blue
Warm front		Red
Occluded front		Purple
Stationary front		Red and blue
Instability line		Purple
Convergence line		Green
Trough		Brown
Ridge		Yellow
Low pressure center		Red
High pressure center		Blue
Jet streams		Black
Isotherms		Red
Isotachs		Yellow
Freezing level aloft	80- - - -80	Red
IFR conditions		Red
MVFR conditions		Blue
Line of echoes		Red
Overcast Clouds (36-48 hour Prog only)		Orange
Area of echoes		Green
Severe Weather area		Red
Turbulence areas		Red
Precipitation areas		Green
Icing symbols		Red
Turbulence symbols		Red

FIG 3-1-2

PRECIPITATION AND OBSTRUCTION TO VISION CHART

Type	Symbol	Color
Freezing precipitation		red
Snow		green
Rain		green
Drizzle		green
Thunderstorm		red
Fog		yellow
Haze		yellow
Smoke		black
Dust		brown

e. The facsimile products which cannot be displayed shall be retained for specialist/pilot use.

f. Interpret and summarize weather radar video displays and issue pertinent information on observed/reported weather areas.

1. Use all available radar data and PIREP's to determine intensity, tops, area of coverage, movement, etc.

REFERENCE-
Pilot/Controller Glossary, Radar Weather Echo Intensity Levels.

2. Identify data obtained from sources other than radar video display by source and time of observation.

3. To the extent possible, define area of coverage in relation to VOR's or airways for the route structure being flown. Airports or geographic points may be used to assist the pilot in relating coverage to route of flight or destination.

EXAMPLE-
"A broken line of weak to intense echoes covers an area along and three zero miles east of a line from the Crazy Woman V-O-R to the Riverton V-O-R. Average tops between two-six thousand and three-four thousand. This line is increasing in intensity. Movement has been from northwest to southeast at three zero knots. The line includes an intense echo one five miles in diameter on Victor Two Ninety-eight forty-eight miles southeast of the

Worland V-O-R, tops four three thousand. There are no known echoes within three-zero nautical miles of Victor Eight-five or Victor Two Ninety-eight south at this time."

3-1-5. FORECASTS, WARNINGS, AND ADVISORIES

a. Use only weather forecasts, warnings, and advisories issued by an NWS office (including CWSU's), the U.S. military, foreign governments, or FAA owned or leased graphics systems.

b. Use the information in the Meteorological Impact Statement (MIS) for preduty briefings, background, and supplemental information only. The MIS is a traffic flow planning product and is not to be used as an integral part of a briefing presentation.

c. The OUTLOOK section of WST's includes meteorological discussion information. Extract pertinent forecast data concerning convective activity location, movement, and intensity for briefing purposes. Do not provide discussion type information unless requested by the pilot.

d. When an NWS forecast meets amendment criteria, request assistance from the appropriate NWS office.

3-1-6. UNAVAILABILITY OF DATA

Use all available means to obtain the data required to brief pilots to their destination. If a complete briefing cannot be provided due to circuit problems or missing data, inform the pilot of this fact. Brief to the extent possible. As appropriate, furnish the pilot with the telephone number of another AFSS/FSS, or advise the pilot of the time you expect the data to be available.

3-1-7. TYPE OF BRIEFING TO BE CONDUCTED

Provide the pilot with the type of briefing requested; i.e., standard, abbreviated, or outlook. When it is not clear initially which type briefing is desired, provide the first one or two items requested, and then ascertain if the pilot would like a standard briefing. If a standard briefing is requested, conduct the briefing in accordance with para 3-2-1. If the pilot does not desire a standard briefing, provide either an abbreviated briefing in accordance with para 3-2-2, or an outlook briefing, in accordance with para 3-2-3.

3-1-8. RECORDING PILOT BRIEFINGS

a. FSS. Use FAA Forms 7233-1, 7233-2, 7233-5, and 7230-21 for recording pilot briefings. Document the briefing by one of the following methods:

1. FAA Form 7233-2. Use a separate form each day. Two or more forms may be used simultaneously at different operating positions. Complete boxes 1 through 3 on each form. Enter appropriate data in columns 4, 5, 6, 7, 8 (if pertinent), and 9. The pilot's name may be substituted for the aircraft identification if unknown. As applicable, enter OTLK (outlook briefing), AB (abbreviated briefing), and/or VNR in column 8.

2. FAA Form 7233-1. Check the "pilot briefing" block, fill in specialist initials, and time started. As applicable, also enter AB, OTLK, and/or check the VNR block.

3. FAA Forms 7233-5/7230-21. Enter PB in block 14 if a briefing is provided. As applicable, also enter AB, OTLK, and/or VNR in the same block.

b. M1. Pilot briefings are logged and stored on the DD file for accountability. The required elements are: PB (DESTINATION), (ACID), REMARKS.

NOTE-
If current partial exists for the proposed flight, DESTINATION and ACID are optional.

EXAMPLE-

PB	*Preflight Briefing logged using current partial.*
PB DSM	*Preflight Briefing logged bypassing destination in current partial.*
PB ,,VNR	*Preflight Briefing logged using current partial, with remarks added.*
PB DSM,, VNR	*Preflight Briefing logged bypassing destination in current partial, with remarks added.*
PB DSM,N1,VNR	*Preflight Briefing logged bypassing destination and ACID in current partial, with remarks added.*

c. Where recorders are used, facility management may limit entries on pilot briefing records to those required for facility use.

d. Where fast-file recorders are used and the pilot states the source of a briefing on the recorder, it shall be entered in the remarks field of the flight plan.

EXAMPLE-
PB/DCA PB/DUATS

Section 2. Preflight Pilot Briefing

3-2-1. CONDUCT OF STANDARD BRIEFING

a. Brief by translating, interpreting, and summarizing available data for the intended flight. Do not read individual weather reports or forecasts unless, in your judgment, it is necessary to emphasize an important point or unless specifically requested to do so by the pilot. Obtain the following information if it is pertinent and not evident or already known:

1. Type of flight planned.
2. Aircraft identification or pilot's name.
3. Aircraft type.
4. Departure point.
5. Route of flight.
6. Destination.
7. Flight altitude(s).
8. ETD and ETE.

Pilot briefer shall issue the following cautionary advisory to a pilot planning a flight outside of United States controlled airspace, unless the pilot states "I have the international cautionary advisory."

PHRASEOLOGY-
CHECK DATA AS SOON AS PRACTICAL AFTER ENTERING FOREIGN AIRSPACE, AS OUR INTERNATIONAL DATA MAY BE INACCURATE OR INCOMPLETE.

b. Using all sources of weather and aeronautical information, provide the following data when it is applicable to the proposed flight. Provide items 1 through 8 above in the sequence listed except as noted.

1. *Adverse Conditions.* Include this element when meteorological or aeronautical conditions are reported or forecast that might influence the pilot to alter the proposed flight. Emphasize conditions that are particularly significant, such as low level wind shear, thunderstorms, reported icing, frontal zones along the route of flight, airport closures, air traffic delays, etc. Weather advisories (WS, WA, WST, CWA, and AWW) shall be given by stating the type of advisory followed by the pertinent information.

EXAMPLE-
"An AIRMET is in effect until 1400 for possible moderate turbulence below 10,000 feet over the mountainous area of southern California."

2. *VFR Flight Not Recommended (VNR).* Include this statement when VFR flight is proposed and sky conditions or visibilities are present or forecast, surface or aloft, that in your judgment would make flight under visual flight rules doubtful. Describe the conditions, affected locations, and times.

EXAMPLE-
"There are broken clouds along the entire route between niner and one one thousand feet at the present time. With the approach of a cold front, these clouds are forecast to become overcast and to lower to below seven thousand with mountains and passes becoming obscured. V-F-R flight is not recommended between Salt Lake City and Grand Junction after two two zero zero ZULU."

"V-F-R flight is not recommended in the Seattle area until early afternoon. The current weather at Seattle is indefinite ceiling three hundred sky obscured, visibility one, mist, and little improvement is expected before one eight zero zero ZULU."

NOTE-
This recommendation is advisory in nature. The decision as to whether the flight can be conducted safely rests solely with the pilot.

3. *Synopsis.* Provide a brief statement describing the type, location, and movement of weather systems and/or air masses which might affect the proposed flight. This element may be combined with adverse conditions and/or the VNR element, in any order, when it will help to more clearly describe conditions.

4. *Current Conditions.* Summarize from all available sources reported weather conditions applicable to the flight. This element may be omitted if the proposed time of departure is beyond 2 hours unless the information is requested by the pilot.

NOTE-
1. If the surface meteorological observation originates from an automated observation facility and is presented as a singular report, follow the location announcement with the phrase "AUTOMATED."

2. The briefer should provide sufficient automated surface

observation information when requested by the pilot or when deemed pertinent to the briefing.

5. *En Route Forecast.* Summarize from appropriate data (Area Forecast) TAF's, prognosis charts, weather advisories, etc., forecast conditions applicable to the proposed flight. Provide the information in a logical order; i.e., climb out, en route, and descent.

6. *Destination Forecast.* Provide the destination forecast including significant changes expected within 1 hour before and after the ETA.

7. *Winds Aloft.* Provide forecast winds aloft for the proposed route using degrees of the compass. Interpolate wind directions and speeds between levels and stations as necessary. Provide temperature information on request.

8. *Notices to Airmen (NOTAM's).*

(a) Provide available NOTAM (L) (flight plan area only) and NOTAM (D) information pertinent to the flight.

(b) For M1FC facilities, provide Flight Data Center (FDC) NOTAM's which are pertinent to the proposed flight and are not already carried in the Notices to Airmen publication.

(c) For facilities without M1FC, provide FDC NOTAM's within 400 NM radius of your facility which are pertinent to the proposed flight and are not already carried in the Notices to Airmen publication.

NOTE-
If approved by the ATD, the area may be adjusted to meet user requirements.

(d) Combine this element with current conditions when it would be logical and advantageous to do so.

9. *ATC Delays.* Inform the pilot of any known ATC delays and/or any flow control advisories on hand that might affect the proposed flight.

10. *Request for PIREP's.* Include this element when, in your judgment, a report of actual inflight conditions is beneficial or when conditions meet criteria for solicitation of PIREP's (para 9-2-5). Advise the pilot to contact Flight Watch or Flight Service to report en route conditions.

11. *EFAS.* When appropriate, inform pilots of the availability of Flight Watch for weather updates; e.g., thunderstorms, icing.

12. *Upon request.*

(a) Provide information on military training routes (MTR) and military operations area (MOA) activity within your flight plan area plus an additional 100 NM extension. For briefings beyond the above stated area, advise the pilot that information may be incomplete and to contact other en route facilities for additional information.

NOTE-
AFSS's shall consider their flight plan area as that geographical area which encompasses all FSS's to be consolidated into that facility.

(b) Review the appropriate aeronautical publications and inform the pilot of pertinent NOTAM's and special notices.

(c) Provide approximate density altitude data.

(d) Provide information regarding such items as air traffic service and rules, customs/immigration procedures, ADIZ rules, SAR, Flight Watch, etc.

(e) Provide LORAN C NOTAM's.

REFERENCE-
FAAO 7930.2, Para 5-3-7c.

(f) Provide military NOTAM's.

REFERENCE-
FAAO 7930.2, Para 8-3-1.

(g) Provide runway friction measurement value NOTAM's.

PHRASEOLOGY-
WASHINGTON NATIONAL RUNWAY ONE EIGHT MU FORTY, FORTY, TWENTY-EIGHT.

(h) Provide GPS Receiver Autonomous Integrity Monitoring (RAIM) Aeronautical Information. RAIM information shall be provided 1-hour before to 1-hour after the ETA, or a time frame requested by the pilot.

3-2-2. CONDUCT OF ABBREVIATED BRIEFING

Provide an abbreviated briefing when a pilot requests information to supplement mass disseminated data; update a previous briefing; or when the pilot requests that the briefing be limited to specific information. Pilot briefers shall issue the following cautionary advisory to a pilots planning a flight outside of United

States controlled airspace, unless the pilot states "I have the international cautionary advisory":

PHRASEOLOGY-
CHECK DATA AS SOON AS PRACTICAL AFTER ENTERING FOREIGN AIRSPACE, AS OUR INTERNATIONAL DATA MAY BE INACCURATE OR INCOMPLETE.

Conduct abbreviated briefings as follows:

a. When a pilot desires specific information only, provide the requested information. If adverse conditions are reported or forecast, advise the pilot of this fact. Provide details on these conditions in accordance with subpara 3-2-1b1, at the pilot's request.

b. When a pilot requests an update to a previous briefing, obtain from the pilot the time the briefing was received and necessary background information. To the extent possible, limit the briefing to appreciable changes in meteorological and aeronautical conditions since the previous briefing.

c. When a pilot requests information to supplement data obtained through AFSS/FSS mass dissemination media, obtain pertinent background information, the specific items required by the pilot, and provide the information in the sequence listed in subpara 3-2-1b.

d. Solicit PIREP's in accordance with subpara 3-2-1b10.

e. When a pilot requests to file a flight plan only, ask if he/she requires the latest information on adverse conditions along the route of flight. If he/she responds "yes":

1. Provide information on adverse conditions pertinent to the intended route of flight.

2. Provide details on these conditions in accordance with subpara 3-2-1b1.

3-2-3. CONDUCT OF OUTLOOK BRIEFING

a. Provide an outlook briefing when the proposed departure is 6 hours or more from the time of the briefing. Conduct the briefing in accordance with subpara 3-2-1b, but limit the briefing to forecast data applicable to the proposed flight. Omit items 2, 4, and 7 through 11 unless specifically requested by the pilot or deemed pertinent by the briefer.

b. When the proposed flight is scheduled to be conducted beyond the valid time of the available forecast material, provide a general outlook and then advise the pilot when complete forecast data will be available for the proposed flight. Upon request transfer the call to, or furnish the telephone number of the appropriate NWS office.

Chapter 4. Inflight Services

Section 1. General

4-1-1. INFLIGHT SERVICES

Inflight services are those provided to or affecting aircraft inflight or otherwise operating on the airport surface. This includes services to airborne aircraft, such as NAVAID monitoring and restoration, LAA, delivery of ATC clearances, advisories or requests, issuance of military flight advisory messages, EFAS, NOTAM's, SAR communications searches, flight plan handling, transcribed or live broadcast, weather observations, PIREP's, and pilot briefings.

NOTE-
Provide inflight services in accordance with the procedures in this chapter to aircraft on a "first come, first served" basis, as circumstances permit.

4-1-2. EN ROUTE FLIGHT ADVISORY SERVICE (EFAS/FLIGHT WATCH)

A service specifically designed to provide, upon pilot request, timely weather information pertinent to the type of flight, intended route of flight, and altitude.

NOTE-
The facilities providing this service are listed in the Airport/Facility Directory (AFD).

4-1-3. OPERATIONAL PRIORITY

a. Emergency situations are those where life or property are in immediate danger. Aircraft in distress have priority over all other aircraft.

b. Provide priority service to civilian air ambulance (LIFEGUARD), or military air evacuation (AIR EVAC, MED EVAC) flights. When requested by the pilot, provide notifications to expedite ground handling of patients, vital organs, or urgently needed medical materials. Assist the pilots of air ambulance/evacuation aircraft to avoid areas of significant weather and turbulent conditions.

NOTE-
Air carrier/Air taxi usage of "Lifeguard" call sign indicates that operational priority is requested.

c. Provide maximum assistance to search and rescue (SAR) aircraft performing a SAR mission.

d. Provide special handling as required to expedite Flight Check and SAFI aircraft.

4-1-4. INFLIGHT WEATHER BRIEFING

Upon request, provide the pilot with an inflight weather briefing, in accordance with the procedure outlined in Chapter 3, Section 2. The following cautionary advisory shall be issued to a pilot planning a flight outside of United States controlled airspace, unless the pilot states "I have the international cautionary advisory."

PHRASEOLOGY-
CHECK DATA AS SOON AS PRACTICAL AFTER ENTERING FOREIGN AIRSPACE, AS OUR INTERNATIONAL DATA MAY BE INACCURATE OR INCOMPLETE.

4-1-5. INFLIGHT EQUIPMENT MALFUNCTIONS

a. Inflight equipment malfunctions include partial or complete failure of equipment which may affect either safety and/or the ability of the flight to proceed. Specialists may expect reports from pilots regarding VOR, ADF, Low Frequency Navigation Receivers, impairment of air-ground communications capability, or other equipment deemed appropriate by the pilot.

b. When a pilot reports a flight equipment malfunction, determine the nature and extent of any assistance desired.

c. Provide maximum assistance possible consistent with equipment, workload, and any special handling requested.

d. Relay to other specialists or facilities who will subsequently handle the aircraft all pertinent details concerning the aircraft and any special handling requested or being provided.

Section 2. Data Recording

4-2-1. TYPES OF DATA RECORDED

a. M1FC entry for:

1. Flight plans and related messages.
2. Logging pilot briefings and aircraft contacts.
3. Service A/B messages.

b. AIS/manual functions strip marking.

4-2-2. METHODS OF RECORDING DATA

a. In M1FC facilities entries are made directly into the computer.

NOTE-
Inflight positions may use locally approved written procedures to record data during heavy traffic periods, however, aircraft contact information should be logged in the computer system as soon as practical.

b. AIS facilities use FAA Form 7230-21 or FAA Form 7233-5 to record flight progress data or inflight pilot briefs. Flight notification messages may be used as substitutes for strips.

c. Use control/clearance symbols, abbreviations, location identifiers, and contractions for recording position reports, traffic clearances, and other data, where appropriate, in M1FC entries and on flight progress strips. When recording data, you may use:

1. Plain language markings to supplement data when it will aid in understanding the recorded information.

2. Locally approved contractions and identifiers for frequently used terms and local fixes not listed in either FAAO 7340.1, Contractions or FAAO 7350.7, Location Identifiers. Use only within your facility, not on data or interphone circuits. All locally approved contractions and identifiers shall be placed in facility files for record and reference purposes.

3. Plain sheets of paper to record information when the use of flight progress strips is not feasible.

4. Blank paper to record lengthy ATC clearances or in the case of numerous contacts with the same aircraft; e.g., orientation or emergencies.

d. To prevent misinterpretation of data hand printed on flight progress strips, use the standard hand-printed characters shown in FIG 4-2-1.

FIG 4-2-1
Hand-Printed Characters Chart

Typed	Hand Printed
A	A
B	B
C	C
D	D
E	E
F	F
G	G
H	H
I	I
J	J
K	K
L	L
M	M
N	N
O	O
P	P
Q	Q
R	R
S	S
T	T
U	U
V	V
W	W
X	X
Y	Y
Z	Z
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
0	Ø

NOTE-
A slant line crossing through the numeral zero and an underline of the letter "S" on handwritten portions of

flight progress strips are required only when there is reason to believe the lack of these markings could lead to a misunderstanding. A slant line through the numeral zero is required on all weather data.

e. To correct or update data, draw a horizontal line through it and write the correct information adjacent to it.

f. Do not erase any item.

4-2-3. IFR/VFR/DVFR FLIGHT PLAN RECORDING

a. Use FAA Form 7233-1 to record flight plans in an AIS facility, and forward information on flight plan modifications, cancellations, activations, and closures to the appropriate position for handling.

b. M1FC VFR/DVFR Flight Plan. The following commands are normally used in the performance of VFR/DVFR flight plan functions.

1. Flight Plan Filing. (See TBL 4-2-1.)

TBL 4-2-1

Flight Plan Filing

Command	*Result*
FP	Displays blank domestic flight plan mask.
(Fill in mask)	Enter flight plan elements as required.
GI	Transmits flight plan.

2. Flight Plan Modification. (See TBL 4-2-2.)

TBL 4-2-2

Flight Plan Modification

Command	*Result*
FP ACID	Displays flight plan by ACID.
(Modify data)	Flight plan elements as required using TAB key.
STPM	Existing flight plan replaced by modified flight plan on proposed list.
STIM	Existing flight plan replaced by modified flight plan on inbound list.

3. Cancel Flight Plan. (See TBL 4-2-3.)

TBL 4-2-3

Cancel Flight Plan

Command	*Result*
FP ACID	Displays flight plan by ACID.
CX	Flight plan cancelled.
CX (remarks)	Flight plan cancelled with remarks.

NOTE-
A cancelled flight plan is one that has not been activated.

4. Flight Plan Activation. (See TBL 4-2-4.)

TBL 4-2-4

Flight Plan Activation

Command	*Result*
FP ACID	Displays flight plan by ACID.
(Change P Time to D Time)	Prepares Flight plan for transmission.
GI	Flight notification is transmitted.

5. Flight Plan Closure. When closing a VFR flight plan, obtain departure point and destination, if not already known. (See TBL 4-2-5.)

TBL 4-2-5

Flight Plan Closure

Command	*Result*
CL ACID	Flight plan closed.
CL ACID, (remarks)	Flight plan closed with remarks.

c. M1FC IFR Flight Plans. The following commands are normally used in the performance of IFR flight plan functions.

1. Flight Plan Filing. (See TBL 4-2-6.)

TBL 4-2-6

Flight Plan Filing

Command	*Result*
FP	Displays blank domestic flight plan mask.
(Fill in mask)	Enter flight plan elements as required.
GI	Transmits flight plan with route validation.
GI RO	Transmits flight plan by-passing route validation.

2. Flight Plan Modification. (See TBL 4-2-7.)

TBL 4-2-7

Flight Plan Modification

Command	*Result*
FP ACID	Displays flight plan by ACID.
(Modify data)	Modify flight plan elements as required using TAB key.
STPM	Existing flight plan replaced by modified flight plan on proposed list.

3. Cancel Flight Plan. (See TBL 4-2-8.)

TBL 4-2-8

Cancel Flight Plan

Command	*Result*
FP ACID	Displays flight plan by ACID.
CX	Flight plan cancelled.
CX (remarks)	Flight plan cancelled with remarks.

4-2-4. PILOT WEATHER REPORTS

a. PIREP's are formatted for input into M1FC by the use of "Display PIREP entry format (WY)" keyword. The following commands are required to transmit PIREP's via the PIREP mask. (See TBL 4-2-9.)

TBL 4-2-9

PIREP Entry

Command	*Result*
WY	Displays the PIREP entry format mask.
Formulate PIREP using either the free form area of the mask, or the mask, but not both.	
GI(s)	(1) Transmits to the AWP's. (2) Generates P alert flag at all terminals enabled for P alerts within FSDPS family.

b. In an AIS facility, use FAA Form 7110-2 or material deemed appropriate.

4-2-5. LOGGING AIRCRAFT CONTACTS AND INFLIGHT BRIEFINGS INTO M1FC

a. Aircraft contacts and inflight briefings are logged and stored on the DD file for accountability.

b. Required elements:

1. Inflight Briefing (IB).
2. Type of Flight (TOF).
3. Type of Service (TOS).
4. ACID.
5. Remarks.

EXAMPLE-

IB (TOF),(TOS),(ACID), REMARKS.

NOTE-

If current partial exists, ACID is optional.

(See TBL 4-2-10.)

TBL 4-2-10

Type of Flight

TOF	*(TYPE OF FLIGHT)*
IC	IFR AIR CARRIER
IG	IFR GENERAL
IM	IFR MILITARY
IT	IFR AIR TAXI
VC	VFR AIR CARRIER
VG	VFR GENERAL
VM	VFR MILITARY
VT	VFR AIR TAXI
Example: "IGI" = IFR General ICAO.	
For DVFR, replace "V" with "D."	
For ICAO, add "I" to TOF.	
TOS (TYPE OF SERVICE)	
A	ACFT contact & airport advisory
AB	ACFT contact, airport advisory & briefing
B	ACFT contact & briefing
BLANK	ACFT contact

(See TBL 4-2-11.)

TBL 4-2-11

Contacts & Inflight Briefings

CB	This is used to log general information in the DD file without adding to the traffic count. Current partial is by-passed.
IB DG,,N1234, "Remarks"	ACFT contact, DVFR General, ACID in current partial by-passed.
IB IG,,,ALSTG	ACFT contact, IFR General, Remarks.
IB IGI,B,N1,VNR	ACFT contact, IFR General ICAO, Briefing, ACID in current partial by-passed, Remarks.
IB VM,B,, "Remarks"	ACFT contact, VFR Military, Briefing.
IB VG,A,,"Remarks"	ACFT contact, VFR General, Airport Advisory.
IB ,,N1,Remarks	This is used to log additional radio contacts.

c. In the REMARKS block, locally approved contractions and identifiers may be used for frequently used terms not listed in either FAAO 7340.1, Contractions or FAAO 7350.7, Location Identifiers.

d. If the inflight position is recorded, you may limit entries in the REMARKS to those necessary for your use.

4-2-6. FLIGHT PROGRESS STRIPS (FAA FORMS 7230-21 AND 7233-5)

a. When officially used to record inflight data, use flight progress strips to record:

1. Aircraft contacts.
2. ATC clearances.
3. Pilot briefings on airborne aircraft.
4. Other operationally significant items.

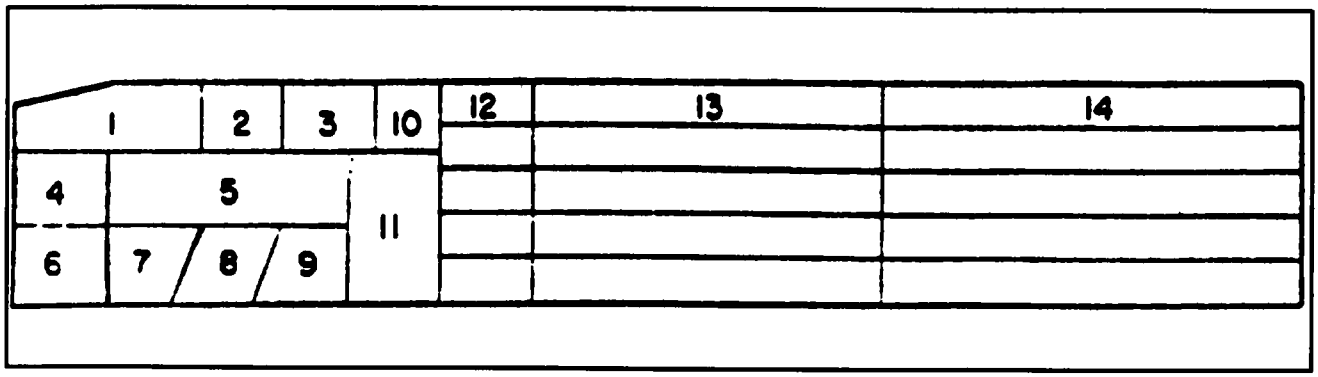
b. Use one flight progress strip for each flight, and record all contacts with that flight on the same strip. If supplemental strips are needed for additional writing space, keep the original and supplemental strips together and consider them as one strip.

4-2-7. FLIGHT PROGRESS STRIPS AND ENTRY DATA

a. Flight progress strip. (See FIG 4-2-2.)

FIG 4-2-2

FLIGHT PROGRESS STRIP



b. Flight progress strip entry. (See FIG 4-2-3.)

FIG 4-2-3

STRIP ENTRY 1

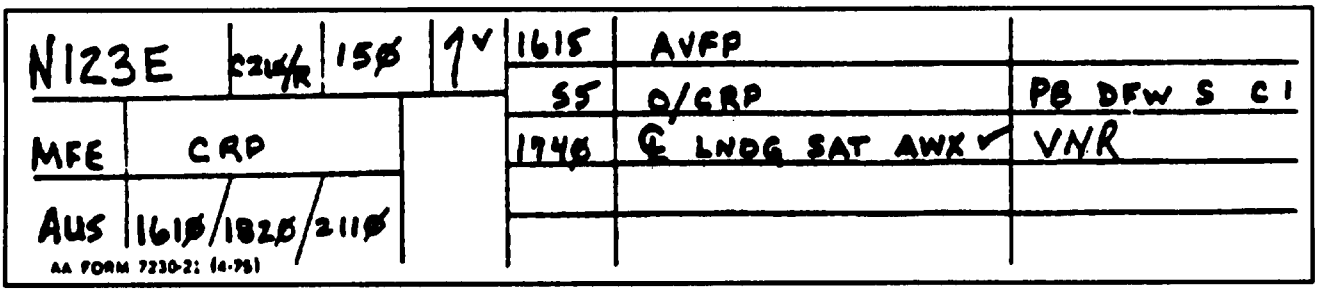


FIG 4-2-4

STRIP ENTRY 2

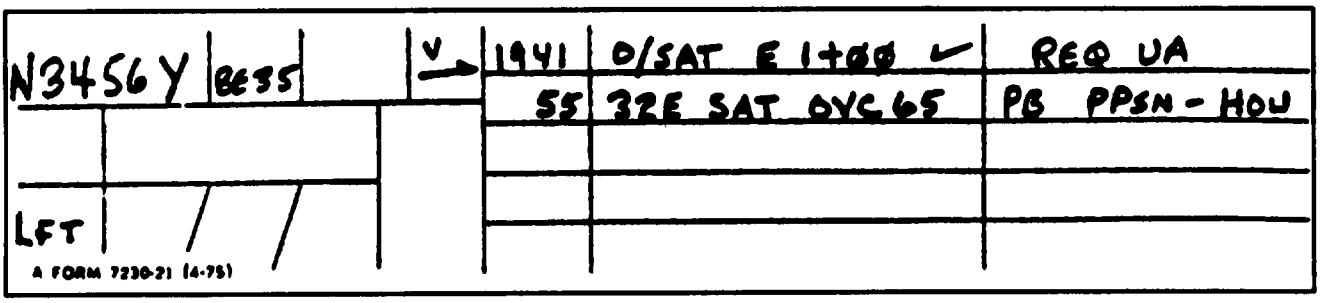
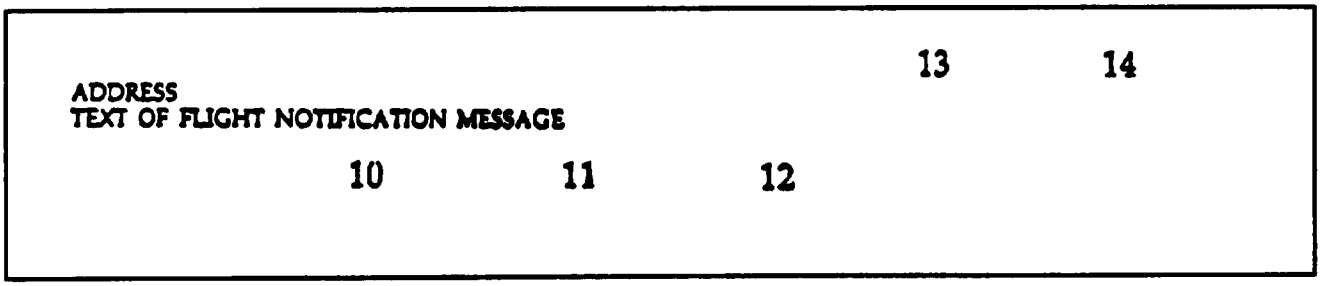


FIG 4-2-5

FLIGHT PROGRESS STRIP



Flight progress strip Item and Information. (See TBL 4-2-12.)

TBL 4-2-12

Item and Information

Item	*Information*
1	ACID (To identify IFR aircraft piloted by solo USAF under-graduate pilot, the letter Z will be added to aircraft ID on the flight progress strip. Do not use the suffix in ground-to-air communications.)
2	Type of aircraft/special equipment.
3	TAS and altitude (IFR). Altitude (VFR/DVFR, if known).

Item and Information (continued)

Item	*Information*
4	Departure point.
5	Route of flight.
6	Destination.
7	Actual departure time, or Time VFR flight plan activated.
8	ETA at destination.
9	Estimated time of fuel exhaustion.
10	Type of flight.
11	Action time; e.g., overdue time, fuel exhaustion time, LR contact time.
12	Time of contact with pilot.
13	Information received from pilot/another facility.
14	Data issued to the aircraft.

Flight progress strip abbreviation. (See TBL 4-2-13)

TBL 4-2-13

Abbreviation

Abbreviation	*Meaning*
→	Over Flight.
↓	Inbound Flight.
↗	Outbound Flight.
I	IFR.
IR	Island Reporting.
D	DVFR.
LR	Lake Reporting.
S	SVFR.
V	VFR.
MR	Mountain Reporting.
SR	Swamp Reporting.

Flight progress strip abbreviation. (See TBL 4-2-14.)

TBL 4-2-14

Abbreviation

Abbreviation	*Meaning*
A	AIRMET (WA).
AA	Airport Advisory.
CWT	Caution Wake Turbulence.
DA	Decided Against Flight.
DD	Decided to Delay Flight.
DW	Downwind.
FP	Filed Flight Plan.
IC	Incomplete Briefing.
PB	Pilot Brief.
RY	Runway.
S	SIGMET (WS) and/or Convective SIGMET (WST).
VNR	VFR Flight not recommended (Pilot Brief).

c. Record ATC instructions and clearances completely and exactly.

d. Summarize other data using approved symbols and contractions.

e. Do not record issuance of altimeter setting unless that is the only information provided during the contact.

f. When flight notification messages are used to record flight progress data, cut or tear the paper to fit the strip holder. Enter items 10 through 14 in the corresponding numbered location illustrated in FIG 4-2-4.

4-2-8. AIRCRAFT CONTACTS

a. Use a flight progress strip, the aircraft proposal, or flight notification message to record information on aircraft contacts. At M1FC facilities, inflight contacts may be logged in either M1FC equipment, on flight progress strips, or on facility approved alternate forms.

b. If the station has the aircraft's flight plan, enter FP in space 14 to show FAA Form 7233-1 is filed in the facility.

c. If there is no flight plan on file for the aircraft contacting the station, obtain and post the following:

1. ACID.
2. Type of flight.
3. Time of contact.
4. Aircraft contact record.
5. Other items which are operationally significant.

d. If the inflight position is recorded, you may limit entries in the aircraft contact portion of the strip to those necessary for your use.

4-2-9. CONTROL SYMBOLOGY

a. Use authorized control and clearance symbols or abbreviations for recording clearances, reports, and instructions.

b. The following tables contain abbreviation and control information symbols. (See TBL 4-2-15 and TBL 4-2-16.)

TBL 4-2-15

Clearance Abbreviation

Abbreviation	*Meaning*
A	Cleared to airport (point of intended landing).
B	Center clearance delivered.
C	ATC clears (when clearance relayed through non-ATC facility).
CAF	Cleared as filed.
D	Cleared to depart from the fix.
F	Cleared to the fix.
H	Cleared to hold and instructions issued.
L	Cleared to land.
N	Clearance not delivered.
O	Cleared to the outer marker.
PD	Cleared to climb/descend at pilot's discretion.
Q	Cleared to fly specified sectors of a NAVAID defined in terms of courses, bearings, radials, or quadrants within a designated radius.
T	Cleared through (for landing and takeoff through intermediate point).
V	Cleared over the fix.
X	Cleared to cross (airway, route, radial) at (point).
Z	Tower jurisdiction.

TBL 4-2-16

Miscellaneous Abbreviation

Abbreviation	*Meaning*
BC	Back course approach.
CT	Contact approach.
FA	Final approach.
GPS	GPS approach.
I	Initial approach.
ILS	ILS approach.
MA	Missed approach.
MLS	MLS approach.
NDB	Nondirectional radio beacon approach.
OTP	VFR conditions-on-top.
PA	Precision approach.
PT	Procedure turn.
RH	Runway heading.
RP	Report immediately upon passing (fix/altitude).
RX	Report crossing.
SA	Surveillance approach.
SI	Straight-in approach.
TA	TACAN approach.
TL	Turn left.
TR	Turn right.
VA	Visual approach.
VR	VOR approach.

FIG 4-2-6

CONTROL INFORMATION SYMBOLS CHART 1

Symbols	Meaning
T→( )	Depart (direction, if specified)
↑	Climb and maintain
↓	Descend and maintain
→	Cruise
@	At
X	Cross
~~M~~→	Maintain
7	Join or intercept airway/jet route/track or course
▪	While in controlled airspace
△	While in control area
↘△	Enter control area
△↗	Out of control area
NW ⊖ ⊘↗ NE ⊖→ E	Cleared to enter, depart or through surface area indicated direction of flight by arrow and appropriate compass letter. Maintain Special VFR conditions (altitude if appropriate) while in surface area
250 K	Aircraft requested to adjust speed to 250 knots.
-20 K	Aircraft requested to reduce speed 20 knots.
+30 K	Aircraft requested to increase speed 30 knots.
Ⓦ	Local Special VFR operations in the vicinity of (name) airport are authorized until(time). Maintain special VFR conditions (altitude if appropriate).
>	Before
<	After or Past
170 (red)	Inappropriate altitude/flight level for direction of flight. (Underline assigned altitude/flight level in red.)
/	Until
( )	Alternate instructions
Restriction	Restriction
T↓	At or Below
↑⊥	At or Above
-(Dash)	From-to (route, time, etc.)
(Alt)B(Alt)	Indicates a block altitude assignment. Altitudes are inclusive, and the first altitude shall be lower than the second. Example: 310B370
v <	Clearance void if aircraft not off ground by (time)

NOTE: The absence of an airway route number between two fixes in the route of flight indicates "direct"; no symbol or abbreviation is required.

FIG 4-2-7

CONTROL INFORMATION SYMBOLS CHART 2

Symbols	Meaning
℄	Pilot cancelled flight plan
✓	EN ROUTE: Aircraft has reported at assigned altitude, Example: 80 ✓
✓	TERMINAL/FSS: Information forwarded (indicated information forwarded as required)
○ (red)	EN ROUTE: Information or revised information forwarded. (Circle, in red, inappropriate altitude/flight level for direction of flight or other control information when coordinated. Also circle, in red, the time (minutes and altitude when a flight plan or estimate is forwarded. Use this method in both inter-center and intra-center coordination.)
(80)	Other than assigned altitude reported (circle reported altitude)
10 / 6	DME holding (use with mileages) (Upper figure indicates distance from station to DME fix, lower figure indicates length of holding pattern. In this example. the DME fix is 10 miles out with a 6 mile pattern indicated.
(mi.)(dir.)	DME arc of VORTAC, TACAN, or MLS.
C (freq.)	Contact (facility) or (freq.), (time, fix, or altitude if appropriate). Insert frequency only when it is other than standard.
R	Radar contact.
R	EN ROUTE: Requested altitude (preceding altitude information)
~~R~~	Radar service terminated
~~R~~	Radar contact lost
RV	Radar vector
~~RV~~	Pilot resumed own navigation
(R)	Radar handoff (circle symbol when handoff completed)
E (red)	EMERGENCY
W (red)	WARNING
P	Point out initiated. Indicate the appropriate facility, sector or position. Example: PZFW.
FUEL	Minimum fuel

NOTE: The absence of an airway route number between two fixes in the route of flight indicates "direct"; no symbol or abbreviation is required.

Section 3. Radio Communications

4-3-1. FREQUENCY USE

a. Use radio frequencies for the specific purposes for which they are assigned. A frequency may be used for more than one function when required. Use the minimum number of frequencies to conduct communications. Request pilots file flight plans on discrete frequencies when possible.

b. Monitor assigned radio frequencies continuously. Keep speaker volumes at a level sufficient to hear all transmissions.

4-3-2. AUTHORIZED TRANSMISSIONS

a. Transmit only those messages necessary for safe and efficient use of the National Airspace System (NAS).

1. Relay operational information to an aircraft or its company, as requested, when abnormal conditions necessitate such requests. Do not agree to handle such messages on a regular basis.

2. Relay official FAA messages as required.

b. Inform an aircraft of the source of any message you relay from an airport manager, a military commander, or other appropriate authority.

c. Use the words or phrases in radio communications as contained in the Pilot/Controller Glossary.

4-3-3. RADIO MESSAGE FORMAT

Initiate radio communications with an aircraft by using the following format:

a. Initial call up.

1. State the prefix "November" when establishing initial communications with U.S. Registered aircraft followed by the phonetic pronunciation of the numbers/letters of the aircraft registration.

2. Identification of the calling unit.

3. The type of message to follow when this will assist the pilot.

4. The word over, if required.

EXAMPLE-
"November Three Four Seven Seven Papa, Fort Worth Radio, over."

"November Three Four Seven Seven Papa, Fort Worth Radio, A-T-C clearance, over."

b. Replying to call up from aircraft.

1. Identification of the aircraft initiating the call up. Use the full identification in reply to aircraft with similar sounding identifications. For other aircraft, use the same identification the pilot used in initial call up; then use the correct identification after communications have been established.

2. Identification of the replying unit.

3. The word over, if required.

c. The word heavy shall be used as part of the identification in communications with or about heavy jet aircraft when providing airport advisories.

PHRASEOLOGY-
UNITED FIFTY-EIGHT HEAVY

NOTE-
1. Most airlines will use the word heavy following the company prefix and trip number when establishing communications or when changing frequencies.

2. When in radio-telephone communications with "Air Force One," do not add the heavy designator to the call sign. State only the call sign "Air Force One" regardless of the type of aircraft.

d. Preface a clearance or instruction intended for a specific aircraft with the identification of that aircraft.

e. Emphasize appropriate digits, letters, or similar sounding words to aid in distinguishing between similar sounding aircraft identifications. Additionally, notify each pilot concerned when communicating with aircraft having similar sounding identifications.

EXAMPLE-
"American Five Twenty-one and American Twenty-one, transmissions being made to each of you on this frequency."

"Advisory to Cessna One Three Two Four, transmissions to Cessna One Two Three Four also being made on this frequency."

4-3-4. ABBREVIATED TRANSMISSION

Transmissions may be abbreviated as follows:

a. Use the identification prefix and the last three digits or letters of the aircraft identification after

communications have been established and type of aircraft is known. Do not abbreviate similar sounding aircraft identifications or the identification of an air carrier or other civil aircraft having an FAA authorized call sign.

b. Omit the facility identification after communication has been established.

c. Transmit the message immediately after the callup (without waiting for the aircraft's reply) when the message is short and receipt is generally assured.

d. Omit the word over, if the message obviously requires a reply.

4-3-5. ROUTINE RADIO CONTACTS

Record information received from or given to the pilot. Prior to terminating the contact, provide the following information:

a. *Weather Advisory.* When a weather advisory is in effect, such as a WA, WS, WST, CWA, or AWW, which pertains to an area within 150 miles of the aircraft's position, obtain the route and destination if not already known. Deliver the advisory if it is pertinent and the pilot indicates that it has not been received previously.

b. *Shifting to Flight Watch.* In-flight specialists shall recommend shifting to the flight watch frequency for en route advisories when weather conditions in an area along the pilot's route of flight so dictate. An example would be a pilot flying into an area of marginal weather farther along the route. It would be advantageous for the pilot to contact the flight watch specialist to pursue an alternate course of action should the need arise.

PHRASEOLOGY-
FOR ADDITIONAL EN ROUTE WEATHER, CONTACT FLIGHT WATCH (frequency).

NOTE-
Delete all references to Flight Watch when not available.

c. *NOTAM's.* When the destination is in your station's flight plan area, inform the pilot of any pertinent NOTAM's.

d. *Altimeter Setting.*

1. If the aircraft is operating below 18,000 feet MSL, issue current altimeter setting obtained from direct reading instruments or received from weather reporting stations. Use the setting for the location nearest the position of the aircraft.

2. If the aircraft is arriving or departing a local airport served by an operating control tower, issue altimeter setting on request only.

3. Aircraft arriving or departing from a non-towered airport which has a commissioned ASOS/AWOS, with ground-to-air capability, shall be advised to monitor the ASOS/AWOS frequency for the altimeter setting.

PHRASEOLOGY-
MONITOR (airport) ASOS/AWOS FOR CURRENT ALTIMETER.

NOTE-
This requirement is deleted if the pilot states, on initial contact, that he/she has the automated weather.

4. When the barometric pressure is greater than 31.00 inches Hg., Flight Standards will implement high barometric pressure procedures by NOTAM defining the geographic area affected. When this occurs, use the following procedures:

(a) IFR aircraft. Issue the altimeter setting and advise the pilot that high pressure altimeter setting procedures are in effect. Control facilities will issue specific instructions when relaying IFR clearances and control instructions through AFSS/FSS facilities when the altimeter is above 31.00 inches Hg.

(b) VFR aircraft. Issue the altimeter setting. Advise the pilot that high pressure altimeter setting procedures are in effect and to use an altimeter setting of 31.00 inches Hg. en route.

PHRASEOLOGY-
ALTIMETER IN EXCESS OF THREE ONE ZERO ZERO. HIGH PRESSURE ALTIMETER SETTINGPROCEDURES ARE IN EFFECT.

NOTE-
Airports unable to accurately measure barometric pressures above 31.00 inches Hg. will report the barometric pressure as missing or in excess of 31.00 inches Hg. Flight operations to or from those airports are restricted to VFR weather conditions.

REFERENCE-
AIM, Chapter 7, Section 2, and FAAO 7110.65, Air Traffic Control, Para 2-6-2, Hazardous Inflight Weather Advisory Service (HIWAS).

e. *Incorrect Cruising Altitude.* If the aircraft is operating VFR at an altitude between 3,000 feet AGL to, but not including FL180, and reports at an incorrect cruising altitude for the direction of flight, issue a VFR cruising altitude advisory.

PHRASEOLOGY-
V-F-R CRUISING LEVELS FOR YOUR DIRECTION OF FLIGHT ARE: (Odd/Even) ALTITUDES PLUS FIVE HUNDRED FEET.

NOTE-
Facilities located in those areas where VFR altitude separation is below 3,000 feet AGL or above FL 180 shall provide appropriate phraseology examples for local use.

f. *Altimeter Setting in Millibars.* If a request for the altimeter setting in millibars is received, use the setting for the location nearest the position of the aircraft and convert to the millibar equivalent value using the millibar conversion chart. If the millibar setting is not a whole number, always round down. (See TBL 4-3-1.)

TBL 4-3-1

Millibar Conversion Chart

MILLIBAR CONVERSION CHART															
inches	*millibars*	*inches*	*millibars*	*inches*	*millibars*	*inches*	*millibars*	*inches*	*millibars*	*inches*	*millibars*	*inches*	*millibars*	*inches*	*millibars*
27.50	931.3	28.00	948.2	28.50	965.1	29.00	982.1	29.50	999.0	30.00	1015.9	30.50	1032.8	31.00	1049.8
27.51	931.6	28.01	948.5	28.51	965.5	29.01	982.4	29.51	999.3	30.01	1016.3	30.51	1033.2	31.01	1050.1
27.52	931.9	28.02	948.9	28.52	965.8	29.02	982.7	29.52	999.7	30.02	1016.6	30.52	1033.5	31.02	1050.5
27.53	932.3	28.03	949.2	28.53	966.1	29.03	983.1	29.53	1000.0	30.03	1016.9	30.53	1033.9	31.03	1050.8
27.54	932.6	28.04	949.5	28.54	966.5	29.04	983.4	29.54	1000.3	30.04	1017.3	30.54	1034.2	31.04	1051.1
27.55	933.0	28.05	949.9	28.55	966.8	29.05	983.7	29.55	1000.7	30.05	1017.6	30.55	1034.5	31.05	1051.5
27.56	933.3	28.06	950.2	28.56	967.2	29.06	984.1	29.56	1001.0	30.06	1017.9	30.56	1034.9	31.06	1051.8
27.57	933.6	28.07	950.6	28.57	967.5	29.07	984.4	29.57	1001.4	30.07	1018.3	30.57	1035.2	31.07	1052.2
27.58	934.0	28.08	950.9	28.58	967.8	29.08	984.8	29.58	1001.7	30.08	1018.6	30.58	1035.6	31.08	1052.5
27.59	934.3	28.09	951.2	28.59	968.2	29.09	985.1	29.59	1002.0	30.09	1019.0	30.59	1035.9	31.09	1052.8
27.60	934.6	28.10	951.6	28.60	968.5	29.10	985.4	29.60	1002.4	30.10	1019.3	30.60	1036.2	31.10	1053.2
27.61	935.0	28.11	951.9	28.61	968.8	29.11	985.8	29.61	1002.7	30.11	1019.6	30.61	1036.6	31.11	1053.5
27.62	935.3	28.12	952.3	28.62	969.2	29.12	986.1	29.62	1003.0	30.12	1020.0	30.62	1036.9	31.12	1053.8
27.63	935.7	28.13	952.6	28.63	969.5	29.13	986.5	29.63	1003.4	30.13	1020.3	30.63	1037.3	31.13	1054.2
27.64	936.0	28.14	952.9	28.64	969.9	29.14	986.8	29.64	1003.7	30.14	1020.7	30.64	1037.6	31.14	1054.5
27.65	936.3	28.15	953.3	28.65	970.2	29.15	987.1	29.65	1004.1	30.15	1021.0	30.65	1037.9	31.15	1054.9
27.66	936.7	28.16	953.6	28.66	970.5	29.16	987.5	29.66	1004.4	30.16	1021.3	30.66	1038.3	31.16	1055.2
27.67	937.0	28.17	953.9	28.67	970.9	29.17	987.8	29.67	1004.7	30.17	1021.7	30.67	1038.6	31.17	1055.5
27.68	937.4	28.18	954.3	28.68	971.2	29.18	988.1	29.68	1005.1	30.18	1022.0	30.68	1038.9	31.18	1055.9
27.69	937.7	28.19	954.6	28.69	971.6	29.19	988.5	29.69	1005.4	30.19	1022.4	30.69	1039.3	31.19	1056.2
27.70	938.0	28.20	955.0	28.70	971.9	29.20	988.8	29.70	1005.8	30.20	1022.7	30.70	1039.6	31.20	1056.6
27.71	938.4	28.21	955.3	28.71	972.2	29.21	989.2	29.71	1006.1	30.21	1023.0	30.71	1040.0	31.21	1056.9
27.72	938.7	28.22	955.6	28.72	972.6	29.22	989.5	29.72	1006.4	30.22	1023.4	30.72	1040.3	31.22	1057.2
27.73	939.0	28.23	956.0	28.73	972.9	29.23	989.8	29.73	1006.8	30.23	1023.7	30.73	1040.6	31.23	1057.6
27.74	939.4	28.24	956.3	28.74	973.2	29.24	990.2	29.74	1007.1	30.24	1024.0	30.74	1041.0	31.24	1057.9
27.75	939.7	28.25	956.7	28.75	973.6	29.25	990.5	29.75	1007.5	30.25	1024.4	30.75	1041.3	31.25	1058.2
27.76	940.1	28.26	957.0	28.76	973.9	29.26	990.8	29.76	1007.8	30.26	1024.7	30.76	1041.6	31.26	1058.6
27.77	940.4	28.27	957.3	28.77	974.3	29.27	991.2	29.77	1008.1	30.27	1025.1	30.77	1042.0	31.27	1058.9
27.78	940.7	28.28	957.7	28.78	974.6	29.28	991.5	29.78	1008.5	30.28	1025.4	30.78	1042.3	31.28	1059.3
27.79	941.1	28.29	958.0	28.79	974.9	29.29	991.9	29.79	1008.8	30.29	1025.7	30.79	1042.7	31.29	1059.6
27.80	941.4	28.30	958.3	28.80	975.3	29.30	992.2	29.80	1009.1	30.30	1026.1	30.80	1043.0	31.30	1059.9
27.81	941.8	28.31	958.7	28.81	975.6	29.31	992.6	29.81	1009.5	30.31	1026.4	30.81	1043.3	31.31	1060.3
27.82	942.1	28.32	959.0	28.82	976.0	29.32	992.9	29.82	1009.8	30.32	1026.8	30.82	1043.7	31.32	1060.6
27.83	942.4	28.33	959.4	28.83	976.3	29.33	993.2	29.83	1010.2	30.33	1027.1	30.83	1044.0	31.33	1061.0
27.84	942.8	28.34	959.7	28.84	976.6	29.34	992.6	29.84	1010.5	30.34	1027.4	30.84	1044.4	31.34	1061.3
27.85	943.1	28.35	960.0	28.85	977.0	29.35	993.9	29.85	1010.8	30.35	1027.8	30.85	1044.7	31.35	1061.6
27.86	943.4	28.36	960.4	28.86	977.3	29.36	994.2	29.86	1011.2	30.36	1028.1	30.86	1045.0	31.36	1062.0
27.87	943.8	28.37	960.7	28.87	977.7	29.37	994.6	29.87	1011.5	30.37	1028.4	30.87	1045.4	31.37	1062.3
27.88	944.1	28.38	961.1	28.88	978.0	29.38	994.9	29.88	1011.9	30.38	1028.8	30.88	1045.7	31.38	1062.6
27.89	944.5	28.39	961.4	28.89	978.3	29.39	995.3	29.89	1012.2	30.39	1029.1	30.89	1046.1	31.39	1063.0
27.90	944.8	28.40	961.7	28.90	978.7	29.40	995.6	29.90	1012.5	30.40	1029.5	30.90	1046.4	31.40	1063.3
27.91	945.1	28.41	962.1	28.91	979.0	29.41	995.9	29.91	1012.9	30.41	1029.8	30.91	1046.7	31.41	1063.7
27.92	945.5	28.42	962.4	28.92	979.3	29.42	996.3	29.92	1013.2	30.42	1030.1	30.92	1047.1	31.42	1064.0
27.93	945.8	28.43	962.8	28.93	979.7	29.43	996.6	29.93	1013.5	30.43	1030.5	30.93	1047.4	31.43	1064.3
27.94	946.2	28.44	963.1	28.94	980.0	29.44	997.0	29.94	1013.9	30.44	1030.8	30.94	1047.7	31.44	1064.7
27.95	946.5	28.45	963.4	28.95	980.4	29.45	997.3	29.95	1014.2	30.45	1031.2	30.95	1048.1	31.45	1065.0
27.96	946.8	28.46	963.8	28.96	980.7	29.46	997.6	29.96	1014.6	30.46	1031.5	30.96	1044.4	31.46	1065.4
27.97	947.2	28.47	964.1	28.97	981.0	29.47	998.0	29.97	1014.9	30.47	1031.8	30.97	1048.8	31.47	1065.7
27.98	947.5	28.48	964.4	28.98	981.4	29.48	998.3	29.98	1015.2	30.48	1032.2	30.98	1049.1	31.48	1066.0
27.99	947.9	28.49	964.8	28.99	981.7	29.49	998.6	29.99	1015.6	30.49	1032.5	30.99	1049.4	31.49	1066.4

4-3-6. RADIO COMMUNICATIONS TRANSFER

Transfer radio communications by specifying the following:

a. The name of the facility to be contacted and the frequency.

PHRASEOLOGY-
CONTACT (name of facility) ON (frequency).

b. In situations where an aircraft will continue to communicate with your facility, use the following:

PHRASEOLOGY-
CONTACT (name of service) ON (frequency).

4-3-7. ATC CLEARANCES, ADVISORIES, OR REQUESTS

a. Notify ATC via interphone of a pilot's request for clearance and include the departure and destination airports and, if appropriate, departing runway and time in the request. Relay, verbatim, ATC clearances, advisories, and requests received from the control facility. Give a time check to the nearest quarter minute when relaying a clearance that includes a release or void time.

NOTE-
For ATC clearances, "verbatim" means exact control instructions, in the format stated in FAAO 7110.65, Air Traffic Control, Para 4-2-1, Clearance Items.

PHRASEOLOGY-
Aircraft on the ground:

(Facility) RADIO, CLEARANCE REQUEST.

After go-ahead from ATC,

(Aircraft identification) DEPARTING (airport), RUNWAY (number if applicable) DESTINATION (fix or airport). (If applicable), CAN BE OFF AT (time).

Aircraft airborne:

(Facility) RADIO, CLEARANCE REQUEST.

After go-ahead from ATC:

(Aircraft identification), (position), (altitude), (route), AND (destination).

b. Prefix all ATC clearances, advisories, or requests with the appropriate phrase "A-T-C CLEARS," "A-T-C ADVISES," etc.

c. When issuing information, relaying clearances, or instructions, ensure acknowledgement by the pilot.

d. If altitude, heading, or other items are read back by the pilot, ensure the readback is correct. If incorrect or incomplete, make corrections as appropriate.

NOTE-
Pilots may acknowledge clearances, instructions, or information by using "Wilco," "Roger," "Affirmative," or other appropriate words or remarks.

REFERENCE-
Pilot/Controller Glossary.

4-3-8. DEPARTURE REPORTS

a. When an IFR aircraft reports airborne or is observed airborne, transmit the aircraft identification and departure time to the control facility from which the clearance was received.

PHRASEOLOGY-
(Facility) RADIO. DEPARTURE. (Aircraft identification), (time).

NOTE-
This includes known VFR departure times of aircraft which are to obtain IFR clearances when airborne.

b. When an aircraft which has filed an IFR flight plan requests a VFR departure, facilitate the request as follows:

1. If the facility/sector responsible for issuing the clearance is unable to issue a clearance, inform the pilot and suggest that the delay be taken on the ground. If the pilot insists upon taking off VFR and obtaining an IFR clearance in the air, relay the pilot's intentions and, if possible, the VFR departure time to the facility/sector holding the flight plan.

2. After obtaining approval from the facility/sector responsible for issuing the IFR clearance, an aircraft planning IFR flight may be authorized to depart VFR. Inform the pilot of the proper frequency and, if appropriate, where or when to contact the facility responsible for issuing the clearance.

(a) When requesting:

PHRASEOLOGY-
(Facility) RADIO. (Aircraft identification), REQUEST V-F-R DEPARTURE.

(b) When relaying to aircraft:

PHRASEOLOGY-
A-T-C ADVISES (aircraft identification) V-F-R DEPARTURE APPROVED. CONTACT (facility) ON (frequency) AT (location or time, if required) FOR CLEARANCE.

(c) Relaying to control facility:

PHRASEOLOGY-
(Facility) RADIO. (Aircraft identification) DEPARTED V-F-R AT (time).

4-3-9. IFR FLIGHT PROGRESS REPORTS

Relay to the appropriate ATC facility the aircraft identification, position, time, altitude, estimate of next reporting point, name of subsequent reporting point, and any pilot remarks or requests including amended flight plan data.

PHRASEOLOGY-
(Facility) RADIO. PROGRESS. (Aircraft identification), (position), (altitude), (time) (name and estimate of next reporting point) (name of subsequent reporting point) (pilot's remarks).

4-3-10. ARRIVAL/MISSED APPROACH REPORTS

Relay to the appropriate ATC facility, by the most expeditious means available, the time that an IFR aircraft lands, cancels, or executes a missed approach, and intentions, if known.

4-3-11. NONDELIVERY OF MESSAGES

Inform ATC when a message has not been delivered within:

a. Three minutes of receipt; or

b. Three minutes after the specified delivery time; or

c. A specified cancellation time.

4-3-12. BROADCAST (BLIND TRANSMISSION) OF MESSAGES

Broadcast messages as requested by ATC. If no accompanying transmitting instructions are received, transmit the message four times:

a. Once upon receipt; and

b. At approximately 3-minute intervals thereafter.

4-3-13. PENETRATION OF CLASS A AIRSPACE OR PROHIBITED/RESTRICTED AREA

a. Penetration of Class A airspace. When a VFR aircraft's position report indicates penetration of Class A airspace:

1. Inform the pilot of the Class A airspace penetration and request intentions.

PHRASEOLOGY-
YOU ARE IN CLASS A AIRSPACE. AN A-T-C CLEARANCE IS REQUIRED. REQUEST YOUR INTENTIONS.

2. Inform the control facility immediately.

3. Relay ATC instructions.

b. Penetration of PROHIBITED/RESTRICTED AREA. When an aircraft report indicates penetration of a prohibited/restricted area:

1. Inform the pilot.

PHRASEOLOGY-
YOU ARE IN A PROHIBITED/RESTRICTED AREA. AUTHORIZATION IS REQUIRED. REQUEST YOUR INTENTIONS.

2. Inform the control facility immediately.

3. Relay ATC instructions.

Section 4. Local Airport Advisory

4-4-1. GENERAL

Local Airport Advisory (LAA) is a terminal service provided by designated facilities located at airports without an operating control tower.

4-4-2. LAA ELEMENTS AND PHRASEOLOGY

a. State the airport name and the words, Airport Advisory.

PHRASEOLOGY-
(Airport name), AIRPORT ADVISORY.

b. Provide the information as appropriate, sequencing the elements in the following manner or to best serve the current traffic situation:

1. Wind Direction and Velocity from Direct Reading Instrument. Provide as follows:

(a) In 10-degree increments.

(b) Variable wind direction when winds are varying 60 degrees or more.

(c) To the nearest knot. If wind speed is 3 knots or less, report wind as light and variable.

(d) Gust information when there are 10 knots or more between peaks and lulls.

2. Favored or Designated Runway.

(a) Select the runway most nearly aligned into the wind. If there is no wind, select the runway currently in use or the runway favored by shorter taxiway or other local consideration. When airport management has designated a runway to be used under certain wind or other conditions (and has informed the FSS in writing), issue runway information accordingly.

PHRASEOLOGY-
FAVORING RUNWAY (runway number).

FAVORED RUNWAY (runway number).

(b) When a pilot advises he/she will use a runway other than the favored or the designated runway, inform all known concerned traffic.

PHRASEOLOGY-
ATTENTION ALL AIRCRAFT. (Aircraft type) DEPARTING/LANDING RUNWAY (number).

(c) If a pilot requests the distance between an intersection and the runway end, furnish measured data from the local airport intersection takeoff diagram or other appropriate sources.

3. Altimeter Setting.

(a) Issue altimeter settings to all aircraft except scheduled air carriers or to aircraft operators who have requested this omission in writing.

(b) Apply special procedures when the altimeter setting is more than 31.00 inches Hg. Stations with the capability of reading altimeter settings above 31.00 Hg. shall issue altimeter settings.

PHRASEOLOGY-
ALTIMETER IN EXCESS OF THREE ONE ZERO ZERO. HIGH PRESSURE ALTIMETER SETTING PROCEDURES ARE IN EFFECT.

4. Weather. Issue weather information as follows:

(a) Ceiling and visibility to VFR aircraft when less than basic VFR conditions exist.

(b) Visibility to VFR aircraft when it is less than three miles in any quadrant.

(c) Touchdown RVR/RVV for the runway in use where RVR/RVV readout equipment is located at the inflight position providing local airport advisory.

(d) To IFR aircraft executing an instrument approach or departure and to the appropriate control facility when visibility is less than 3 miles or when the ceiling is less than 1,000 feet or below the highest circling minimum, whichever is greater.

5. Weather advisory alert. Provide in accordance with subpara 4-3-5a.

PHRASEOLOGY-
(Advisory description) IS CURRENT FOR (condition) OVER (area).

6. Density Altitude.

(a) Facilities at airports with field elevations of 2,000 feet MSL or higher, transmit a density altitude advisory to departing general aviation aircraft whenever the temperature reaches the criteria contained in TBL 2-2-1.

PHRASEOLOGY-
CHECK DENSITY ALTITUDE

(b) Omit this advisory if pilot states the computation has been done or if the specialist is aware that a density altitude computation for that aircraft was included in the preflight briefing.

7. Traffic. Factual information about observed or reported traffic which may constitute a collision hazard. This may include positions of aircraft inflight or aircraft and vehicles operating on the airport.

PHRASEOLOGY-
TRAFFIC (Aircraft type), (position), (minutes) AGO.

8. Wake Turbulence. Issue cautionary information to any aircraft if in your judgment wake turbulence may have an adverse effect on it.

PHRASEOLOGY-
CAUTION WAKE TURBULENCE (traffic information).

NOTE-
Wake turbulence may be encountered by aircraft in flight as well as when operating on the airport movement area. Because wake turbulence is unpredictable, air traffic personnel are not responsible for anticipating its existence or effect.

9. NOTAM. NOTAM's concerning local NAVAID's and field conditions pertinent to flight.

EXAMPLE-
"All runways covered by packed snow 6 inches deep."

10. Braking Action. Furnish braking action reports as received from pilots or airport management to all aircraft as follows:

(a) Describe braking action using the terms fair, poor, or nil. If the pilot or airport management reports braking action in other than the foregoing terms, ask them to categorize braking action in these terms.

(b) When known, include the type of aircraft or vehicle from which the report is received.

EXAMPLE-
"Braking action poor."
"Braking action poor, reported by a Cessna Four-Oh-One."

(c) If the braking action report affects only a portion of a runway, obtain enough information from the pilot or airport management to describe braking action in terms easily understood by the pilot.

EXAMPLE-
"Braking action poor first half of Runway Six, reported by a Gulfstream Two."
"Braking action poor Runway Two-Seven, reported by a Boeing Seven Twenty-Seven."

NOTE-
Descriptive terms, such as first/last half of the runway, should normally be used rather than landmark descriptions, such as opposite the fire station, south of a taxiway.

11. Runway Friction. Provide runway friction measurement readings/values as received from airport management to aircraft as follows:

(a) At airports with friction measuring devices, provide runway friction reports, as received from airport management, to pilots on request. State the runway number followed by the MU number for each of the three runway zones, the time of the report in UTC, and a word describing the cause of the runway friction problem.

EXAMPLE-
"Runway two seven, MU forty-two, forty-one, twenty-eight at one zero one eight ZULU, ice."

(b) Issue the runway surface condition and/or the runway condition reading (RCR), if provided, to all USAF and ANG aircraft. Issue the RCR to other aircraft upon request.

EXAMPLE-
"Ice on runway, R-C-R zero five, patchy."

NOTE-
USAF has established RCR procedures for determining the average deceleration readings of runways under conditions of water, slush, ice, or snow. The use of RCR code is dependent upon the pilot's having a "stopping capability chart" specifically applicable to his/her aircraft. USAF offices furnish RCR information at airports serving USAF and ANG aircraft.

12. Do not approve or disapprove simulated instrument approaches.

4-4-3. CHARTS

Keep charts depicting runways, local taxi routes, intersection takeoff information, airport traffic patterns, and instrument approach procedures convenient to the airport advisory position.

4-4-4. AUTHORIZED LAA FREQUENCY

Provide LAA on 123.6 or 123.65 at nontower locations and on the tower local control frequency at an airport with a part-time FAA tower when that facility is not operating. If a pilot calls on another frequency, issue advisories on the frequency to which the pilot is listening, in addition to the appropriate

LAA frequency. Encourage the pilot to guard the LAA frequency or tower local control frequency while approximately within a 10-mile radius of the airport.

NOTE-
In situations where the inflight position is split, advise pilot of appropriate frequency to obtain LAA.

PHRASEOLOGY-
FOR FURTHER AIRPORT ADVISORY AT (airport name), MONITOR (frequency) WITHIN ONE ZERO MILES.

4-4-5. REQUEST FOR LAA AT AIRPORT WHERE LAA SERVICE IS UNAVAILABLE

Advise the pilot that LAA service is not available. Issue CTAF frequency, if available. If CTAF is not available, issue most current surface condition and altimeter.

PHRASEOLOGY-
(Airport name) AIRPORT ADVISORY NOT AVAILABLE. CONTACT (airport name) CTAF (frequency).

4-4-6. TRAFFIC CONTROL

When there is no control tower in operation and a pilot appears unaware of this fact, inform him as follows:

PHRASEOLOGY-
NO CONTROL TOWER IN OPERATION.

4-4-7. AIRCRAFT EQUIPMENT CHECKS

When requested, provide observed information.

PHRASEOLOGY-
LANDING GEAR APPEARS TO BE DOWN AND IN PLACE.

Section 5. Special VFR Operation

4-5-1. AUTHORIZATION

a. Special VFR (SVFR) operations in weather conditions less than VFR minima are authorized:

1. For helicopters and fixed-wing aircraft at any location not prohibited by 14 CFR Part 91, Appendix D, Section 3, or when an exception to 14 CFR Part 91, Appendix D, Section 3 has been granted and an associated letter of agreement established.

REFERENCE-
14 CFR Part 91, Appendix D, Section 3. Controlled airspace within which special V-F-R weather minimums are not authorized.

2. Only within surface areas.

3. Only when requested by the pilot.

b. When the primary airport is reporting VFR, SVFR operations may be authorized for aircraft transiting surface areas when the pilot advises the inability to maintain VFR.

NOTE-
Control facilities shall always retain SVFR operations authority when IFR operations are being conducted in surface areas.

4-5-2. REQUESTS FOR SPECIAL VFR CLEARANCE

a. Transmit SVFR clearances only for operations within surface areas on the basis of weather conditions. If weather conditions are not reported, transmit an SVFR clearance whenever a pilot advises unable to maintain VFR and requests an SVFR clearance, provided the pilot reports having at least 1-mile flight visibility.

PHRASEOLOGY-
ATC CLEARS (aircraft identification) TO ENTER/OUT OF/THROUGH (name) SURFACE AREA, and if applicable, (direction) OF (name) AIRPORT (specified routing),

and

MAINTAIN SPECIAL V-F-R CONDITIONS AT OR BELOW (altitude) (if applicable) WHILE IN SURFACE AREA.

ATC CLEARS (aircraft identification) TO OPERATE WITHIN (name) SURFACE AREA. MAINTAIN SPECIAL V-F-R CONDITIONS AT OR BELOW (altitude).

b. Transmit clearance for local SVFR operations for a specified period (series of takeoffs and landings, etc.) upon request if the aircraft can be recalled when traffic or weather conditions require. Where warranted, letters of agreement may be established.

PHRASEOLOGY-
LOCAL SPECIAL V-F-R OPERATIONS IN THE IMMEDIATE VICINITY OF (name) AIRPORT ARE AUTHORIZED UNTIL (time). MAINTAIN SPECIAL V-F-R CONDITIONS AT OR BELOW (altitude).

c. If an aircraft operating under visual flight rules attempts to enter, depart, or operate within surface areas contrary to the provisions of 14 CFR Section 91.157 (visual flight rules), provide the following information:

1. At airports with commissioned ASOS/AWOS with ground-to-air capability, instruct the pilot to monitor the automated weather frequency and advise intentions.

PHRASEOLOGY-
MONITOR (location) ASOS/AWOS. ADVISE INTENTIONS.

2. At all other locations, or if the pilot is unable to receive the ASOS/AWOS broadcast, issue the ceiling and visibility. Advise the pilot that the weather is below VFR minima, and request the pilot's intentions.

PHRASEOLOGY-
(Location) WEATHER, CEILING (height), VISIBILITY (miles). WEATHER IN (location) SURFACE AREA IS BELOW V-F-R MINIMA. AN ATC CLEARANCE IS REQUIRED. ADVISE INTENTIONS.

NOTE-
Helicopters performing hover taxiing operations (normally not above 10 feet) within the boundary of the airport are considered to be taxiing aircraft.

d. At a pilot's request, issue an SVFR clearance, if appropriate, when an SVFR letter of agreement exists between an AFSS/FSS and the control facility. If no agreement exists, request clearance from the control facility. State the aircraft's location and route of flight.

PHRASEOLOGY-
(Facility name) RADIO. REQUEST SPECIAL V-F-R CLEARANCE (aircraft identification) (direction) OF

(location) AIRPORT (specified routing) INTO/OUT OF/THROUGH THE (location) SURFACE AREA.

NOTE-
IFR aircraft shall normally have priority over special VFR (SVFR) aircraft.

1. If the pilot is operating outside surface area and requests SVFR clearance, issue the clearance or if unable, advise the pilot to maintain VFR outside surface area and to standby for clearance.

PHRASEOLOGY-
MAINTAIN V-F-R OUTSIDE (location) SURFACE AREA. STANDBY FOR CLEARANCE.

2. When an aircraft requests a SVFR clearance to enter surface area during periods of SVFR activity, instruct the pilot to maintain VFR conditions outside surface area pending arrival/recall/departure of SVFR operations.

PHRASEOLOGY-
MAINTAIN V-F-R CONDITIONS OUTSIDE OF THE (location) SURFACE AREA PENDING ARRIVAL/RECALL/DEPARTURE OF IFR/SPECIAL V-F-R AIRCRAFT.

3. If the pilot is operating inside the surface area and requests an SVFR clearance, advise the pilot to maintain VFR and standby for clearance.

PHRASEOLOGY-
MAINTAIN V-F-R, STANDBY FOR CLEARANCE.

e. Suspend SVFR operations when necessary to comply with instructions contained in subpara 4-5-4b or when requested by the control facility.

PHRASEOLOGY-
SPECIAL V-F-R AUTHORIZATION DISCONTINUED. RETURN TO AIRPORT OR DEPART SURFACE AREA. ADVISE INTENTIONS.

After response

REPORT LANDING COMPLETED/LEAVING SURFACE AREA.

4-5-3. VISIBILITY BELOW 1 MILE

a. When the ground visibility is officially reported at an airport as less than 1 mile, treat requests for SVFR operations at that airport by other than helicopters as follows:

NOTE-
14 CFR Part 91 does not prohibit helicopter Special VFR flights when visibility is less than 1 mile.

1. Inform departing aircraft that ground visibility is less than 1 mile and that a clearance cannot be issued.

PHRASEOLOGY-
(Location) VISIBILITY (value). A-T-C UNABLE TO ISSUE DEPARTURE CLEARANCE.

2. Inform arriving aircraft operating outside of the surface area that ground visibility is less than 1 mile and, unless an emergency exists, a clearance cannot be issued.

PHRASEOLOGY-
(Location) VISIBILITY (value). A-T-C UNABLE TO ISSUE ENTRY CLEARANCE UNLESS AN EMERGENCY EXISTS.

3. Inform arriving aircraft operating within the surface area that ground visibility is less than 1 mile and request the pilot's intentions. Relay the pilot's response to the control facility immediately.

PHRASEOLOGY-
(Location) VISIBILITY (value). ADVISE INTENTIONS.

b. When weather conditions are not officially reported at an airport and the pilot advises the flight visibility is less than 1 mile, treat request for SVFR operations at that airport by other than helicopters as follows:

NOTE-
14 CFR Part 91 prescribes use of officially reported ground visibility at airports where it is provided, and landing or takeoff flight visibility where it is not, as the governing ground visibility for VFR and SVFR operations.

1. Inform departing aircraft that a clearance cannot be issued.

PHRASEOLOGY-
UNABLE TO ISSUE DEPARTURE CLEARANCE.

2. Inform arriving aircraft operating outside the surface area that unless an emergency exists, a clearance cannot be issued.

PHRASEOLOGY-
ATC UNABLE TO ISSUE ENTRY CLEARANCE UNLESS AN EMERGENCY EXISTS.

3. Request intentions of arriving aircraft operating within surface areas. Relay the pilot's response to the control facility immediately.

PHRASEOLOGY-
ADVISE INTENTIONS.

c. Transmit a clearance to scheduled air carrier aircraft to conduct operations if ground visibility is not less than 1/2 mile.

d. Transmit a clearance to an aircraft to fly through surface area if the pilot reports flight visibility is at least 1 statute mile.

4-5-4. PREDESIGNED SPECIAL VFR CLEARANCES

Transmit predesigned SVFR clearances only during those periods authorized by the control facility.

NOTE-
The control facility may rescind this authorization at any time.

a. Apply these procedures only to aircraft equipped with a functioning two-way radio. Refer all requests for no-radio SVFR operations to the control facility.

b. Transmit clearances so that only one aircraft at a time operates in surface area unless:

1. Otherwise authorized by a letter of agreement between the control facility and the AFSS/FSS.

2. A pilot requests and all pilots agree that they will maintain visual separation while operating in surface area.

PHRASEOLOGY-
MAINTAIN VISUAL SEPARATION FROM (aircraft type).

Section 6. En Route Flight Advisory Service (EFAS)

4-6-1. GENERAL

The purpose of EFAS, radio call "FLIGHT WATCH" (FW), is to provide en route aircraft with timely and pertinent weather data tailored to a specific altitude and route using the most current available sources of aviation meteorological information.

4-6-2. POSITION RESPONSIBILITIES

Prior to assuming the duties of the flight watch position:

a. Perform a thorough self-briefing by reviewing available weather data.

b. When relieving a specialist on the FW position, obtain a preduty briefing from the person being relieved.

c. When appropriate, obtain a briefing of current and forecast weather within the flight watch area (FWA) from the CWSU of the associated ARTCC. (See para 4-6-5.)

d. Maintain currency of weather conditions and trends while assigned the FW position by reviewing new or revised meteorological issuances and by observing weather trends contained in current weather reports and PIREP's.

4-6-3. OPERATING PROCEDURES

a. Tailor en route flight advisories to the phase of flight that begins after climb out and ends with descent to land. Current weather and terminal forecast at the airport of first intended landing and/or the alternate airport shall be provided on request. When conditions dictate, provide information on weather for alternate routes and/or altitudes to assist the pilot in the avoidance of hazardous flight conditions. Advise the pilot to contact the adjacent flight watch facility when adverse weather conditions along the intended route extend beyond the FWA.

b. EFAS shall not be used for routine inflight services; e.g., flight plan filing, position reporting, or full route (preflight) briefings. If a request for information is received that is not within the scope of EFAS, advise the pilot of the appropriate AFSS/FSS to contact.

EXAMPLE-
"Cessna Four Seven Five Eight Xray, Cleveland Flight Watch, contact Altoona Radio on one two two point four to file your flight plan."

c. Suggest route or destination changes to avoid areas of weather which in the judgment of the specialist constitute a threat to safe flight.

d. Alert the associated CWSU or WSFO immediately of reported or observed significant weather that is not included in aviation forecasts.

4-6-4. FREQUENCIES

a. Use frequency 122.0 mHz to provide EFAS to aircraft below FL 180.

b. Use the assigned discrete frequency to provide EFAS to aircraft at FL 180 and above. This frequency can also be used for communications with aircraft below FL 180 when communication coverage permits.

c. Aircraft operating at FL 180 or above that contact FW on frequency 122.0 mHz should be advised to change to the discrete frequency for EFAS.

PHRASEOLOGY-
(Aircraft identification) (facility) FLIGHT WATCH, FOR SERVICE AT YOUR ALTITUDE, CONTACT FLIGHT WATCH ON (frequency).

d. Avoid the simultaneous keying of two or more transmitters on the same frequency. This action can block or hinder communications.

NOTE-
Frequency 122.0 mHz RCF outlets are geographically located to ensure communications coverage at 5,000 feet AGL and above over the conterminous United States. High altitude discrete frequency RCF outlets are geographically located to ensure communications coverage between FL 180 and FL 450 over the EFAS facility's area of responsibility. Communications practices should be guided by these restrictions.

4-6-5. NWS SUPPORT TO EFAS

The NWS support function for EFAS is as follows:

a. The associated CWSU is designated as the primary support facility for each EFAS facility. The CWSU should be contacted at least once per shift for a general briefing of meteorological conditions

which are impacting, or expected to impact, aviation weather within the FW/ARTCC area.

NOTE-
Due to assigned priorities, the CWSU meteorologist may not be able to provide indepth briefing service for up to 2 hours after the start of the first shift of the CWSU unit. (See FAAO 7210.3, Para 14-3-6, National Weather Service (NWS) Support, for establishment of operational support.)

b. During the period when the CWSU is not available to provide consultation service, WSFO's are responsible for responding to EFAS facility requests regarding weather conditions prevailing within the WSFO area of responsibility. The EFAS specialist should contact the responsible WSFO directly for clarification of forecasts or questions concerning products originated by the WFSO.

NOTE-
The ARTCC/EFAS area may encompass multiple WSFO areas.

c. Consult with the National Aviation Weather Advisory Unit (NAWAU), as appropriate, when further information or clarification is needed regarding SIGMET, convective SIGMET, AIRMET, and FA products.

4-6-6. PILOT WEATHER REPORTS

a. Actively solicit and disseminate PIREP's in accordance with Chapter 9, Section 2. Additionally, PIREP's concerning winds and temperature aloft, windshear, turbulence, and icing shall be solicited and disseminated when one or more of these conditions or criteria exists. Flight Watch specialists shall solicit sufficient PIREP's to remain aware of flight conditions.

b. Maintain a graphic display of pertinent PIREP's within the FWA. Periodically review the display and actively solicit additional PIREP's when necessary to ensure completeness and accuracy of the information.

c. Requests for special solicitation of PIREP's from other facilities or the NWS shall be honored as rapidly as operations permit.

4-6-7. GRAPHIC WEATHER DISPLAY

a. Flight watch specialists shall review, (if available) as a minimum, the graphic display information listed below prior to assuming FW duties. Review the chart data as needed during the watch to update and maintain a thorough knowledge of weather synoptic and forecast information affecting aviation operations.

1. Surface Analysis.
2. Weather Depiction Analysis.
3. National Weather Radar Summary.
4. Lifted Index Analysis.
5. Freezing Level Analysis.
6. 850 mb Upper Air Analysis.
7. 700 mb Upper Air Analysis.
8. 500 mb Upper Air Analysis.
9. 300 mb Upper Air Analysis.
10. 250 mb Upper Air Analysis.
11. 200 mb Upper Air Analysis.
12. 500 mb Heights and Vorticity Analysis.
13. 500 mb Heights and Vorticity Prognosis.
14. High Level Significant Weather Prognosis.
15. 12 and 24-hour Low Level Significant Weather Prognosis.
16. 36 and 48-hour Low Level Significant Weather Prognosis.
17. Maximum Temperature 24 and 36-hour Forecast.
18. Minimum Temperature 24 and 36-hour Forecast.
19. Winds Aloft Forecast.
20. Severe Weather Outlook.

b. Where hard copy charts are received and locally enhanced, conform to the standards established in para 3-1-4.

c. Access local and remote weather displays as necessary to maintain current knowledge of precipitation intensity, movement, and coverage. Provide pertinent real-time weather radar information that will directly impact the aircraft's flight.

NOTE-
Specialist judgment should be exercised to determine if the pilot would be better served by more general information such as radar summary data when the aircraft is one hour or more from the destination airport.

4-6-8. INTERRUPTIONS TO SERVICE

Notification of temporary outages, either equipment or operational, shall be made in accordance with FAAO 7930.2, Notices to Airmen (NOTAM's). Additionally, notify adjacent FWCS's of outages where overlapping coverage may occur to provide continuous service.

4-6-9. EMERGENCIES

a. Emergency situations shall be handled in accordance with Chapter 5.

b. When working an aircraft in an emergency situation over a remote outlet, the normal procedure is to provide assistance on the initial contact frequency. Flight watch specialists should bear in mind that air traffic facilities based at, or near to, the remote location may be in a better position to assist the pilot. A decision to affect a frequency change should be based on the situation and circumstances involved in the emergency.

Chapter 5. Emergency Services

Section 1. General

5-1-1. EMERGENCY DETERMINATION

a. Because of the infinite variety of possible emergency situations, specific procedures cannot be prescribed. However, when you believe an emergency exists or is imminent, select and pursue a course of action which appears to be most appropriate under the circumstances, and which most nearly conforms to the instructions in this manual.

b. An emergency can be either a DISTRESS or URGENCY condition, as defined in the Pilot/Controller Glossary.

NOTE-
A pilot who encounters a DISTRESS condition may declare an emergency by beginning the initial communication with the word MAYDAY, preferably repeated three times. For an URGENCY condition, the word PAN-PAN may be used in the same manner.

c. If the words MAYDAY or PAN-PAN are not used, and you are in doubt that a situation constitutes an emergency or potential emergency, handle it as though it were an emergency.

d. Consider an aircraft emergency exists and inform the appropriate control facility and the DF net control (See FAAO 7210.3, para 6-3-3, DF Net Control Position Operation), if not the same, when:

1. An emergency is declared by any of the following:

(a) The pilot.

(b) Facility personnel.

(c) Officials responsible for the operation of the aircraft.

2. Reports indicate that the aircraft's operating efficiency is so impaired that a forced landing may be/is necessary.

3. Reports indicate the crew has abandoned the aircraft or is about to do so.

4. Intercept or escort services are requested.

5. The need for ground rescue appears likely.

6. An Emergency Locator Transmitter (ELT) signal is heard or reported.

REFERENCE-
Subpara 5-1-2c and Para 5-2-8.

5-1-2. RESPONSIBILITY

a. If you are in communication with an aircraft in distress, handle the emergency and coordinate and direct the activities of assisting facilities. Transfer this responsibility to another facility only when you feel better handling of the emergency will result.

b. When you receive information about an aircraft in distress, forward detailed data to the appropriate control facility in whose area the emergency exists.

NOTE-
Notifying the appropriate control facility about a VFR aircraft emergency allows provision of IFR separation if considered necessary.

c. The ARTCC is responsible for consolidation of all pertinent ELT signal information. Notify the ARTCC of all heard or reported ELT signals.

5-1-3. OBTAINING INFORMATION

Obtain enough information to handle the emergency intelligently. Base your decision as to what type of assistance is needed on information and requests received from the pilot. 14 CFR Part 91 authorizes the pilot to determine a course of action.

5-1-4. COORDINATION

a. Request necessary assistance from other facilities as soon as possible, particularly if radar or DF service is available.

b. Coordinate efforts to the extent possible to assist any aircraft believed overdue, lost, or in emergency status.

5-1-5. PROVIDING ASSISTANCE

a. Provide maximum assistance to aircraft in distress. If the aircraft is transponder equipped and not on an IFR flight plan, request the pilot to squawk code 7700.

PHRASEOLOGY-
REQUEST YOU SQUAWK SEVEN SEVEN ZERO ZERO.

b. Enlist the service of available radar and DF facilities.

5-1-6. RECORDING INFORMATION

Record all actions taken in the provision of emergency assistance.

5-1-7. SAFE ALTITUDES FOR ORIENTATIONS

a. Providing a safe altitude, during an orientation, is advisory in nature.

b. Safe altitude computations, once the aircraft position is known, are as follows:

1. Locate the maximum elevation figure on the appropriate VFR sectional chart.

2. To the maximum elevation figure,

(a) add 1,000 feet over nonmountainous terrain, or

(b) add 2,000 feet over mountainous terrain.

3. The mountainous/nonmountainous areas are found in Title 14 CFR, Part 95.

Section 2. Operations

5-2-1. INFORMATION REQUIREMENTS

a. Start assistance as soon as enough information has been obtained upon which to act. Information requirements will vary, depending on the existing situation. Minimum required information for inflight emergencies is:

1. Aircraft identification, type, and transponder.
2. Nature of the emergency.
3. Pilot's desires.

b. After initiating action, provide the altimeter setting and obtain the following items or any other pertinent information from the pilot or aircraft operator as necessary:

1. Aircraft altitude.
2. Fuel remaining in time.
3. Pilot reported weather.
4. Pilot capability for IFR flight.
5. Time and place of last known position.
6. Heading since last known position.
7. Airspeed.
8. Navigation equipment capability.
9. NAVAID signals received.
10. Visible landmarks.
11. Aircraft color.
12. Number of people on board.
13. Point of departure and destination.
14. Emergency equipment on board.

5-2-2. FREQUENCY CHANGES

Provide assistance on the initial contact frequency. Change frequencies only when there is a valid reason.

5-2-3. AIRCRAFT ORIENTATION

Orient an aircraft by the means most appropriate to the circumstances. Recognized methods include:

a. Radar.

b. DF.

c. NAVAID's.

d. Pilotage.

e. Sighting by other aircraft.

5-2-4. ALTITUDE CHANGE FOR IMPROVED RECEPTION

If deemed necessary, and if weather and circumstances permit, recommend the aircraft maintain or increase altitude to improve communications, radar, or DF reception.

5-2-5. ALERTING CONTROL FACILITY

When an aircraft is considered to be in emergency status, alert the appropriate control facility and forward the following information as available:

a. Facility and person calling.

b. Flight plan, including color of aircraft if known.

c. Time of last transmission received, by whom, and frequency used.

d. Last known position, estimated present position, and maximum range of flight of the aircraft based on remaining fuel and airspeed.

e. Action taken by reporting facility and proposed action.

f. Number of persons on board.

g. Fuel status.

h. Position of other aircraft near the aircraft's route of flight when requested.

i. Whether an ELT signal has been heard or reported in the vicinity of the last known position.

j. Other pertinent information.

5-2-6. VFR AIRCRAFT IN WEATHER DIFFICULTY

If a VFR aircraft requests assistance when it encounters or is about to encounter IFR weather conditions, request the pilot contact the appropriate control

facility. Inform that facility of the situation. If the pilot is unable to communicate with the control facility, relay information and clearances.

5-2-7. AIRCRAFT POSITION PLOTS

Plot the flight path of the aircraft on a chart, including position reports, predicted positions, possible range of flight, and any other pertinent information. Solicit the assistance of other aircraft known to be operating near the aircraft in distress. Forward the information to the appropriate control facility.

5-2-8. EMERGENCY LOCATOR TRANSMITTER (ELT) SIGNALS

When an ELT signal is heard or reported:

a. Notify the ARTCC, who will coordinate with the Rescue Coordination Center (RCC).

b. If the ELT signal report was received from an airborne aircraft, attempt to obtain the following information:

1. The aircraft altitude.

2. Where and when the signal was first heard.

3. Where and when maximum signal was heard.

4. Where and when signal faded or was lost. Solicit the assistance of other aircraft known to be operating in the signal area for the same information. Relay all information obtained to the ARTCC.

c. Attempt to obtain fixes or bearings on the signal and forward any information obtained to the ARTCC.

NOTE-
Fix information, in relation to a VOR or a VORTAC (radial distance), facilitates accurate ELT plotting by RCC and should be provided when possible.

d. In addition to the above, when the ELT signal strength indicates the transmitter may be on the airport or in the vicinity, notify the on-site Airway Facilities personnel for their action.

e. Air Traffic personnel shall not leave their required duty stations to locate an ELT signal source.

f. Attempt to locate the signal source by checking all adjacent airports not already checked by other ATC facilities for the following information:

1. Can ELT signal be heard.

2. Does signal strength indicate transmitter may be on airport.

3. Can attempt be made to locate and silence transmitter.

4. Advise the results of any action taken. Forward all information obtained and action taken to the ARTCC.

g. Notify the ARTCC if the signal source is located and whether the aircraft is in distress, plus any action taken or proposed for silencing the transmitter. Request person who located signal's source to attempt to obtain ELT make, model, etc., for relay to RCC via the ARTCC.

h. Notify the ARTCC if the signal terminates prior to location of the source.

NOTE-
1. The ARTCC serves as the contact point for collecting information and coordinating with the RCC on all ELT signals.

2. Operational ground testing of ELT has been authorized during the first 5 minutes of each hour. To avoid confusing the tests with an actual alarm, the testing is restricted to no more than three audio sweeps.

3. Portable hand-carried receivers assigned to Air Traffic facilities (where no Airway Facilities personnel are available) may be loaned to responsible airport personnel or local authorities to assist in locating signal source.

5-2-9. EXPLOSIVE CARGO

When you receive information that an emergency landing will be made with explosive cargo aboard, inform the pilot of the safest or least congested airport areas. Relay the explosive cargo information to:

a. The emergency equipment crew.

b. The airport management.

c. The appropriate military agencies when requested by the pilot.

5-2-10. EXPLOSIVE DETECTION DOG HANDLER TEAMS

Take the following actions upon receipt of a pilot request for the location of the nearest explosive detection K-9 team.

a. Obtain the aircraft's identification and current position and advise the person in charge of the watch of the pilot's request.

b. Relay the pilot's request to the FAA Washington Operations Center, ADA-30, (202) 267-3333, and provide the aircraft identification and position.

c. ADA-30 will provide the nearest location. Have ADA-30 standby while the information is relayed to the pilot.

d. If the pilot wishes to divert to the airport location provided, obtain an estimated arrival time from the pilot and advise the person in charge of the watch.

e. After the aircraft destination has been determined, estimate the arrival time and advise ADA-30. ADA-30 will then notify the appropriate airport authority at the diversion airport. In the event the K-9 team is not available at this airport, ADA-30 will advise the AT facility and provide them with the secondary location. Relay this to the pilot concerned for appropriate action.

REFERENCE-
FAAO 7210.3, Para 2-1-10, Explosives Detection K-9 Teams.

5-2-11. INFLIGHT EQUIPMENT MALFUNCTIONS

When a pilot reports an inflight equipment malfunction, take the following action:

a. Request the nature and extent of any special handling desired.

NOTE-
14 CFR Part 91 requires the pilot in command of each aircraft operated in controlled airspace under IFR shall report as soon as practical to ATC any malfunctions of navigational, approach, or communication equipment occurring in flight. This includes the degree to which the capability of the aircraft to operate IFR in the air traffic control system is impaired and the nature and extent of any assistance desired from air traffic control.

b. Provide the maximum assistance possible consistent with equipment, workload, and any special handling requested.

c. Relay any special handling required or being provided to other specialists or facilities who will subsequently handle the aircraft.

5-2-12. NAVY FLEET SUPPORT MISSIONS

Handle Navy Fleet Support Missions aircraft as follows:

a. When you receive information concerning an emergency to a U.S. Navy Special Flight Number aircraft, inform the nearest ARTCC of all pertinent information.

b. Relay the words SPECIAL FLIGHT NUMBER followed by the number given as part of the routine IFR flight information.

5-2-13. COUNTRIES IN THE SPECIAL INTEREST FLIGHT PROGRAM

Upon receipt of any flight movement data on an aircraft registered in a communist-controlled country, notify the supervisor and the appropriate ARTCC immediately. Additionally, if the aircraft is making an emergency or an unscheduled landing in the United States, notify the nearest U.S. Customs Service Office.

NOTE-
Communist-controlled countries include Albania, Bulgaria, Cambodia, Peoples Republic of China, Cuba, North Korea, Outer Mongolia, Romania, Former USSR countries recognized as the Russian Federation Commonwealth of Independent States, and Socialist Republic of Vietnam.

5-2-14. MINIMUM FUEL

If an aircraft declares a state of "minimum fuel," inform any facility to whom control jurisdiction is transferred of the minimum fuel problem and be alert for any occurrence which might delay the aircraft en route.

NOTE-
Use of the term minimum fuel indicates recognition by a pilot that the fuel supply has reached a state whereupon reaching destination, any undue delay cannot be accepted. This is not an emergency situation, but merely an advisory that indicates an emergency situation is possible should any undue delay occur. A minimum fuel advisory does not imply a need for traffic priority. Common sense and good judgment will determine the extent of assistance to be given in minimum fuel situations. If, at any time, the remaining usable fuel supply suggests the need for traffic priority to ensure a safe landing, the pilot should declare an emergency and report fuel remaining in minutes.

5-2-15. AIRCRAFT BOMB THREATS

a. When information is received from any source that a bomb has been placed on, in, or near an aircraft for the purpose of damaging or destroying such aircraft, notify the supervisor or facility manager. If the threat is general in nature, handle it as a suspicious activity. When the threat is targeted against a specific aircraft and you are in contact with that aircraft, take the following actions as appropriate:

NOTE-
1. Facility supervisors are expected to notify the appropriate offices, agencies, and operators/air carriers according to applicable plans, directives, FAAO 7210.3, Facility Operation and Administration, or military directives.

2. Suspicious activity is covered in FAAO 7210.3, Facility Operation and Administration. Military facilities would report a general threat through the chain of command or according to service directives.

3. A specific threat may be directed at an aircraft registry or tail number, the air carrier flight number, the name of an operator, crew member or passenger, the departure/arrival point or times, or combinations thereof.

1. Advise the pilot of the threat.

2. Inform the pilot that technical assistance can be obtained from an FAA aviation explosives expert.

NOTE-
An FAA aviation explosives expert is on call at all times and may be contacted by calling the FAA Operations Center, Washington, DC, (202) 267-3333, ETN 521-0111, or DSN 851-3750. Technical advice can be relayed to assist civil or military air crews in their search for a bomb and in determining what precautionary action to take if one is found.

3. Ask if the pilot desires to climb or descend to an altitude that would equalize or reduce the outside air pressure/existing cabin air pressure differential. Obtain and relay an appropriate clearance considering MEA, MOCA, MRA, and weather.

NOTE-
Equalizing existing cabin air pressure with outside air pressure is a key step which the pilot may wish to take to minimize the damage potential of a bomb.

4. Handle the aircraft as an emergency, and/or provide the most expeditious handling possible with respect to the safety of other aircraft, ground facilities, and personnel.

NOTE-
Emergency handling is discretionary and should be based on the situation. With certain types of threats, plans may call for a low-key action or response.

5. Obtain and relay clearance to a new destination, if requested.

6. When a pilot requests technical assistance or if it is apparent that such assistance is needed, do NOT suggest what actions the pilot should take concerning a bomb, but obtain the following information and notify the supervisor who will contact the FAA aviation explosives expert:

NOTE-
This information is needed by the FAA aviation explosives expert so that the situation can be assessed and immediate recommendations made to the pilot. The aviation explosives expert may not be familiar with all military aircraft configurations but can offer technical assistance which would be beneficial to the pilot.

(a) Type, series, and model of the aircraft.

(b) Precise location/description of the bomb device if known.

(c) Other details which may be pertinent.

NOTE-
The following details may be of significance if known, but it is not intended that the pilot should disturb a suspected bomb/bomb container to ascertain the information:

1. The altitude or time set for the bomb to explode.

2. Type of detonating action (barometric, time, anti-handling, remote radio transmitter).

3. Power source (battery, electrical, mechanical).

4. Type of initiator (blasting cap, flash bulb, chemical).

5. Type of explosive/incendiary charge (dynamite, black powder, chemical).

b. When a bomb threat involves an aircraft on the ground and you are in contact with the suspect aircraft, take the following actions in addition to those discussed in the preceding paragraphs which may be appropriate:

1. If the aircraft is at an airport where tower control or LAA is not available, or if the pilot ignores the threat at any airport, recommend that takeoff be delayed until the pilot or aircraft operator establishes that a bomb is not aboard in accordance with 14 CFR

Part 121. If the pilot insists on taking off, and in your opinion the operation will not adversely affect other traffic, issue or relay an ATC clearance.

REFERENCE-
14 CFR Part 121.537.

2. Advise the aircraft to remain as far away from other aircraft and facilities as possible, to clear the runway, if appropriate, and to taxi to an isolated or designated search area. When it is impractical or if the pilot takes an alternative action, such as parking and offloading immediately, advise other aircraft to remain clear of the suspect aircraft by at least 100 yards, if able.

NOTE-
Passenger deplaning may be of paramount importance and must be considered before the aircraft is parked or moved away from the service areas. The decision to use ramp facilities rests with the pilot, aircraft operator, and/or airport manager.

c. If you are unable to inform the suspect aircraft of a bomb threat or if you lose contact with the aircraft, advise your supervisor and relay pertinent details to other sectors or facilities as deemed necessary.

d. When a pilot reports the discovery of a bomb or suspected bomb on an aircraft which is airborne or on the ground, determine the pilot's intentions and comply with his/her requests insofar as possible. Take all the actions discussed in the preceding paragraphs which may be appropriate under the existing circumstances.

e. The handling of aircraft when a hijacker has or is suspected of having a bomb requires special considerations. Be responsive to the pilot's requests and notify supervisory personnel. Apply hijacking procedures and, if needed, offer assistance to the pilot according to the preceding paragraphs.

5-2-16. SECURITY CONTROL OF AIR TRAFFIC AND NAVIGATION AIDS (SCATANA)

a. The SCATANA Plan outlines responsibilities, procedures, and instructions for the security control of civil and military air traffic and NAVAID's under various emergency conditions.

b. When notified of SCATANA implementation, follow the instructions of FAA Form 7610-1 and any additional instructions received from the ARTCC.

1. To ensure that SCATANA actions can be taken expeditiously, periodic SCATANA tests will be conducted in connection with NORAD exercises. Tests may be local, regional, or national in scope.

2. AFSS/FSS facilities will participate in tests except where such participation will involve the safety of aircraft.

3. During SCATANA tests, all actions will be simulated.

REFERENCE-
FAAO 7610.4, Special Military Operations.

Section 3. Direction Finder (DF) Service

5-3-1. ACTIONS REQUIRED

When providing DF services to an aircraft in emergency status:

a. Determine if the aircraft is in VFR or IFR weather conditions, fuel remaining, altitude, and heading.

b. If the aircraft is operating in IFR weather conditions, coordinate with the appropriate control facility.

c. Determine if the aircraft is on a flight plan. If the aircraft is not on an IFR flight plan and is in VFR weather conditions, advise the pilot to remain VFR.

d. Alert the DF net whenever the following conditions exist:

1. The pilot is lost.

2. An emergency is declared.

NOTE-
It is not necessary to alert the DF net if a terminal controller visually sights the aircraft.

5-3-2. VFR DF SERVICE

a. Provide DF service to VFR aircraft when either of the following conditions exist:

1. The pilot requests the service.

2. You suggest the service and the pilot concurs.

b. Advise the pilot to remain VFR, and provide local altimeter setting.

PHRASEOLOGY-
MAINTAIN V-F-R AT ALL TIMES. ADVISE IF HEADING OR ALTITUDE CHANGE IS NECESSARY TO REMAIN V-F-R. (location) ALTIMETER (setting).

c. Obtain heading and altitude. Advise the pilot to maintain straight and level flight and to align the heading indicator with the magnetic compass.

PHRASEOLOGY-
MAINTAIN STRAIGHT AND LEVEL FLIGHT. RESET YOUR HEADING INDICATOR TO AGREE WITH YOUR MAGNETIC COMPASS. AFTER YOU HAVE DONE THIS, SAY YOUR HEADING AND ALTITUDE.

d. Determine the weather and fuel conditions.

PHRASEOLOGY-
WHAT IS THE WEATHER AT YOUR ALTITUDE AND FUEL REMAINING IN TIME?

e. Advise the pilot to maintain the same heading, request type of navigational equipment, and airspeed.

PHRASEOLOGY-
CONTINUE HEADING (degrees). WHAT TYPE OF NAVIGATIONAL EQUIPMENT DO YOU HAVE ON BOARD AND WHAT IS YOUR AIRSPEED?

f. While receiving the reply, determine the bearing. After determining the aircraft's bearing, provide DF service by informing the pilot of the following:

1. Direction of turn.

2. Magnetic heading, spoken in three digits (do not state the word "degrees.") All headings will be provided in increments of 5 degrees.

3. Nature of service.

4. Microphone instructions.

5. Request for report when airport is in sight.

PHRASEOLOGY-
TURN LEFT/RIGHT HEADING (degrees) FOR D-F GUIDANCE TO (name of airport, fix, or location). WHEN A REQUEST FOR TRANSMISSION IS RECEIVED, PRESS YOUR MICROPHONE BUTTON FOR THE SPECIFIED NUMBER OF SECONDS FOLLOWED BY YOUR AIRCRAFT IDENTIFICATION.

and if appropriate,

REPORT (name) AIRPORT IN SIGHT.

g. Provide pertinent information on known field conditions and latest weather information at the destination airport.

h. Request the pilot to transmit for specified periods (normally 5-10 seconds), as required. The frequency of these requests will vary depending on such factors as wind, frequency congestion, and distance, but should be made at least once each minute until the pilot reports the airport in sight or the service is terminated.

PHRASEOLOGY-
TRANSMIT (number) SECONDS.

TURN LEFT/RIGHT, HEADING (degrees), or CONTINUE HEADING (degrees).

i. Inform the pilot when DF service is terminated and provide the (CTAF) frequency, if appropriate, and the local altimeter setting.

PHRASEOLOGY-
D-F ORIENTATION SERVICE TERMINATED. COMMON TRAFFIC ADVISORY FREQUENCY (frequency) ALTIMETER (setting).

NOTE-
Service may be terminated when airport is in sight, the desired fix or location is reached, practice steers or approaches are discontinued, etc.

j. Notify DF net when service is terminated.

5-3-3. DF FIXING BY NET

When the DF net is in operation, determine the aircraft's position as follows:

a. Tell the pilot to transmit for 10 seconds.

b. Plot the bearings obtained from two or more antenna sites. Inform the pilot of the aircraft's position, and the safe altitude for orientation in that area.

NOTE-
The ARTCC or AFSS/FSS designated as DF net control is responsible for evaluating and plotting bearings received from individual antenna sites.

5-3-4. DF FIXING BY ONE FACILITY

One DF facility can determine an aircraft's location by:

a. Plotting the position from a VOR or ADF and an observed DF bearing.

b. Time method.

1. Determine the aircraft's heading and DF bearing.

2. Tell the pilot to turn left or right, whichever requires the lesser amount of turn, to a heading perpendicular to the DF bearing.

3. After turn is completed, tell the pilot to transmit (normally 5-10 seconds). Observe the DF bearing.

4. One minute later, request another transmission. Determine bearing and turn aircraft toward the DF site.

5. Divide the difference in bearings (steps 3 and 4) into 60. The result is the number of minutes the aircraft is from the DF site.

NOTE-
One station DF fixing is based on zero winds.

EXAMPLE-
Original bearing of 360 and aircraft heading of 200, the pilot should be advised to turn right to a heading of 270. Observe bearing, wait 1 minute, and observe bearing. If the first bearing (after completion of turn) was 337 and the second bearing was 325, a difference of 12, the aircraft is 5 minutes from the DF site.

c. Distance method.

1. Use the procedures specified in steps 1 through 4 in subpara 5-3-4b.

2. Request the aircraft's true airspeed.

3. Compute the distance by dividing the bearing change (for 1 minute) into the airspeed figure.

EXAMPLE-
140 airspeed divided by 10 (bearing change for 1 minute) = 14 miles from DF site.

d. After the aircraft's position is determined, provide this information, and the safe altitude for orientation in that area.

5-3-5. EMERGENCY DF APPROACH PROCEDURE

a. Under emergency conditions where a standard instrument approach cannot be executed, provide DF guidance and instrument approach service, if available, as follows:

1. Obtain and relay ATC clearance including radio failure procedures.

2. Issue destination airport weather.

3. Provide guidance as specified in VFR DF Service, para 5-3-2, except delete the VFR requirement. To avoid large turns over the DF site, the aircraft should be guided to pass over the DF site established on the course that the pilot will maintain on the outbound leg of the approach.

PHRASEOLOGY-
TURN LEFT/RIGHT, HEADING (degrees) FOR D-F GUIDANCE AND APPROACH TO THE (name) AIRPORT. MAINTAIN (altitude specified by ATC). WHEN A REQUEST FOR TRANSMISSION IS RECEIVED, PRESS YOUR MICROPHONE BUTTON FOR THE SPECIFIED NUMBER OF SECONDS FOLLOWED BY YOUR AIRCRAFT IDENTIFICATION.

REPORT AIRPORT IN SIGHT. IF NO TRANSMISSION IS RECEIVED FOR (time of interval) PROCEED V-F-R. IF UNABLE, PROCEED (routing, fix, altitude as specified by ATC). CONTACT (facility) ON (frequency).

b. Inform the pilot when the aircraft is over the DF site. Advise pilot to perform landing check, and provide guidance for outbound track.

PHRASEOLOGY-
OVER (ABEAM) D-F SITE, PERFORM LANDING CHECK. CONTINUE HEADING (degrees) or TURN LEFT/RIGHT, HEADING (degrees). REPORT ESTABLISHED HEADING (degrees).

c. Provide DF approach guidance in accordance with the triangle or teardrop approach procedures as specified on FAA Form 8260-10.

1. Triangle Approach Pattern.

(a) Time the outbound leg and issue descent information. Normally, the outbound track should be maintained for 3 minutes, but this may be adjusted depending on airspeed and nature of the emergency. Time intervals between bearing observations should not exceed 15 seconds.

PHRASEOLOGY-
ON OUTBOUND LEG. DESCEND AND MAINTAIN (altitude specified on FAA Form 8260-10 for outbound course).

(b) When outbound leg is completed, issue turn instructions so that the aircraft's course is perpendicular to the final approach course. Issue further descent information if so specified on FAA Form 8260-10. Issue missed approach procedures as specified on FAA Form 8260-10.

PHRASEOLOGY-
ON BASE LEG. IN CASE OF MISSED APPROACH, CLIMB TO (altitude) ON COURSE (degrees) WITHIN (number) MILES.

(c) At least two turns should be made onto final approach.

(d) When the aircraft is on final approach, advise the pilot to start descent and provide minimum descent altitude and field elevation information. Take bearings more frequently. Time intervals between bearing observations should not exceed 5 seconds during the estimated last 30 seconds of the approach.

PHRASEOLOGY-
ON FINAL APPROACH, BEGIN DESCENT. MINIMUM DESCENT ALTITUDE (altitude), FIELD ELEVATION (elevation). REPORT RUNWAY IN SIGHT.

(e) If the aircraft misses the approach, inform the appropriate control facility.

2. Teardrop Approach Pattern.

(a) Provide guidance to establish the aircraft on the outbound course. Issue descent information, if appropriate. Time intervals between bearing observations should not exceed 15 seconds.

(b) Issue direction of turn and inbound heading information. Issue missed approach procedures as specified on FAA Form 8260-10.

(c) When procedure turn is complete, provide directional guidance and issue descent information. The time intervals between the bearing observations should not exceed 5 seconds during the estimated last 30 seconds of the approach.

(d) If aircraft misses the approach, inform the appropriate control facility.

Section 4. ADF/VOR Orientation

5-4-1. ACTIONS REQUIRED

When providing ADF/VOR orientation services to an aircraft in emergency status:

a. Determine if the aircraft is in VFR or IFR weather conditions, fuel remaining, altitude, and heading.

b. If the aircraft is operating in IFR weather conditions, coordinate with the appropriate control facility.

c. Determine if the aircraft is on a flight plan. If the aircraft is not on an IFR flight plan and is in VFR weather conditions, advise the pilot to remain VFR.

5-4-2. ADF ORIENTATION/ADF CROSSFIX

When using ADF orientation and/or crossfix procedures, determine the aircraft's position as follows:

a. Position Fixing.

1. Advise the pilot to remain VFR, and provide local altimeter setting.

PHRASEOLOGY-
MAINTAIN V-F-R AT ALL TIMES. ADVISE IF HEADING OR ALTITUDE CHANGE IS NECESSARY TO REMAIN V-F-R. (Location) ALTIMETER (setting).

2. Obtain heading and altitude. Advise the pilot to maintain straight and level flight and to align the heading indicator with the magnetic compass.

PHRASEOLOGY-
MAINTAIN STRAIGHT AND LEVEL FLIGHT. RESET YOUR HEADING INDICATOR TO AGREE WITH YOUR MAGNETIC COMPASS. AFTER YOU HAVE DONE THIS, SAY YOUR HEADING AND ALTITUDE.

3. Determine the weather and the fuel conditions.

PHRASEOLOGY-
WHAT IS THE WEATHER AT YOUR ALTITUDE AND FUEL REMAINING IN TIME?

4. Advise the pilot to maintain the same heading, verify the aircraft has ADF equipment, and determine the airspeed.

PHRASEOLOGY-
CONTINUE HEADING (degrees). WHAT TYPE OF NAVIGATIONAL EQUIPMENT DO YOU HAVE ON BOARD, AND WHAT IS YOUR AIRSPEED?

5. Advise the pilot to tune the ADF receiver to the NDB. Provide the NDB name, identifier, and frequency.

PHRASEOLOGY-
TUNE YOUR A-D-F RECEIVER TO THE (name) RADIO BEACON, FREQUENCY (frequency), IDENTIFICATION (ident). CHECK VOLUME UP AND IDENTIFY THE STATION. ADVISE WHEN YOU HAVE DONE THIS.

6. After acknowledgment has been received, advise the pilot to set the ADF function switch to the ADF position and report the reading.

PHRASEOLOGY-
IF YOU HAVE A ROTATING COMPASS CARD (ROSE) ON YOUR A-D-F INDICATOR, MAKE CERTAIN NORTH IS AT THE TOP OF THE DIAL. TURN THE FUNCTION SWITCH TO THE A-D-F POSITION. WHEN THE NEEDLE STABILIZES, ADVISE THE A-D-F NEEDLE READING.

REFERENCE-
The Instrument Flying Handbook. North may mean "north, N, zero (0) or 360."

7. Compute the magnetic bearing.

NOTE-
Relative Bearing (RB) + Magnetic Heading (MH) = Magnetic Bearing (MB)

If the MB exceeds 360 degrees, subtract 360 to determine MB; i.e., 480 degrees - 360 degrees = 120 degrees MB.

8. Advise the pilot of direction from the NDB.

PHRASEOLOGY-
YOU ARE (direction) OF THE (name) RADIO BEACON.

b. Orientation.

1. Turn the aircraft inbound to the NDB being used. Provide the direction of the turn and the heading to be flown. Advise the pilot to report when established on that heading.

PHRASEOLOGY-
FOR A-D-F ORIENTATION, TURN LEFT/RIGHT HEADING (degrees). REPORT ESTABLISHED HEADING (degrees).

2. Notify the appropriate control facility. Provide all required information including the aircraft's position and heading.

3. Verify that the aircraft is established on a line of position to the NDB.

PHRASEOLOGY-
WHAT IS YOUR A-D-F NEEDLE READING?

4. Provide heading adjustments as needed for the aircraft to continue inbound to the NDB.

(a) If the pilot indicates an ADF reading other than 3-6-0, compute the new heading and advise the aircraft.

PHRASEOLOGY-
TURN LEFT/RIGHT HEADING (degrees). REPORT ESTABLISHED HEADING (degrees).

(b) After pilot reports established and needle is on 3-6-0, heading adjustments are not necessary.

PHRASEOLOGY-
CONTINUE HEADING (degrees).

c. Crossfixing. After the aircraft is established inbound to the NDB, use the following procedures:

1. Advise the pilot to tune the ADF receiver to the NDB to be used for crossfixing. Provide the NDB name, identifier, and frequency.

PHRASEOLOGY-
TUNE YOUR A-D-F RECEIVER TO THE (name) RADIO BEACON, FREQUENCY (frequency), IDENTIFICATION (identification). CHECK VOLUME UP AND IDENTIFY THE STATION. ADVISE WHEN YOU HAVE DONE THIS.

2. After acknowledgment has been received, request ADF reading.

PHRASEOLOGY-
WHEN THE NEEDLE STABILIZES, ADVISE THE A-D-F NEEDLE READING.

3. Compute and plot the second line of position.

NOTE-
The intersection of the two lines of position is the aircraft's position at the time of the second ADF reading.

4. Advise the pilot of the aircraft's position and the safe altitude for orientation in that area.

PHRASEOLOGY-
YOU ARE (miles)(direction) OF THE (name) RADIO BEACON. THE SAFE ALTITUDE FOR ORIENTATIONS IN THAT AREA IS (feet).

5. Request pilot's intentions and provide assistance, as requested.

PHRASEOLOGY-
WHAT ARE YOUR INTENTIONS?

5-4-3. VOR ORIENTATION/VOR CROSSFIX

When using VOR orientation and/or crossfix procedures, determine the aircraft's position as follows:

a. Position Fixing.

1. Advise the pilot to remain VFR and provide the local altimeter setting.

PHRASEOLOGY-
MAINTAIN V-F-R AT ALL TIMES. ADVISE IF HEADING OR ALTITUDE CHANGE IS NECESSARY TO REMAIN V-F-R. (Location) ALTIMETER (setting).

2. Obtain heading and altitude. Advise the pilot to maintain straight and level flight and to align the heading indicator to agree with the magnetic compass.

PHRASEOLOGY-
MAINTAIN STRAIGHT AND LEVEL FLIGHT. RESET YOUR HEADING INDICATOR TO AGREE WITH YOUR MAGNETIC COMPASS. AFTER YOU HAVE DONE THIS, SAY YOUR HEADING AND ALTITUDE.

3. Determine the weather conditions and the fuel status.

PHRASEOLOGY-
WHAT IS THE WEATHER AT YOUR ALTITUDE AND FUEL REMAINING IN TIME.

4. Advise the pilot to maintain the same heading, verify the aircraft has VOR equipment, and determine the airspeed.

PHRASEOLOGY-
CONTINUE HEADING (degrees). WHAT TYPE OF NAVIGATIONAL EQUIPMENT DO YOU HAVE ON BOARD, AND WHAT IS YOUR AIRSPEED?

5. If the pilot calls on a simplex frequency, such as 122.2, advise the pilot to tune the receiver to the VOR you have selected. Provide the VOR name, frequency, and communication procedures.

PHRASEOLOGY-
CONTINUE TRANSMITTING THIS FREQUENCY. TUNE YOUR V-O-R RECEIVER TO THE (name) V-O-R, FREQUENCY (frequency) IDENTIFICATION (identification). CHECK VOLUME UP AND IDENTIFY THE STATION. ADVISE WHEN YOU HAVE DONE THIS.

NOTE-
If the pilot calls on duplex (122.1), use the VOR the pilot is tuned as the initial VOR.

6. Determine the aircraft's course selector reading.

PHRASEOLOGY-
ROTATE YOUR COURSE SELECTOR SLOWLY UNTIL THE LEFT/RIGHT NEEDLE CENTERS WITH A "TO" INDICATION. ADVISE YOUR COURSE SELECTOR READING.

7. Advise the pilot of the aircraft's position.

PHRASEOLOGY-
YOU ARE (direction) OF THE (name) V-O-R.

b. Orientation.

1. Turn the aircraft inbound to the VOR being used. Provide the direction of turn and the heading to be flown. Advise the pilot to report when established on that heading.

PHRASEOLOGY-
FOR V-O-R ORIENTATION, TURN LEFT/RIGHT HEADING (degrees). REPORT ESTABLISHED HEADING (degrees).

2. Notify the appropriate control facility. Provide all the required information including the aircraft's position and heading.

3. Verify that the aircraft is established on a line of position to the VOR.

PHRASEOLOGY-
WHAT IS THE POSITION OF YOUR LEFT/RIGHT NEEDLE?

4. Provide heading adjustments as needed for the aircraft to continue inbound to the VOR.

(a) When the pilot indicates the left/right needle is not centered, advise the pilot to recenter needle with a "TO" indication and report the course selector reading.

PHRASEOLOGY-
Pilot response indicates needle not centered.

ROTATE YOUR COURSE SELECTOR SLOWLY UNTIL THE LEFT/RIGHT NEEDLE CENTERS WITH A "TO" INDICATION. ADVISE YOUR COURSE SELECTOR READING. (If appropriate) TURN LEFT/RIGHT HEADING (degrees). REPORT ESTABLISHED (degrees).

(b) After the aircraft is established on the inbound radial, advise the aircraft to continue on the inbound heading.

PHRASEOLOGY-
CONTINUE HEADING (degrees).

5. Plot line of position.

c. Crossfixing. After the aircraft is established inbound to the VOR, use the following procedures:

1. Advise the pilot to tune the receiver to the VOR you have selected for crossfixing. Provide VOR name, frequency, and lost communications procedures.

PHRASEOLOGY-
CONTINUE TRANSMITTING THIS FREQUENCY. TUNE YOUR V-O-R RECEIVER TO THE (name) V-O-R, FREQUENCY (frequency), IDENTIFICATION (identification). CHECK VOLUME UP. IF COMMUNICATION IS NOT ESTABLISHED IMMEDIATELY, RETURN TO THIS FREQUENCY.

2. Using only the voice feature of the second VOR, establish positive communication with the aircraft.

PHRASEOLOGY-
(Name) RADIO TRANSMITTING ON THE (name) V-O-R. HOW DO YOU HEAR? OVER.

NOTE-
Transmit only on the frequency of the VOR being used for crossfixing, if available.

3. After communication has been reestablished, advise the pilot to recenter the VOR left/right needle and advise the reading.

PHRASEOLOGY-
ROTATE YOUR COURSE SELECTOR SLOWLY UNTIL THE LEFT/RIGHT NEEDLE CENTERS WITH A "TO" INDICATION. ADVISE YOUR COURSE SELECTOR READING.

4. If the pilot is transmitting on duplex (122.1) and the cross fix VOR has no voice capability provide the following instructions.

PHRASEOLOGY-
CONTINUE TRANSMITTING THIS FREQUENCY. TUNE YOUR VOR RECEIVER TO THE (name) VOR, FREQUENCY (frequency), IDENTIFICATION (ident). CHECK VOLUME UP AND IDENTIFY THE STATION. ROTATE YOUR COURSE SELECTOR SLOWLY UNTIL THE LEFT/RIGHT NEEDLE CENTERS WITH A "TO" INDICATION. ADVISE YOUR COURSE SELECTOR READING (PAUSE).

RETUNE YOUR VOR RECEIVER TO THE (name) VOR, FREQUENCY (frequency), IDENTIFICATION (identification). SAY YOUR AIRCRAFT IDENTIFICATION AND THE (name) VOR COURSE SELECTOR READING.

5. Advise the pilot to continue the inbound heading.

PHRASEOLOGY-
CONTINUE HEADING (degrees).

6. Plot the new line of position from the second VOR, advise the pilot of the aircraft's position, and the safe altitude for orientation in that area.

PHRASEOLOGY-
YOU ARE (miles) (direction) OF THE (name) V-O-R. THE SAFE ALTITUDE FOR ORIENTATIONS IN THAT AREA IS (feet).

NOTE-
The intersection of the two lines of position is the aircraft's position at the time of the second VOR reading.

7. Request the pilot's intentions.

PHRASEOLOGY-
WHAT ARE YOUR INTENTIONS?

5-4-4. GUIDANCE TO AIRPORT

After establishing the aircraft's position and if the pilot requests guidance to the airport:

a. Plot the course to the airport.

b. Provide the course guidance information to the pilot.

1. Advise the pilot of the direction of the turn and the heading to the airport.

PHRASEOLOGY-
FOR A HEADING TO THE (name) AIRPORT, TURN LEFT/RIGHT HEADING (degrees). REPORT ESTABLISHED HEADING (degrees).

2. After the pilot reports established on the heading to the airport, advise the pilot of the position in relation to the airport.

PHRASEOLOGY-
YOU ARE (miles) (direction) OF THE (name) AIRPORT. CONTINUE HEADING (degrees).

3. Continue to provide assistance in the form of pilotage and airport information as necessary.

PHRASEOLOGY-
DO YOU SEE ANY PROMINENT LANDMARKS?

ARE YOU FAMILIAR WITH THE (name) AIRPORT?

(Name) AIRPORT FIELD ELEVATION (feet). IT HAS (number and surface type) RUNWAYS. THE RUNWAY/S RUN (direction). THE AIRPORT IS LOCATED (direction/distance) FROM (landmark visible to the aircraft).

4. Advise the pilot to report the landing airport in sight.

PHRASEOLOGY-
REPORT AIRPORT IN SIGHT.

5. Determine when the pilot no longer needs assistance.

PHRASEOLOGY-
DO YOU REQUIRE FURTHER ASSISTANCE?

6. When the pilot indicates assistance is no longer required, terminate the service. Provide the CTAF frequency, if appropriate, and the local altimeter setting.

PHRASEOLOGY-
(VOR/ADF) ORIENTATION SERVICE TERMINATED. COMMON TRAFFIC ADVISORY FREQUENCY (frequency). ALTIMETER (setting).

NOTE-
CTAF is defined as a UNICOM, Multicom, AFSS/FSS, or ATCT frequency.

7. Notify appropriate control facility of the aircraft's position, termination of services, and the pilot's intentions.

Chapter 6. Flight Data

Section 1. General

6-1-1. COMMUNICATIONS SERVICE

Most flight movement data exchanged outside of the facility is processed by automated systems such as the National Airspace Data Interchange Network (NADIN). It is important to adhere to strict format and procedures during normal operations as well as system interruption periods.

a. Circuit interruption notifications should be as follows:

1. AFSS. Notify their FSDPS and appropriate telco servicing company of all outages.

NOTE-
The FSDPS notifies NADIN for Service B outages or AWP for Service A outages, as well as the ARTCC Systems Engineer (SE).

2. FSS. Notify their guard facility, the AIS Customer Service Center, and NADIN.

b. All outage reports should refer to the correct circuit and/or equipment identification numbers. Facilities should obtain and record ticket numbers provided by AIS or the telco authority.

c. AIS and NADIN telephone numbers are as follows:

1. NADIN/ATLANTA (KATLYTYX) (770) 210-7675.

2. NADIN/SALT LAKE CITY (KSLCYTYX) (801) 320-2171/2172.

3. AIS HELPDESK 800-804-1310.

4. AIS EMERGENCY OUTAGE HOTLINE 703-818-5551.

6-1-2. FLIGHT PLANS

The filing of VFR flight plans is recommended. Brief pilots, as appropriate, on the following:

a. Identify the tie-in station for the departure point, and advise the pilot to report departure time directly to that facility.

b. When a departure report is unlikely because of inadequate communications capability, advise the pilot that the flight plan will be activated immediately, using the proposed departure time as the actual departure time. Include "ASMD DEP" in remarks. The pilot is responsible for cancelling or extending the flight plan if the flight is cancelled or delayed.

c. Determine the flight plan area in which the destination is located. Request the pilot close the flight plan with the tie-in station. Provide the pilot the tie-in station's phone number, upon request.

d. Recommend that a separate flight plan be filed for each leg of a VFR flight.

e. Request the pilot inform an AFSS/FSS whenever the filed time en route changes more than 30 minutes.

f. On return flights from remote areas, such as a fishing site, establish a mutually acceptable date/time with the pilot for alerting search and rescue.

g. On a single flight to be conducted under both IFR/VFR flight rules, confirm whether the VFR portion is by flight plan and, if so, with whom the pilot will close. File two separate flight plans.

h. If a pilot indicates the flight will penetrate Class A airspace, advise the pilot of the Class A requirements.

i. When a pilot files to an airport served by a part-time FSS and the ETA is during the period the facility is closed, ask the pilot to close with the associated AFSS/FSS, identified in FAAO 7350.7 and the Airport/Facility Directory.

j. Upon request, inform pilots filing IFR flight plans of the appropriate and most effective means of obtaining IFR departure clearances.

6-1-3. FLIGHT PLAN DATA

Handle flight plan data as follows:

a. AIS.

1. Record flight plan data received from an operations office on FAA Form 7233-1 or a flight progress strip. The operations office must obtain complete information on the flight, but need forward to the FAA only those items necessary for control or VFR flight plan purposes.

2. Accept military flight plan proposals, cancellations, and closures from any source including collect telephone calls.

3. Pass the FAA Form 7233-1 to the appropriate operating position for delivery of the flight notification message.

b. M1FC.

1. Record flight plan data on domestic or ICAO flight plan mask as appropriate. Flight plan data received from an operations office may be limited to only those items necessary for control or VFR flight plan purposes, provided the operations office obtains complete information on the flight.

2. Accept military flight plan proposals, cancellations, and closures from any source, including collect telephone calls.

3. Transmit flight notification messages from a flight plan mask in order for M1FC to place the message in the aircraft data file and provide automatic log and tally.

NOTE-
Part time operations offices must provide complete information in the event it is needed for SAR purposes.

6-1-4. PART-TIME FSS CLOSURE ACTION

Part-time facilities shall forward the following information to the designated guard AFSS/FSS.

a. Inbound flights - all information.

b. Outbound flights - VFR and IFR flight plan data when proposed departure time and/or ETA is within the period from 1 hour prior to closing until 1 hour after opening.

c. All other pertinent information; e.g., NOTAM's, pending outages.

Section 2. Flight Plan Proposals

6-2-1. FLIGHT PLAN RECORDING

Record flight plans on FAA Form 7233-1 or on M1FC Domestic Flight Plan Mask. Completion of all blocks or fields is not required in every case, and all items filed are not always transmitted. Use authorized abbreviations where possible. Fill in the form/mask as follows:

a. *Item 1.* Type of flight plan.

1. FAA Form 7233-1. Check the appropriate box.

2. M1FC- FR: field.

(a) **V** - civilian VFR flight plans.

(b) **MV** - military VFR flight plans.

(c) **PV** - VFR flight plans departing from outside the facility's flight plan area.

(d) **DV** - DVFR flight plans. M1FC will accept DV flight plans only as a proposal addressed to an ARTCC.

(e) **I** - civil IFR flight plans or military IFR flight plans that do not require transmission of a flight notification message.

(f) **MI** - military IFR flight plans that require a flight notification message.

(g) **PI** - IFR flight plans departing from outside the facility's flight plan area that require a flight notification message.

NOTE-
PI for transborder flights that require an ADCUS flight notification message. PI messages are addressed to the departure tie-in station. They are in addition to the I message transmitted to the departure ARTCC. Remarks to be transmitted by the departure station as part of the flight notification message must be included in the PI message and preceded by a $ sign.

(h) **SC** - Stereo flight plans for civil aircraft.

(i) **SM** - Stereo flight plans for military aircraft.

b. *Item 2.* Aircraft Identification (M1FC- AI: field). Enter as follows, but do not exceed seven alphanumeric characters:

1. Civil Aircraft Including Air Carrier: Aircraft letter/digit registration including the letter T prefix for air taxi aircraft, the letter L for LIFEGUARD aircraft, or the three-letter aircraft company designator specified in FAAO 7340.1 followed by the trip or the flight number.

EXAMPLE-
N12345
TN5552Q
AAL192
LN751B

NOTE-
The letter L shall not be entered in Item 2 of the flight plan for air carrier or air taxi LIFEGUARD aircraft. Include the word LIFEGUARD in the remarks section of the flight plan.

2. U.S. Military Aircraft. Use the military abbreviation followed by the last five digits of the aircraft's number. For certain tactical mission aircraft, enter the assigned three-to-six letter code word followed by a one-to-four digit number. (See TBL 6-2-1.)

TBL 6-2-1
Military

Abbreviation	*Military Service*
A	USAF
C	Coast Guard
E	Air Evacuation
G	Air/Army National Guard
L	LOGAIR (USAF contract)
R	Army
RCH	REACH (USAF Air Mobility Command)
S	Special Air Mission
VM	Marine Corps
VV	Navy

3. Canadian Military Aircraft. The abbreviations shall be followed by a number group not to exceed four digits. (See TBL 6-2-2.)

TBL 6-2-2
Canadian Military

Abbreviation	*Military Service*
CAF	Canadian Armed Force
CTG	Canadian Coast Guard

c. *Item 3.* Aircraft Type (M1FC- AT: field). Insert the name or abbreviation (two-to-four alphanumeric

characters) of the manufacturer 's or military designation. For homebuilt/experimental aircraft, use HXA, HXB, or HXC in accordance with the FAAO 7340.1. Spell out aircraft type in Remarks.

1. Prefix to Aircraft Type (one-to-two alphanumeric characters). Indicate for IFR operations if the aircraft is equipped with TCAS equipment and/or the aircraft's weight class if it is heavy. The prefix for TCAS is T; for a heavy aircraft the prefix is H; for both TCAS and heavy the prefix is B; e.g. H/B727, T/B727, or B/DC10. If a formation flight is planned, enter the number and type of aircraft; e.g., 8/B52.

2. Suffix to Aircraft Type (one alpha character). Indicate for IFR operations the aircraft's radar transponder, DME, or RNAV (includes LORAN) capability by adding the appropriate symbol preceded by a slant (/). (See TBL 6-2-3.)

TBL 6-2-3

Suffix to Aircraft Type

Suffix	*Aircraft Equipment Suffixes*
	DME
/A	Transponder with Mode C.
/B	Transponder with no Mode C.
/D	No transponder.
	NO DME
/T	Transponder with no Mode C.
/U	Transponder with Mode C.
/X	No transponder.
	TACAN ONLY
/M	No transponder.
/N	Transponder with no Mode C.
/P	Transponder with Mode C.
	AREA NAVIGATION (RNAV)
/C	LORAN, VOR/DME, or INS, transponder with no Mode C.
/I	LORAN, VOR/DME, or INS, transponder with Mode C.
/Y	LORAN, VOR/DME, or INS with no transponder.
	ADVANCED RNAV With Transponder and Mode C (If an aircraft is unable to operate with a transponder and/or Mode C, it will revert to the appropriate code listed above under Area Navigation.)
/E	FMS with en route, terminal, and approach capability. Equipment requirements are: a. Dual FMS which meets the specifications of AC25-15, Approval of Flight Management Systems in Transport Category Airplanes; AC20-129, Airworthiness Approval of Vertical Navigation (VNAV) Systems for use in the U.S. NAS and Alaska; AC20-130, Airworthiness Approval of Navigation or Flight Management Systems Integrating Multiple Navigation Sensors; or equivalent criteria as approved by Flight Standards. b. A flight director and autopilot control system capable of following the lateral and vertical FMS flight path. c. At least dual inertial reference units (IRU's). d. A database containing the waypoints and speed/altitude constraints for the route and/or procedure to be flown that is automatically loaded into the FMS flight plan. e. An electronic map. (U.S. and U.S. territories only unless otherwise authorized)
/F	A single FMS with en route, terminal, and approach capability that meets the equipment requirements of /E, a through d above. (U.S. and U.S. territories only unless otherwise authorized)
/G	Global Positioning System (GPS)/Global Navigation Satellite System (GNSS) equipped aircraft with en route and terminal capability.
/Q	Required Navigation Performance (RNP) and Reduced Vertical Separation Minima (RVSM) {indicate approval for application of RNP and RVSM separation standards.} It should be noted that /Q is for automation purposes only and will not be filed by system users. FAA processors will convert the combination of /R+/W to =/Q.
/R	Required Navigational Performance. (Denotes capability to operate in RNP designated airspace and routes.)
/W	Reduced Vertical Separation Minima (RVSM).

NOTE-
The /E and /F suffixes will only be used by aircraft operating to and from airports within the U.S., unless authorized by the controlling authority.

REFERENCE-
FAAO 7110.65, Air Traffic Control, Para 2-3-7 and TBL 2-3-3.

d. *Item 4.* True Airspeed (TAS Knots) (M1FC-TS: field). Enter two-to-four digits for TAS in knots; M followed by three digits for Mach number; or SC for "speed classified."

e. *Item 5.* Departure Point (M1FC- DD: field). Enter two-to-twelve alphanumeric and slant characters for name or identifier of the departure airport or point over which the flight plan is activated.

NOTE-
Names may be used when there is no identifier available and they do not exceed 12 characters with no spaces. Unless a geographic point is converted to latitude/longitude or fix-radial-distance (FRD), the M1FC computer will not be able to provide weather/NOTAM information and the route override function must be used to transmit or modify the flight plan.

f. *Item 6.* Departure Time (M1FC- TM: field). Enter departure time in UTC. Prefix this time with a P in the TM: field for proposals or a D for departures. If the departure time is assumed, indicate this in the Remarks field.

g. *Item 7.* Cruising Altitude (M1FC- AE: field). Proposed altitude or flight level using two-to-seven characters; e.g., 80 or 080, OTP, OTP/125, VFR, ABV/060.

h. *Item 8.* Route of Flight (M1FC- RT: field). Enter identifiers for airways or jet routes to clearly indicate the proposed flight path. For direct flight, use names or identifiers of navigation aids and geographical points or coordinates. If more than one airway or jet route is to be flown, clearly indicate the transition points.

NOTE-
On some direct flights beyond the departure center's airspace, it may be necessary to include a fix in the adjacent center's airspace or latitude/longitude coordinates, as appropriate, to facilitate computer acceptance. Local procedures should be applied to these special situations.

i. *Item 9.* Destination (M1FC- DD: field). Enter two-to-twelve alphanumeric and/or slant characters for name or identifier of the destination airport or point over which the flight plan is to be cancelled.

j. *Item 10.* Estimated Time En Route (M1FC-TE: field). Enter in hours and minutes the total elapsed time between departure and destination; e.g., 0430 or 4+30. For IFR proposals, ETE must be in four-digit format; i.e. 0215.

k. *Item 11.* Remarks (M1FC- RM: field). Information necessary for ATC or to assist search and rescue operations, plus any other data appropriate to the flight; e.g., the abbreviations FAA or DOT. Enter names of experimental or homebuilt aircraft (Veri-EZ, Long-EZ, Mustang, Delta Dart). For RM: field only - Use 1-80 characters beginning with *, #, $, or %. (See TBL 6-2-4.)

TBL 6-2-4

*	transmit remarks to all centers.
#	transmit remarks to departure centers only.
$	transmit remarks only to those addresses in the CP field of the flight notification message.
%	for remarks not to be transmitted.

NOTE-
Civil aircraft with authorized company identification are required to file the full authorized radio call in remarks.

l. *Item 12.* Fuel on Board (M1FC- FB: field). Enter in hours and minutes; e.g., 0330 or 3+30.

m. *Item 13.* Alternate Airport/s (M1FC- AA: field). Enter the location identifier if specified by the pilot. For AA: field only. Use three-to-seven alphanumeric characters. For two alternate airports, enter identifiers consecutively; e.g., BJCFNL.

n. *Item 14.* Pilot's Name, Telephone Number, Aircraft's Home Base (M1FC- PD: field). Self-explanatory. For military pilots, obtain the name and telephone of BASOPS.

NOTE-
Pilot's name not required if BASOPS' name is provided.

o. *Item 15.* Number Aboard (M1FC- NB: field). Self-explanatory.

p. *Item 16.* Color of Aircraft. (M1FC- CR: field). Use authorized contractions when available. (See TBL 6-2-5.)

TBL 6-2-5

Code and Color

Code	*Color*		*Code*	*Color*
A	Amber		B	Blue
BE	Beige		BK	Black
BR	Brown		G	Green
GD	Gold		GY	Gray
M	Maroon		O	Orange
P	Purple		PK	Pink
R	Red		S	Silver
T	Tan		TQ	Turquoise
V	Violet		W	White
Y	Yellow			

NOTE-
1. For ICAO flight plans, see Appendix B.

2. Local procedures may be developed for use on the reverse side of FAA Form 7233-1.

6-2-2. OUTBOUNDS DEPARTING FROM OUTSIDE FLIGHT PLAN AREA

Accept flight plans regardless of departure point. Forward VFR flight plan proposals for aircraft proposing to depart from outside the facility's flight plan area to the tie-in FSS/AFSS for the departure point in the following format:

a. Type of Flight.

b. Aircraft Identification.

c. Aircraft Type.

d. Departure Point.

e. Destination.

f. Proposed Departure Time/ETE.

g. Remarks.

EXAMPLE-
AIS
FF KDAYYFYX
DTG KBWGYFYX
VFR N1234 BE90 DAY LOU P1330/0130

M1FC
FR:PV AI:N1234 AT:C150 TS:90 DD:DSM TM:P1800
AE:65 RT:DSM..OMA..LNK
AD:LNK TE:0300 RM:$FP KIKKYFYX
FB:0330 AA: PD:JOE PILOT
HB:DSM NB: CR:R/W TL:
OP:
CP:KFODYFYX
TA:2100

NOTE-
1. M1FC will autoaddress the CP field, automatically extract the required items from the flight plan mask and transmit a flight proposal to the departure tie-in AFSS/FSS.

M1FC will automatically fill in the originator of the flight plan in the RM field when the flight plan is transmitted.

2. For civil flight movement messages with remarks, precede the remarks with a dollar symbol ($).

6-2-3. ALASKA SPECIAL INSTRUCTIONS

All flight plans, departures (including intermediate departures) or arrivals, on an FAA aircraft, will be given normal distribution plus PANCYAYI whether VFR or IFR.

EXAMPLE-
AIS
FF PANCYAYI
DTG PAENYFYX
N123 D1345

AIS
FF PANCYAYI
DTG PAENYFYX
N123 ENA A1345 ANC

6-2-4. M1FC ENTRY OF MILITARY IFR MULTI-LEG STOPOVER FLIGHT PLAN

a. Complete all FP fields down through time en route or remarks for the first leg. Use MI in the flight rules field. This will hold the flight plan on the proposed list for flight notification.

b. All subsequent legs shall be preceded by a slant and recorded in the route field after the first leg: DESTINATION, ETE, AIRSPEED, P-TIME, ALTITUDE, ROUTE, and remarks for each leg.

c. After all legs have been recorded properly, the FP should autoaddress the ARTCC of the first leg departure point in the OP: field and all destination BASOPS stations in the CP: field. GI will send the first leg to the appropriate ARTCC and place the flight plan on the proposed list.

EXAMPLE-
M1FC
FR:MI AI:BAT21 AT:F16/R TS:450 DD:DBQ TM:P1700
AE:280
RT:DBQ..TNU..OFF/FOE 0+15 450 P1800 270 OFF..FOE
*AD:OFF TE:0030 RM:*REMARKS $VT012115*
FB:0230 AA: PD:ON FILE BASOPS
HB:DBQ NB:1 CR:OD TL: OP:ZCG
CP:KOFFYXYX KFOEYXYX
TA:1730

d. To send the second leg of the flight plan to the appropriate ARTCC, the original flight plan needs to be altered.

1. Display the flight plan (FPC).

2. Change the MI to I. It is not necessary to hold this leg for flight notification.

3. Make the necessary changes to indicate the next leg of the flight plan.

EXAMPLE-
M1FC
FR:I AI:BAT21 AT:F16/R TS:450 DD:OFF TM:P1800
AE:270
RT:OFF..FOE
*AD:FOE TE:0015 RM:*REMARKS*
FB: AA: PD:ON FILE BASOPS
HB.DBQ NB:1 CR:OD TL: OP:ZCP
CP:
TA:1815

NOTE-
If there is an additional leg, it must be taken from the original flight plan.

e. After all legs have been sent to their appropriate ARTCC, construct a flight notification message.

1. Retrieve the original flight plan from the proposal list.

2. Edit each leg preceded by a slant to indicate the destination, ETE and pertinent remarks.

3. Delete all other information and restore to the proposal list (STPM) and await activation.

EXAMPLE-
M1FC
FR:MI AI:BAT21 AT:F16/R TS:450 DD:DBQ TM:P1700
AE:280
RT:DBQ..TNU..OFF/FOE 0+15
*AD:OFF TE:0030 RM:*REMARKS $VTO12115*
FB:0230 AA: PD:ON FILE BASOPS
HB:DBQ NB:1 CR:OD TL:
OP:ZCG
CP:KOFFYXYX KFOEYXYX
TA:

6-2-5. M1FC ENTRY OF MILITARY VFR STOPOVER FLIGHT PLAN

a. File a military VFR stopover flight plan in the same format as a military IFR stopover.

b. After the flight plan is filed on the proposal list, display the flight plan (FP ACID). Use the CX keyword to cancel the flight plan. The complete flight plan is then on file for search and rescue.

EXAMPLE-
M1FC
FR:MV AI:G2034 AT:UH1/U TS:90 DD:FOD TM:P1800
AE:055
RT:FOD..DSM..OFF/MLC 3+10 90 P2100 045 OFF..MLC/SZL
2+10 90 P0100 055 MLC..SZL
AD:OFF TE:0200 RM:$VT010600
FB:0400 AA: PD:ON FILE BASOPS
HB:DBQ NB:1 CR:O/D TL:
OP:
CP:KOFFYXYX KMLCYFYX KSZLYXYX
TA:2000

c. After the flight plan is cancelled, use the FPC keyword to display the flight plan on the screen. Change the RT field to show only the destination, ETE, and any pertinent remarks for all remaining legs. File the revised version onto the proposal list to await activation.

EXAMPLE-
M1FC
FR:MV AI:G2034 AT:UH1/U TS:90 DD:FOD TM:P1800
AE:055
RT:FOD..DSM..OFF/MLC 3+10/SZL 2+10
AD:OFF TE:0200 RM:$VT010600
FB:0400 AA: PD:ON FILE BASOPS
HB:DBQ NB:1 CR:OD TL:
OP:
CP:KOFFYXYX KMLCYFYX KSZLYXYX
TA:2000

Section 3. IFR Flight Plan Handling

6-3-1. DOMESTIC IFR FLIGHT PLANS

a. IFR flight plans should consist of items 1 through 15 of FAA Form 7233-1. Items 1 through 11 shall be transmitted to the ARTCC as part of the IFR flight plan proposal. Items 12 through 15 shall be retained in the FSS and be available upon request.

NOTE-
Part-time FSS's shall forward items 1 through 15 in accordance with para 6-1-4.

b. **M1FC.** IFR flight plans should consist of the following fields:

1. **FR** Type of Flight.
2. **AI** Aircraft Identification.
3. **AT** Number and Type of Aircraft.
4. **TS** True Airspeed or Mach Number.
5. **DD** Departure Point.
6. **TM** Departure Time.
7. **AE** Requested Altitude.
8. **RT** Route of Flight.
9. **AD** Destination.
10. **TE** Time En Route.
11. **RM** Remarks.
12. **FB** Fuel on Board.
13. **AA** Alternate Destination.
14. **PD** Pilot Data.
15. **NB** Number of Persons on Board.
16. **CR** Color of Aircraft.
17. **OP** ARTCC Address.
18. **CP** Addresses/Closure Point.
19. **TA** Estimated Time of Arrival.

c. **M1FC.** Items 1 through 11 shall be transmitted to the ARTCC as part of the IFR flight plan proposal. Items 12 through 19 shall be retained by the FSDPS and be available upon request.

6-3-2. NOTIFYING ARTCC

Transmit flight plans and flight plan amendments to the ARTCC within whose control area IFR flight is proposed to begin. AIS facilities use FAAO 7350.7, *Location Identifiers*, or the appropriate aeronautical charts to determine the ARTCC to which each transmission shall be made. Transmit flight plans (if necessary) and flight plan amendments via interphone to the flight data position (error referral position) or departure sector when the aircraft's proposed departure time is less than 15 minutes from transmittal time. Advise the ARTCC's departure sector or error referral position, via interphone, when a message is received indicating ineligibility or a response is not received via data terminal within 10 minutes. Transmit flight plans as follows:

a. When multiple (two or more) flight plans are received from the same aircraft, or for flight plans which propose alternating VFR and IFR, stopover, or terminal area delay, the station receiving the flight plans transmits separate flight plans to the appropriate ARTCC's for each IFR portion or segment.

b. Transmit flight plans specifying special use airspace delays (MOA's, Warning Areas, Restricted Areas, ATC Assigned Airspace) as in subpara 6-3-2a except when letters of agreement specify otherwise.

c. Aerial refueling delays, or any other en route delays not covered in subparas 6-3-2a or b and not involving a change of altitude stratum, do not require separate messages. Delay information shall be filed within the route of flight. If a change of altitude stratum is indicated, transmit separate messages as in subparas 6-3-2a or b.

d. When a composite, stopover, or terminal area delay flight plan is revised:

1. Before departure, transmit the information to the original addressees plus any new addressees.

2. After departure, transmit the information to all new addresses who are affected by the change.

e. **AIS.** When a flight is to depart after 0500 hours local time on the day following the filing of the flight plan, do not transmit the flight plan to the ARTCC until after 0000 hours local time.

NOTE-
In the event of a time zone difference between the station and the associated ARTCC, use the ARTCC's local time in determining transmission time.

f. Address all IFR flight plan messages to the ARTCC serving the point of departure and all concerned oceanic and nonconterminous ATS units, except FAA ATCT's.

NOTE-
The ARTCC within whose control area IFR flight is

proposed to begin will forward the proposed tower en route flight plan data to the appropriate departure terminal facility.

g. For flights inbound to the conterminous U.S. from Alaska or Hawaii, address only the first conterminous U.S. ARTCC; e.g., for a proposed flight from Sitka to Houston, address PAZAZQZX, CZVRZQZX, and KZSEZQZX.

REFERENCE-
FAAO 7110.65, Para 2-2-2, Forwarding Information.

6-3-3. IFR FLIGHT PLAN CONTROL MESSAGES

(Pacific: Pacific Supplement.)

Transmit all proposed IFR flight plan messages to the ARTCC within whose control area IFR flight is proposed to begin.

a. Communications Functions. Flight plan data messages shall be addressed to the computer only. All other types of messages for ARTCC attention shall be addressed to the Flight Data position only. Acknowledgements for all numbered messages will be received from the computer or the Flight Data position indicating receipt by the ARTCC, but not necessarily computer acceptance. (See TBL 6-3-1.)

TBL 6-3-1

ARTCC ID & Computer Flight Data

ARTCC	*ID*	*Computer*	*Flight Data*
Albuquerque	ZAB	KZABZQZX	KZABZRZX
Atlanta	ZTL	KZTLZQZX	KZTLZRZX
Boston	ZBW	KZBWZQZX	KZBWZRZX
Chicago	ZAU	KZAUZQZX	KZAUZRZX
Cleveland	ZOB	KZOBZQZX	KZOBZRZX
Denver	ZDV	KZDVZQZX	KZDVZRZX
Fort Worth	ZFW	KZFWZQZX	KZFWZRZX
Houston	ZHU	KZHUZQZX	KZHUZRZX
Indianapolis	ZID	KZIDZQZX	KZIDZRZX
Jacksonville	ZJX	KZJXZQZX	KZJXZRZX
Kansas City	ZKC	KZKCZQZX	KZKCZRZX
Los Angeles	ZLA	KZLAZQZX	KZLAZRZX
Memphis	ZME	KZMEZQZX	KZMEZRZX
Miami	ZMA	KZMAZQZX	KZMAZRZX
Minneapolis	ZMP	KZMPZQZX	KZMPZRZX
New York	ZNY	KZNYZQZX	KZNYZRZX
Oakland	ZOA	KZOAZQZX	KZOAZRZX
Salt Lake	ZLC	KZLCZQZX	KZLCZRZX
Seattle	ZSE	KZSEZQZX	KZSEZRZX
Washington	ZDC	KZDCZQZX	KZDCZRZX

b. Format.

1. Adhere to a fixed order of data. Do not exceed the stated maximum number of characters or elements allowed for each field in messages addressed to an ARTCC computer. Flight plans filed containing more than the stated character maximums should be sent using the ARTCC flight data address.

2. AIS. One space character must be entered at the end of each data field. The following clarifications are presented:

(a) The first data field of a message need not be preceded by a space.

(b) The last data field of a message need not be followed by a space.

3. Each field of data is composed of one or more elements. Discrete elements of information within a field are separated by delimiters, generally slashes (oblique strokes) or periods.

4. Messages addressed using an ARTCC flight data address (KZRZX) are not processed by the HOST computer. Response and/or interpretation of these messages are dependent on flight data personnel action. The prime consideration of these types of messages, shall be the readability of the transmitted data. The second, third, and fourth character of the address shall be the same as the ARTCC flight data address.

5. All domestic flight data processing computers have the capability to return acknowledgments to the source and, depending on local adaption, return error messages and accept amendments. Notify the appropriate ARTCC Data Systems Specialist or Primary A position when it is suspected that a flight plan has been erroneously rejected by the computer.

6. IFR flight plans specifying stopovers or terminal area delays require separate messages be sent to the appropriate ARTCC's for each segment. Unless otherwise covered by a letter of agreement, treat flight plans proposing special use airspace delays in the same manner. Separate messages are also required for any other en route delays if a change of altitude stratum is proposed at the delay point. See subpara 6-3-3c14(h)(1)[b] for delays not involving a change of altitude stratum.

7. Some fields contain the necessary functions to operate the computer data terminal adapters and are designated by alpha characters. Do not separate these fields with spaces.

c. For HOST computer acceptance, the complete message contents, the order of data, the number of characters allowed within any data field or element, and any associated operational procedures or restrictions are as follows (as used here, field refers to HOST field and /xx refers to M1FC field):

1. Start of Message Code (Field A). No entry requirement for AIS equipment. (New Line Key)

2. Preamble Line (Field B). Consists of originator, priority, and addressee(s).

3. Originator Line (Field C). Consists of a six-digit date-time group and the eight-character originator identifier.

4. End of Line Function (Field E). Same as subpara 6-3-3c1.

5. Source Identification (Field 00). Nine or ten characters required followed by a space character in the following order:

(a) The three-character address of the originating AFSS/FSS or the three-character identifier of the originating airline office.

(b) Four characters (digits) to indicate the time (in UTC) the flight plan was composed by the originator.

(c) Three characters (digits) representing the number of the message; e.g., 021. It is recommended that numbering systems be restarted with 001 at the beginning of each day (0000Z).

NOTE-
There are no spaces between characters in subparas 6-3-3c5(a), (b), and (c).

6. Message Type (Field 01). The letters FP followed by a space character.

7. Aircraft Identification (Field 02/AI:). Consists of two-to-seven characters followed by a space character. The first character of the identification must be a letter.

(a) Phrases such as Flynet, Snow Time, etc., which do not identify specific aircraft, but are supplemental data defining a special mission or function, shall be contained in remarks (Field 11/RM:).

(b) For foreign aircraft identifications with a numeric as the first character, insert an X as the first character and explain in the remarks section.

8. Aircraft Data (Field 03/AT:). Consists of two-to-nine characters followed by a space character. Aircraft data within the field may vary from one-to-three elements consisting of:

(a) Number of aircraft (when more than one) and/or the TCAS/heavy aircraft indicator. The indicator for TCAS is T; for heavy aircraft the indicator is H; for both TCAS and heavy the indicator is B. This element contains a maximum of two characters followed by a slash.

EXAMPLE-
2/F15
3H/B52
10/F18
B/B747
T/DC9

(b) Type of Aircraft. This element is mandatory and contains two-to-four characters consisting of the authorized aircraft designator as contained in FAAO 7340.1. Enter military designators of aircraft, omitting prefixes and suffixes pertaining to aircraft mission or model.

(c) Equipment Suffix. This element is optional and consists of a slash (/) followed by one letter which is one of the approved designators identifying transponder and/or navigation gear.

9. Airspeed (Field 05/TS:). Consists of two-to-four characters followed by a space character. This field shall indicate the filed true airspeed in knots or Mach number.

EXAMPLE-
350
M075

10. Departure Point or Coordination Fix (Field 06/DD:). Consists of two-to-twelve characters followed by a space character. This field contains the departure point or fix at which an aircraft will pick up IFR. It must be a fix, not an airway. For proposed departures, it must match the first element in the route of flight; and for IFR pickups, it must match either the first element in the route of flight or the third element if the ./. or VFR is used as the second element.

11. Proposed Departure Time (Field 07/TM:). Consists of five or seven characters followed by a space character. This field contains the letter P followed by a four or six digit time group in UTC.

12. Requested Altitude (Field 09/AE:). Consists of two-to-seven characters followed by a space

character. Altitudes or flight levels, as appropriate, shall be expressed in hundreds of feet, but without leading zeros. The letters OTP shall be entered in this field to indicate a requested altitude of VFR conditions-on-top. Blocked altitudes are indicated by entering the lower altitude of the requested block, the letter B, and the higher altitude of the block; e.g., 80B100, 240B270, with no intervening spaces.

13. End of Line (New Line Key) (Field E). The first occurrence of Field E shall always follow Field 09/AE: of the message. Any time a subsequent end of line becomes necessary, if used within Field 10/RT:, it must be preceded by the appropriate element separator (not a space). If used within Field 11/RM:, Field E may be entered at any point within the remarks sequence.

14. Route of Flight (Field 10/RT). The route of flight consists of departure point or pickup point (PUP), the route of flight, and normally a destination followed by a space character.

(a) Field 10/RT: is a fixed sequence field and must begin with a fix; e.g., fix, airway, fix, airway, etc. The last element may be a fix or one of the route elements VFR, DVFR, or XXX (incomplete route indicator). An element is separated from another element by a period character.

(b) When consecutive fix elements or route elements are filed, the fixed sequence format is maintained by inserting two period characters between the filed Field 10/RT: elements; e.g., fix..fix or airway..airway.

(c) When a pilot files an airway..airway combination, obtain the point of transition and insert it in the transmitted flight plan; e.g., SGF.J105..J24. STL.J24. The foregoing does not apply if the first encountered fix happens to be the next filed junction point within the route.

(d) The slash character (/) is used to file a latitude/longitude fix or in describing an ETE.

(e) The maximum number of filed field elements for computer-addressed flight plans is 40. Double period insertions do not count against the 40-element limitation. Transmit flight plans filed exceeding the route element limitation to the ARTCC, not its computer.

(f) Fix Descriptions. A fix must be filed in one of the following ways:

(1) Fix Name. Domestic, Canadian, and International identifiers of two-to-five alphanumeric characters.

(2) Fix Radial Distance (FRD). Consists of eight-to-eleven alphanumeric characters in the following sequence: Two-to-five characters identifying a navigational aid, three characters of azimuth expressed in degrees magnetic, and three characters of distance expressed in nautical miles from the navigational aid. Zeros preceding a significant character shall be entered before the azimuth and distance components as required to assure the transmission of three characters for each.

(3) Latitude/Longitude. Consists of nine-to-twelve characters entered as follows: The latitude shall appear as the first component as four numbers (trailing zeros required) with an optional letter N or S appended. If the optional letter is omitted, north is understood. Latitude shall be separated from longitude with a slash (/) element separator. Longitude shall appear as the second component as four or five digits (trailing zeros required, leading zero optional) with an optional letter W or E appended. If the optional letter is omitted, west is understood.

(g) Route Descriptions. A route must be filed in one of the following ways:

(1) Airway. The official airway designator must be filed.

(2) Coded Routes. Coded routes are a shorthand method of describing a route segment or segments which may have an altitude profile described, an adapted airspeed within the route, reentry or loop routes as an option, or a time delay at a fix within the route as an option. Some of the principal uses of coded routes are as follows:

[a] Instrument Departure's (DP's). DP's, if used, must be filed by the computer code designator as the second element of Field 10/RT and followed by the transition or exit fix.

[b] Standard Terminal Arrivals (STAR's). STAR's, if used, must be filed by the computer code designator as the next to last element of Field 10/RT: and be immediately preceded by the entry or transition fix.

[c] Published Radials. Published radials (e.g., within a preferred route) are considered airways. Do not file unpublished radials.

EXAMPLE-
.JFK053..DPK017
.RBV020

[d] Military Routes. Certain military routes (e.g., Military Training Routes (MTR) and Air Refueling Tracks/Anchors), are considered coded routes. The route designator must be preceded and followed by the entry and exit fixes in terms of fix/radial/distance (FRD), and reentry information may be suffixed to certain military coded routes as follows:

[1] 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-
TNP355025..IR252
PKE107012

[2] Routes having reentries for a single Strategic Training Range (STR) site shall contain the entry of alternate entry fix in terms of FRD, the route designator followed immediately by a plus sign (+), either the letter R (1st STR site) or S (2nd STR site), and a digit indicating the number of reentries.

EXAMPLE-
(FRD) IR240+R2 (FRD)
(FRD) IR240+S3 (FRD)

[3] Routes having reentries for two STR sites shall 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 reentries on the first STR site, immediately followed by second plus sign (+), the letter S, and a digit indicating the number of reentries on the second STR site.

EXAMPLE-
(FRD) IR240+R2+S3 (FRD)

[4] STR routes must be entered and exited at the respective primary fix. Alternate STR 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)

[e] North American Routes (NAR). NAR routes are numerically coded over existing airways and route systems from and to specific coastal fixes serving the North Atlantic.

EXAMPLE-
.NA9
.NA50

[f] Stereo Routes. A stereo route must specify a prestored stereo tag. An FP message may be entered with a stereo tag as the only Field 10/RT: entry, which causes the Field 10/RT: data stored for the stereo tag to be substituted for the stereo tag and processed as the filed Field 10/RT: Additionally, the filed departure point (Field 06/DD:) must agree with the stored departure point.

[g] Incomplete Route Indicator (XXX). When XXX, the incomplete route indicator, appears in Field 10/RT, the element preceding the XXX element must be a fix.

[h] Visual Flight Rules (VFR) or Defense Visual Flight Rules (DVFR) element. When VFR or DVFR is the second element of Field 10/RT:, the filed fix following VFR or DVFR must be internal to the ARTCC's area to whom the flight plan was initially submitted. When VFR or DVFR is other than the second element in Field 10/RT:, the element preceding the VFR or DVFR must be a filed fix.

(h) Fix Suffix.

(1) En Route Delay Suffix consists of an element separator (/), followed by the letter D, followed by the hours and minutes separated by a plus sign (+). Must be appended to a fix.

EXAMPLE-
.STL/D1+30
.PKE107012/D2+05

Use of this suffix is limited to the following cases:

[a] Aerial Refueling Tracks and Anchors. The suffix is appended to the entry fix.

EXAMPLE-
.JCT248055/D0+30.AR330

[b] En route delays not involving a change of altitude stratum and not involving a stopover, terminal area delay, or special use airspace delay unless specifically covered by a letter of agreement with the receiving ARTCC.

(2) Estimated Time En Route (ETE) Suffix. Consists of an element separator (/) and four digits appended to the destination. Leading zeros are required, and the time en route is expressed in hours and minutes.

EXAMPLE-
.STL/0105

(i) A period is not required after the last element of Field 10/RT:. If remarks (Field 11/RM:) are present, a space is required after the last element of Field 10/RM:. If remarks are not present, no space is required and Field F (End of Message) should be the next entry.

15. Remarks (Field 11/RM:). Consists of the appropriate remarks code character and the remarks. Remarks are considered mandatory or optional and should be limited to those pertinent to air traffic control. Spaces are permitted within the remarks field to separate words or contractions.

(a) Mandatory Remarks. These remarks shall be transmitted in Field 11/RM: whenever a pilot files the information on the flight plan. A mandatory remark is required whenever there is a modification to the flight plan by the specialist.

(1) If it is necessary to make modifications to the filed route of flight for the purpose of achieving computer acceptance of the input due, for example, to correct a fix or an airway identification, "FRC," meaning "Full Route Clearance Necessary," or "FRC/(fix)," will be added to the remarks, "FRC" or "FRC/(fix)" must always be the first item of intra-center remarks. When "FRC" or "FRC/(fix)" appears on a flight progress strip, the controller issuing the ATC clearance to the aircraft shall issue a full route clearance to the specified fix, or if no fix is specified, for the entire route. "FRC" or "FRC/(fix)" shall always be first in Remarks (Field 11/RM:).

NOTE-
INPUT OPERATORS ARE LIMITED TO MAKING ONLY THOSE CHANGES REQUIRED FOR COMPUTER ACCEPTANCE. Modifications, such as those to conform with traffic flows and preferred/recommended routings, shall only be made by the pilot or his/her operations office or the controller responsible for initiating the clearance to the aircraft.

(2) When a pilot files an FAA-assigned three-letter company designator, the authorized radiotelephony call sign must be included in the remarks field.

(b) Optional Remarks. These remarks shall be transmitted when pertinent to air traffic control and can revert to mandatory status for some military flight plans.

(1) In the case of applicable military flights, NOPAR shall be the first item in Remarks (Field 11/RM:).

(2) Remarks for military flight plans filing an IR route must contain the IR route designator, entry time prefaced by the letter E, exit time prefaced by the letter X, and MARSA when applicable. Remarks for flight plans filing a terminal area delay must contain the airport identifier at which the delay will occur, followed by the letter D, followed by the duration of the delay in hours plus minutes, followed by the destination airport. These should be the initial items in the remarks field, unless subpara 6-3-3c15(a)(1) or (2) applies, and should be in order of occurrence.

16. End of Message Function (Field F). Consists of enter function.

d. Additional Messages. The following messages are eligible for input to ARTCC computers via Service B, in addition to the Flight Plan (FP) message:

1. Remove Strips (RS). The purpose of the RS message input is to advise the computer that data on a particular flight is no longer valid and in effect cancels the flight plan and removes it from computer storage.

(a) Eligibility. RS messages may be entered only for flight plans which:

(1) Are proposed flights.

(2) Have been previously entered by the same source entering the RS message.

(3) The flight plan is inactive; e.g., a departure strip must not yet have been printed. Otherwise, the following rejection message is returned: "REJECT--NOT YOUR CONTROL."

(b) Format. Fields 01 (Message type) and 02/AI: (Aircraft Identification) are required.

EXAMPLE-
RS TWA138

2. Amendment Message (AM). The purpose of the AM message is to change data previously stored in the host computer.

(a) Eligibility. Same as for the Remove Strip (RS) message (above).

(b) Format. AM messages sent to the host computer must follow a specific format. First, the

field to be amended must be identified, then the amended information given. The host computer recognizes the following fields by either number or name: (See para 6-3-2.)

TBL 6-3-2

Field Number and Name

Field	*Field Number*	*Field Name*
Aircraft Identification	02	AID
Aircraft Type	03	TYP
Speed	05	SPD
Departure/Coordination Pt.	06	FIX
Proposed Time	07	TIM
Altitude	09	RAL
Route of Flight	10	RTE
Remarks	11	RMK

(c) Restrictions.

3. If Field 02/AI: is to be amended, no other field may be amended in the same message. If Field 02/AI: and other fields are to be amended, send an RS message and reenter the entire corrected flight plan. If an attempt is made to amend Field 02/AI: within a multiple amendment message or to amend Field 02 to M, the following rejection message is returned: "REJECT--INVALID AMENDMENT."

NOTE-
Alternate procedure is to send two amendments - the first amends field 2; the second amends the other field or fields.

4. Field 07/TM: Amendments. An attempt to amend Field 07/TM: to anything other than a P-time is not allowed. If such an amendment is attempted, the following error message is returned: "COFIE INVALID TIME PREFIX."

5. Amendment to Fields 06/DD:, 07/TM:, and 10/RT: Where Fields 06/DD:, 07/TM:, and 10/RT: are amended with a single AM message, the following rules apply:

(a) The amended Field 06/DD: replaces the previously stored coordination fix (Field 06/DD:).

(b) The amended Field 07/TM:, with appropriate letter prefix, replaces the previously stored coordination time (Field 07/TM:).

(c) The amended route data (Field 10/RT:) may completely replace the previously filed Field 10/RT: or may be merged with the filed Field 10/RT:.

(d) If the last element of the amended route data is followed by a destination indicator (e), this last element becomes the new destination fix.

(e) When amended route data is merged with filed data, it replaces all data between the departure point and the first nonamended element remaining in the field. The last element of the amended data must match the first element of the remaining nonamended data, otherwise the following rejection message is returned: "REJECT--(last element) CANNOT MERGE."

6. Amendment to Field 10/RT: Only. Except as permitted above, a Field 10/RT: amendment must be the only field amended; no other field may be amended with the same message. Otherwise, the following is returned: "REJECT--INVALID AMENDMENT."

EXAMPLE-

Message Type	*Aircraft Identification*	*Field to be Revised*	*New Field Data*	*Field to be Revised*	*New Field Data*
AM	TWA179	07	P0800	08	350
AM	UAL466	07	0300		
AM	AAL4355	10	ORD.J60 .DEN		

7. Correction Message (CM). When the host computer detects an error in a flight plan, an error message is generated to the sender when the sender is within the departure ARTCC's adapted boundaries.

(a) Eligibility. CM messages may be entered only for the period for which the departure ARTCC's program is adapted, normally 5 minutes. After that time, the flight plan in error drops out to the ARTCC Primary A position for reentry. The sender has primary responsibility for corrective action.

NOTE-
Error messages are generated only on messages from sending stations within the adaptation parameters of the departure ARTCC and for only that portion of the route within that ARTCC's adapted boundaries. Other flight plans in error are referred to a Primary A position.

(b) Format. Responses to error messages shall be transmitted in the form of a CM message

within the time parameters adapted for your ARTCC. ARTCC-Generated Error Message:

EXAMPLE-

Sending Facility	*MSG Type*	*MSG NR*	*Field in Error*	*Data in Error*	*Reason*
DCA	Error	123	08	9A	FORMAT
CM Format:					
Field 00		MSG Type		Correct Data	
DCA 1820123		CM		090	

(c) When a CM message in response to an error message results in any change to a pilot-filed Field 06/DD: (Departure Point) or Field 10/RT: (Route of Flight) once the flight plan has been accepted, an AM message shall be sent to add a field 11/RM: intra-ARTCC remark. In remarks, insert "FRC PILOT FILED (original data)."

(d) Should a "NOT YOUR CONTROL" response be received, do not retransmit the flight plan or the AM. Confirm ARTCC receipt of the flight plan or AM (FRC/REMARKS) via interphone with the Primary A position. (See TBL 6-3-3.)

TBL 6-3-3

Computer Flight Data Input

COMPUTER FLIGHT DATA INPUT CHART			
Field	*Element*	*Example*	*Requirements*
A	Start of Message (SOM code)	New Line Key	Required for SOM recognition.
B	Preamble Line	FF KZFWZQZ X	Provides priority, and addressee.
C	Originator	DTG KMLCYFY X	Required for ending the message header.
D	End of Line	(New Line Key)	EOL.
E	End of Message	(Enter Function)	End of Message.

6-3-4. COORDINATE RNAV ROUTES

a. When accepting flight plans containing coordinate RNAV routes, ensure that the route of flight after the departure fix is defined by latitude/longitude coordinates and a fix identifier.

b. The arrival fix must be identified by both the latitude/longitude coordinates and the fix identifier.

EXAMPLE-

(1)	*(2)*	*(3)*	*(4)*	*(4)*	*(5)*
MIA	SRQ	3407/10615	3407/11546	TNP	LAX

1. Departure airport.

2. Departure fix.

3. Intermediate fixes defined by latitude/longitude coordinates.

4. Arrival fix for the destination airport in terms of both the latitude/longitude coordinates and the fix identifier.

5. Destination airport.

Section 4. Flight Plan Handling

6-4-1. FLIGHT PLAN ACTIVATION

a. AIS. Handle departure reports as a routine radio contact in accordance with para 4-3-5. If a departure report has not been received within 1 hour of the proposed departure time and specific arrangements have not been made to activate the flight plan, cancel and file the proposed flight plan.

b. AFSS. Handle departure reports as a routine radio contact in accordance with para 4-3-5. If a departure report has not been received or the pilot has not amended the P time, a VFR flight plan will remain on the proposed list until 2 hours past the proposed time. At this time it is automatically removed from the list and entered on the Aircraft Data File (DD).

c. The AFSS Aircraft Data File (DD) is used for statistical and historical purposes. Movement messages, pilot briefs, and aircraft contacts are placed on the list automatically and are retained for the number of hours specified in the Aircraft Drop Interval (ADDI) parameter.

d. When a pilot reports a departure time that is more than 2 hours prior to the current clock time, request an updated ETE based on the aircraft's present position. M1FC facilities amend the ETE in the existing flight plan, and activate the flight plan using the current time as the time of departure (M1FC will automatically calculate the updated ETA) and inform the pilot of any changes.

6-4-2. DEPARTURE REPORT MESSAGE

When a pilot activates a flight plan with other than the tie-in station for the departure point, transmit a numbered message to the departure tie-in station.

EXAMPLE-
AIS
FF KRNOYFYX
DTG KHONYFYX
HON001 RNO
N98765 D1645 WMC ALW

M1FC
ORIGIN:MMV PRECEDENCE:FF TIME: ACK:Y
ADDR:RNO
TEXT:N98765 D1645 WMC ALW

NOTE-
Origin may be left blank as M1FC will insert the origin station's address.

6-4-3. ACKNOWLEDGING NUMBERED MESSAGES

Acknowledge a numbered message as soon as practicable after receipt. Prefix the acknowledgement with the letter R followed by a space and then the 3-digit message number.

EXAMPLE-
AIS
FF KMMVYFYX
4DTG KRNOYFYX
R 001

6-4-4. FLIGHT NOTIFICATION MESSAGE

a. When a departure report is received, or the pilot requests an assumed departure, transmit a flight notification message to the destination tie-in (FSS or BASOPS) as specified in FAAO 7350.7. Telephone or interphone, when available, may be used for flights of 30 minutes or less. The flight notification message shall contain the following information:

1. Type of flight plan (VFR or IFR).
2. Aircraft identification.
3. Aircraft type.
4. Departure point.
5. Destination.
6. ETA (If more than 24 hours, may use DTG).
7. Remarks, preceded by a $ sign (as appropriate).

EXAMPLE-
AIS
FF KBOIYFYX
DTG KCDCYFYX
VFR N2346F AC21/U PVU BOI 1348 $ASMD
DEP

M1FC
FR:V AI:N2346F AT:AC21/U TS:130 DD:PVU
TM:D1203 AE:85
RT:PVU..SLC..TWF..BOI
AD:BOI TE:0145 RM:$ASMD DEP
FB: AA: PD:
NB: CR: OP:
CP:KBOIYFYX TA:1348

NOTE-
M1FC will automatically extract the required items from the flight plan mask and transmit the flight notification message when a departure time is placed in the TM: field and the GI keyword is entered.

b. When the proposed flight plan is received from another AFSS/FSS, BASOPS, or DUAT vendor, and the departure station has only partial flight plan data, add a remark indicating the Service B address of the station holding the complete flight plan.

NOTE-
M1FC will automatically add this to the RM: field of the flight plan mask when it receives the proposal from another facility.

EXAMPLE-
AIS
FF KBOIYFYX
DTG KCDCYFYX
VFR N12345 C182/U PVU OI 1958 $FP
KIADXCLX

M1FC
FR:V AI:N1234 AT:C182/U TS:130 DD:PVU
TM:D1813 AE:85
RT:PVU..BOI
AD:BOI TE:0145 RM:$FP KIADXCLX
FB: AA: PD:
NB: CR: OP:
CP: KBOIYFYX TA:1958

c. If the pilot elects to close the flight plan with a station other than the AFSS/FSS designated as the tie-in facility by FAAO 7350.7, send the flight notification message with remarks to both stations; e.g., FIRIV PNM. The designated tie-in AFSS/FSS shall assume both destination and search and rescue responsibility.

EXAMPLE-
AIS
FF KGFKYFYX KPNMYFYX
DTG KDCAYFYX
VFR N2346F AC21 FDK PMB 1303
$FIRIV PNM

M1FC
FR:V AI:N2346F AT:C172 TS:110 DD:FOD TM:P1800
AE:095
RT:FOD..OMA
AD:OMA TE:0050 RM:$FIRIV FOD
FB:0200 AA: PD:JOE PILOT
NB:2 CR:R/W OP:
CP:KOLUYFYX KFODYFYX TA:1850

NOTE-
M1FC will autoaddress to the tie-in AFSS/FSS. Because the pilot elected to FIRIV with FOD, the message must also be manually addressed to FOD.

d. The station with which the pilot elects to close the flight plan shall forward a numbered closure message to the designated tie-in AFSS/FSS.

e. On civil flight plans, if the pilot advises of stopover points, show these in remarks.

EXAMPLE-
AIS
FF KBOIYFYX
DTG KCDCYFYX
VFR N12345 C182/U PVU BOI 1958 $LNDG
TWF

M1FC
FR:V AI:N1234 AT:C182/U TS:130 DD:PVU
TM:P1813 AE:85
RT:PVU..SLC..TWF..BOI
AD:BOI TE:0145 RM:$LNDG TWF
FB: AA: PD:
NB: CR: OP:
CP:KBOIYFYX TA:1958

f. On military flight plans, in remarks use coded data pertinent to services, passengers, or cargo. In the absence of remarks, enter the letter N (meaning none) in the remarks field.

REFERENCE-
DOD Flight Information Publication, General Planning Document.

1. Flight notification messages with remarks activate a flag upon receipt in the M1FC computers at selected terminals.

2. When landing at a civil airport, if there are no remarks with the flight notification message, it is placed directly on the I list with no flag alert for notification purposes.

3. When landing at a military airport, all flight notification messages generate an "N" flag.

EXAMPLE-
AIS
FF KRCAYXYX
DTG KRIUYFYX
IFR DECAL01 T43/R SMF RCA 0135
$AP3NP3S

M1FC
FR:MI AI:DECAL1 AT:T43/R TS:400 DD:SMF
TM:D2205 AE:330
RT:SMF..FMG..SLC..DEN..RCA
AD:RCA TE:0330 RM:$AP3NP3 S
FB: AA: PD:
NB: CR: OP:ZCO
CP:KRCAYXYX TA:0135

AIS
FF KBOIYFYX
DTG KCDCYFYX
VFR R54321 2/UH1/U SLC BOI 1943 $N

M1FC
FR:MV AI:R54321 AT:2/UH1/U TS:100 DD:SLC
TM:D1813 AE:45
RT:SLC..TWF..BOI
AD:BOI TE:0130 RM:$N
FB: AA: PD:
NB: CR: OP:
CP:KBOIYFYX TA:1943

g. Address military stopover flight notification messages to and obtain acknowledgements from the destination tie-in AFSS/FSS or BASOPS serving all destinations.

1. For the first leg, transmit the items in subparas 6-4-4a and 6-4-4f.

2. For each subsequent leg, transmit the destination, ETE, and remarks applicable to that leg only, prior to (/). AIS facilities: enter remarks, applicable to the entire flight, after the final leg. M1FC facilities: remarks pertaining to the entire mission should be in the RM: field.

3. Transmit the void time as the last item on a separate line using date/time group.

NOTE-
Provision of void time information is the responsibility of the pilot.

4. Separate stopover legs by inserting a slant (/) at the end of each leg except the last. Begin each leg on a new line.

EXAMPLE-
AIS
FF KCHSYFYX KJAXYFYX KMIAYFYX
DTG KBDRYFYX
FR VV12345 P3 ADW CHS 1300/
NZC 01+30 A5 BALL DP10 AP5 S/
MIA 02+30 NO DE-ICING EQUIPMENT
VT011830

M1FC
FR:MI AI:BAT21 AT:F16/R TS:450 DD:DBQ
TM:D1700 AE:280
RT:DBQ..TNU..OFF/FOE 0+15/MLC 0+45
*AD:OFF TE:0030 RM:*REMARKS $VT012115*
FB:0230 AA: PD:ON FILE BASOPS
NB:1 CR:OD OP:ZCG
CP:KOFFYXYX KFOEYXYX KMLCYFYX TA:1730

NOTE-
M1FC will autoaddress the CP: field, automatically extract the required items from the flight plan mask, and transmit a flight notification message to the destination BASOPS. MV is used in the FR field when sending a military VFR flight notification.

5. For composite flights, specify type flight plan as the first item of each leg.

6. When en route delays are involved, include delay time in ETE.

h. Apply military flight plan procedures to all civil aircraft landing at military bases.

NOTE-
It is the civil pilot's responsibility to obtain permission (from military authorities) to land at a military base.

i. Apply civil flight plan procedure to civil aircraft departing military bases and en route to civil airports.

j. When a pilot reports a departure time that is more than 2 hours prior to the current clock time, request an updated ETE based on the aircraft's present position. M1FC facilities amend the ETE in the existing flight plan, and activate the flight plan using the current time as the time of departure (M1FC will automatically calculate the updated ETA) and inform the pilot of any changes.

6-4-5. SUSPENSING FLIGHT NOTIFICATION MESSAGES

a. Suspense the flight notification message or proposal message until acknowledgment is received from the addressee, then file in the completed file.

b. If an acknowledgment is not received within the following time period, use the telephone or interphone to assure delivery.

1. Thirty minutes after departure if ETE is between 30 minutes and 2 hours.

2. One hour before ETA if ETE is 2 hours or more.

3. Thirty minutes after departure if RONVIP information is contained in remarks of a military flight notification.

c. When an acknowledgment for a message is required and has not been received in accordance with the procedure described above, M1FC facilities retransmit the complete message to the addressee. AIS facilities transmit the signal QSLQ and the complete aircraft identification to the addressee.

d. M1FC. Messages awaiting acknowledgment are suspensed on the Suspense List (S). It contains a list of all numbered Service B messages (except those numbered messages sent internally to other facilities in the same FSDPS family) and those messages transmitted from the flight plan mask not acknowledged by all the addressees.

1. The message identification is the aircraft identification for flight notifications and/or the message number for all other message types.

2. Acknowledgments received via NADIN shall be automatically processed if they are in the proper format.

3. Improperly formatted acknowledgments will be directed to the Service B edit queue (B flag).

4. The S list will display the aircraft identification and message numbers in chronological order of transmission times (first transmitted being at the top) and the addressees for each message with an asterisk appearing next to those that have not acknowledged.

5. If a transmission has not been acknowledged by all addressees within 30 minutes, an asterisk will automatically appear immediately preceding the message identification in the S list and an S flag is automatically displayed on the terminals enabled for Edit and Review Service B Communications (ERS) function.

6. When an S flag is displayed, use the ERS keyword to display the S list in the edit mode. Use the RT keyword to retransmit the message to addressees who have not acknowledged the message.

EXAMPLE-
M1FC
RT N12345 (ACID as it appears on the S list)
RT 003 (MSG Number as it appears on the S list)

7. When an acknowledgment message is received from any other source, such as interphone/telephone or facility guarding for the addressee, the specialist shall display the Edit and Review Suspense List (ERS) and use the AK keyword to acknowledge the message.

EXAMPLE-
M1FC
AK DECAL01,KRCAYXYX

6-4-6. ACKNOWLEDGING FLIGHT NOTIFICATION MESSAGES

Acknowledge a flight notification message or proposal as soon as practical after receipt. Prefix the acknowledgment with the letter R followed by a space and then the full aircraft identification.

EXAMPLE-
AIS
FF KRCAYXYX
DTG KRIUYFYX
R DECAL01

NOTE-
M1FC will automatically acknowledge flight notification messages which are received in or have been edited into the correct format.

6-4-7. ACTION BY ADDRESSEES

In addition to acknowledging receipt of the flight notification message, addressees shall take the following actions:

a. Military IFR flights.

1. Notify BASOPS, if applicable, of the inbound flight.

2. Upon request, deliver flight plan amendments to the ARTCC.

3. File the flight notification message in the DD file or with the daily traffic.

4. Forward the actual departure time to the destination BASOPS or the tie-in AFSS/FSS for the next destination.

b. Military VFR flights.

1. Notify BASOPS, if applicable, of the inbound flight.

2. Suspense the message, awaiting closure/cancellation/departure and assume destination station responsibility.

3. Forward the departure time to the destination BASOPS or the tie-in AFSS/FSS, and assume departure station responsibility.

4. M1FC. All flight notification messages are suspended on the Inbound List (I list). An entry on the I list will remain there until the flight plan is closed. Thirty minutes after the ETA (default value), if the flight plan has not been closed, it will automatically be placed in the Inbound Overdue Queue (I flag).

NOTE-
To display a flight plan on the I list, enter the keyword FP (ACID). To place a flight plan on the I list, use the keyword STI, use STIM to amend a flight plan.

c. If no information is received (e.g., departure time, revised ETA) indicating that the flight is still active prior to the void time, note this on the flight notification message and file.

6-4-8. MAJOR FLIGHT PLAN CHANGES FROM EN ROUTE AIRCRAFT

a. Change of Destination.

1. When a civil aircraft on a VFR flight plan or a military aircraft on any flight plan changes destination, obtain, as a minimum, the following information:

(a) Type of flight plan.

(b) Aircraft identification.

(c) Aircraft type.

(d) Departure point.

(e) Old destination.

(f) Present position.

(g) Altitude and route.

(h) New destination.

(i) Estimated time en route.

NOTE-
If the flight plan mask is used to transmit the flight notification in lieu of the TB mask, the flight notification goes on the suspense list, acknowledgments are processed automatically, and flight plan and acknowledgments are placed in the DD file.

2. Transmit a revised flight notification message to the departure station, original, and new destination tie-in stations containing the type of flight, aircraft identification, aircraft type, departure point, new destination, new ETA, and in Remarks, aircraft position and time, the words ORIG DESTN followed by the identifier of the original destination.

EXAMPLE-
VFR Change of Destination:

AIS
FF KBOIYFYX KSFFYFYX
DTG KCDCYFYX
VFR N98789 C182/U PVU GEG 2230 $0VR
SLC 1900 ORIG DESTN BOI

M1FC
FR:V AI:N9878 AT:C182/U TS:130 DD:PVU TM:D1900
AE:105
RT:SLC..TWF..MLD..LWS..GEG
AD:GEG TE:0330 RM:$OVR SLC 1900 ORIG
DESTN BOI
FB: AA: PD:
NB: CR: OP:
CP:KBOIYFYX KSFFYFYX TA:2230

IFR Change of Destination:

AIS
FF KRCAYXYX KTIKYXYX KRIUYFYX
DTG KCDCYFYX
IFR DECAL01 T43/R SMF TIK 0230 $AP3NP3S OVR
SLC 2330 ORIG DESTN RCA

M1FC
FR:MI AI:DECAL1 AT:T43/R TS:400 DD:SMF
TM:D2330 AE:310
RT:SMF..SLC..GJT..AMA..OKC
AD:TIK TE:0300 RM:$NP3 S OVR SLC 2330 ORIG
DESTN RCA
FB: AA: PD:
NB: CR: OP:
CP:KRCAYXYX KTIKYXYX KRIUYFYX TA:0230

NOTE-
On VFR flight plans, M1FC will transmit and file the flight plan with the TS: and AE: fields blank. On IFR flight plans, these fields must be completed. If the TS: and AE: are unknown, 2 or 3 zeros may be used instead.

b. Change from IFR to VFR. When a civil aircraft changes from an IFR to a VFR flight plan, obtain all flight plan information and then transmit a flight notification message to the destination tie-in station.

Include the type of flight plan, aircraft identification and type, departure point, destination, ETA, and pertinent remarks.

EXAMPLE-
AIS
FF KELPYFYX
DTG KBFLYFYX
VFR N87690 C182/U SFO ELP 2100 $CNLD
IFR OVER BFL

M1FC
FR:V AI:N8769 AT:C182/U TS:130 DD:PVU
TM:D1940 AE:105
RT:SLC..TWF..MLD..LWS..GEG
AD:GEG TE:0330 RM:$CNLD IFR OVR TWF
FB: AA: PD:
NB: CR: OP:
CP:KSFFYFYX TA:2310

NOTE-
Obtaining the name of the original flight plan source may provide additional information if the aircraft becomes overdue.

c. Military Change from IFR to VFR or VFR to IFR. When a military aircraft changes from IFR to VFR, or VFR to IFR, or requests that other significant information be forwarded, transmit this information to the destination station.

EXAMPLE-
AIS
FF KTIKYXYX
DTG KDENYFYX
DECAL01 CHGD TO VFR RON

M1FC
ORIGIN:DEN PRECEDENCE:FF TIME: ACK:N
ADDR:KTIKYXYX
TEXT:DECAL01 CHGD TO VFR RON

6-4-9. CHANGE IN ETA

When an aircraft wants to change its estimated time en route (ETE), facilities shall secure a new estimated time of arrival (ETA) and forward the information to the destination tie-in station as a numbered message. The destination tie-in station shall acknowledge and, thereafter, use the new ETA as the standard for any necessary follow-up action; e.g., QALQ message.

EXAMPLE-
AIS
FF KSFFYFYX
DTG KBOIYFYX
BOI001 SFF
N34567 E2140

M1FC
ORIGIN:BOI PRECEDENCE:FF TIME: ACK:Y
ADDR:SFF
TEXT:N34567 E2140

NOTE-
M1FC will automatically acknowledge the message, change the ETA on the flight plan and inbound list, and store the message in the DD file without specialist intervention.

6-4-10. FLIGHT PLAN CLOSURE

Do not transmit arrival reports except under unusual circumstances or in the following cases:

a. Transmit to any facility requested by the pilot, arrival or any other information involving FAA or Canadian MOT aircraft.

EXAMPLE-
AIS
FF KDCAYFYX
DTG KHHRYFYX
HHR002 DCA
N2 A0839 (Remarks, as appropriate)

M1FC
ORIGIN:HHR PRECEDENCE:FF TIME: ACK:Y
ADDR:DCA
TEXT:N2 A0839 (Remarks as appropriate)

b. For U.S. military aircraft, transmit arrival reports to the departure station only when:

1. Requested by BASOPS.

2. Special military flights arrive.

c. When a pilot closes a flight plan with a station that has not received a flight notification message, obtain as a minimum, the departure point, the flight planned destination point, and the station with which the flight plan was filed.

1. If the station receiving the closure is the tie-in station for the planned destination, transmit an arrival message to the departure station with the remark FPNO and the departure point and destination identifiers. The departure station shall relay the arrival information to the station holding the flight notification message in the active file.

EXAMPLE-
AIS
FF KPHFYFYX
DTG KMIVYFYX
MIV001 PHF
N8567 A1745 FPNO PHF NMK

M1FC
ORIGIN:MIV PRECEDENCE:FF TIME: ACK:Y
ADDR:PHF
TEXT:N8576 A1745 FPNO PHF NMK

2. If the station receiving the closure message is not the destination tie-in station, transmit a closure message to the destination tie-in station, including the aircraft identification, the closure time, the departure point, and destination. Remarks are optional.

EXAMPLE-
AIS
FF KHUFYFYX
DTG KDAYYFYX
DAY003
N11ND C1217 LOU IND LNDD CMH

M1FC
ORIGIN:DAY PRECEDENCE:FF TIME: ACK:Y
ADDR:HUF
TEXT:N11ND C1217 LOU IND LNDD CMH

NOTE-
Closure and arrival messages do not process automatically; manual intervention is required.

6-4-11. MILITARY FLIGHTS TO/FROM U.S.

a. To U.S. If REQ ARR is in remarks, suspend the flight plan until arrival information is received from BASOPS and forward to the departure location.

b. From U.S. If requested by BASOPS, include REQ ARR in remarks section of ICAO flight plan. Terminate suspense action only after receipt of an arrival message and delivery to BASOPS.

Section 5. Military Operations

6-5-1. MILITARY TRAINING ACTIVITY

a. Military Training Routes (MTR).

1. Unless otherwise covered in a letter of agreement, the tie-in AFSS/FSS/ARTCC/BASOPS for an MTR-scheduling activity shall transmit an unnumbered NADIN message. Use the assigned group code KAWPYFYX and for Alaska, use KFSSYFAK KAWPYFYX. Transmit as a single message whenever possible.

EXAMPLE-
AIS
FF ADDRESSES
DTG KDCAYFYX
IR104 1400-1440 60 AND BELOW
IR104 021530-021625 60 AND BELOW

M1FC
ORIGIN:FOD PRECEDENCE:FF TIME: ACK:N
ADDR: ADDRESSES
TEXT: IR505 1400-1600 60 AND BELOW

2. Multiple activities should be combined chronologically by use time(s) and transmitted (not more than 24 hours in advance) as a single message using only the format shown in the example below.

EXAMPLE-
AIS
FF ADDRESSES
DTG KDCAYFYX
VR066 1330-1440 100 AND BELOW
IR104 1400-1440 60 AND BELOW
IR104 1545-1630 50 AND BELOW
VR066 1600-1655 30 AND BELOW

M1FC
ORIGN:FOD PRECEDENCE:FF TIME: ACK:N
ADDR: ADDRESSES
TEXT: IR505 1440-1640 60 AND BELOW
IR507 1700-1800 60 AND BELOW

NOTE-
Slow-speed, low-altitude training routes are not to be transmitted, briefed on, or posted. The contraction VLAR is not an approved contraction.

b. Military Operations Area (MOA).

1. Transmit MOA messages only when the use times are other than what has already been published or otherwise covered in a letter of agreement. The controlling agency (usually an ARTCC) shall transmit an unnumbered NADIN message. Use the assigned group code KAWPYFYX and for Alaska, use KFSSYFAK KAWPYFYX. Use only approved MOA names as depicted in FAAO 7400.8 (DO NOT USE ABBREVIATIONS).

EXAMPLE-
AIS
FF ADDRESSES
DTG KZKCZRZX
BISON MOA 1345-1550 ALT 025B180

2. Activity schedules should be combined and listed chronologically by use time(s) and transmitted (not more than 24 hours in advance) as a single NADIN message using only the format shown in the following example:

EXAMPLE-
AIS
FF ADDRESSES
DTG KZKCZRZX
BISON MOA 1345-1550 ALT 025B180
BISON MOA 1600-1645 ALT 060B180
HILLTOP MOA 1600-1715 ALT 100B180
HOWARD MOA 1600-0200 ALT 090B180
REDHILLS MOA 1700-1800 ALT 080B100

c. A VR operation may be filed as a composite flight, IFR-VFR-IFR. Unless the BASOPS has the capability to do so, the tie-in AFSS/FSS shall transmit the IFR proposals in separate messages to the appropriate ARTCC's in accordance with paras 6-3-1, 6-3-2, 6-3-3, and 6-3-4.

d. Information received from either the AFSS/FSS/ARTCC/military scheduling activity or controlling agency that modifies an MTR and MOA schedule shall be transmitted by an unnumbered message via Service B as defined in subparas 6-5-1a and b.

e. M1FC - Special Use Airspace (SUA). Properly formatted IR's, VR's, and MOA's are automatically placed on the list and the 0 queue. Messages are deleted from the list by automatic cancellation. The list is displayed by use of the following keywords: VM MO (ALL MOA's), or VM (MOA NAME) MO, IR, VM (STATE IDENT; i.e. VA) MO or VM IR, VM VR (ALL IR's or VR's), or VM 1756 VR (route specific). The route must be a four-digit character. Three-digit routes must be preceded by a zero.

NOTE-
The above procedures do not preclude a specialist from exercising his/her own judgment in providing further assistance when there is the slightest doubt about the adequacy of data being furnished to alert a pilot to the existence of an MTR or MOA.

6-5-2. AERIAL REFUELING TRACKS

Upon notification from the ARTCC or a scheduling facility that a published refueling track will be activated and all or part of the activity will take place outside of restricted/warning areas or Class A airspace, the tie-in AFSS/FSS shall issue a NOTAM for the aerial refueling track.

6-5-3. SPECIAL MILITARY FLIGHTS

a. Advise the ARTCC of flight notification messages, progress reports, changes en route, and related messages concerning Presidential or Vice Presidential flights.

b. Alaska. In addition to the above, give advance notice to all RCC's along the route of flight. Telephone SARCC (907) 752-0227 or (907) 752-0128. Initiate communications search procedures if arrival is not received within 15 minutes after ETA and immediately notify ANRCC (Alaskan NORAD Region Control Center).

6-5-4. MILITARY FOREIGN FLIGHTS

Generally, all military foreign flights are required to clear through specified military bases. Pilots normally will not file flight plans directly with an AFSS/FSS unless BASOPS is not available. BASOPS with no Service B access will forward an ICAO-type flight plan message via their tie-in AFSS/FSS for relay through the AFTN. BASOPS should specify all addressees, both ATC and operational, in accordance with ICAO standards and military regulations.

6-5-5. USAF/USN UNDERGRADUATE PILOTS

To identify aircraft piloted by solo USAF/USN undergraduate student pilots (who may occasionally request revised clearances because they normally are restricted to flight in VFR conditions), the aircraft identification in the flight plan shall include the letter Z as a suffix. Do not use this suffix in ground-to-air communication.

NOTE-
USAF solo students who have passed an instrument certification check may penetrate cloud layers in climb or descent only. Requests for revised clearances to avoid clouds in level flight can still be expected. This does not change the requirement to use the letter Z as a suffix to the aircraft identification.

6-5-6. MESSAGE HANDLING

Accept and forward messages from any military authority that concern aircraft movement, national defense, safety of flight, or emergencies. This includes, but is not limited to, the following:

a. Flight Advisory Messages.

1. The tie-in AFSS/FSS originating the advisory or receiving it from the originating BASOPS shall determine the AFSS/FSS nearest the aircraft's estimated position for VFR flights, or the appropriate ARTCC for IFR flights. Transmit a numbered message only to the facility identified. Include in the text, FLT ADVY, aircraft identification and type, and route of flight in that order. The last item shall be the identifier of the originating BASOPS or AFSS/FSS.

EXAMPLE-
AIS
FF KZIDZRZX
DTG KCOUYFYX
COU005 ZID
FLT ADVY A12345 T38 GVW J80 DAY
DAY WX BLO LNDG MIN. SUG PROCD CVG.
ADZ INTENTIONS DLVR 1625
GVW BASOPS

M1FC
ORIGIN:COU PRECEDENCE:FF TIME: ACK:Y
ADDR: KZIDZRZX
TEXT: A12345 FLT ADVY T38 GVW J80 DAY
DAY WX BLO LNDG MIN. SUG PROCD CVG.
ADZ INTENTIONS DLVR 1625 GVW BASOPS

2. Inform the originator if unable to deliver the flight advisory within 15 minutes. File the message.

b. Electronic Counter Measure (ECM) Alerts. Transmit a numbered message via Service B to tie-in stations serving the addressees. If acknowledgements are not received within 1 hour, deliver via telephone.

c. REACH and SAM Flight Messages. Forward to the airlift command post specified by the pilot if message contains request PASS TO AMC ACP.

d. CIRVIS.

1. JANAP 146(E), Canadian-United States Communications Instructions for Reporting Vital Intelligence Sightings, is an unclassified, nonregistered publication, prepared by the U.S. Military Communications-Electronics Board in conjunction with Canada for joint U.S. and Canadian use. The Flight Information Publication (FLIP), Flight Information Handbook (FIH), Section B, containing extracts from JANAP 146(E), should be in all facilities.

2. Relay CIRVIS reports by the most expeditious means to the appropriate ARTCC.

e. Pacific - Delivery of CIRVIS/MERINT Messages.

1. Pacific area FAA facilities shall immediately pass the CIRVIS message to the appropriate ARTCC. Specific relay and/or delivery responsibilities are as follows:

(a) Hawaiian Island Facilities. Interphone to Honolulu ARTCC; transmit confirmation message addressed to the Air Defense Control Center (ADCC) and the Hawaiian Sea Frontier Operations Control Center.

(b) Samoa CAP/IS. Transmit message addressed to Honolulu ARTCC, the Air Defense Control Center (ADCC), and the Hawaiian Sea Frontier Operations Control Center.

EXAMPLE-
Report as filed by Samoa CAP/IS:
AIS
SS PHNLZOZX PHNCYXYX
232020 NSTUYFYX
CNTR PHNL. ADCC KUNIA. HAWSEAFRON
OPERATIONS CONTROL CENTER KUNIA.
CIRVIS REPORT PA818 SIGHTED
XXXXX XXXXX XXXXX (TEXT) XXXXX JONES
CAP/IS 232020

2. The Honolulu and Guam ARTCC's will forward the CIRVIS message immediately by interphone to the military commands designated by CINCPAC. These military addressees will be responsible for forwarding the information to other military services or higher headquarters as required.

3. CINCPAC has designated the following military commands as addressees for reports originating in the Pacific area and handled by FAA facilities:

(a) For reports originating in the Honolulu FIR:

(1) The Air Defense Control Center, Kunia (ADCC).

(2) The Hawaiian Sea Frontier Operations Control Center, Kunia.

(b) For reports originating in the Guam FIR:

(1) The Anderson Air Force Base Command Post, Guam.

(2) The COMNAVMARIANAS Operation.

4. The action required of the military commanders upon receipt of a sighting report is dictated to a large extent by whether the word CIRVIS appears as the first word of the report. This word indicates that the information may be of vital importance to the security of the United States and requires certain specific action on the part of various military commanders. For this reason, the word CIRVIS shall appear in sighting reports handled by FAA facilities ONLY WHEN SO DESIGNATED BY THE OBSERVER. Sighting reports received without this designation shall be accepted and forwarded verbatim to the addressee indicated above without an identifying prefix; e.g., "PA818 REPORTS SIGHTING VESSEL ..." All sighting reports, regardless if they are designated as CIRVIS, shall be assigned the priority prefix SS to ensure rapid handling. Because of the strategic location of Wake and Samoa, CINCPAC is also interested in reports from ground observers concerning questionable or suspicious actions on the part of unidentified aircraft or vessels in the vicinity of these islands. Such reports shall be given the same distribution as CIRVIS reports.

5. Sighting Reports (MERINT) that may be received by Pacific area FAA facilities, particularly at Wake and Samoa, shall be given the same distribution as described for CIRVIS reports. Instructions concerning MERINT reports are contained in Chapter III of JANAP 146(E).

6. All facilities shall maintain a copy of JANAP 146(E) in a suitable binder and keep it available for reference in the facility operations area.

f. 7602nd Air Intelligence Group (AFIS) - Conterminous U.S. only. To assist the 7602nd Air Intelligence Group in locating downed enemy aircraft during periods of hostilities, immediately

forward all information about downed enemy aircraft to the appropriate ARTCC for relay to the NORAD Direction Center by the fastest means available.

Section 6. IFR/DVFR ADIZ Flight Plans

6-6-1. AIRCRAFT MOVEMENT INFORMATION SERVICES (AMIS) WITHIN AN ADIZ-IFR

In addition to the normal handling of aircraft operating in accordance with IFR, ADIZ penetration information or position reports on IFR operations outside of controlled airspace shall be forwarded immediately to the appropriate ARTCC.

6-6-2. AMIS WITHIN AN ADIZ-DVFR

For security control of air traffic, specific information contained inflight plans filed by a pilot operating or proposing to operate in accordance with DVFR within an ADIZ shall be forwarded to the appropriate ARTCC.

NOTE-
Other offices, military and civil, which have direct communications with the appropriate ARTCC are permitted to forward DVFR flight plan data directly to the ARTCC. When pilots require normal handling of VFR flight plans, these offices are permitted to file a VFR flight plan with the AFSS/FSS and a DVFR flight plan with the ARTCC.

6-6-3. FORWARDING DVFR INFORMATION

Forward DVFR flight plan information to the appropriate ARTCC by Service F interphone or Service B as follows:

a. DVFR.

b. Aircraft call sign.

c. Number and type of aircraft.

d. Altitude (within ADIZ).

e. True airspeed.

f. Time of departure.

1. When the flight plan information is provided before the aircraft's departure, forward the proposed departure time.

2. Forward the actual departure time immediately upon receipt.

3. If arrangements cannot be made to obtain the actual departure time, forward the ETD.

g. Point of departure.

h. Route of flight.

i. Destination.

j. Remarks as appropriate.

1. The estimated time and point of penetration of the ADIZ.

2. If no arrival report (NORIV) will be filed with an appropriate aeronautical facility, include the abbreviation NORIV.

NOTE-
Arrival reports are not required for scheduled air carrier DVFR flights.

3. DVFR position reports on all aircraft.

4. Revisions to position reports, revisions to time or place of penetration, and change in route of flight.

5. Other information deemed necessary for the security control of air traffic.

6-6-4. STOPOVER DVFR FLIGHT PLANS

Accept stopover DVFR flight plans filed on those aircraft planning one or more landings (within an ADIZ) en route to the destination, provided the information in para 6-6-3 is furnished for each segment of flight. Remind the pilot that 14 CFR Part 99 requires departure times to be made good and that a written record should be retained of these times at each departure point.

6-6-5. ADDRESSING DVFR FLIGHT PLAN MESSAGES

Forward DVFR flight plan information to the ARTCC in whose flight advisory area penetration of an ADIZ is intended unless special arrangements provide otherwise. (Reference para 6-6-3.)

a. Contiguous U.S. ADIZ. (See TBL 6-6-1.)

TBL 6-6-1

Contiguous U.S. ADIZ

	Service B Call	*ARTCC Location*
Coinciding with the Albuquerque flight advisory area	ZAB	Albuquerque
Coinciding with the Los Angeles flight advisory area	ZLA	Los Angeles
Coinciding with the Houston flight advisory area	ZHU	Houston
East of the Boston flight advisory area	ZBW	Boston
East of the Jacksonville flight advisory area	ZJX	Jacksonville
East of the Miami flight advisory area	ZMA	Miami
East of the New York flight advisory area	ZNY	New York
East of the Washington flight advisory area	ZDC	Washington
North and West of the Seattle flight advisory area	ZOA	Oakland
West of the Los Angeles flight advisory area	ZOA	Oakland
West of the Oakland flight advisory area	ZOA	Oakland
Within or south of the Houston flight advisory area	ZHU	Houston
Within or south of the Miami flight advisory area	ZMA	Miami
Within the Jacksonville flight advisory area	ZJX	Jacksonville

b. Alaskan ADIZ. (See TBL 6-6-2.)

TBL 6-6-2

Alaskan ADIZ

	Service B Call	*ARTCC Location*
Alaskan Domestic ADIZ	ANC	Anchorage

c. Hawaiian ADIZ.

NOTE-
Forward all DVFR flight plan messages concerning flight in the Hawaiian ADIZ to the Honolulu ARTCC.

d. Canada. Routing DVFR flight plan messages.

NOTE-
Compose DVFR messages pertaining to aircraft operating on a DVFR flight into Canada in the same format as for DVFR messages in the U.S., address and route via Service B.

Section 7. Law Enforcement Messages

6-7-1. LAW ENFORCEMENT ALERT MESSAGES (LEAM)

Upon receipt of a Law Enforcement Alert Message (LEAM) from the El Paso Intelligence Center (EPIC), take the following actions:

a. Aircraft Lookout Alerts.

1. Keep active for 7 days, unless otherwise specified, or until cancellation is received.

2. Do not disseminate lookout alerts outside official FAA facilities and offices as this data is inherently sensitive. Unauthorized dissemination could result in criminal prosecution or administrative action against the offender.

b. Stolen Aircraft Alerts.

1. Keep active until included in a stolen aircraft summary or until cancelled.

2. Upon receipt, check local records for any aircraft contact, beginning with the date the aircraft was reported stolen. AFSS's shall notify their FSDPS to run the ENFORCE program as soon as practicable.

3. Relay any information available to the office listed on the alert.

c. Stolen Aircraft Summaries.

1. Give this message the widest dissemination. These should be used to displace and consolidate all the individual stolen aircraft alerts received in the interim.

2. Monthly summaries are sent as soon as possible after the end of the month. They include aircraft registration numbers, aircraft type, and the date/time stolen and/or recovered.

3. Biannual summaries are sent in January and July. They list only those aircraft stolen in the past 2 years.

d. All LEAM.

1. At the discretion of facility management, distribute stolen aircraft alerts and stolen aircraft summaries to all ATC facilities for which the AFSS/FSS has message handling responsibility and other aviation entities as appropriate.

2. Check local records for the previous 24 hours.

3. Notify EPIC via Service B message (KDEAYYYX) or by telephone (915-564-2220) of any contact within the past 24 hours. Also, notify your Regional duty officer for relay to the cognizant Civil Aviation Security Division or staff.

4. Subsequent aircraft transactions shall be monitored and require the same notification as defined in subpara 6-7-1d3.

5. Take no action regarding the aircraft, crew, or passengers other than normal air traffic job related functions.

6. Cease all actions upon receipt of a cancellation or a summary if the latter does not include this aircraft's registration number.

6-7-2. INITIATING LEAM'S

Any inquiries from airport managers, aircraft owners, or law enforcement entities to initiate an alert message shall be directed to EPIC. EPIC is interfaced with the National Crime Information Center, which gives them access to any stolen aircraft report entered by law enforcement agencies. FAA facilities shall not volunteer to relay this information to EPIC. Assistance shall be limited to providing EPIC phone number(s) as specified in subpara 6-7-1d3 or advising the inquiring party to go through normal law enforcement channels.

6-7-3. FSDPS RESPONSIBILITIES

The FSDPS shall:

a. As a minimum, execute the ENFORCE program every 8 hours. In addition, run the ENFORCE program when requested.

b. Not accept requests to search for individual aircraft from other than an FAA facility or office.

c. Immediately notify the requesting facility or office when the program recognizes any aircraft registration number in the history file that matches one in the LEAM. Negative replies are required.

Section 8. Nonemergency Parachute Jumping

6-8-1. COORDINATION

All pertinent information received from pilots prior to and during parachute jumping activity shall be forwarded to other affected ATC facilities.

6-8-2. PREJUMP RADIO COMMUNICATIONS

a. When a prejump radio call required by 14 CFR Section 105.14 is received, contact the ARTCC sector or terminal facility in whose airspace the jump begins. If the controller has pertinent traffic, advise the jump aircraft to contact the control facility on the appropriate frequency for traffic information.

b. If the aircraft is unable to contact the control facility direct, obtain traffic information and relay it to the aircraft.

EXAMPLE-
"Cessna Four Zero Yankee, A-T-C advises traffic is a Cessna Four Twenty-One passing the Sputs intersection eastbound on Victor One Fifty-Seven at seven thousand."

Chapter 7. International Operations

Section 1. Messages and Formats

7-1-1. GENERAL

a. Title 14 of the U.S. Code of Federal Regulations (14 CFR) and the International Civil Aviation Organization (ICAO) require flight plans for all civil aircraft operation between the United States and foreign locations. U.S. Customs requirements, international flight plan information, and Air Defense Identification Zone (ADIZ) penetration requirements are listed in other publications; e.g., the FAA International Flight Information Manual (IFIM), the U.S. Customs Guide for Private Flyers, the Aeronautical Information Manual (AIM), CFR Part 91, and CFR Part 99. Designated airports of first landing are listed in the IFIM and The Airport/Facility Directory (AFD).

b. This chapter provides guidance to AIFSS, AFSS, FSS, and ARTCC facilities that transmit international flight movement messages. It incorporates relevant information from ICAO and 14 CFR documents. All personnel required to handle international messages shall be familiar with ICAO documents containing instructions for preparing and transmitting communications for the AFTN circuits. These documents should be retained at FAA facilities which handle international messages. FAA personnel shall not act as agents for any aircraft operating or dispatching company.

NOTE-
International telecommunications instructions are found in International Standards and Recommended Practices, ICAO Annex 10 - Aeronautical Telecommunications, Volume II, and Document 7946, Manual of Teletypewriter Operating Practices. DOC 4444-RAC 501, Rule of the Air and Air Traffic Services, lists various ATS movement messages. Location indicators are contained in ICAO Document 7910, and Designators for Aircraft Operating Agencies Aeronautical Authorities and Services are contained in ICAO DOC 8585. FAA policies concerning acceptance of messages for international transmission are contained in 14 CFR Part 189.

c. AFSS's and FSS's that transmit only occasional international messages or are unable to determine the correct addressing for all air traffic units concerned may refer the pilot to the proper gateway facility or address the message to the proper gateway facility for handling. The gateway stations and their areas of responsibilities are as follows:

1. New York AIFSS (ISP): Bermuda, Canada, North Atlantic, Europe, and Africa.

2. Miami AIFSS (MIA): Caribbean, South America, and Central America.

3. Kenai AIFSS (ENA): Alaska.

4. Oakland AIFSS (OAK): Pacific.

d. To ensure that the gateway facility understands your request, include T (transmit) instructions in the first line of text.

EXAMPLE-
AIS
FF KMIAYFYX
DTG KICTYFYX
MIA T ALL INTL ADDRESSEES
(Text)

M1

ORIGIN: PRECEDENCE.FF TIME: ACK:N
ADDR:KMIAYFYX
TEXT:MIA T ALL INTL ADDRESSEES
(TEXT)

7-1-2. AIR TRAFFIC SERVICE (ATS) MESSAGES

ATS as used in this section, as opposed to the meaning of the term within the FAA, is a generic term meaning and including: flight information, alerting, air traffic advisory, and air traffic control (ATC) services.

7-1-3. CATEGORIES OF MESSAGES

The following ATS messages, with their normal priority indicators, are authorized for transmission by any means; i.e., AFTN, NADIN, interphone, computer-to-computer, or via the aeronautical mobile service, as applicable.

a. Emergency Messages.

1. Distress messages and distress traffic, including alerting (ALR) messages relating to distress (DETRESFA) phase-SS.

2. Urgency messages, including alerting messages relating to an alert (ALERFA) phase or to an uncertainty (INCERFA) phase-SS.

3. Other messages concerning known or suspected emergencies which do not fall under subparas 7-1-3a1 and 2 and radio communications failure (RCF) messages-FF or higher as required.

b. Movement and Control Messages.

1. Flight plan (FPL)-FF.

2. Amendment and coordination messages.

(a) Departure (DEP)-FF.

(b) Delay (DLA)-GG.

(c) Arrival (ARR)-GG.

(d) Boundary estimate (EST)-FF.*

(e) Modification (CHG)-FF.*

(f) Coordination (CDN)-FF.*

(g) Acceptance (ACP)-FF.*

3. Cancellation (CNL)-GG.*

4. Clearances, flow control (SPL, CHG, CDN)-FF or DD.*

5. Transfer of control (TCX)-FF.*

6. Requests (RQS)-FF.*

7. Position reports (AIREP)-FF.*

c. Flight Information Messages.

1. Traffic information-FF.*

2. Meteorological information (MET)-FF or GG.

3. Operation of aeronautical facilities and essential airport information (NOTAM)-GG.

** Normally exchanged between ATC units via voice circuits.*

d. Technical Messages. Four categories of these messages are specified for use on computer-to-computer circuits only. They will not be sent on AFTN or NADIN circuits.

7-1-4. SERVICE MESSAGES

a. NADIN will immediately generate a service message to an originator when incorrect code or routing indicators are detected.

EXAMPLE-
FF KZKCZQZX
031840 KSLCYTYX
SVC. ZKC121 QTA RPT
FF KZKCZQZX
031840 KSLCYTYX
SVC. ZKC122 QTA MSR

b. Assign the appropriate priority indicator to international service messages. When service messages refer to messages previously transmitted, assign the same priority prefix. Identify a service message by inserting SVC as the first item of the text.

EXAMPLE-
FF TJSJYFYX
DTG KSEAYFYX
SVC. RUMES 231015
(Text)

7-1-5. TRANSMISSION VIA NADIN

International messages are generally introduced on NADIN for relay to AFTN circuits.

a. M1FC facilities use the ICAO flight plan mask or TB mask. Addressee(s): Not to exceed 69 characters or seven addressees, each addressee separated by a space.

b. AIS facilities handle international messages on NADIN for relay to AFTN as follows:

1. Start of message. New Line Key.

2. Preamble (priority, space, addressee(s).

(a) Priority. Two-character precedence field.

(b) Addressee(s). Not to exceed 69 characters or seven addressees, each addressee separated by a space.

(c) End of Line (EOL) new line key.

(d) End of Text (EOT) (enter function).

7-1-6. TRANSMISSION OF ATS MESSAGES

a. Air traffic service messages are interchanged in the international air traffic control system in the following modes:

1. The preferred step-by-step mode wherein each ACC/ARTCC sends forward the full current (updated) flight plan information as the flight progresses.

2. The simultaneous mode wherein information extracted from the filed flight plan (FPL) is sent

simultaneously to all ATS units along the route of flight. In this mode, only amendments to the FPL, plus necessary control information, are forwarded from center to center as the flight progresses.

b. Prepare and transmit ATS messages as set forth in this Order. Address these messages as follows:

1. Include an eight-character addressee indicator for each addressee. There can be no more than one line (69 characters including separating spaces) of addressees. When more than the allowable number of addressees are required, two or more transmissions of the message (each with no more than the allowable number of addresses) must be made. The eight-letter combination addressee indicators are composed as follows:

(a) The four-letter ICAO location indicator; e.g., MPTO. Use only those listed in ICAO DOC 7910 (Location Indicators). Some ICAO eight-character addressees for Mexico and Canada are listed in FAAO 7350.7.

(b) A four-letter designator for the facility type/office, or if no designator has been assigned, affix YXYX for military, ZZZX for aircraft in flight, or YYYX for all other cases; e.g., MTPPYYYX. (See Note.)

REFERENCE-
ICAO DOC 8585, Designators for Aircraft Operating Agencies, Aeronautical Authorities and Services.

NOTE-
The most frequently used and authorized designators are:
YAYX Government Civil Aviation Authority (FAA Regional Office or Headquarters).
YCYX Rescue Coordination Center (RCC).
YDYX Authority Supervising the Aerodrome.
YFYX Aeronautical Fixed Station (AFSS/FSS/IFSS/-IATSC).
YMYX Meteorological Office (NWS).
YNYX International NOTAM Office (NOF).
YTYX Telecommunications Authority.
YWYX Military Flight Operational Control Center (ACP).
YXYX Military Organization (BASOPS).
YYYX Organization not allocated a two-letter designator.
ZOZX Oceanic Air Traffic Control Center.
ZPZX Air Traffic Service Reporting Office.
ZQZX Computer Facility at ACC/ARTCC.
ZRZX ACC/ARTCC. (Center in charge of a FIR/UIR when the message is relevant to a VFR flight (AMIS)).
ZTZX Aerodrome Control Tower.
ZZZX Aircraft in flight.

(c) A one-letter designator will appear following an air carrier designator to indicate the department or division of the organization addressed.

2. Filing time. A six-digit date/time group indicating the time the message is filed with the AIFSS/AFSS/FSS for transmission.

c. Originator Indicator. Consists of an eight-letter sequence similar to an address indicator, identifying the place of origin and the organization originating the message.

d. Supplementary Address and Origin Information. When the four-letter designators YXYX, ZZZX, or YYYX are used, identify the aircraft operator or organization at the beginning of the text preceding the start-of-ATS data symbol (⟨- -), in the same order as in the addressee(s) and/or originator indicator(s). Where there is more than one such insertion, the last should be followed by the word "stop." Where there are one or more insertions in respect to addressee indicators plus an insertion in respect to the originator indicator, the word FROM is to appear before that relating to the originator.

e. When addressing flight plan messages or related amendments and flight plan cancellation messages to centers, use one of the four-letter designators as follows:

1. If message is relevant to IFR and:

(a) The ARTCC is computer-equipped (U.S. ARTCC's), use ZQZX.

(b) The center is not computer-equipped, use ZRZX.

(c) Relevant to oceanic operations, use ZOZX.

NOTE-
Some centers may request specific addressing different from above. ZTZX and ZPZX are used internationally, but are not used in internal U.S. application.

2. If message is VFR (AMIS), use ZRZX.

3. If SVC or administrative, use ZRZX.

7-1-7. ORIGINATING MESSAGES

a. Messages for ATS purposes may be originated with ATS units by aircraft in flight, or, through local arrangements, a pilot, the operator, or their designated representative.

b. Accept air-filed flight plans or changes in destination information from aircraft inbound from foreign locations and, if requested by the pilot, enter Customs notification service.

c. Do not accept round-robin flight plans to international locations.

d. Do not accept assumed departure flight plans when the destination is in a foreign country other than Canada.

e. Aircraft movement, control, and flight information messages for purposes other than ATS, such as operational control, shall be originated by the pilot, the operator, or their designated representative.

7-1-8. ADDRESSING MESSAGES

a. Addressing the flight plan is determined by the point of departure, the destination, and the FIR boundaries to be penetrated during the course of the flight.

b. Address IFR FPL messages to the ARTCC serving the airport of departure and to all ATS units (including oceanic) providing air traffic control service or concerned with flight along part or the whole of the route to be flown except FAA ATCT's and other conterminous U.S. ARTCC's.

NOTE-
Within the North Atlantic (NAT) Region, FPL's on turbojet aircraft transiting the control areas of Gander Oceanic, New York Oceanic, Reykjavik, Santa Maria Oceanic, Shanwick Oceanic and Sondrestrom (south of 70 degrees) within 90 nautical miles of the control area boundary, shall be addressed to the adjacent ACC to provide lateral separation. For all other aircraft, a 120 nautical mile proximity limit shall apply.

c. Transmit all IFR FPL's to ARTCC's not less than 1 hour prior to the proposed departure time. Do not hold FPL's until after departure time and transmit as a combined FPL and DEP. Separate FPL and DEP messages must be transmitted.

NOTE-
ICAO flight plans do not require an acknowledgment to the transmitting facility.

d. Address aircraft movement messages only to those ATS units responsible for the provision of relevant service, except when requested by the operator concerned, these messages, when transmitted via the AFTN, may also be routed, as specified by the operator or a representative to:

1. One addressee at the point of intended landing or point of departure.

2. Not more than two operational control units concerned.

e. The ARTCC serving the departure airport shall transmit the DEP message on IFR aircraft to all known recipients of the FPL message. Flights between conterminous U.S. and Canada (excluding Gander Oceanic), Alaska, Hawaii and Puerto Rico do not require DEP messages. Discontinuance of DEP messages affecting the route of flight can only be accomplished by ICAO Regional Air Navigation Agreement.

7-1-9. FLIGHT PLAN FORMS AND INSTRUCTIONS

a. Use the International Flight Plan, FAA Form 7233-4 (see Appendix B), ICAO Model Flight Plan Form displayed in DOC 4444, or M1FC FP MASK and apply the procedures set forth in this section for flight:

NOTE-
Exceptions apply for flights to Canada and Mexico, see Section 4 and Section 5, for procedures.

1. Originating within conterminous U.S. and Canada and destined nonstop to points beyond those areas.

2. Originating within or transiting Pacific Flight Information Regions (FIR's) and destined to or from FIR's beyond the Pacific Region including the North American (NAM) Region.

NOTE-
1. The NAM Region encompasses the conterminous U.S., Alaska, and Canada to the North Pole.

2. FAA Form 7233-1, or Military Form DD-175, and domestic procedures are used for flights in the conterminous U.S., Canada, and the Honolulu, Alaskan, and San Juan domestic control areas.

3. AIS facilities record on the flight plan form the time that a flight plan is filed. This time will constitute evidence of the pilot's intention to comply with Customs, Immigration, and Public Health requirements and will be made available upon request from these authorities.

7-1-10. ICAO ATS MESSAGE FORMAT

The following are examples of ICAO message types most likely to appear on AFTN/NADIN circuits. The number above the data corresponds to the field type numbers on the flight plan form (FAA Form 7233-4) and on the chart of Standard ATS Messages and Their Composition, Appendix B.

a. Departure Message (DEP). ARTCC's are the designated ATS unit responsible for originating and transmitting DEP messages on all IFR aircraft departing airports within their center boundaries. IFR flight plans must be transmitted to ARTCC's at least 1 hour before departure. This allows ARTCC's to determine recipients of DEP message when domestic portions are transmitted to ARTCC's in M1 format. Do not hold FPL's and combine with DEP into a single message.

b. Delay Message (DLA). Transmitted when departure of an aircraft, for which an FPL message has been transmitted, is postponed or delayed more than 30 minutes after the estimated time of departure contained in the FPL.

c. Alerting Message (ALR). Relating to an overdue situation on an aircraft.

d. Supplementary Flight Plan (SPL) information shall be sent to ATS units requesting the information (RQS).

e. Arrival Message (ARR). Sent only on Canadian MOT, U.S. DOT, or FAA aircraft or upon request.

f. Current Flight Plan (CPL) Message. Originated by and transmitted in a step-by-step mode between successive ACC's and between the last ACC to the control at the airport of intended landing. CPL's contain only information relevant to that portion of the route of flight which extends from the point of entry into the next control area or FIR to the airport of intended landing.

g. Acceptance (ACP) Message. Transmitted when the data contained in a CPL message are found to be acceptable to the receiving ACC.

h. Flight Plan Cancellation (CNL) Message. Transmitted when a current (CPL) or filed flight plan (FPL) message was transmitted and the flight is canceled.

7-1-11. FLIGHT PLAN CHANGES AND CANCELLATIONS

a. Assume departure station duties when a flight plan change is received from an aircraft en route to a foreign location.

REFERENCE-
Para 6-4-8, Major Flight Plan Changes from En Route, and Para 6-4-9, Change in ETA.

b. An AFSS/FSS receiving a VFR flight plan cancellation report from aircraft en route to a foreign location shall transmit a cancellation message to the appropriate foreign tie-in facility.

REFERENCE-
Para 6-4-10, Flight Plan Closure.

7-1-12. AIR MOBILE SERVICE (AMS)

a. Air Mobile Service (AMS) is an international air/ground communications network. It provides service to en route aircraft primarily in support of ATC and company operations, and collects meteorological data for dissemination. Although in the U.S. this service is provided via contract (ARINC), FAA flight service facilities may be required to relay information on a case-by-case basis.

b. The AMS network is composed of individual units geographically limited to areas where effective coordination and cooperation between ground stations are possible.

c. For any individual route segment, the AMS communication requirements will normally be met by two or more network stations serving the flights on that route segment. In general, these primary stations serve the ACC serving the FIR's and the points of takeoff and landing. In some cases, additional suitably located stations are required to complete the communications coverage.

d. Each of these stations may be required at some stage of the flight to exchange communications with the aircraft, and when not so engaged, to intercept, as required, communications exchanged between the aircraft and any one of the other stations.

e. Stations providing regular network service to aircraft operation along route segments in an ACC's FIR are termed regular stations. Other network stations will only be required to assist communications for that FIR in the event of communications failure.

f. When communications permit, aircraft should transmit their messages to the primary station of the

network from which they can most readily be delivered to their ultimate destination. In particular, aircraft reports required by ATC should be transmitted to the network station serving the ATC center in whose area the aircraft is flying. Conversely, messages to aircraft in flight should be transmitted direct to the aircraft by the network station serving the location of the originator.

g. Messages passed from aircraft to a network station should be intercepted and acknowledged by other stations which serve locations where the information is also required. Such intercepts provide instantaneous delivery of information and eliminates the transmission of messages over the AFTN. Networks may not be used for transmission of aircraft reports except under the intercept principle. Acknowledgments of intercept shall be made immediately after the acknowledgment of receipt by the station to which the message was passed. In the absence of acknowledgment of intercept within 1 minute, the station accepting the message from the aircraft shall forward the message via the AFTN to the ultimate destination.

h. In areas or on routes where radio operations, lengths of flights, or distance between stations require additional measures to ensure continuity of communications throughout the route segment, the stations shall share the responsibility of primary guard whereby each station will provide the primary guard for that portion of the flight during which the messages from the aircraft can be handled most effectively by that station.

i. During its tenure of primary guard, each station will:

1. Be responsible for designating primary and secondary frequencies for communications with aircraft.

2. Receive all position reports and handle other messages from and to the aircraft essential to the safe conduct of the flight.

3. Be responsible for the action required in case of failure of communication.

j. Transfer of primary guard from one primary station to the next will normally take place at the time of traversing FIR or control area boundaries. When communications conditions so demand, a station may be required to retain primary guard beyond geographical boundaries or release its guard before the aircraft reaches a boundary.

7-1-13. AIREP'S (POSITION REPORTS)

a. AIREP's are messages from an aircraft to a ground station. AIREP's are normally comprised of the aircraft's position, time, flight level, ETA over its next reporting point, destination ETA, fuel remaining, and meteorological information. When recording an AIREP on data terminals or written copy, the following procedures shall be used.

1. Each line shall begin at the left margin.

2. A new line shall be used for each transmission.

3. If communications allow, each report shall contain the following items in the order shown:

(a) Message type ARP.

(b) Call sign of the calling station (aircraft).

(c) Text of the message.

(d) Call sign of the station called or receiving station followed by the appropriate abbreviation to indicate received, readback, or no reply heard.

(e) Call sign of station(s) acknowledging intercept followed by appropriate abbreviation to indicate received.

(f) Designation of frequency used.

EXAMPLE-

**2866QM*	*8903VO*	*13300YH*
2932QI	*•5631TY*	*11384XM*
2998QL	*6532UA*	*13294YF*
5628TO	*10048WH*	*17904ZC*

**For Alaskan domestic use only.*

(g) Time in UTC of the communication.

4. Missing parts of the message text shall be indicated by the letter M.

EXAMPLE-
ARP CPC583 KBRO 2100 F330 MMTM 2128
ETA XMMMX 2248 FUEL 0324
KNEW RB
MMMX R
TO2103

b. AIREP's may be filed from any aircraft inflight within World Meteorological Organization (WMO) areas of responsibility in conformity with ICAO requirements for position, operational, or

meteorological reporting in AIREP format. AIREP information shall be disseminated to ATC, company, and meteorological offices as required. AIREP's consist of three sections comprised of 12 items. AIREP's may be filed in one, two, or three sections as follows:

1. Section 1, Routine report. A position report (PSNRP) comprising the Message Type Designator -ARP and the following items:

(a) Item 1, Aircraft identification.

(b) Item 2, Position. Record position in latitude (degrees as two numerics, or degrees and minutes as four numerics, followed without a space by N or S) and longitude (degrees as three numerics, or degrees and minutes as five numerics, followed without a space by E or W) or as a significant point identified by a coded designator (two-to-five characters) or as a significant point followed by a magnetic bearing (three numerics) and a distance in nautical miles (three numerics) from the point, such as 4620N07805W, 4620N078W, 46N078W, LN, MAY or DUB180040. Precede significant point by ABM (abeam), if applicable.

(c) Item 3, Time. Record time in hours and minutes UTC (four numerics). The time recorded must be the actual time of the aircraft at the position and not the time of origination or transmission of the report.

(d) Item 4, Flight level or altitude. Record flight level as F followed by three numerics when on standard pressure altimeter setting, such as F370. Record altitude in meters followed by M, or in feet followed by FT, when on QNH. Record ASC (level) when climbing, or DES (level) when descending to a new level after passing the significant point.

(e) Item 5, Next position and time over. Record the next reporting point and the estimated time over such reporting point, or record the estimated position that will be reached 1 hour later, according to the position reporting procedures in effect. Use the data conventions specified in subpara 7-1-13b1(b) Item 2, Position, for position. Record time in minutes past the hour (two numerics) or in hours and minutes UTC (four numerics) when necessary.

EXAMPLE-
PSNRP portion of AIREP prepared by De Ridder and addressed to Canadian Pacific Airlines (CPC) in Toronto and Mexico City:

AIS
FF CYYZCPCX MMMXXMZT
122105 KDRIYFYX
ARP CPC583 KBRO 2100 F370 MMTM28
KNEW RB
MMMM R
TO2103]

M1

ORIGIN:KDRIYFYX PRECEDENCE:FF TIME:
ACK:N
ADDR:CYYZCPCX MMMXXMZT
TEXT:ARP CPC583 KBRO 2100 F370 MMTM28
KNEW RB
MMMM R
TO2103

2. Section 2. When reported by the pilot:

(a) Item 6, Estimated Time of Arrival (ETA). Record ETA by the four-letter location indicator of the airport of first intended landing, or if no location indicator exists, the name of the airport followed by the estimated time of arrival at this aerodrome in hours and minutes UTC (four numerics).

(b) Item 7, Endurance. Record fuel in hours and minutes (four numerics).

3. Section 3. A full AIREP comprising a PSNRP, company information, and en route meteorological information.

(a) Item 8, Air temperature. Record PS (plus) or MS (minus), no space, followed by the temperature in degrees centigrade corrected for instrument error and airspeed, such as MS05.

(b) Item 9, Spot wind or mean wind and position. Spot wind is used whenever practical and normally refers to the position given in subpara 7-1-13b1(b) Item 2, Position. When a spot wind is given for any other location, record its position. Whenever it is not practical to record spot wind, record the mean wind between two fixes, followed by the word "mean," and the position of the midpoint between the two fixes. Record wind direction in degrees true (three numerics) and wind speed in knots (two or three numerics), separated by an oblique stroke, such as 345/55. Record the direction of

variable winds of a given strength as VRB, such as VRB/10. Record light and variable winds or calm as LV. If wind position is required, record latitude and longitude to the nearest whole degree, using the data convention specified in Item 2, such as 22N180W.

EXAMPLE-
AIREP comprised of PSNRP and aircraft operator information.
AIS
FF CYYZCPCX MMMXXMZT
122105 KDRIYFYX
ARP CPC583 KBRO 2100 F370 MMTM28
MMMX 2248 FUEL 0324
KNEW RB
MMMX R
TO2103

M1

ORIGIN:KDRIYFYX PRECEDENCE:FF TIME:
ACK:N
ADDR:CYYZCPCX MMMXXMZT
TEXT:ARP CPC583 KBRO 2100 F370 MMTM28
MMMX 2248 FUEL 0324
KNEW RB
MMMX R
TO2103

(c) Item 10, Turbulence (TURB). Record severe turbulence as TURB SEV and moderate turbulence as TURB MOD. If turbulence is experienced in cloud, add INC (in cloud). If in subsonic flight, report severe turbulence as soon as possible after occurrence. This requires AIREP SPECIAL. Record and report moderate turbulence only if encountered within last 10 minutes prior to reaching position in subpara 7-1-13b1(b) Item 2, Position. If in transonic or supersonic flight, report severe or moderate turbulence as soon as possible after occurrence. This requires AIREP SPECIAL.

(d) Item 11, Icing. Record severe icing as ICE SEV, moderate icing as ICE MOD. Report severe icing as soon as possible after occurrence. This requires AIREP SPECIAL. Record and report moderate icing only if encountered within last 10 minutes prior to reaching position in subpara 7-1-13b1(b) Item 2, Position.

(e) Item 12, Supplementary Information. Record data which in the opinion of the pilot-in-command are of aeronautical interest.

(1) Present Weather. Rain (RA), Snow (SN), Freezing rain (FZRA), Funnel cloud (FA) (waterspout or tornado), Thunderstorm (TS) on or near flight path, Front (FRONT).

(2) Clouds. If heights of cloud bases and/or tops can be accurately ascertained, amount of clouds scattered (SCT) if clear intervals predominate, broken (BKN) if cloud masses predominate, or continuous (CNS) type of clouds only if cumulonimbus (CB), and an indication of the bases (BASE) and/or the tops (TOP) together with the respective height indication F (number) or (number) or (number) M/ or (number) FT.

(3) Turbulence and Icing. Moderate turbulence (TURB MOD) if in subsonic flight, or moderate aircraft icing (ICE MOD) observed prior to the last 10 minutes.

(4) D-Value. Reading or radio altimeter minus reading of pressure altimeter set to 1013.2 mb and corrected for calibration and position error; record differences as PS (plus) or MS (minus), no space, followed by the number of meters or feet.

EXAMPLE-
Full AIREP:

AIS
FF CYYZCPCX MMMXXMZT KMIAYMYX
162215 TJSJYFYX
ARP CPC583 2709N05415W 2212 F330
23N056W 59 0035 FUEL 0324 M534 310/60
MEAN 2543N05532W TURB MOD ICE MOD SCT
CB TOP F280
TJSJ RB
TO2214

M1
ORIGIN:TJSJYFYX PRECEDENCE:FF TIME:
ACK:N
ADDR:CYYZCPCX MMMXXMZT KMIAYMYX
TEXT:ARP CPC583 2709N05415W 2212 F330
23N056W 59 0035 FUEL 0324 M534 310/60
MEAN 2543N05532W TURB MOD ICE MOD SCT
CB TOP F280
TJSJ RB
TO2214

NOTE-
Transmit to the WMO office serving the FIR where the report is made.

(5) Operationally Significant Weather Radar Echoes (echo or echo line). True bearing of center of echo or line and distance from aircraft in nautical

miles; if appropriate, indicate weather intensifying or weakening and whether no gaps, some gaps, or frequent gaps are observed.

(6) Significant differences between conditions encountered and those forecast for the flight, such as forecast thunderstorms not observed or freezing rain not forecast.

(7) If the position of the phenomenon reported is not the same as the position given under subpara 7-1-13b1(b) Item 2, Position, report it after the phenomenon.

7-1-14. AIREP SPECIALS (ARS)

a. Turbulence. TURB SEV encountered while in subsonic flight is reported as soon as possible after occurrence and requires AIREP SPECIAL. TURB MOD is reported only if encountered within 10 minutes prior to reaching reporting position. If in transonic or supersonic flight, TURB MOD and SEV is reported as soon as possible and requires AIREP SPECIAL.

b. Icing. ICE SEV is reported as soon as possible after occurrence and requires AIREP SPECIAL. ICE MOD is reported only if encountered within last 10 minutes prior to reaching reporting position.

EXAMPLE-
AIS
FF KMIAYMYX
211538 TJSJYFYX
ARS PAA101 5045N02015W 1536 F310 ASC F350 51N030W 21 FUEL 0900 ICE SEV

M1
ORIGIN:TJSJYFYX PRECEDENCE:FF TIME:
ACK:N
ADDR:KMIAYMYX
TEXT: ARS PAA101 5045N02015W 1536 F310 ASC F350 51N030W 21 FUEL 0900 ICE SEV

7-1-15. ARTCC RELAY OF VFR MESSAGES

ARTCC AIS operators shall relay all international VFR flight movement messages to the adjacent AIFSS/AFSS/FSS unless that facility is also an addressee.

NOTE-
If an overseas unit erroneously routes a VFR movement message to an ARTCC, the automatic NADIN switch will not divert it to an AIFSS, AFSS or FSS.

Section 2. Customs Notification and ADIZ Requirements

7-2-1. FLIGHT PLAN/CUSTOMS REQUIREMENTS

Specific flight plan, Customs, and other requirements of individual countries are listed in the FAA International Flight Information Manual, IFIM.

7-2-2. INBOUND PRIVATE AIRCRAFT: CUSTOMS REQUIREMENTS

a. All private aircraft entering U.S. airspace from a foreign port must provide at least 1 hour advance notice to Customs at the point of first intended landing. Pilots participating in the General Aviation Telephonic Entry (GATE) program are responsible for notifying Customs within the time frame specified by that program. Private aircraft arriving from the following location shall furnish a notice of intended arrival to Customs at the nearest designated airport to point of crossing for the first landing in the U.S.

1. Via the U.S./Mexican border or the Pacific Coast from a foreign place in the Western Hemisphere south of 33 degrees north latitude.

2. From the Gulf of Mexico and Atlantic Coasts from a place in the Western Hemisphere south of 30 degrees north latitude from any place in Mexico.

3. From the U.S. Virgin Islands.

4. From Puerto Rico, which if from Puerto Rico, are conducting VFR flight.

b. This notice must be given at least 1 hour before crossing the U.S. coastline or border. The advance notice of arrival shall include the following:

1. Aircraft registration number.

2. Name of aircraft commander.

3. Number of U.S. citizen passengers.

4. Number of alien passengers.

5. Place of last departure.

6. Estimated time and location of crossing U.S. border/coastline.

7. Estimated time of arrival.

8. Name of intended U.S. airport of first landing.

c. This notice may be furnished directly to Customs by telephone, radio, or other means, or may be furnished through the FAA to Customs.

REFERENCE-
U.S. Customs Guide for Private Flyers.

d. When Customs flight notification service is requested, as indicated by inclusion of ADCUS in remarks, deliver the complete message to the associated Customs office as soon as practical. Relay additional or amended information to Customs in order to properly comply with Customs requirements; e.g., when actual arrival time varies from ETA by more than 15 minutes.

1. Provide the service only for those airports where availability is advertised in the AFD or when requested by GATE participants on flight notification messages. Pilots are responsible for making their own Customs arrangements for other airports.

2. Notify only the Customs office which, in turn, is responsible for notifying other inspection agencies concerned.

e. Prefiled Customs notification requests for flights returning to the U.S. shall be delivered to Customs not earlier than 23 hours in advance.

f. When an airborne aircraft identifies an airport of first intended landing that is not one of the designated airports, and the pilot is not a GATE participant, advise the pilot that this airport is not a designated airport of first landing.

PHRASEOLOGY-
ARE YOU A GATE PARTICIPANT?

And if appropriate

BE ADVISED THAT YOUR DESTINATION IS NOT A U.S. CUSTOMS DESIGNATED FIRST LANDING AIRPORT. WHAT ARE YOUR INTENTIONS?

NOTE-
If a pilot insists on landing at a nondesignated airport, pass this information to nearest U.S. Customs office.

g. When a flight notification message containing ADCUS in remarks identifies a nondesignated airport of first intended landing, and the pilot is not a GATE participant, notify the message originator to

advise the pilot that the filed destination is not a designated airport.

PHRASEOLOGY-
ADVISE (aircraft identification) THAT THE FILED DESTINATION IS NOT A U.S. CUSTOMS DESIGNATED FIRST LANDING AIRPORT.

NOTE-
The FAA role in this program is advisory only. Any appearance of action of enforcing compliance shall be avoided. Any questions should be directed to the U.S. Customs Service.

h. AIS Facilities. Record the time of receipt of Customs requests. This time will constitute evidence of the pilot's intention to comply with Customs, Immigration, and Public Health requirements and will be made available upon request from these authorities.

7-2-3. INBOUND PRIVATE AIRCRAFT: ADIZ REQUIREMENTS

a. Unless otherwise authorized by ATC, no person may operate an aircraft into, within, or across an ADIZ unless that person has filed a flight plan with an appropriate aeronautical facility.

b. Unless otherwise authorized by ATC, no person may operate an aircraft into, within, or across an ADIZ unless that aircraft is equipped with a coded radar beacon transponder and automatic pressure altitude reporting equipment having altitude reporting capability that automatically replies to interrogations by transmitting pressure altitude information in 100-foot increments.

NOTE-
This paragraph does not apply to the operation of an aircraft which was not originally certificated with an engine-driven electrical system and which has not subsequently been certified with such a system installed; e.g., a balloon or glider.

c. Pilots of aircraft entering the United States through an ADIZ are required to comply with the provisions of 14 CFR Sections 99.17 and 99.19.

d. Forward information on DVFR aircraft inbound to the U.S. to the appropriate ARTCC facility via NADIN or interphone. Forward actual departure times by interphone. Forward the following information:

1. Aircraft call sign.
2. Number of aircraft.
3. Type of aircraft.
4. Altitude.
5. True airspeed.
6. Time of departure.
7. Point of departure.
8. Route of flight.
9. Destination.
10. Remarks. Estimated time and point of penetration of ADIZ, position reports, revisions to position reports for penetration point, other information deemed necessary for the security control of air traffic.

NOTE-
Further information on ADIZ requirements are contained in 14 CFR Part 99.

Section 3. Alerting Service

7-3-1. GENERAL

a. Alerting service shall be provided:

1. For all aircraft provided with air traffic control service.

2. Insofar as practical, to all other aircraft having filed a flight plan or otherwise known to an air traffic service.

3. To any aircraft known or believed to be the subject of unlawful interference.

b. Additional information related to ICAO Search and Rescue procedures can be found in ICAO ANNEX 11, Chapter 5, Alerting Service.

c. Apply domestic SAR procedures for the U.S. portion of the flight.

7-3-2. ALERTING PHASES.

a. Air traffic services units shall notify rescue coordination centers immediately when an aircraft is considered to be in a state of emergency in accordance with the following:

1. Uncertainty phase when:

(a) No communication has been received from an aircraft within a period of 30 minutes after the time a communication should have been received, or from the time an unsuccessful attempt to establish communication with such aircraft was first made, whichever is the earlier.

(b) An aircraft fails to arrive within 30 minutes of the estimated time of arrival last notified to or estimated by air traffic services units, whichever is later, except when no doubt exists as to the safety of the aircraft and its occupants.

2. Alert phase when:

(a) Following the uncertainty phase, subsequent attempts to establish communication with the aircraft or inquiries to other relevant sources have failed to reveal any news of the aircraft.

(b) An aircraft has been cleared to land and fails to land within five minutes of the estimated time of landing and communication has not been reestablished with the aircraft.

(c) Information has been received which indicates that the operating efficiency of the aircraft has been impaired, but not to the extent that a forced landing is likely.

(d) An aircraft is known or believed to be the subject of unlawful interference.

3. Distress phase when:

(a) Following the alert phase further unsuccessful attempts to establish communication with the aircraft and more widespread unsuccessful inquiries point to the probability that the aircraft is in distress.

(b) The fuel on board is considered to be exhausted or thought to be insufficient to enable the aircraft to reach safety.

(c) Information is received which indicates that the operating efficiency of the aircraft has been impaired to the extent that a forced landing is likely.

(d) Information is received and it is reasonably certain that the aircraft is about to make or has made a forced landing.

b. In addition to the initial notification, the rescue coordination center shall, without delay, be furnished with:

1. Any useful additional information, especially on the development of the state of emergency through subsequent phases.

2. Information that the emergency situation no longer exists.

7-3-3. ALERTING MESSAGE CONTENTS

a. The notification shall contain as much of the following information as is available in the order listed:

NOTE-
For supplemental flight plan information transmit an RQS Message. This information is used in the transmission of the INCERFA.

EXAMPLE-
AIS
FF SVZMZRZX
231247 KMIAYFYX
(RQS-N1234-SVMI-KMIA

M1
ORIGIN: PRECEDENCE:FF TIME: ACK:N
ADDR:SVZMZRZX
TEXT:(RQS-N1234-SVMI-KMIA

1. INCERFA, ALERFA, DETRESFA, as appropriate to the phase of the emergency.
2. Agency and person calling.
3. Nature of the emergency.
4. Significant information from the flight plan.
5. Unit which made last contact, time, and frequency used.
6. Last position report and how determined.
7. Color and distinctive marks of aircraft.
8. Any action taken by reporting office.
9. Other pertinent remark.

EXAMPLE-
AIS (INCERFA)
SS MMMXYAYX
DTG KSANYFYX
(ALR-INCERFA/KSAN/OVERDUE
-N1234S-VG
-C172
-KRNO2000
-MMLP0130
-REQ ACK OR ARR ACFT OVERDUE YOUR STN)

M1 (INCERFA)
ORIGIN:SAN PRECEDENCE:SS TIME: ACK:N
ADDR:MMMXYAYX
TEXT:(ALR-INCERFA/KSANYFYX/OVERDUE YOUR STATION
-N1234S-VG
-C172-SD/C
-KSAN2000
-N0160A105-DCT TIJ DCT
-MMLP2130 RMK/REQ ACK OR ARR)

AIS (ALERFA)
SS MMMXYAYX
TEXT:(ALR-ALERFA/KSAN/OVERDUE)
(text remains same except for remarks information).

M1 (ALERFA)
ORIGIN: PRECEDENCE:SS TIME: ACK:Y
ADDR:MMMXYAYX
TEXT:(ALR-ALERFA/KSANYFYX/OVERDUE
(text remains same except for remarks information).

AIS (DETRESFA)
SS MMMXYAYX
TEXT:(ALR-DETRESFA/KSAN/OVERDUE
(text remains same except for remarks information).

M1 (DETRESFA)
ORIGIN: PRECEDENCE:SS TIME: ACK:Y
ADDR:MMMXYAYX
TEXT:(ALR-DETRESFA/KSANYFYX/OVERDUE
(text remains same except for remarks information).

b. The cancellation of action initiated by the rescue coordination center is the responsibility of that center.

EXAMPLE-
AIS (CANCELLATION)
SS MMMXYAYX
020618 KMIAYFYX
(ALR-ALERFA/KMIAYFYX/CNL
N1234 LOCATED)

M1 (CANCELLATION)
ORIGIN: PRECEDENCE:SS TIME: ACK:YADDR:MMMXYAYX
TEXT:(ALR-ALERFA/KMIAYFYX/CNL
N1234 LOCATED

NOTE-
Transmit cancellation messages for INCERFA and DETRESFA using same format as above.

Section 4. Canadian Movement and Control Messages (Transborder Flights Only)

7-4-1. GENERAL

Except as indicated in this section, handle transborder Canadian movement and control messages as described in Sections 1, 2, and 3.

7-4-2. INBOUNDS FROM CANADA

a. M1 will automatically acknowledge and suspense a VFR flight notification message if received in the proper format. Deliver VFR and IFR ADCUS and GATE to U.S. Customs. File IFR messages after delivery.

b. AIS facilities acknowledge receipt of flight notification messages as soon as practical by transmitting the letter R followed by the full aircraft identification; e.g., R N711VR. Suspense VFR flight notification messages until arrival or closure information is received. File IFR messages after delivery.

7-4-3. OUTBOUNDS TO CANADA

a. When Customs notification service is requested advise the pilot to contact Canada's New Private Aircraft Program for Customs (CANPASS) at 888-226-7277 and include ADCUS CANPASS in the remarks section of the flight plan. If the pilot has contacted CANPASS, place ADCUS CANPASS in the remarks section of the flight plan. Process outbound flight plans in accordance with Chapter 6 and subparas 7-4-3d and e.

b. Accept Customs notification requests from inflight aircraft for relay via flight notification message only for airports of entry where Customs flight notification service is provided and when proposed ETA is during Customs service hours. Place ADCUS in the remark section of the flight notification message.

c. Upon notification of departure of VFR flights, transmit a flight notification message directly to the destination Canadian relay facility. Include ADCUS CANPASS in the remarks.

NOTE-
M1 will format and address a flight notification message to a Canadian destination airport if the proposed flight plan was filed in accordance with subparas 7-4-3d and 7-4-3e.

AIS facilities address messages to the destination relay facility listed in FAAO 7350.7. AIS facilities transmit flight notification messages for VFR flights in accordance with para 6-4-4. Flight notification messages included the type of flight plan as the first item of the notification message. ADCUS CANPASS or ADCUS is required in the remarks as appropriate.

EXAMPLE-
AIS
FF CZYZZFZX
DTG KBUFYFYX
VFR N711VR C182 BUF YYZ 1735
ADCUS CANPASS or ADCUS (if airfiled)

d. IFR Flight Plans

1. ADCUS CANPASS or ADCUS (if airfiled) Flight Plans. M1 facilities, insert an ampersand and the letter C (&C) as the first two entries in the OP field of the FP mask and use the four-letter Canadian location identifier for the destination airport in the AD: field.

EXAMPLE-
M1- AIRFILED
FR:I AI:N1234 AT:C421/R TS:280
DD:DSM TM:P1800 AE:200
RT:DSM..CYYZ
AD:CYYZ TE:0300 RM:$ADCUS
FB:0400 AA:
PD:JOE PILOT
HB:DSM NB:2 CR:R/W TL:
OP:
CP:
TA:2100

EXAMPLE-
M1 - CANPASS
FR:I AI:N1234 AT:C421/R TS:280 DD:DSM TM:P1800 AE:200
RT:DSM..CYYZ
AD:CYYZ TE:0300 RM:$ADCUS CANPASS
FB:0400 AA:
PD:JOE PILOT
HB:DSM NB:2 CR:R/W TL:
OP:&C
CP:CZYZZFZX
TA:2100

2. Send a flight notification message on airfile IFR aircraft that has requested Customs notification. Place ADCUS or ADCUS CANPASS (if prior notification) in the remarks section of the flight notification message.

e. VFR Flight Plans. ADCUS (if airfiled) and ADCUS CANPASS: M1 facilities, insert an ampersand and the letter C (&C) in the OP: field and use the four letter Canadian location identifier for the destination airport in the AD: field.

EXAMPLE-
M1 - AIRFILED
FR:V AI:N1234 AT:C150 TS:90 DD:BUF
TM:D1800 AE:045 RT:BUF..CYYZ
AD:CYYZ TE:0030 RM:$ADCUS 2 FB:0330 AA:
PD:JOE PILOT
HB:DSM NB:2 CR:5/W TL:
OP:&C
CP:CZYZZFZX
TA:1830

M1-ADCUS CANPASS
FR:V AI:N1234 AT:C150 TS:90 DD:BUF
TM:P1800 AE:045 RT:BUF..CYYZ
AD:CYYZ TE:0030 RM:$ADCUS CANPASS
FB:0330 AA:
PD:JOE PILOT
HB:DSM NB:2 CR:5/W TL:
OP:&C
CP:CZYZZFZX
TA:1830

f. Refer to the Canada and North Atlantic IFR and VFR supplements to determine Customs hours of service, availability of Customs flight notification service (ADCUS), and the relay facility for infrequently used Airports of Entry not listed in FAAO 7350.7.

g. Suspense VFR messages until acknowledgment is received.

REFERENCE-
Para 8-5-2, Canadian Transborder.

1. If an acknowledgment is not received within 30 minutes after departure, M1 facilities retransmit the message. AIS facilities transmit the contraction REQ ACP (request acceptance) and the complete aircraft identification.

EXAMPLE-
AIS
FF CZYZZFZX
DTG KBUFYFYX
REQ ACP N711VR

2. If acknowledgment is not received within 1 hour after departure, use interphone or telephone to deliver. In any event, assure delivery prior to ETA.

3. Refer to Section B of the Canada and North Atlantic IFR Supplements for Canadian FSS and ACC telephone numbers.

h. When correcting or revising a message, retransmit the complete message preceded by the contraction CHG (change).

EXAMPLE-
AIS
FF CZYZZFZX
DTG KBUFYFYX
CHG VFR N711VR C182 BUF YYZ 1845 ADCUS

M1
ORIGIN: PRECEDENCE:FF TIME: ACK:Y
ADDR:CZYZZFZX
TEXT CHG VFR N711VR C182 BUF YYZ 1845
ADCUS

AIS
FF CZYZZFZX
DTG KBUFYFYX
CHG VFR N711VR C182 BUF YYZ 1845 ADCUS CANPASS

M1
ORIGIN: PRECEDENCE:FF TIME: ACK:Y
ADDR:CZYZZFZX
TEXT: CHG VFR N711VR C182 BUF YYZ 1845
ADCUS CANPASS

i. Do not transmit IFR flight notification messages except for military aircraft or Customs notification purposes.

NOTE-
Canada will not acknowledge receipt of these messages.

j. When available, use interphone or telephone for flights of 30 minutes or less.

7-4-4. OUTBOUNDS TO CANADA DEPARTING FROM OUTSIDE FLIGHT PLAN AREA

Accept flight plans regardless of departure point.

a. Forward VFR flight plan information for aircraft proposing to depart from outside the facility's flight plan area to the tie-in AFSS/FSS for the departure point in the following format:

1. Aircraft identification.

2. Aircraft type.

3. Departure point.

4. Destination.

5. Proposed departure time/ETE.

6. Remarks.

EXAMPLE-
AIS
FF KBUFYFYX
DTG KCLEYFYX
N711VR C182 BUF YYZ P1630/0030 ADCUS CANPASS

b. Forward IFR flight plan information for aircraft proposing to depart from outside the facility's flight plan area in accordance with para 6-3-1, Domestic IFR Flight Plans. If Customs flight notification service (ADCUS) is requested, advise the pilot to contact CANPASS at 888-226-7277; include ADCUS CANPASS information as an intrafacility remark, and transmit the proposal message to both the ARTCC and the tie-in AFSS/FSS as follows:

1. M1 facilities use procedures depicted in subpara 6-2-1a2(g) and Note.

2. Enter the ARTCC computer address last.

EXAMPLE-
AIS
FF KAOOYFYX KZOBZQZX
DTG KDCAYFYX
DCA2010001 FP N1234P PA28/A 150 PIT P0200 150 PIT..CIP..DKK..BUF..YYZ/0130 ADCUS CANPASS

c. Identify the tie-in AFSS/FSS, and advise the pilot to report departure time directly to that facility.

NOTE-
While the report may be relayed through another facility, it is the pilot's responsibility to notify the tie-in AFSS/FSS of the departure time.

d. Upon receipt of the departure report, the tie-in AFSS/FSS is responsible for delivery of the flight notification message to Canada.

1. M1 facilities, enter the departure time in the TM: field of the proposed flight plan. Add &C to the OP: field. M1 will automatically transmit the flight notification message.

2. AIS facilities, transmit a flight notification message in accordance with para 6-4-4.

NOTE-
AIS facilities, if a departure report has not been received within 1 hour of the proposed departure time, cancel and file the proposed flight plan.

e. Acknowledgment from the departure point tie-in AFSS/FSS is required for both VFR and IFR proposals.

7-4-5. IFR FLIGHT PLANS DEPARTING FROM CANADIAN AIRPORTS

a. Accept IFR flight plans departing from Canadian airports and destined to Canada or the U.S.

1. Transmit a proposal message in ARTCC HOST computer format to the associated Canadian ACC. Address messages to the ACC listed in FAAO 7350.7.

2. If Customs flight notification service is requested and available, include ADCUS, pilot's name, and number of persons on board with a notation of the number of non-U.S. citizens as an intrafacility remark.

NOTE-
When ADCUS information is included, Canada will transmit an IFR flight notification message to the appropriate U.S. AFSS/FSS upon aircraft departure.

EXAMPLE-
AIS
FF CZYZZQZX
DTG KBUFYFYX
BUF1435009 FP N1234 CV58/D 280 YYZ P1800 100
YYZ V34 ROC/0030 ADCUS 5 JOHN PILOT 2 NON

M1
FR:I AI:N1234 AT:C421/R TS:240 DD:CYYZ TM:P1800 AE:200
RT:CYYZ..ORD..DSM
*AD:DSM TE:0300 RM:*ADCUS 5 DOE 2 NON*
FB:0400 AA: PD:JOHN DOE
HB:DSM NB:5 CR:R/W TL: OP:ZYZ
CP:
TA:2100

b. Canada does not acknowledge for proposal messages. Do not expect or request acknowledgment.

7-4-6. SEARCH AND RESCUE MESSAGES

Provide Search and Rescue, for flights inbound from Canada, in accordance with Chapter 8.

Section 5. Mexican Movement and Control Messages (Transborder Flights Only)

7-5-1. GENERAL

Except as outlined in this section, handle transborder Mexican movement and control messages as described in Sections 1, 2, and 3. Transborder flight plans to Mexico with oceanic routing require the ICAO flight plan while the domestic flight plan may be used for flights with route over land.

7-5-2. INBOUNDS FROM MEXICO

a. Flight notification messages.

1. M1FC. When received in the proper format, VFR flight notification messages are automatically acknowledged and suspensed. Deliver VFR and IFR ADCUS messages to U.S. Customs. Store IFR ADCUS messages in the M1 DD file.

2. AIS. Acknowledge receipt of a flight notification message as soon as practical by transmitting the letter R followed by the full ACID; e.g., R N711VR. Deliver VFR and IFR ADCUS messages to U.S. Customs. Suspense VFR flight notification messages until arrival or closure information is received. File IFR messages.

b. Search and Rescue. Provide search and rescue service in accordance with standard format/time increments listed in Section 3, Alerting Service, and Chapter 8, Search and Rescue (SAR) Procedures for VFR Aircraft. The departure station in Mexico is responsible for initiating SAR action until an acknowledgment of the flight notification message is received.

7-5-3. OUTBOUNDS TO MEXICO

a. When customs notification service is requested for an airport-of-entry, include ADCUS, the number of persons on board, and the pilot's name in the remarks section of the flight plan.

NOTE-
Mexican customs regulations require that only international airports-of-entry may be used for first landing.

REFERENCE-
FAAO 7350.7, Location Identifiers.

1. If the pilot still intends to land at a destination other than an airport-of-entry, advise the pilot that the flight plan will not be used for Customs or search and rescue service in Mexico.

2. Transmit the flight notification message to the Regional Flight Dispatch Office, not the destination tie-in station.

NOTE-
If the correct addressee cannot be determined, transmit to the nearest border Regional Flight Dispatch Office.

b. When a pilot files an IFR flight plan and Customs notification service is requested for an airport-of-entry, include ADCUS and the information listed in subpara 7-5-3a. Transmit to the appropriate ARTCC.

NOTE-
Mexico requires notification of an inbound aircraft before its arrival. The inclusion of ADCUS in the remarks section of an IFR flight plan or flight notification message satisfies this requirement.

c. VFR Flight Plans.

1. Upon notification of departure of VFR flights, transmit a flight notification message. When Customs notification service is requested for an airport-of-entry include ADCUS and the information listed in subpara 7-5-3a. Address messages to the ICAO addressee for the appropriate destination location.

2. If a VFR flight plan is filed with a destination other than an airport-of-entry, transmit the flight notification message to the Regional Flight Dispatch Office, not the destination tie-in station. If the correct addressee cannot be determined, transmit to the nearest border Regional Flight Dispatch Office.

NOTE-
Facilities with interphone/telephone capability may relay flight notification messages by this method.

REFERENCE-
FAAO 7350.7, Location Identifiers.

3. M1FC. For automatic addressing and formatting, use V in the flight rules of the domestic flight plan mask. For automatic addressing, use &M in the OP: field. Use the four-letter (ICAO) location identifier for the destination airport. Manually

address the message to the designated Regional Flight Dispatch Office.

EXAMPLE-
M1FC
FR:V AI:N1234S AT:C182/A TS:120 DD:SAT TM:D1200
AE:65
RT:SJT..DRT..MMCU
AD:MMCU TE:0400 RM:$ADCUS 4 ZUCHERMANN
FB:0800 AA: PD: A. ZUCHERMANN
HB:SAT NB:4 CR:R/B TL: OP:&M
CP:MMCUXMXO TA:1600

M1FC will automatically address the CP: field if the 4-letter ICAO address is used in the AD: field, &M is used in the OP: field and the destination is an airport-of-entry. Only the tie-in facility will be addressed.

4. AIS. Address messages to the ICAO addressee for the appropriate destination location. Transmit the following information:

(a) Type of flight.

(b) Aircraft identification.

(c) Aircraft type.

(d) Departure point.

(e) Destination.

(f) ETA.

(g) Remarks.

EXAMPLE-
AIS
FF MMCUXMXO
DTG KSJTYFYX
VFR N1234S C182 SJT MMCU 1400 $ADCUS 4ZU-CHERMANN

d. If acknowledgment is not received within 30 minutes after departure, transmit a "request acceptance" message to the destination station tie-in addressee and to the Regional Flight Dispatch Office. Manually address the message to the designated Regional Flight Dispatch Office.

REFERENCE-
FAAO 7350.7

EXAMPLE-
AIS
FF MMCUXMXO MMMYXMXO
REQ ACP N1234S

M1FC
ORIGIN:SJT PRECEDENCE:FF TIME:1130
ACK:Y
ADDR:MMCUXMXO MMMYXMXO
REQ ACP N1234S

e. The Regional Flight Dispatch Office involved will then normally send an acknowledgment to the departure station and assume responsibility for the flight notification message.

f. If acknowledgment/acceptance is not received within 1 hour of the departure, use interphone/telephone or other available means to deliver the message to the appropriate Regional Flight Dispatch Office.

g. Do not accept round-robin flight plans to Mexico.

7-5-4. MEXICAN REGIONAL FLIGHT DISPATCH OFFICE TELEPHONE NUMBERS

(See Table 7-5-1.)

TBL 7-5-1

Dispatch Office Phone numbers

Mexican Regional Flight Dispatch Office Telephone Numbers		
REGION	*IDENTIFIER*	*TELEPHONE NUMBER*
CENTRO (CENTRAL)	MMMX	01152 5 762-7062 01152 5 784-40-99 ext. 153 01152 5 762-58-77 ext. 153
NORESTE (NORTHEAST)	MMMY	01152 83 454-020 ext. 141
NOROESTE (NORTHWEST)	MMMZ	01152 67 23-114 01152 67 22-075 ext. 140
OCCIDENTE (WEST)	MMGL	01152 36 890-121 ext. 32 and 167
SURESTE (SOUTHEAST)	MMMD	01152 99 231-186 ext. 149

Chapter 8. Search and Rescue (SAR) Procedures for VFR Aircraft

Section 1. General

8-1-1. RESPONSIBILITY FOR SAR ACTION

a. The departure station is responsible for SAR action until receipt of the destination station's acknowledgment for the flight notification message. This responsibility is then transferred to the destination station.

b. The National SAR Plan assigns search and rescue responsibilities as follows:

1. To the military agencies for conducting physical search and rescue operations.

2. To the FAA for:

(a) Providing emergency service to aircraft in distress.

(b) Assuring that SAR procedures will be initiated if an aircraft becomes overdue or unreported. This is accomplished through the ATC system for IFR aircraft and the flight plan program and/or reports of overdue aircraft received at air traffic facilities for VFR aircraft.

(c) Attempting to locate overdue or unreported aircraft by INREQ and ALNOT communications search.

(d) Cooperating in the physical search by making all possible facilities available for use of the searching agencies.

c. Flight service stations serve as the central point for collecting and disseminating information on overdue or missing aircraft which are not on an IFR flight plan.

d. ARTCC's serve as the central points for collecting information, coordinating with SAR, and conducting a communications search by distributing any necessary ALNOT's concerning:

1. Overdue or missing IFR aircraft.

2. Aircraft in an emergency situation occurring in their respective areas.

3. Aircraft on a combined VFR/IFR or an airfiled IFR flight plan, and 30 minutes have passed since the pilot requested IFR clearance, and neither communications nor radar contact can be established.

4. Overdue or missing aircraft which have been authorized to operate in accordance with a SVFR clearance.

e. The ARTCC serves as the contact point for collecting information and coordinating with the RCC on all ELT signals.

8-1-2. OVERDUE AIRCRAFT ON FLIGHT PLAN

Consider an aircraft on a VFR or DVFR flight plan overdue when it fails to arrive 30 minutes after its ETA and communications or location cannot be established.

8-1-3. OVERDUE AIRCRAFT NOT ON FLIGHT PLAN

Consider an aircraft not on a flight plan as overdue at the actual time a reliable source reports it to be at least 1 hour late at destination. Based on this overdue time, apply the same procedures and action times as for aircraft on a flight plan. When such a report is received, verify (if possible) that the aircraft actually departed and that the request is for a missing aircraft rather than a person. Refer missing person reports to the appropriate authorities.

REFERENCE-
Initial Action/QALQ, Para 8-2-1; INREQ, Para 8-3-1; ALNOT, Para 8-4-1.

Section 2. Overdue Aircraft Action

8-2-1. INITIAL ACTION/QALQ

a. As soon as a VFR/DVFR aircraft (military or civil) becomes overdue, the destination station (including intermediate destination tie-in station for military aircraft) shall attempt to locate the aircraft by checking the destination airport and all adjacent airports that could accommodate the aircraft. Also, check appropriate ATCT facilities and ARTCC sectors through the area manager. If this communications search does not locate the aircraft, transmit a QALQ to the departure location tie-in AFSS/FSS and when appropriate the DUAT vendor or AFSS/FSS where the flight plan information is on file.

EXAMPLE-
AIS
FF KICTYFYX
DTG KHONYFYX
QALQ N12345

M1FC
ORIGIN:ICT PRECEDENCE:FF TIME: ACK:N
ADDR:MKL
TEXT:QALQ N12345

NOTE-
If it is determined by the flight service specialist that the local field search cannot be completed before the INREQ transmission time, the QALQ shall be transmitted in time to receive the information for the INREQ message. The local field search shall continue without reference to time until completed.

b. Use of long distance telephone in carrying out SAR responsibilities is authorized when appropriate.

c. In the case of a U.S. registered aircraft, or any aircraft known to be piloted by or transporting U.S. citizens and en route within a foreign country or between two foreign countries, if the overdue report is received either from someone directly concerned or from aviation authorities of a foreign country, notify the Washington Communications Control Center immediately via Service B message addressed to RWA.

d. Alaska. In addition to subparas 8-2-1a and c, address QALQ, INREQ, or ALNOT messages and replies to PANCYAYX and PAEDYCYX.

NOTE-
RCC's other than Elmendorf AFB (PAEDYCYX) are not on Service B and must be notified by telephone.

e. Upon receipt of a QALQ message from the destination station concerning a flight for which a proposed flight plan was transmitted, the station which transmitted the proposal shall immediately transmit a message to the destination station containing all information not previously sent. After a local airport check, no further search action is required of the station which transmitted the proposal and no further messages will be received by this facility unless the search area extends into its flight plan area.

f. M1FC. Properly formatted QALQ's, INREQ's, ALNOT's, and INCERFA's are automatically placed on the Search and Rescue (SAR) list. Messages are manually deleted from the SAR list using the keyword DM.

8-2-2. ACTION BY DEPARTURE STATION ON RECEIPT OF QALQ

Upon receipt of the QALQ inquiry, the departure station shall check locally for any information about the aircraft, and take the following action:

a. If the aircraft is located, notify the destination station. The destination station will close the file on the aircraft.

EXAMPLE-
AIS
FF KCOUYFYX
DTG KSBAYFYX
QALQ N12345 C1255

M1FC
ORIGIN:COU PRECEDENCE:FF TIME: ACK:N
ADDR:MKL
TEXT:QALQ N12345 C1255

b. If unable to obtain additional information transmit a message to the destination station containing all information not previously sent. Include any verbal or written remarks made by the pilot which may be pertinent to the search. The data transmitted may be obtained from the flight plan information or any other pertinent information located in the DD file. This information can be transmitted using the SV 1, TB, and RV 1 format. Before transmitting, the message will require the correct header to be added to ensure the QALQ reply message is placed on the SAR list.

EXAMPLE-
AIS
FF KPAHYFYX
DTG KLITYFYX
QALQ N12345 C150/X 110 PBF D1235 85
LIT PAH 0130/0400 CLARENCE NEWBERN
601 E 12TH MKC 555-123-4567 2 POB
WHITE/RED

M1FC
ORIGIN:RDU PRECEDENCE:FF TIME: ACK:N
ADDR:PIE
TEXT:QALQ N12345 FR:V AT:C182/T TS:120
DD:EQY TM:D291445 AE:035 RT:EQY..CAE
..ALD..CRG..DAB..ORL..ISM AD:ISM TE:
0400 RM:$REFUEL CRG FB:0430 AA: PD:
MIKE T. BROWN DQY 704-555-1212 NB:2
CR:W/R/B OP: CP:KPIEYFYX TA:291845
A/C ID TIME DEP DESTN
INFLT BRFG: N12345 14:50 EQY ISM
RMKS:AVFP
A/C ID TIME DEP DESTN
INFLT BRFG: N12345 14:00 EQY ISM
RMKS:VNR

8-2-3. CANCELLATION OF THE QALQ

If the aircraft is located by the destination station after the QALQ is sent, transmit a cancellation message addressed to all recipients of the QALQ.

EXAMPLE-
AIS
FF KSTLYFYX
DTG KHONYFYX
QALQ N12345 CNLD

M1FC
ORIGIN:JBR PRECEDENCE:FF TIME: ACK:N
ADDR:FOD
TEXT:QALQ N12345 CNLD

Section 3. Information Requests (INREQ's)

8-3-1. INREQ

If the reply to the QALQ is negative or the aircraft has not been located within 30 minutes after it becomes overdue:

a. The destination station shall transmit a numbered INREQ message to the departure station, flight watch control stations with communication outlets along the route, and other AFSS/FSS's and ARTCC's along the route. In addition, address RCC and DUAT vendors using the collective address KSARYCYX.

1. If the departure airport, route of flight, destination airport or alternate airports are within 50 miles of the Great Lakes, include Cleveland AFSS as an addressee. They will relay to Cleveland RCC.

2. Hawaiian stations shall give preliminary notification to Honolulu SARCC as follows:

(a) Hilo by long distance telephone.

(b) Honolulu AFSS shall use local telephone.

(c) Secondary means for Hilo shall be Service B to Honolulu AFSS and then by telephone between Honolulu AFSS and the SARCC.

b. Include all information in the INREQ message that will assist in search activities.

NOTE-
The National Search and Rescue Plan is outlined in the AIM, Para 6-2-7.

EXAMPLE-
1. AIS
DD (appropriate eight-character identifiers and KSARYCYX)
DTG KLITYFYX
LIT001 (appropriate three-character identifiers)
INREQ N12345 BE36/R 150 PAH D1235
85 PAH LIT FEXHA 1635 DALE CARNINE
601 E. 12TH ST. MKC 555-765-4321 2 POB
BROWN/WHITE (any other information available)

M1FC
ORIGIN:RDU PRECEDENCE:DD TIME:ACK:Y
ADDR:(Appropriate three-character identifiers and KSARYCYX
TEXT:INREQ N12345 FR:V AT:C152/T TS:100
DD:EQY TM:D291445 AE:035 RT:EQY..CAE..
ALD..CRG..DAB..ORL..ISM AD:ISM TE:0400
RM:$REFUEL CRG FB:0430 AA: PD:DAVE
JOHNSON DQY 704-555-1212 NB:1 CR:W/R/B
OP: CP:KPIEYFYX TA:291845
A/C !D TIME DEP DESTN
INFLT BRFG: N12345 14:50 EQY ISM
RMKS:AVFP
A/C ID TIME DEP DESTN
INFLT BRFG: N12345 14:00 EQY ISM
RMKS:VNR

2. AIS
DD (appropriate eight-character identifiers and KSARYCYX)
DTG KLITYFYX
LIT001 (appropriate three-character identifiers)
INREQ N12345 BE36/R 150 PAH LIT
DALE CARNINE 601 E. 12TH ST MKC
WIFE REPORTS ETA 1230

M1FC
ORIGIN:OLU PRECEDENCE:DD TIME:ACK:Y
ADDR:(appropriate three-character identifiers and KSARYCYX)
TEXT:INREQ N12345 BE36/R GRI LBF
DALE CARNINE 601 E. 12TH ST MKC
WIFE REPORTS ETA 1230

c. RCC does not have transmit capability. Acknowledgement is not required for messages to RCC.

8-3-2. ACTION UPON RECEIPT OF INREQ

Stations receiving an INREQ shall take the following action:

a. Seek information about the aircraft by checking facility records and all flight plan area airports along the proposed route of flight that could accommodate the aircraft. Notify appropriate ATCT facilities. Reply to the INREQ with a numbered message within 1 hour. If unable to complete the search within 1 hour, forward a status report followed by a final report when the search is complete. If the reply contains pertinent information such as aircraft location or position report, transmit to the destination station.

EXAMPLE-
AIS
DD KLANYFYX
DTG KHONYFYX
HON001 LAN
INREQ N1234A NO SVCS PROVIDED. FPA SRCH INCOMP

AIS
DD KLANYFYX
DTG KHONYFYX
HON002 KLANYFYX
INREQ N1234A NEG INFO

M1FC
ORIGIN:LAN PRECEDENCE:DD TIME: ACK:Y ADDR:HON
TEXT:INREQ N1234A NO SVCS PROVIDED. FPA SRCH INCOMP
ORIGIN:LAN PRECEDENCE:DD TIME: ACK:Y ADDR:HON
TEXT:INREQ N1234A NEG INFO

NOTE-
Upon receipt of INREQ's and ALNOT's, ATCT's and ARTCC's are required to check facility records, report findings to AFSS/FSS that alerted them within 1 hour, and retain in an active status until canceled.

REFERENCE-
FAAO 7110.65, Para 10-3-4, ALNOT.

b. The destination station shall retransmit the information, as necessary, to all original addressees.

c. Cleveland AFSS. When addressed, shall notify Cleveland U.S. Coast Guard RCC.

d. Hawaiian stations, notify Honolulu SARCC by telephone.

e. Facilities served by the expanded 800 system that have any portion of their incoming calls and/or Service B diverted to another facility shall notify that facility of the INREQ. The facility receiving diverted calls or Service B traffic shall check their records and advise of any information or contact with the aircraft.

8-3-3. CANCELLATION OF INREQ

The INREQ originator shall transmit a numbered cancellation message containing the location of the aircraft to all INREQ addressees when the aircraft is located. Notify associated ATCT facilities.

EXAMPLE-
AIS
DD (appropriate eight-character identifiers including KSARYCYX)
DTG KPAHYFYX
PAH001 (appropriate three-character identifiers)
INREQ N1234A CNLD LCTD BWG

M1FC
ORIGIN:FOD PRECEDENCE:DD TIME: ACK:Y ADDR:(appropriate three-character identifiers and KSARYCYX)TEXT:INREQ N1234A CNLD LCTD DSM

Section 4. Alert Notices (ALNOT's)

8-4-1. ALNOT

If the replies to the INREQ are negative, or if the aircraft is not located within 1 hour after transmission of the INREQ, whichever occurs first, the destination station shall transmit an ALNOT.

a. Address ALNOT messages to your Regional Operations Center and those facilities within the search area. In addition, address the DUAT vendors and RCC using the collective address KSARYCYX. The search area is normally that area extending 50 miles on either side of the proposed route of flight from the last reported position to the destination. The search area may be expanded to the maximum range of the aircraft at the request of the RCC or by the destination station. If the departure airport, route of flight, destination airport, or alternate airports are within 50 miles of the Great Lakes, include Cleveland AFSS as an addressee. They will relay to the Cleveland RCC.

b. Alaska. Address to PANCYGYX, PANCYAYX, and KSARYCYX. (Only AFSS's/FSS's in the ALNOT search area are required to acknowledge.)

c. Include all information in the ALNOT message that will assist in search activities (same as INREQ plus any additional information received).

EXAMPLE-
AIS
SS (appropriate ARTCC circuit codes as identified in subpara 10-1-4c, other addresses as identified in subpara 8-4-1a and KSARYCYX)
DTG KEWNYFYX
ALNOT N12345 BE36/R 150 RDU D1840 75
RDU EWN FEXHA 2140
CLARENCE E. NEWBERN
601 E 12TH MKC 555-123-4567 2 POB
BROWN/TAN (any other information available)

M1FC
ORIGIN:RDU PRECEDENCE:SS TIME: ACK:N
ADDR:(appropriate ARTCC circuit code as identified in subpara 10-1-4c, other addresses as identified in subpara 8-4-1a and KSARYCYX
TEXT:ALNOT N12345 FR:V AT:C172/T TS:100
DD:EQY TM:D291445 AE:035 RT:EQY..CAE..
ALD..CRG..DAB..ORL..ISM AD:ISM TE:0400
RM:$REFUEL CRG FB:0430 AA: PD:JOHN M.
BROWN DQY 704-555-1212 NB:3 CR:W/R/B
OP: CP:KPIEYFYX TA:291845
A/C ID TIME DEP DESTN
INFLT BRFG: N12345 14:50 EQY ISM
RMKS:AVFP
A/C ID TIME DEP DESTN
INFLT BRFG: N12345 14:00 EQY ISM
RMKS:VNR

d. Ten minutes after issuance of the ALNOT, call Langley AFB to ensure delivery of the ALNOT and to answer any inquiries. (Alaska: Call Fort Richardson, 11th RCC at (907) 428-7230, 800-420-7230, or DSN 317-384-6726.)

NOTE-
RCC (Langley AFB) phone numbers are:
(Direct) 804-764-8112 or 800-851-3051
(Langley AFB operator) 804-764-1110 and ask for extension 48112 or Defense Switching Network 574-8112.

8-4-2. ACTION UPON RECEIPT OF ALNOT

Upon receipt of an ALNOT, each station whose flight plan area extends into the ALNOT search area shall:

a. Immediately conduct a communications search of those flight plan area airports which fall within the ALNOT search area that could accommodate the aircraft and which were not checked during the INREQ search. Notify the appropriate ATCT facilities. Request the appropriate law enforcement agency to check airports which cannot be contacted otherwise. Stations that have any portion of their incoming calls and/or Service B diverted to another facility shall notify that facility of the ALNOT. The facility receiving diverted traffic shall check their records and advise of any information or contact with the aircraft.

b. Within 1 hour after receipt of the ALNOT, notify the originator of the results or status of the communications search. If the reply contains pertinent information, such as aircraft location or position report, transmit to the destination station. The destination station shall retransmit the information, as necessary, to all original addresses.

EXAMPLE-
AIS
SS KFODYFYX
DTG KANBYFYX
ALNOT N12345 FLD CK INCOMP

AIS
SS KFODYFYX
DTG KANBYFYX
ALNOT N12345 ACFT LCTD OG DHN

M1FC
ORIGIN:GFK PRECEDENCE:SS TIME: ACK:N
ADDR:COU
TEXT:ALNOT N12345 FLD CK
COMPL NEG INFO
ORIGIN:GFK PRECEDENCE:SS TIME: ACK:N
ADDR:COU
TEXT:ALNOT N12345 ACFT LCTD OG DIK

c. Stations within the ALNOT search area shall record the ALNOT. (See Para 2-2-2j, Phraseology.)

d. Request search assistance from aircraft traversing the search area.

8-4-3. REPORTING ALNOT STATUS TO RCC

If the extended communications search fails to locate the aircraft or if 1 hour has elapsed since ALNOT transmission, whichever occurs first, the destination station shall call the RCC and, if appropriate, the Cleveland AFSS, which notifies the Cleveland RCC. Provide all pertinent available information about the overdue aircraft not already provided in the ALNOT to include:

a. Agency and the person calling.

b. Details of the flight plan. If the aircraft was not on a flight plan, include all the facts about the source of the report.

c. Time the last radio transmission was received, by whom, and the frequency used.

d. Last position report.

e. Whether an ELT signal was heard or reported along the route of flight.

f. Action taken and the proposed action by the reporting station.

g. Upon request, furnish positions of other aircraft known to be along or near the route of flight of the missing aircraft.

8-4-4. CANCELLATION OF ALNOT

The ALNOT remains current until the aircraft is located or the search is suspended by the RCC. The ALNOT originator shall then transmit a cancellation message with the location of the aircraft, if appropriate, addressed to all recipients of the ALNOT. Each facility shall notify all previously alerted facilities and agencies of the cancellation.

EXAMPLE-
AIS
SS (appropriate ARTCC circuit codes as identified in subpara 10-1-4c, other addresses as identified in subpara 8-4-1a and KSARYCYX)
DTG KEWNYFYX
ALNOT N12345 CNLD ACFT LCTD JAX

AIS
SS (appropriate ARTCC circuit codes as identified in para 10-1-4c, other addresses as identified in subpara 8-4-1a and KSARYCYX)
DTG KEWNYFYX
ALNOT N1513B CNLD SEARCH SUSPENDED

M1FC
ORIGIN:OLU PRECEDENCE:SS TIME:ACK:N
ADDR:(appropriate ARTCC circuit codes as identified in subpara 10-1-4c, other addressees as identified in subpara 8-4-1a and KSARYCYX)
TEXT:ALNOT N1513B CNLD ACFT LCTD MCK

Section 5. Other SAR Actions

8-5-1. CONTACT WITH AIRCRAFT CROSSING HAZARDOUS AREA

When Lake, Island, Mountain, or Swamp Reporting Service programs have been established and a pilot requests the service, establish radio contact every 10 minutes (or at designated position checkpoints) with the aircraft while it is crossing the hazardous area. If contact with the aircraft is lost for more than 15 minutes, alert Search and Rescue.

NOTE-
Hazardous Area Reporting Service and chart depictions are published in the AIM, Para 4-1-20.

8-5-2. CANADIAN TRANSBORDER

a. Assume responsibility for initiating SAR action on transborder aircraft upon acknowledgment for the inbound flight notification message.

b. When SAR action is initiated, the destination and departure facilities are responsible for all communications search actions within their respective countries and for alerting their respective RCC.

c. Canadian communications search procedures and action times are similar to U.S. procedures. They will address all SAR messages to the U.S. departure AFSS/FSS, which is then responsible for initiating SAR action for the U.S. portion of the route of flight.

d. For inbounds from Canada, apply standard U.S. SAR procedures contained in this chapter for the U.S. portion of the route. Include the Canadian departure facility as an addressee on all SAR messages since that facility is responsible for initiating SAR action for the Canadian portion of the route of flight.

e. Upon receipt of a Canadian QALQ, the departure AFSS/FSS shall take the following actions:

1. Check locally for any information about the aircraft.

2. If unable to obtain additional information, or within 15 minutes after receipt of the QALQ, transmit a message to the destination facility containing all flight plan information not previously sent.

f. Upon receipt of a Canadian INREQ, the departure AFSS/FSS shall transmit an INREQ for the U.S. portion of the route of flight and reply to Canada within 1 hour in accordance with standard INREQ procedures.

g. Upon receipt of a Canadian ALNOT, the departure AFSS/FSS shall transmit an ALNOT for the U.S. portion of the route and reply to Canada within 1 hour in accordance with standard ALNOT procedures.

Chapter 9. FAA Weather Services

Section 1. General

9-1-1. PURPOSE

Surface meteorological observations are filed at scheduled and unscheduled intervals with stations having sending capability to WMSC for dissemination on the Service A domestic aviation weather system. These reports are aviation routine weather reports (METAR) and aviation selected special weather (SPECI). All reports will include a report type and the six-digit time of the observation. Computer sorting and validation requires exact adherence to format and procedure at all times.

9-1-2. SCHEDULED TRANSMISSION TIMES

a. METAR REPORTS. Prepare and code METAR reports for transmission between H+55 and H+00.

1. M1FC entry, use TA mask and specify H in the time field.

2. AIS entry, use /T procedures between H+46 and H+54. Use /D procedure between H+55 and H+00.

b. SPECI AND DELAYED OR CORRECTED REPORTS. Transmit SPECI, delayed or corrected reports as soon as possible after H+00.

1. M1FC entry, use TA mask and leave the time field blank.

2. AIS entry, use /D procedure.

9-1-3. DISTRIBUTION

Most meteorological and NOTAM data exchanged outside of the facility is dependent on the Weather Message Switching Center Replacement (WMSCR). It is important to adhere to strict format and procedures during normal operations, as well as during system interruption periods.

a. Circuit interruption. Notify your tie-in facility, the AIS Customer Service Center, WMSCR and, if appropriate, the GS-200 Host facility of all outages. The AFSS facility should notify their FSDPS, AWP, and the appropriate telco servicing company.

b. All outage reports should refer to the correct circuit and/or equipment identification numbers. Facilities should obtain and record ticket numbers provided by AIS or the telco authority.

c. AIS and WMSCR telephone numbers are as follows:

1. AIS HELPDESK (800) 804-1310.

2. AIS EMERGENCY OUTAGE HOTLINE (703) 818-5551.

3. WMSCR (KNKAWMSC):
Atlanta 404-926-7931
Salt Lake City 801-320-2046.

Section 2. Pilot Weather Report (UA/UUA)

9-2-1. GENERAL

Pilot Weather Reports (PIREP's) are filed at unscheduled times with stations having sending capability to WMSCR for dissemination on the Service A domestic aviation weather system. These reports shall be entered into the system as individual reports, not appended to a surface observation. Entry shall only be between H+00 and H+55.

9-2-2. PREPARATION FOR TRANSMISSION

a. M1FC entry, use WY mask. (See para 4-2-4.)

b. AIS entry, use /D procedures.

9-2-3. RESPONSIBILITY

FSS specialists shall actively solicit PIREP's in conjunction with preflight and inflight communications with pilots and assure timely dissemination of the PIREP information. Each facility should make special efforts to obtain PIREP's on departure and arrival weather conditions at airports within their flight plan area.

9-2-4. PIREP DISPLAY

Maintain a PIREP display to conform with the particular requirements of your facility. If it is posted for internal use only, symbology may be used at the facility's discretion. If it is displayed as a pilot self-briefing aid, the use of contractions, such as OVC, shall be applicable.

9-2-5. SOLICITING PIREP'S

a. Solicit PIREP's for the affected area(s) when one or more of the following weather conditions exist, are reported, or forecast to occur:

1. Ceilings at or below 5,000 feet.

2. Visibility reported on the surface or aloft is 5 miles or less.

3. Thunderstorms and related phenomenon.

4. Turbulence of moderate degree or greater.

5. Icing of light degree or greater.

6. Wind shear.

7. Volcanic ash clouds are reported or forecast.

NOTE-
Pilots may forward PIREP's regarding volcanic activity using the format described in the Volcanic Activity Reporting Form (VAR) as depicted in the Aeronautical Information Manual, Appendix 2.

b. Also, solicit PIREP's regardless of weather conditions when:

1. An NWS or ATC facility indicates a need because of a specific weather or flight assistance situation.

2. Necessary to determine flying conditions pertinent to natural hazards (mountain passes, ridges, peaks) between the weather reporting stations.

3. The station is designated as responsible for PIREP's in an offshore coastal area.

c. Flight watch specialists shall solicit sufficient PIREP's to remain aware of flight conditions.

d. To solicit PIREP's within a specific area, broadcast a request on NAVAID's, transcribed broadcast facilities, or a selected communications frequency.

PHRASEOLOGY-
PILOT WEATHER REPORTS ARE REQUESTED (location/area). CONTACT (name) RADIO/FLIGHT WATCH ON (frequency) TO REPORT THESE CONDITIONS.

9-2-6. RECORDING OF PIREP DATA

Record PIREP data directly into M1FC, or on FAA Form 7110-2, or on other material deemed appropriate; e.g., 5" x 8" plain paper.

9-2-7. DATA TO BE INCLUDED IN PIREP'S

Include the following reports of flight conditions, as appropriate:

a. Height and coverage of cloud bases, tops, and layers.

b. Flight visibility.

c. Restrictions to visibility and weather occurring at altitude.

d. Air temperature and changes to temperature with altitude or range.

e. Direction and speed of wind aloft.

f. Extent and intensity of turbulence.

REFERENCE-
Para 9-2-8.

g. Extent, type, and intensity of icing.

REFERENCE-
Para 9-2-9.

h. Weather conditions and cloud cover through mountain passes and over ridges and peaks.

i. Location, extent, and movement of thunderstorms and/or tornadic activity.

j. Excessive winds aloft, LLWS, and other phenomena bearing on safety and efficiency of flight.

9-2-8. REPORTING TURBULENCE IN PIREP'S

a. Turbulence reports should include location, altitude, or range of altitudes, and aircraft type, and should include whether in clouds or clear air. The degree of turbulence, intensity, and duration (occasional, intermittent, and continuous) is determined by the pilot. It is essential that the report is obtained and disseminated when possible in conformance with the U.S. Standard Turbulence Criteria Table as follows:

1. Light. Loose objects in aircraft remain at rest.

2. Moderate. Unsecured objects are dislodged. Occupants feel definite strains against seat belts and shoulder straps.

3. Severe. Occupants thrown violently against seat belts. Momentary loss of aircraft control. Unsecured objects tossed about.

4. Extreme. Aircraft is tossed violently about, impossible to control. May cause structural damage.

b. Report CAT or CHOP if used by the pilot to describe the type of turbulence.

9-2-9. REPORTING ICING CONDITIONS IN PIREP'S

a. Icing reports shall include location, altitude or range of altitudes, type aircraft, air temperature, intensity, and type of icing.

b. Icing types.

1. Rime. Rough, milky, opaque ice formed by the instantaneous freezing of small super-cooled water droplets.

2. Clear. A glossy, clear or translucent ice formed by the relatively slow freezing of large super-cooled water droplets.

3. Mixed. A combination of rime and clear.

c. Icing intensity.

1. Trace. Ice becomes perceptible. Rate of accumulation slightly greater than sublimation. Deicing/anti-icing equipment is not utilized unless encountered for an extended period of time (over 1 hour).

2. Light. The rate of accumulation may create a problem if flight is prolonged in this environment (over 1 hour). Occasional use of deicing/anti-icing equipment removes/prevents accumulation. It does not present a problem if deicing/anti-icing is used.

3. Moderate. The rate of accumulation is such that even short encounters become potentially hazardous, and use of deicing/anti-icing equipment or diversion is necessary.

4. Severe. The rate of accumulation is such that deicing/anti-icing equipment fails to reduce or control the hazard. Immediate diversion is necessary.

9-2-10. MEANS USED TO SOLICIT PIREP'S

Inform pilots of a need for PIREP's. The following methods may be used to collect PIREP's:

a. During preflight weather briefings.

b. On post-flight contacts.

c. During regular air-ground contacts.

d. Broadcast a request on NAVAID frequencies.

e. Append a request on HIWAS, TIBS, VOR-TWEB, or TWEB broadcasts.

f. Request PIREP's from air carrier and military operations offices, military pilot-to-forecaster units, and local aircraft operators.

g. Solicit from other air traffic facilities.

9-2-11. PIREP CLASSIFICATION

Categorize PIREP's as follows:

a. URGENT. The following weather phenomena shall be classified as an URGENT (UUA) PIREP:

1. Tornadoes, funnel clouds, or waterspouts.

2. Severe or extreme turbulence (including clear air turbulence).

3. Severe icing.

4. Hail.

5. Low level wind shear. Classify LLWS PIREP's as UUA if the pilot reports air speed fluctuations of 10 knots or more. Classify reports of LLWS with air speed fluctuations less than 10 knots as routine. If air speed fluctuation is not reported, classify PIREP as UUA.

NOTE-
LLWS defined as windshear within 2,000 feet of the surface.

6. Volcanic ash clouds.

7. Any other weather phenomena reported which are considered by the specialist as being hazardous, or potentially hazardous, to flight operations.

b. ROUTINE. Classify as ROUTINE (UA) all PIREP's received except those listed above.

9-2-12. PIREP HANDLING

Upon receipt of a PIREP, accomplish the following:

a. Urgent.

1. Deliver to the ARTCC Weather Coordinator as soon as possible.

2. Deliver to the associated WSO as soon as possible.

3. Enter on Service A at the first opportunity.

4. Use in weather briefings, as appropriate.

b. Routine.

1. Transmit on Service A as soon as practical.

2. Broadcast in accordance with established procedures in Chapter 2.

3. Use in weather briefings, as appropriate.

9-2-13. OFFSHORE COASTAL ROUTES

When your station has been given responsibility for collecting offshore coastal route PIREP's:

a. Include the coastal water area when soliciting PIREP's. At least one PIREP is required hourly regardless of weather conditions.

b. Pacific. Hawaiian Island station areas coincide with the Honolulu ARTCC sectors and the entire Hawaiian area is designated as offshore areas for PIREP purposes.

NOTE-
The AT division assigns PIREP responsibility for an offshore coastal area, route, or route segment to a specific station. The area assigned will be within the same ARTCC area as the station, and the station shall have adequate air-ground communications coverage over its assigned offshore area.

9-2-14. PIREP PREPARATION

To assure proper dissemination of PIREP's to all system users, the encoding procedures listed below shall be followed:

a. Identify each element by a Text Element Indicator (TEI).

b. Ensure each report includes TEI's for message type, location, time, altitude/flight level, type aircraft, and at least one other to describe the reported phenomena.

c. Precede each TEI, except message type, with a space and a solidus (/).

d. Follow each TEI, except altitude/flight level, with a space.

e. Insert zeros in reported values when the number of digits in the report is less than the number required by the format.

f. Use only authorized aircraft designators and contractions.

g. In the location TEI, include any three-letter identifier to describe locations or routes.

h. Omit entries of TEI's, except as listed in subpara 9-2-14b, for which no data was reported.

9-2-15. PIREP FORMAT

Using TEI's as described below, prepare PIREP's for system entry in the following format:

a. UUA or UA. Message type - Urgent or Routine PIREP.

b. /OV.

1. Location in reference to a VHF NAVAID or an airport, using the three or four letter identifier. If appropriate, encode the identifier, then three digits to define a radial and three digits to define the distance in nautical miles.

EXAMPLE-
/OV KJFK
/OV KJFK107080
/OV KFMG233016/RM RNO 10SW

2. Route segment. Two or more fixes, as in subparas 9-2-15b1 and b2 examples, to describe a route.

EXAMPLE-
/OV KSTL-KMKC
/OV KSTL090030-KMKC045015

c. /TM. Time that the reported phenomenon occurred or was encountered. Report time in four digits UTC.

EXAMPLE-
/TM 1315

d. /FL. Altitude/flight level. Enter the altitude in hundreds of feet (MSL) where the phenomenon was first encountered. If not known, enter UNKN. If the aircraft was climbing or descending, enter the appropriate contraction (DURGC or DURGD) in the remarks/RM TEI. If the condition was encountered within a layer, enter the altitude range within the appropriate TEI describing the condition.

EXAMPLE-
/FL093
/FL310
/FLUNKN /RM DURGC

e. /TP. Type aircraft. Enter aircraft type. If not known, enter UNKN. Icing and turbulence reports shall always include the type aircraft.

EXAMPLE-
/TP AEST
/TP B74A
/TP P28R
/TP UNKN

f. /SK. Sky condition. Report height of cloud bases, tops, and cloud coverage as follows:

1. Enter the height of the base of a layer of clouds in hundreds of feet (MSL). Enter the top of a layer in hundreds of feet (MSL) preceded by the word "-TOP." If reported as clear above the highest cloud layer, enter "SKC" following the reported level.

EXAMPLE-
/SK OVC100-TOP110/ SKC
/SK OVC015-TOP035/OVC230
/SK OVC-TOP085

2. Use authorized contractions for cloud cover.

EXAMPLE-
BKN
FEW
OVC
SCT
SKC

3. Cloud cover amount ranges will be entered with a hyphen and no spaces separating the amounts; i.e., BKN-OVC.

EXAMPLE-
/SK SCT-BKN050-TOP100
/SK BKN-OVCUNKN-TOP060/BKN120-TOP150/ SKC

4. Unknown heights are indicated by the contraction UNKN.

EXAMPLE-
/SK OVC065-TOPUNKN

5. If a pilot indicates he/she is in the clouds, enter IMC.

EXAMPLE-
/SK OVC065-TOPUNKN /RM IMC

6. When more than one layer is reported, separate layers by a solidus (/).

g. /WX. Flight visibility and flight weather. Report weather conditions encountered by the pilot as follows:

1. Flight visibility, if reported, will be the first entry in the /WX field. Enter as FV followed by a two-digit visibility value rounded down, if necessary, to the nearest whole statute mile and append "SM" (FV03SM). If visibility is reported as unrestricted, enter FV99SM.

2. Enter flight weather types using one or more of the standard surface weather reporting symbols contained in TBL 9-2-1.

TBL 9-2-1

Weather type and symbols

Type	*METAR Code*
Drifting / Blowing Snow	DRSN/BLSN
Drifting Dust	DRDU
Drifting Sand	DRSA
Drizzle/Freezing Drizzle	DZ/FZDZ
Dust / Blowing Dust	DU/BLDU
Duststorm	DS
Fog (vis < 5/8SM)	FG
Freezing Fog	FZFG
Freezing Rain	FZRA
Funnel Cloud	FC
Hail (aprx 1/4" dia or more)	GR
Hail Shower	SHGR
Haze	HZ
Ice Crystals	IC
Ice Pellets/ Showers	PL/SHPL
Mist (vis > 5/8SM)	BR
Patchy Fog	BCFG
Patchy Fog on part of Arpt	PRFG
Rain / Showers	RA/SHRA
Sand / Blowing Sand	SA/BLSA
Sandstorms	SS
Shallow Fog	MIFG
Sml Hail/Snow Pellet Showers	SHGS
Sml Hail/Snow Pellets	GS
Smoke	FU
Snow Grains	SG
Snow / Showers	SN/SHSN
Spray	PY
Squalls	SQ
Thunderstorm	TS
Tornado/Waterspout	+FC
Unknown Precipitation	UP
Volcanic Ash	VA
Well developed Dust/Sand Whirls	PO

3. Intensity of precipitation (- for light, no qualifier for moderate, and + for heavy) shall be indicated with precipitation types, except ice crystals and hail, including those associated with a thunderstorm and those of a showery nature.

4. Intensity of obscurations shall be ascribed as moderate or + heavy for dust and sand storms only. No intensity for blowing dust, blowing sand, or blowing snow.

EXAMPLE-
/WX FV01SM +DS000-TOP083/SKC /RM DURGC

5. When more than one form of precipitation is combined in the report, the dominant type shall be reported first.

EXAMPLE-
/WX FV00SM +TSRAGR
/WX FV02SM BRHZ000-TOP083

6. When FC is entered in /WX, FUNNEL CLOUD is spelled out on /RM. When +FC is entered in /WX, TORNADO or WATERSPOUT is spelled out in the /RM TEI.

EXAMPLE-
/WX FC /RM FUNNEL CLOUD
/WX +FC /RM TORNADO or WATERSPOUT

7. When the size of hail is stated, enter in 1/4" increments in remarks /RM TEI.

8. The proximity qualifier VC (Vicinity) is only used with TS, FG, FC, +FC, SH, PO, BLDU, BLSA, and BLSN.

EXAMPLE-
/WX FV02SM BLDU000-TOP083 VC W

9. When more than one type of weather is reported enter in the following order: 1) TORNADO, WATERSPOUT, OR FUNNEL CLOUD; 2) Thunderstorm with or without associated precipitation; 3) Weather phenomena in order of decreasing predominance. No more than three groups in a single PIREP.

10. Weather layers shall be entered with the base and/or top of the layer when reported. Use the same format as in the /SK TEI.

EXAMPLE-
/WX FU002-TOP030

h. /TA. Air Temperature. Report outside air temperature using two digits in degrees Celsius. Prefix negative temperatures with an M; e.g., /TA 08 or /TA M08.

i. /WV. Wind direction and speed. Encode using three digits to indicate wind direction (magnetic) and two or three digits to indicate reported wind speed. When the reported speed is less than 10 Kts use a leading zero. The wind group will always have "KT" appended.

EXAMPLE-
/WV 28080KT
/WV 28008KT
/WV 280105KT

j. /TB. Turbulence. Report intensity, type, and altitude as follows:

1. Intensity. Enter duration if reported by the pilot (intermittent, occasional continuous) and intensity using contractions LGT, MOD, SEV, or

EXTRM. Separate a range or variation of intensity with a hyphen; e.g., MOD-SEV. If turbulence was forecasted, but not encountered, enter NEG.

2. Type. Enter CAT or CHOP if reported by the pilot.

3. Altitude. Report altitude only if it differs from value reported in /FL. When a layer of turbulence is reported, separate height values with a hyphen. If lower or upper limits are not defined, use BLO or ABV.

EXAMPLE-
/TB LGT 040
/TB MOD-SEV BLO 080
/TB MOD-SEV CAT 350
/TB NEG 120-180
/TB MOD CHOP 220/NEG 230-280
/TB MOD CAT ABV 290

k. IC. Icing. Report intensity, type and altitude of icing as follows:

1. Intensity. Enter intensity first using contractions TRACE, LGT, MOD, or SEV. Separate reports of a range or variation of intensity with a hyphen. If icing was forecast but not encountered, enter NEG.

2. Type. Enter the reported icing type as RIME, CLR, or MX.

3. Altitude. Enter the reported icing/altitude only if different from the value reported in the /FL TEI. Use a hyphen to separate reported layers of icing. Use ABV or BLO when a layer is not defined.

EXAMPLE-
/IC LGT-MOD MX 085
/IC LGT RIME
/IC MOD RIME BLO 095
/IC SEV CLR 035-062

4. When icing is reported always report temperature in the /TA TEI.

l. /RM. Remarks. Use this TEI to report a phenomenon which is considered important but does not fit in any of the other TEI's. This includes, but is not limited to, low level wind shear (LLWS) reports, thunderstorm lines, coverage and movement, size of hail (1/4" increments), lightning, clouds observed but not encountered, geographical or local description of where the phenomenon occurred, and contrails. Report hazardous weather first. Describe LLWS to the extent possible.

1. Wind Shear. +/- 10 Kts or more fluctuations in wind speed, within 2,000 Ft of the surface, require an Urgent (UUA) pilot report. When Low Level Wind Shear is entered in a pilot report enter LLWS as the first remark in the /RM TEI. LLWS may be reported as -, +, or +/- depending on how it effects the aircraft. If the location is different than the /OV or /FL fields, include the location in the remarks.

EXAMPLE-
/RM LLWS +/-15 KT SFC-008 DURGC RY22 JFK

2. FUNNEL CLOUD, TORNADO, and WATERSPOUT are entered with the direction of movement if reported.

EXAMPLE-
/RM TORNADO E MOV E

3. Thunderstorm. Enter coverage (ISOL, FEW, SCT, NMRS) and description (LN,BKN LN,SLD LN) if reported. Follow with "TS," the location and movement, and the type of lightning if reported.

EXAMPLE-
/RM NMRS TS S MOV E GR1/2

4. Lightning. Enter frequency (OCNL, FRQ), followed by type (LTGIC, LTGCC, LTGCG, LTGCA, or combinations), if reported.

EXAMPLE-
/RM OCNL LTGICCG

5. Electric Discharge. Enter DISCHARGE followed by the altitude.

EXAMPLE-
/RM DISCHARGE 120

6. Clouds. Use remarks when clouds can be seen but were not encountered and reported in /SK.

EXAMPLE-
/RM CB E MOV N
/RM OVC BLO

7. Plain Language. If specific phraseology is not adequate use plain language to describe the phenomena or local geographic locations. Include remarks that do not fit in other TEI's like DURGC, DURGD, RCA, TOP, TOC, or CONTRAILS.

EXAMPLE-
/RM BUMPY VERY ROUGH RIDE
/RM CONTRAILS
/UA/OV BIS270030/TM 1445/FL060/TP CVLT/TB LGT /RM Donner Summit Pass

8. Volcanic Eruption. Volcanic Ash alone is an Urgent PIREP. A report of volcanic activity shall

include as much information as possible. Include name of the mountain, ash cloud and movement, height of the top and bottom of the ash, etc. If received from other than a pilot, enter Aircraft "UNKN," Flight Level "UNKN," and /RM UNOFFICIAL.

EXAMPLE-
UUA/OV ANC240075/TM 2110/FL370/TP DC10/WX VA/RM VOLCANIC ERUPTION 2008Z MT AUGUSTINE ASH 40S MOV SSE

9-2-16. PIREP ENCODING

PIREP's shall be coded to ensure the PIREP is stored and subsequently distributed with the surface observation location nearest the condition being reported. If more than one SA location is appropriate, select the location that provides the greatest distribution and/or prominence, such as a major hub airport.

9-2-17. PIREP ORDER

Prepare PIREP's by routes from the reported location to an adjacent location, if possible. Start a multiple PIREP transmission with the most northerly route and progress clockwise. Place each PIREP on a separate line.

EXAMPLE-
UA/OV MRB045030/TM 1645/FL060 /TP UNKN /SK OVC055
UA/OV MRB-DCA/TM 1630/FL090/TP AEST /RM BTWN LYRS 090
UA/OV MRB-EKN/TM 1640/FL060/TP P28R /SK BKN-OVC020-TOP040/RM RDGS OBSCD

Section 3. Radar Weather Report (SD/ROB)

9-3-1. GENERAL

a. Individual radar weather reports, identified as SD/ROB, are collected by the National Meteorological Center (NMC) Suitland, Maryland. These reports are entered by Weather Service Offices on the Radar Report and Warning Coordination (RAWARC) circuits. NMC also collects radar report bulletins from military reporting locations and Canada.

b. When normal entry is not possible, SD/ROB reports can be entered on Service A circuits upon request by NWS RAWARC entry stations.

9-3-2. SCHEDULE

Radar weather reports are transmitted on Service A by WMSC at H+56 to H+00 each hour. These reports are not scheduled transmissions but are given priority handling during this 4-minute time frame.

9-3-3. DISTRIBUTION

a. Radar weather reports are sent to WMSCR by NMC each hour for distribution. These reports are received on an unscheduled basis and can be expected to appear during any unscheduled distribution period.

b. Each individual WMSCR circuit receives a unique collection based upon their requirements. Circuit distribution lists are filed at circuit control facilities.

Section 4. Winds and Temperature Aloft Forecast (FD)

9-4-1. GENERAL

Winds and Temperature Aloft Forecasts (FD) are computer-prepared and issued by the NMC at Suitland, Maryland. The forecasts are valid 6 (FD1/8), 12 (FD2/9), and 24 (FD3/10) hours after the observation date/times of 0000Z and 1200Z upon which they are based. An unscheduled amendment to an FD may be prepared and issued by a WSFO.

9-4-2. LEVELS FORECAST

Dependent upon station elevation, FD1/2/3 wind forecasts are issued for the following levels: 3, 6, 9, 12, 18, 24, 30, 34, and 39 thousand foot levels. The first level for which a wind forecast is issued is 1,500 feet or more above the station elevation. Temperature is forecast for all wind levels, except the 3,000 foot level, that are 2,500 feet or more above the station. The minus signs are deleted preceding the temperatures at the 30, 34, and 39 thousand foot levels. FD8/9/10 are for the 45,000 and 53,000 foot levels. They are not normally disseminated on Service A, but are available on request/reply.

9-4-3. SCHEDULES

FIG 9-4-1

Winds/Temperature Aloft Forecast Schedules

Type	*Base Data Time*	*Valid for*	*For use (period)*
FD1/8	0000Z	0600Z	0500-0900Z
FD2/9	0000Z	1200Z	0900-1800Z
FD3/10	0000Z	0000Z	1800-0500Z
FD1/8	1200Z	1800Z	1700-2100Z
FD2/9	1200Z	0000Z	2100-0600Z
FD3/10	1200Z	1200Z	0600-1700Z

9-4-4. DISTRIBUTION

All FD's are transmitted to the WMSC by NMC. Distribution by the WMSC is accomplished in accordance with established program requirements. Amended FD data prepared and entered by a WSFO is distributed to the same users as the original product prepared by NMC.

Section 5. Aviation Terminal Forecast (TAF)

9-5-1. GENERAL

Twenty-four hour Terminal Forecasts (TAF's) for selected U.S. terminals are prepared by NWS forecast offices and forwarded to the WMSCR for distribution. Similar forecasts for the U.S. Military, Canada, and Mexico are sent to WMSC from the NMC and Air Weather Service (AWS) for distribution.

9-5-2. TERMINAL FORECAST SCHEDULES

TAF's are prepared four times a day and are issued at 2330, 0530, 1130, and 1730 UTC.

9-5-3. DISTRIBUTION

Distribution of TAF's is made by WMSCR in accordance with a predetermined list for each circuit based upon intracircuit coordinated requirements. WMSCR Identifier Index of Individual Aviation Weather Reports. (Use RQ Procedures.)

Section 6. Aviation Area Forecast (FA)

9-6-1. GENERAL

a. Aviation Area Forecasts (FA) are available through the WMSC and provide an overview of weather conditions which could impact aviation operations. FA's are issued by the National Aviation Weather Advisory Unit (NAWAU) in Kansas City, Missouri, for the conterminous U.S. land and coastal waters by areas (Pacific Coast, Rocky Mountain, North-Central U.S., South-Central U.S., Northeast U.S., Southeast U.S.). The areas are delineated along state boundaries and are specified in the NWS Operations Manual, Chapter D-20. The FA's for Alaska and Hawaii are issued by the WSFO's located in Anchorage, Fairbanks, and Juneau, Alaska, and Honolulu, Hawaii. The geographical areas of coverage for the appropriate WSFO's are specified in Chapter D-20 of the NWS Operations Manual. (Canadian and Mexican FA's are also available through the WMSC.)

b. FA's consist of two sections with each section being transmitted with a unique communications header. This allows each section to be replaced when needed instead of amending or correcting the affected FA, to provide a current and complete area forecast. Inflight advisories (including WST's) amend the FA; however, when necessary, the appropriate section of the FA will be replaced by the issuing NWS office. The two FA sections and their communications headers are as follows (iii denotes the FA location identifier; e.g., ANC, CHI, etc.):

1. iiiS-Synopsis.
2. iiiI-Icing and Freezing Level.
3. iiiT-Turbulence.
4. iiiC-Significant Clouds and Weather.

9-6-2. AVIATION AREA FORECAST (FA) SCHEDULE

a. FA's are prepared three times a day in the contiguous 48 States and Alaska, and four times a day in Hawaii. All scheduled transmission times are in UTC and listed by daylight/standard times. The times in the contiguous U.S. are in TBL 9-6-1.

TBL 9-6-1
Area Forecast Schedule

Time Zones	*Areas*	*Issuance Times*
Central	CHI/DFW	0130/0230
		0930/1030
		1830/1930
Eastern	BOS/MIA	0030/0130
		0830/0930
		1730/1830
Mountain	SLC	0230/0330
		1030/1130
		1930/2030
Pacific	SFO	0230/0330
		1030/1130
		1930/2030

b. The Alaska and Pacific NWS Regional Headquarters have authority to schedule FA's to meet user requirements. These are issued at the following times. (See TBL 9-6-2.)

TBL 9-6-2
Alaska/Pacific Area Forecast Schedule

Issuance	*ANC and FAI*	*JNU*	*HNL*
1st	0640Z	0640Z	0340Z
2nd	1440Z	1340Z	0940Z
3rd	2240Z	2240Z	1540Z
4th			2140Z

c. The Gulf FA is prepared twice daily. The issuance times in UTC or Z depend on whether LDT/LST is in effect and are as follows:

1. 1st issuance 1040/1140.
2. 2nd issuance 1740/1840.

9-6-3. DISTRIBUTION

Distribution of FA's is made by WMSC in accordance with a predetermined list for each circuit based upon intracircuit coordinated requirements.

Section 7. Severe Weather Forecasts

9-7-1. GENERAL

Severe Weather Forecasts, Bulletins, Status Reports, and Alerts are filed at irregular intervals by the NWS National Severe Storm Forecast Center (NSSFC) in Kansas City, Missouri, and transmitted to WMSC for distribution. The alert (MKC AWW) is a preliminary announcement of a forthcoming severe weather watch and includes all information required for aviation purposes. Stations may obtain the Severe Weather Watch (MKC WW) from WMSC if desired. The WW number is included in the text of the AWW.

9-7-2. DISTRIBUTION

Upon receipt of MKC AWW alert, the WMSC will immediately interrupt the active task on selected Service A circuits and transmit the report. Severe weather status reports (WW-A) are never urgent. These are relayed unscheduled.

9-7-3. SEVERE WEATHER OUTLOOK NARRATIVE (AC)

In addition to Severe Weather Forecast, the Kansas City NSSFC will frequently file for transmission a Severe Weather Outlook Narrative, which will contain a brief evaluation of present and expected surface and upper air criteria conducive to severe local storms. These are assigned report type "AC."

Section 8. Flight Advisories (SIGMET/WS-AIRMET/ WA-Convective SIGMET/WST)

9-8-1. GENERAL

Flight Advisories are issued by the NAWAU in Kansas City, Missouri, for the conterminous U.S. and the appropriate WSFO in Alaska and Hawaii to provide notice of potentially hazardous weather conditions by amending or supplementing portions of the valid FA. The report type designator WS for SIGMET's, WST for Convective SIGMET's, and WA for AIRMET's is used to effect selective distribution. The text of the message identifies which advisory is being transmitted. WS's are identified with letters N (NOVEMBER) through Y (YANKEE) with the exception of S (SIERRA) and T (TANGO). WA's are identified with the letters S (SIERRA), T (TANGO) and Z (ZULU). The latest message for each system is kept in the computer's active storage file by the WMSC: WA for 360 minutes, WS for 240 minutes, and WST for 45 minutes.

NOTE-
Honolulu issues international SIGMET's available as WSPA1 PHNL and WSPA2 PHNL, which are retained by WMSC for 360 minutes.

9-8-2. DISTRIBUTION

SIGMET's, both WST/WS, are distributed unscheduled to all Service A circuits. AIRMET data is distributed as a scheduled product at 0145Z and every 6 hours thereafter, and any updates or amendments issued between scheduled periods will be a complete replacement for the previously issued AIRMET.

Section 9. Transcribed Weather Broadcast (TWEB)

9-9-1. GENERAL

The Transcribed Weather Broadcast (TWEB) and synopsis for selected routes are prepared by NWSFO's and forwarded to the WMSC for distribution. All times are in UTC and listed by daylight/standard times. (See TBL 9-9-1.)

TBL 9-9-1

Transcribed Weather Broadcast/Synopsis

Time Zones	*Issuance Times*		
	daylight standard	*daylight standard*	*daylight standard*
Central	0130/0230	0930/1030	1830/1930
Eastern	0030/0130	0830/0930	1730/1830
Mountain	0230/0330	1030/1130	1930/2030
Pacific	0330/0430	1130/1230	2030/2130

a. The morning and mid-day TWEB and synopsis will be valid for 12 hours. The evening TWEB and synopsis will be valid 18 hours with no outlook.

b. Eastern and Central TWEB's shall not be entered prior to H+20 for hours 10, 17, and 22 UTC. Mountain and Pacific TWEB's shall not be entered prior to H+20 for hours 11, 18, and 23 UTC.

9-9-2. CROSS-COUNTRY ROUTES

WMSC's storage contains a selection of combined individual route segments that defines cross-country routes. These routes are defined in AC 00-45. Section 4 defines the route segment and lists the number for each cross-country route.

Section 10. Meteorological Impact Statement (MIS)

9-10-1. GENERAL

A Meteorological Impact Statement (MIS) is an unscheduled planning forecast. It is an air traffic oriented forecast intended for ARTCC, Central Flow Weather Service Unit (CFWSU), Center Flow Control Function (CFCF), and hub terminal air traffic facility specialists responsible for making flow control and flow control-related decisions. It enables these specialists to include the impact of expected, specified local and/or national weather conditions in making these decisions.

9-10-2. CRITERIA

a. The MIS describes adverse weather conditions which are expected to begin generally within 4-to-12 hours after the statement's issuance. It can also describe conditions existing when the CWSU begins daily operations if the existing conditions will continue for at least 3 hours, or it can describe conditions existing at the time a briefing is issued. As a minimum, an MIS will be issued when:

1. Any of the following conditions occur or are forecast to occur:

(a) Conditions meeting Convective SIGMET criteria. (See the Weather Service Operations Manual (WSOM), Chapter D-22.)

(b) Moderate or greater icing.

(c) Moderate or greater turbulence.

(d) Heavy precipitation.

(e) Freezing precipitation.

(f) Conditions at, or approaching, low IFR. (See WSOM, Chapter D-21.)

(g) Surface winds, including gusts of 30 knots or greater.

(h) Low level wind shear (within 2,000 feet of the surface).

(i) Volcanic ash, dust storms, or sandstorms.

2. The above conditions will, in the forecaster's judgment, impact the flow of air traffic within the ARTCC area of responsibility.

3. The forecast lead time (the time between the issuance of an MIS and the onset of the phenomenon), in the forecaster's judgment, is sufficient to make the issuance of a CWA premature or unnecessary.

b. The MIS will describe the location of the phenomenon using ARTCC relevant points of reference, such as VOR's, and will include the height, extent, intensity, and movement of the phenomenon. MIS's will be numbered sequentially, beginning at midnight local time each day. Forecasters should be aware that the MIS is disseminated and stored as a replaceable product. This means that each MIS issuance must contain all of the pertinent and known details of the conditions meeting MIS issuance criteria including the continuing conditions described in previously issued MIS's.

c. The format of the MIS communications header is: (ARTCC designator) MIS (issuance number)(date/time issued in UTC)/(valid until date/time in UTC) (text).

EXAMPLE-
ZJX MIS 02 111345/120100

SCT LVL 3 AND 4 TSTMS ALG N/S RTES S OF ILM AND E OF SAV/OMN LN DVLPG BY 16Z MAX TOPS 350/400 ELSW ZJX AREA LVL 3 AND 4 TSTMS FRMG IN SHRT LNS OR CLUSTERS AFT 17Z WITH FEW RCHG LVL 5 AND 6 CELLS MOVG GENLY SEWD 10 KTS CONT THRU 00Z CONDS LWRG OCNLY TO LIFR IN HVY PCPN AFT 17Z

NOTE-
The format of the MIS communications header must be followed exactly if the product is to be distributed through AIS.

9-10-3. DISTRIBUTION

The MIS will be distributed to ARTCC area supervisors and traffic management coordinators and will be entered through FAA AIS and other communications media to make it available for dissemination to other FAA and NWS facilities, including adjacent CWSU's and locally designated hub terminal facilities. Distribution may be made directly by the CWSU meteorologist or through the weather coordinator position. When a MIS is issued concurrently with a briefing, the MIS will be distributed through those media to facilities mentioned above which do not receive an alphanumeric version of the briefing's contents.

Section 11. Center Weather Advisory (CWA)

9-11-1. GENERAL

A Center Weather Advisory (CWA) is an unscheduled weather advisory. It is issued for the guidance of ARTCC personnel, designated FAA facilities, CFWSU meteorologists, and air crews inflight to anticipate or avoid adverse weather conditions in terminal and en route environments.

9-11-2. CRITERIA

a. The CWA is not a flight planning document. By nature of its short lead time, it reflects weather conditions in existence at the time of issuance or conditions beginning within the next 2 hours. If conditions are expected to persist beyond the time of the valid period and/or if conditions extend beyond the ARTCC area, statements to this effect should be included in the text. The CWSU will issue a CWA:

1. When necessary as a supplement to an existing WS (including WST's), to an existing WA, or to an existing FA section. The issuance of a CWA under these circumstances should be limited to occasions when, in the judgment of the CWSU meteorologist, real time information adequately supports the issuance of a redefining statement update or advanced amendment. Such real time information regarding the phenomenon covered by a NAWAU product may be pilot reports, radar satellite, or information from other sources. The purpose of the CWA, under these circumstances, is to improve or to update the definition of the phenomenon in terms of relevance to users in the ARTCC area regarding the phenomenon's location, movement, extent, and intensity. A CWA, for example, describing an IFR WA's area of low IFR (LIFR) conditions in terms of ARTCC reference points would be a valid redefinition of the location and intensity relevant to the ARTCC's area and would meet documented requirements.

2. When an inflight advisory has not yet been issued, but the observed or expected weather conditions meet WS or WA criteria based on current pilot reports and reinforced by other sources of information concerning existing meteorological conditions. In this situation, the CWSU meteorologist should call the appropriate forecaster at the NAWAU or appropriate Alaska WSFO. If the CWSU forecaster determines that it is necessary to issue a CWA to allow lead time while the WS/WA is being prepared, the CWA will be issued, and the CWA should indicate that a WS/WA will be issued shortly.

3. The CWSU meteorologist may issue a CWA when observed, or developing weather conditions do not meet WS (including WST) or WA criteria but current pilot reports or other weather information sources indicate that an existing, or anticipated, meteorological phenomena will adversely affect the safe flow of air traffic within the ARTCC area of responsibility. In this situation, the data available must be sufficient, in the judgment of the CWSU meteorologist, to support both the issuance of such an advisory and, if necessary, its continuation.

b. The CWA will describe the location of the phenomenon using ARTCC relevant points of reference, such as VOR's, and will include the height, extent, intensity, and movement of the phenomenon. Each CWA will have a phenomenon number (1 through 6) immediately following the ARTCC identifier in the CWA message heading. A separate phenomenon number will be assigned to each meteorologically distinct condition or group of conditions, such as jetstream clear air turbulence or LIFR/icing conditions northwest of a low pressure center. The use of phenomenon numbers make it possible to store and disseminate up to six unrelated CWA conditions with each condition capable of being updated. Forecasters should be aware that the CWA is stored and disseminated as a replaceable product. This means that each subsequent CWA issuance must contain all the pertinent and known details of the conditions meeting CWA issuance criteria, including the continuing conditions described in the previously issued CWA's. CWA's will also be numbered sequentially, beginning at midnight local time each day. The sequential CWA issuance number will be followed by the related two-digit, alphanumeric designator for inflight advisories in effect if applicable. The CWA communications heading will also contain the CWA date/time of issuance in UTC and the "valid until" date/time in UTC. The difference between these two times will not exceed 2 hours.

c. The format of the CWA communications header is: (ARTCC designator)(phenomenon number) CWA (issuance number)/(if applicable, two-digit inflight advisory alphanumeric designator) (date/time issued in UTC)/(valid until date/time in UTC) (text).

EXAMPLE-
ZOB3 CWA 01 032141/032300
LN LVL 5 AND 6 TSTMS 10S DET TO 40N DJB TO 40E SBN TO 80SE MKG MOVG FROM 2525 3/4 INCH HAIL RPRTD LAST 5 MINS 20 SW YIP LVL 4 TO 6 TSTMS CONTG DTW AREA BYD 2300

ZKC1 CWA 01/ALFA 4 121528/121728
NMRS RPTS OF MDT TO SVR ICG 080/090 30 MILE RADIUS OF STL LGT OR NEG ICG RPTD 040/120 RMNDR OF ZKC AREA AND NE OF AREA

NOTE-
The format of the CWA communications header must be followed exactly if the product is to be distributed through the AIS.

9-11-3. DISTRIBUTION

The CWA will be distributed to ARTCC area supervisors and traffic management coordinators and will be entered through FAA AIS and other communications media to make it available for dissemination to other FAA and NWS facilities. Distribution may be made directly by the CWSU meteorologist or through the weather coordinator position.

Chapter 10. Data Communication Systems

Section 1. General

10-1-1. TYPES OF DATA ACCEPTABLE ON FAA DATA COMMUNICATIONS SYSTEMS

a. Distress messages.

b. Messages concerning safety to human life.

c. Flight movement/control/safety messages.

d. Aviation meteorological observations/forecasts/warnings.

e. Administrative messages which pertain to FAA personnel, facilities, or property.

f. Notice to Airmen (NOTAM's) data.

10-1-2. PRIORITY MESSAGES

(See TBL 10-1-1.)

TBL 10-1-1

Priority Messages

Priority	*Message Types*	*Action Required*
SS	Involves safety of life or property. Restricted to emergency situations.	Transmit immediately to all addressees and deliver to all internal/external offices you are responsible for.
DD	Priority operational and circuit control data.	Same as above.
FF on local agreements	Flight movement and control data relating safe/efficient operation of aircraft. Also for administrative data of a directive nature.	Transmit immediately, make internal/external delivery during next available administrative work day if office is closed. Delivery may be required to duty officer, dependent.
GG	Meteorological, NOTAM and routine administrative data.	Transmit immediately, make internal/external delivery by 10:30AM of the next business day.

10-1-3. GENERAL NOTICES

a. GENOT's are transmitted by Washington Headquarters Message Center (RWA/KRWAYAYX) via NADIN.

b. RENOT's are transmitted through NADIN by the ROC.

c. All administrative centers (headquarters/regional/aeronautical offices) are staffed 24 hours per day. The FAA Technical Center is only staffed from 0600-2200 local, from Monday through Friday. Messages sent to them will be acknowledged/disseminated as appropriate during those hours.

d. Administrative messages should be restricted to 20 lines of text and 69 characters per line. Messages exceeding this length shall be sent in individual parts. Facilities who miss a RENOT or GENOT should attempt to obtain it from adjacent facilities, then the ROC. ROC will relay requests to RWA for retransmisssion of GENOT's.

e. Facilities receiving administrative messages shall not acknowledge unless the message is numbered. Message originators desiring an acknowledgement shall add a number line as the first line of text.

EXAMPLE-
DCA002 CLE DAY
(TEXT)

10-1-4. GROUP CODES

a. NADIN has established group codes to allow message originators to input a single address, which will result in dissemination to a selected number of facilities.

b. System-wide group codes have been established for the primary use of RWA/KRWAYAYX and the ATC System Command Center (KCFCZDZX). These codes are KDOMYFYX and KDOMYYYX respectively.

c. A group code has also been established for each regional office and ARTCC primarily for the issuance of RENOT's and all ARTCC instructions. They are as follows for Regional Offices in TBL 10-1-2 and ARTCC's in TBL 10-1-3.

TBL 10-1-2

Region Group Code

Region	*ID*	*Region*	*ID*
Alaska	PANCYGYX	Northwest Mountain	XST
Central	XKC	Southern	XTL
Eastern	XNY	Southwest	XFE
Great Lakes	XGC	Western-Pacific	XLA
New England	XBW		

TBL 10-1-3

ARTCC Group Code

ARTCC	*ID*	*ARTCC*	*ID*
Albuquerque	XXI	Kansas City	XXS
Atlanta	XXN	Los Angeles	XXF
Boston	XXU	Memphis	XXM
Chicago	XXC	Miami	XXL
Cleveland	XXD	Minneapolis	XXE
Denver	XXO	New York	XXR
Ft. Worth	XXJ	Oakland	XXG
Houston	XXH	Salt Lake City	XXP
Indianapolis	XXA	Seattle	XXT
Jacksonville	XXK	Washington	XXQ

NOTE-
All of the group codes can be converted to a full eight-character address by placing a K in front of and YFYX following the three characters listed in TBL 10-1-2 and TBL 10-1-3.

d. Several other group codes exist for addressing selected groups of ATC facilities. To support MTR data transmission specifically, additional two-letter codes were developed to include all FSS facilities within particular states or areas. Those states with only one FSS, or those with all M1FC facilities, are not included in these codes. All M1FC facilities are served by the address KAWPYFYX. The two-letter identifiers are as follows in TBL 10-1-4:

TBL 10-1-4

Two-letter identifiers

AK	AR	CA	KY	NC	PA
TN	WA	WV			

e. In addition, the following seven-group codes were established that include multiple states:

KFSSYFCE (CENTRAL AREA)

AR-IN-IL-KY-MO-TN

KFSSYFEA (EAST COAST AREA)

MD-NC-NJ-VA-WV

KFSSYFNE (NORTHEAST AREA)

CT-ME-VT

KFSSYFNP (NORTHERN PLAINS AREA)

ID-MT-ND-NE-SD-WY

KFSSYFSE (SOUTHEAST AREA)

AL-FL-GA

KFSSYFWC (WEST COAST AREA)

AZ-CA-NV-OR

f. M1FC contains a group code for Drug Enforcement Agency (DEA). All VFR flight plans are automatically transmitted to the destination and DEA at the time of activation.

g. The group code KSARYCYX has been established to assist in the processing of INREQ's and ALNOT's.

10-1-5. MESSAGE FORMATS

a. Personnel should adhere to the transmit formats defined for systems in use; i.e., M1FC, AIS. Failure to comply can result in the message being rejected by either NADIN or WMSC. This may result in nondelivery to the intended recipients.

b. Full keyboard punctuation is allowed on all messages destined for internal FAA, DOD, NWS dissemination. For international dissemination, punctuation should be limited to those characters identified in pertinent ICAO documents.

c. Contractions and abbreviations should be used to shorten data transmissions to the extent possible. In no case should one be used that is not documented in FAAO 7340.1, Contractions. For international communications, be aware that the foreign correspondent may not understand all FAA contractions and may not have a full command of the English language. Care should be exercised in international communications to avoid slang phrases and non-ICAO approved abbreviations.

d. RQ/WQ. This message is used when requesting an individual report(s). It consists of the keywords /RQ for AIS or VM for M1FC for individual requests from the global and local data base; /WQ for AIS or NS RQ for M1FC for individual reports from WMSC. To avoid circuit congestion, requests for this type of data may not exceed one line. The following kinds of data may be requested using these keywords: SA, NTM, FD1, FD2, FD3, SW, SD, and FT. The reply to the request for an SA will include the basic METAR and any subsequent Specials (SPECI), amendment, or correction. It will also include all current NOTAM's and PIREP's (UA/UUA) for that weather location. A request for SP will return only the METAR and any SPECI's for that hour. The response to NOTAM requests will include all current NOTAM's for the NOTAM file specified, while requests for an FD or FT will include the current forecast and the latest amendments issued.

NOTE-
This procedure is adequate to facilitate reviewing weather trends; but for briefing purposes, the SA request should be used to ensure all en route and/or terminal NOTAM data pertinent to the flight is available.

EXAMPLE-
(This example is a request for the latest hourly observation and terminal forecast for JFK from WMSC.)
AIS
/WQ JFK SA JFK FT

M1FC
NS RQ JFK SA JFK FT

EXAMPLE-
(To obtain headers when requesting FD data, the input message should contain the word DATA when requesting U.S. FD's and FCST when requesting Canadian FD's.)

AIS
/RQ DATA FD1 SFO FD1 FCST FD1
YYZ FD1

M1FC
NS RQ DATA FD1 SFO FD1 FCST FD1
YYZ FD1

e. WC. This message is used for requesting information, such as that contained in the SACA20 KWBC, which is available at the WMSC in collective form only. Only five collectives shall be called for in a request.

EXAMPLE-
AIS
/WC SACA20 KWBC

f. RC. This message is used to retrieve a collective from the local data base. Non-AIS facilities use it for retrieving data listed in subpara 10-1-5e. Limit requests to one at a time.

EXAMPLE-
M1FC
NS RC SACA20 KWBC

g. RL/WL. The RL function has been set aside for the use of the AWP in M1FC. The AWP is the only facility able to use the RL keyword in M1FC. The WL function should be coordinated with WMSC prior to use by a AIS facility. This message is used in requesting a group of reports, forecasts, or a mixture of these to meet specific requirements. In this type of message, information is requested by specifying a single predetermined list. Only one list may be requested in each message. The lists are intended to provide groupings of individual reports, such as the observations and/or forecasts for all locations in a metropolitan area or along an airway.

10-1-6. WMSCR NEGATIVE RESPONSE MESSAGES

a. WMSCR automatically generates a negative response to request/reply inputs for which it cannot deliver.

1. NO REPORT AVBL. This response means the current data has not been received by WMSCR.

2. NOT IN SYSTEM. This response means WMSCR does not receive and store the requested data.

3. INVALID FORMAT. This response means the computer cannot process the request because of an input error.

b. WMSCR will generate only one negative response message to an RQ transmission that requests multiple reports and only when none of the data requested can be delivered.

Chapter 11. Airport Lighting and Visibility Aids

Section 1. General

11-1-1. AIRPORT LIGHTING

a. General Lighting. Operate airport lighting in accordance with associated tables except:

1. As requested by the pilot.

2. As required by facility directives or letters of agreement to meet local conditions or requirements.

3. As specialist deems necessary if not contrary to pilot's request or local directives.

b. Emergency Lighting. When it appears that an emergency has or will occur, provide for the operation of all appropriate airport lighting aids in accordance with local procedures and/or as required.

11-1-2. OBSTRUCTION LIGHTS

If controls are provided, operate the lights between sunset and sunrise.

11-1-3. ROTATING BEACON

If controls are provided, turn on the rotating beacon:

a. Between sunset and sunrise.

b. Between sunrise and sunset when the reported ceiling or visibility is below basic VFR minima.

11-1-4. APPROACH LIGHTS

Operate approach lights:

a. Between sunset and sunrise when one of the following conditions exists:

1. They serve the landing runway.

2. They serve a runway to which an approach is being made but aircraft will land on another runway.

b. Between sunrise and sunset when the ceiling is less than 1,000 feet or the prevailing visibility is 5 miles or less and approaches are being made to:

1. A landing runway served by the lights.

2. A runway served by the lights but aircraft are landing on another runway.

NOTE-
In the interest of energy conservation, the approach lighting system should be turned off when not needed for aircraft operations.

11-1-5. ALS INTENSITY SETTINGS

Operate intensity controls in accordance with the values depicted. (See TBL 11-1-1.)

TBL 11-1-1

ALS Intensity Setting		
Step	*Visibility (Applicable to runway served by lights)*	
	Day	*Night*
5	Less than 1 mile.*	When requested.
4	1 to but not including 3 miles.	When requested.
3	3 to but not including 5 miles.	Less than 1 mile.*
2	5 to but not including 7 miles.	1 to 3 miles inclusive.
1	When requested.	Greater than 3 miles.
* and/or 6,000 feet or less of RVR on the runway served by the ALS and RVR.		
Note.- Daylight steps 2 and 3 provide recommended settings applicable to conditions in ALS Intensity Settings.		

11-1-6. SEQUENCED FLASHING LIGHTS

Operate sequenced flashing lights when the visibility is less than 3 miles and instrument approaches are being made to the runway served by the associated ALS.

NOTE-
SFL's are a component of the ALS and cannot be operated when the ALS is off.

11-1-7. RUNWAY EDGE LIGHTS

Operate the runway edge light system(s) serving the runway(s) in use as follows:

a. Between sunset and sunrise.

1. For departures when an aircraft calls for airport advisory or requests the lights be turned on until the aircraft reports departing the airport area or 15 minutes after the last contact with the aircraft.

2. For arrivals when an aircraft calls for airport advisory or when the associated approach control advises that an aircraft is on approach until the aircraft reports/is observed clear of the runway or 15 minutes after last radio contact or arrival time.

b. Between sunrise and sunset, turn the lights on when the surface visibility is less than 2 miles as described in subparas 11-1-7a1 and a2.

c. The specialist considers it necessary, or it is requested by a pilot and no other known aircraft will be adversely affected.

d. Do not turn on the runway edge lights when a NOTAM closing the runway is in effect.

e. Alaska. The runway lights should remain on from the end of civil twilight to the beginning of civil twilight. If the runway lights are operated part-time in this period, broadcast a warning over the airport advisory frequency 2 minutes before turning the lights off.

11-1-8. CHANGING LIGHTED RUNWAYS

a. To switch lights:

1. Advise all known aircraft that the lights are to be changed, specifying the runway to be lighted.

2. Turn on the lights for the new runway 30 seconds before turning off the other runway lights, equipment permitting.

b. When a pilot requests that other than the favored runway be lighted and two runways cannot be lighted simultaneously, comply with the request if you have no knowledge of the lighted runway being in use. Advise all known aircraft.

11-1-9. SIMULTANEOUS APPROACH AND RUNWAY EDGE LIGHT OPERATION

Turn on the runway edge lights for the runway in use whenever the associated approach lights are on. If multiple runway light selection is not possible, you may leave the approach lights on and switch the runway lights to another runway to accommodate another aircraft.

11-1-10. MALSR ODALS

Operate MALSR/ODALS that have separate on-off and intensity setting controls in accordance with TBL 11-1-2 and TBL 11-1-3.

NOTE-
Application concerns use for takeoffs/landings/approaches and does not preclude turning lights on for use of unaffected portions of a runway for taxiing aircraft, surface vehicles, maintenance, repair, etc.

TBL 11-1-2

Two-Step MALS/One-Step RAIL		
Setting	*Visibility*	
	Day	*Night*
MALS HI-RAIL ON	Less than 3 miles.	Less than 3 miles.*
MALS LOW	When requested.	3 miles or more.
*At locations providing part-time flight service, the MALSR shall be set to low intensity during the hours of darkness when the station is unmanned.		

TBL 11-1-3

Three-Step MALS/Three-Step RAIL		
Setting	*Visibility*	
	Day	*Night*
3	Less than 2 miles.	Less than 1 mile.
2	2 to 5 miles inclusive.	1 to but not including 3 miles.*
1	When requested.	3 miles or more.
*At locations providing part-time flight service, the air-to-ground radio link shall be activated during the hours of darkness when the station is unmanned. If there is no radio air-to-ground control, the MALSR shall be set on intensity step #2 during the hours of darkness when the station is unmanned. (Reference- FAAO 7210.3, Para 10-6-4, Approach Light Systems.)		

11-1-11. HIRL ASSOCIATED WITH MALSR

Operate HIRL that controls the associated MALSR in accordance with the intensity setting in TBL 11-1-4.

TBL 11-1-4

HIRL Associated with MALSR		
Step	*Visibility*	
	Day	*Night*
5	Less than 1 mile.	When requested.
4	1 to but not including 2 miles.	Less than 1 mile.
3	2 to but not including 3 miles.	1 to but not including 3 miles.
2	When requested.	3 to 5 miles inclusive.
1	When requested.	More than 5 miles.

NOTE-
When switching from a given brightness step setting to a lower setting, rotation of the brightness control to a point below the intended step setting and then back to the appropriate step setting will ensure that the MALSR will operate at the appropriate brightness.

11-1-12. MEDIUM INTENSITY RUNWAY LIGHTS

Operate MIRL or MIRL which control the associated MALSR in accordance with the TBL 11-1-5.

TBL 11-1-5

HIRL Intensity Setting		
Step	*Visibility*	
	Day	*Night*
3	Less than 2 miles.	Less than 1 mile.
2	2 to 3 miles.	1 to 3 miles.
1	When requested.	More than 3 miles.

REFERENCE-
11-1-11 Note.

11-1-13. HIGH INTENSITY RUNWAY, RUNWAY CENTERLINE, AND TOUCHDOWN ZONE LIGHTS

Operate high intensity runway and associated runway centerline and touch-down zone lights in accordance with TBL 11-1-6.

TBL 11-1-6

HIRL, RCLS, TDZL Intensity Setting		
Step	*Visibility*	
	Day	*Night*
5	Less than 1 mile.*	When requested.
4	1 to but not including 2 miles.	Less than 1 mile.
3	2 to but not including 3 miles.	1 to but not including 3 miles.
2	When requested.	3 to 5 miles inclusive.
1	When requested.	More than 5 miles.
* and/or appropriate RVR/RVV equivalent.		

11-1-14. HIRL CHANGES AFFECTING RVR

Keep the appropriate approach controller or PAR controller informed, in advance if possible, of HIRL changes that affect RVR.

11-1-15. HIGH SPEED TURNOFF LIGHTS

Operate high speed turnoff lights whenever the associated runway lights are used for arriving aircraft. Leave them on until the aircraft has either entered a taxiway or passed the last light.

11-1-16. RUNWAY END IDENTIFIER LIGHTS

When separate on-off controls are provided, operate runway end identifier lights when the associated runway lights are lighted. Turn the REIL off after:

a. An arriving aircraft has landed.

b. A departing aircraft has left the traffic pattern area.

c. It is determined that the lights are of no further use to the pilot.

11-1-17. TAXIWAY LIGHTS

Operate taxiway lights serving the taxiways, or portions thereof, in use between sunset and sunrise before an aircraft taxies onto the taxiway (normally at the time taxi information is issued) and until it taxies off it.

11-1-18. VISUAL APPROACH SLOPE INDICATORS (VASI'S)

The VASI system with remote on-off switching shall be operated when it serves the runway in use and where intensities are controlled in accordance with TBL 11-1-7 and TBL 11-1-8.

TBL 11-1-7

VASI Intensity Setting, Two-Step System	
Step	*Period: Condition*
High	Day: Sunrise to sunset.
Low	Night: Sunset to sunrise.

TBL 11-1-8

VASI Intensity Setting, Two-Step System	
High	*Day: Sunrise to sunset.*
Medium	Twilight: From sunset to 30 minutes after sunset and from 30 minutes before sunrise to sunrise, and during twilight in Alaska. Note.- During a 1 year period, twilight may vary 26 to 43 minutes between 25 and 49 degrees N latitude.
Low	Night: From 30 minutes after sunset to 30 minutes before sunrise.

NOTE-
1. During a 1-year period, twilight may vary 26 to 43 minutes between 25 and 49 degrees N latitude.

2. The basic FAA standard for VASI systems permits independent operation by means of photoelectric device. This system has no on-off control feature and is intended for continuous operation. Other VASI systems in use include those that are operated remotely from the control tower. These systems may consist of either a photoelectric intensity control with only an on-off switch, a two-step intensity system, or a three-step intensity system.

REFERENCE-
FAAO 7210.3, Para 10-6-5, Visual Approach Slope Indicator (VASI) Systems.

11-1-19. VISIBILITY AIDS - GENERAL

a. Where RVR/RVV equipment is operational, irrespective of subsequent operation or nonoperation of navigational or visual aids for the application of RVR/RVV as a takeoff or landing minima, furnish the values for the runway in use in accordance with para 11-1-20, RVR/RVV.

b. Issue current touchdown RVR/RVV for the runway(s) in use:

1. When prevailing visibility is 1 mile or less regardless of the value indicated.

2. When RVR/RVV indicates a reportable value regardless of the prevailing visibility.

NOTE-
Reportable values are: RVR 6,000 feet or less; RVV 1-1/2 miles or less.

3. When it is determined from a reliable source that the indicated RVR value differs by more than 400 feet from the actual conditions within the area of the transmissometer, the RVR data is not acceptable and shall not be reported.

NOTE-
A reliable source is considered to be a certified weather observer, air traffic controller, or pilot.

4. When the observer has reliable reports, or has otherwise determined that the instrument values are not representative of the associated runway, the data shall not be used.

11-1-20. RVR/RVV

a. Provide RVR/RVV information by stating the runway, the abbreviations RVR/RVV, and the indicated value. When issued along with other weather elements, transmit these values in the normal sequence used for weather reporting.

b. When there is a requirement to issue an RVR/RVV value and a visibility condition greater or less than the reportable values of the equipment is indicated, state the condition as MORE than or LESS than the appropriate minimum or maximum readable value.

c. When a readout indicates a rapidly varying visibility condition (1,000 feet or more for RVR; one or more reportable values for RVV), report the current value followed by the range of visibility variance.

11-1-21. OPERATION OF LANDING DIRECTION INDICATOR

Align the landing direction indicator with the favored or designated runway.

Chapter 12. Interphone Communications

Section 1. General

12-1-1. PURPOSE

a. The procedures and phraseologies contained in this chapter apply to interfacility and intrafacility telephone communications conducted from any position of operation.

b. Interphone use is restricted to authorized official business only.

c. Monitor interphones continuously. At facilities without ringers keep speaker volume at a level sufficient to hear all transmissions. In the event of interphone failure, use authorized back-up procedures; i.e., commercial telephone, aircraft radio relay.

d. Use the words or phrases in interphone communications as contained in the Pilot/Controller Glossary.

12-1-2. INTERPHONE TRANSMISSION PRIORITIES

Give priority to interphone transmissions as follows:

a. *First priority.* Emergency messages including essential information on aircraft accidents or suspected accidents. After actual emergency has passed, give a lower priority to messages relating to an accident.

b. *Second priority.* Clearance and control instructions.

c. *Third priority.* Movement and control messages using the following order of precedence when possible:

1. Progress reports.

2. Departure or arrival reports.

3. Flight plans.

d. *Fourth priority.* Movement messages on VFR aircraft.

e. *Fifth priority.* General messages; e.g., outages.

12-1-3. PRIORITY INTERRUPTION

The words "break for emergency" or "break for control" may be used to interrupt lower priority messages when it is necessary to transmit an emergency or control message.

12-1-4. MESSAGE INITIATION

Initiate interphone messages as follows:

a. Assure line is not in use.

PHRASEOLOGY-
LINE CLEAR?

b. If line is not in use, establish contact with the desired facility and/or position.

EXAMPLE-
Manual signaling:
FSS-(Signals center manually).
Center- "Anchorage Center" or "Sector D-5."
FSS- "Kenai radio. Kenai progress Apache One Two Three."
Center- "Go ahead"'
FSS- "Over Kenai...etc." "L-H"
Center- "Roger Apache One Two Three." "C-M"
Voice signaling:
FSS- "Seattle Center, McMinnville Radio, Clearance Request."
Center "Seattle Center, Go Ahead."
FSS- "Request Clearance, Army .....etc."

c. When initiating calls on interphone voice lines, identify the line on which the call is being made.

EXAMPLE-
FSS - "Indianapolis Center, Dayton Radio on the 82 line, departure."

d. When calling or replying on an interphone line which connects only two facilities, you may omit the facility's name.

EXAMPLE-
"Radio, inbound estimate."

e. FSS/AFSS.

1. Inflight position. State the name of the FSS followed by the word RADIO and position, if appropriate.

EXAMPLE-
"Fairbanks Radio."

2. Flight Watch position. State the name of the associated ARTCC followed by the words FLIGHT WATCH.

EXAMPLE-
"Indianapolis Flight Watch."

NOTE-
During transition to EFAS consolidation, nonconsolidated facilities will state the name of the parent AFSS/FSS facility followed by the words FLIGHT WATCH.

12-1-5. MESSAGE TERMINATION

Terminate interphone messages with your operating initials.

EXAMPLE-
"V-N."

Chapter 13. NAVAID Monitoring

Section 1. General

13-1-1. PURPOSE

Facility responsibility for monitoring of NAVAID's is assigned by the ATD. Because NAVAID's and their monitoring equipment are continuously changing, use the procedures contained in this chapter as they apply.

13-1-2. DUTIES

At facilities assigned responsibility for monitoring NAVAID's, check status as part of watch checklist.

13-1-3. MALFUNCTIONS

Take the following action when an AT system component malfunctions:

a. Try to restore the aid to normal operation, unless AF requests otherwise.

b. If able to restore it, record the incident on FAA Form 7230-4.

c. If unable to restore it, discontinue its use and:

1. Notify the appropriate IFR control facility/ sector.

2. Notify the appropriate AFSS/FSS as necessary.

3. Notify maintenance personnel as required.

4. Take appropriate NOTAM actions.

REFERENCE-
FAAO 7210.3, Para 3-5-1, NAVAID Monitoring and FAAO 7930.2 Para 4-2-3, NOTAM's for NAVAID in Different FSS Flight Plan Area.

5. Record on FAA Form 7230-4.

d. If a monitor indicates a NAVAID malfunction, but aircraft or maintenance personnel report the NAVAID is operating normally, take actions and make notifications in accordance with subpara 13-1-3c.

13-1-4. AIRCRAFT REPORTED MALFUNCTIONS

Aircraft reported NAVAID malfunctions are subject to varying circumstances. When an aircraft reports a NAVAID malfunction, take the following action:

a. Request a report from a second aircraft.

b. If the second aircraft reports normal operations, continue use and, if able, inform the first aircraft. Record the incident on FAA Form 7230-4.

c. If the second aircraft confirms the malfunction, or in the absence of a second aircraft report, take NAVAID restoral action.

d. If normal operation is reported after restoral action is taken, continue use, record the incident on FAA Form 7230-4, and notify appropriate maintenance personnel.

e. If continued malfunction is reported after restoral action is taken, request advice from maintenance personnel on whether the NAVAID should be shut down. In the absence of a second aircraft report, advise maintenance personnel of the time of the initial aircraft report and the estimated time a second aircraft report could be obtained.

13-1-5. ADJUSTMENTS TO NAVAID'S

Notify the appropriate air traffic control facility before any adjustment (including a transmitter change) to a VOR, TACAN, or DME transmitter is made which might cause a momentary interruption or an abnormal indication on aircraft instruments.

13-1-6. NAVAID FLIGHT CHECK

Provide maximum assistance to aircraft engaged in flight inspection of NAVAID's. Unless otherwise agreed to, maintain direct contact with the pilot and provide information regarding known traffic in the area and request the pilot's intentions.

NOTE-
1. Many flight inspections are accomplished using automatic recording equipment. An uninterrupted flight is necessary for successful completion of the mission. The workload for the limited number of aircraft engaged in these activities requires strict adherence to a schedule.

2. Flight inspection operations which require special participation of ground personnel, specific communications, or radar operation capabilities are considered to require special handling. These flights are coordinated with appropriate facilities before departure.

13-1-7. MONITORING OF NAVAID'S BY AIRWAY FACILITIES PERSONNEL

Maintenance personnel may assume monitor of any navigational aid provided they coordinate with the responsible air traffic monitor facility. Record the time on FAA Form 7230-4 that maintenance personnel assume monitor responsibility for each NAVAID and the time they return monitor responsibility to the facility.

NOTE-
When maintenance personnel silence the monitoring systems of any NAVAID, they will assume responsibility for the monitoring function.

Chapter 14. Phraseology

Section 1. General

14-1-1. PURPOSE

This chapter prescribes standardized procedures and phraseologies to be used by flight service personnel when communicating weather and aeronautical information in broadcast, radiotelephone, and interphone communications. Where position or procedure-specific phraseology is required, reference is to be made to the relevant chapter of this order.

14-1-2. PHRASEOLOGY

The annotation PHRASEOLOGY denotes the prescribed words and/or phrases to be used in communications.

NOTE-
Specialists may, after first using the prescribed phraseology for a specific procedure, rephrase the message to ensure the content is understood. Good judgment shall be exercised when using nonstandard phraseology.

14-1-3. WORDS AND PHRASES

Use the words or phrases in broadcast, radiotelephone, and interphone communications as contained in the Pilot/Controller Glossary.

14-1-4. ANNOUNCING MISSING ITEMS

With the exception of RVR, announce the word "missing" when any item or component of a weather report is not reported, or in place of unreadable or obviously incorrect items or portions of weather reports. When appropriate, instead of speaking the name of several locations with missing reports, announce: "Other scheduled reports missing."

NOTE-
On occasion, a parameter from an automated observation may be reported as missing in the body of the report but is available as a manually reported parameter in the remarks section. When the report is spoken, include the manually reported element in its proper sequence within the report.

14-1-5. ICAO PHONETICS

Use the ICAO pronunciation of numbers and, as necessary, individual letters for clarity. The ICAO radiotelephony alphabet and pronunciation guide are contained in TBL 14-1-1.

TBL 14-1-1

ICAO Pronunciation

Character	*Word*	*Pronunciation*
0	Zero	ZEE-RO
1	One	WUN
2	Two	TOO
3	Three	TREE
4	Four	FOW-ER
5	Five	FIFE
6	Six	SIX
7	Seven	SEV-EN
8	Eight	AIT
9	Nine	NIN-ER
A	Alfa	AL-FAH
B	Bravo	BRAH-VOH
C	Charlie	CHAR-LEE
D	Delta	DELL-TAH
E	Echo	ECK-OH
F	Foxtrot	FOKS-TROT
G	Golf	GOLF
H	Hotel	HOH-TELL
I	India	IN-DEE-AH
J	Juliett	JEW-LEE-ETT
K	Kilo	KEY-LOH
L	Lima	LEE-MAH
M	Mike	MIKE
N	November	NO-VEM-BER
O	Oscar	OSS-CAR
P	Papa	PAH-PAH
Q	Quebec	KEH-BECK
R	Romeo	ROW-ME-OH
S	Sierra	SEE-AIR-AH
T	Tango	TANG-GO
U	Uniform	YOU-NEE-FORM
V	Victor	VIK-TAH
W	Whiskey	WISS-KEY
X	X-ray	ECKS-RAY
Y	Yankee	YANG-KEY
Z	Zulu	ZOO-LOO

NOTE-
Syllables to be emphasized in pronunciation are in bold face.

14-1-6. RELAY OF ATC COMMUNICATIONS

Prefix a clearance, information, or a request for information which will be relayed from a control facility to an aircraft with the appropriate phrase "A-T-C clears," "A-T-C advises," or "A-T-C requests."

14-1-7. EXPEDITIOUS COMPLIANCE

a. Use the word "immediately" only when expeditious compliance is required to avoid an imminent situation.

b. Use the word "expedite" only when prompt compliance is required to avoid the development of an imminent situation.

c. In either case, and if time permits, include the reason for this action.

14-1-8. WEATHER PHRASEOLOGY

Use the following phraseology and procedures for stating surface weather observations and for information similarly encoded in other aviation weather products and forecasts.

a. Location.

1. Announce the geographic name (not the identifier) once for communications.

EXAMPLE-
"Paducah."

2. When the location name is duplicated within 500 miles, follow the location name with the state name.

EXAMPLE-
"Columbus, Ohio."

3. When weather reports originate at more than one airport at the same geographical location, identify the airport.

EXAMPLE-
"Anchorage, Anchorage Merrill."
"Chicago O'Hare."

4. Where it is considered necessary and is requested by the military base commander, broadcast military observations by stating the location, the name of the airport if different, and the controlling military branch.

EXAMPLE-
"Andrews Air Force Base."
"Elmendorf, Elmendorf Air Force Base."
"Fort Riley, Marshall Army Air Field."
"Norfolk Naval Air Station."

b. If AUTO appears after the date/time element, follow location announcement with the phrase AUTOMATED.

PHRASEOLOGY-
(Location) AUTOMATED.

c. If a special report is the most recent observation available, follow the location with the words SPECIAL REPORT, (last two digits of the time) OBSERVATION. Use data from the record report to fill in the items not included in the special observation, such as temperature and dew point.

d. If the weather data is not available, state the location and the word MISSING.

e. Wind Direction and Speed. Announce surface wind direction and speed by stating the word WIND followed by the separate digits of the wind direction to the nearest 10 degrees and the separate digits of the speed. A "G" between two wind speed values is announced as GUSTS. State local wind as it appears in the report. Announce the variability of wind at the end of the wind group. (See TBL 14-1-2.)

TBL 14-1-2
Wind Direction and Speed

Wind	*Phraseology*
00000KT	WIND CALM.
26012KT	WIND TWO SIX ZERO AT ONE TWO.
29012KT 260V320	WIND TWO NINER ZERO AT ONE TWO WIND VARIABLE BETWEEN TWO SIX ZERO AND THREE TWO ZERO.
30008KT	WIND THREE ZERO ZERO AT EIGHT.
36012G20KT	WIND THREE SIX ZERO AT ONE TWO GUSTS TWO ZERO.
VRB04KT	WIND VARIABLE AT FOUR.

f. Visibility.

1. State the word VISIBILITY followed by the visibility values in miles and/or fractions of miles, except announce values indicated by the figure 0 as ZERO. Announce the separate digits of whole numbers as applicable. (See TBL 14-1-3.)

TBL 14-1-3

Visibility

Contraction	*Phraseology*
0SM	Visibility zero.
$^1/_{16}$SM	Visibility one sixteenth.
$^1/_8$SM	Visibility one eighth.
M$^1/_4$SM	Visibility less than one quarter.
$^3/_4$SM	Visibility three quarters.
1$^1/_2$SM	Visibility one and one-half.
8SM	Visibility eight.
25SM	Visibility two five.

NOTE-
When visibility is less than 3 miles and variable, this information is reported in the remarks.

2. When stating AUTOB visibility values, announce the visibility in accordance with the reportable categories depicted in TBL 14-1-4 and TBL 14-1-5.

TBL 14-1-4

Visibility Reading

Reading	*Visibility Values*
0	less than $^{15}/_{16}$
1	1 - 1 $^7/_8$
2	2 - 2 $^7/_8$
3	3 - 3 $^1/_2$
4	3 $^1/_2$ - 4 $^1/_2$
5	4 $^1/_2$ - 5 $^1/_2$
6	5 $^1/_2$ - 6 $^1/_2$
7	6 $^1/_2$ - 7 $^1/_2$
8	above 7 $^1/_2$

TBL 14-1-5

Visibility Reading

Reading	*Phraseology*
BV0	"Visibility less than fifteen sixteenths."
BV3	"Visibility three to three and one-half."
BV8	"Visibility more than seven and one-half."

3. If an AUTOB visibility report consisting of three values is encountered, it is decoded as depicted below.

EXAMPLE-
"BV786"
6 = minimum visibility during past 10 minutes.
7 = present visibility.
8 = maximum visibility during past 10 minutes.

g. RVR/RVV.

1. Provide RVR/RVV information by stating the runway, "visual range" or "visibility value," as appropriate, and the indicated value. The abbreviations "R-V-R" or "R-V-V" may be spoken in lieu of "visual range" or "visibility value." When the indicated values are separated by a V, preface the values with the words VARIABLE BETWEEN, followed by the first value, the word AND, then the second value. (See TBL 14-1-6.)

TBL 14-1-6

RVR/RVV

RVR/RVV	*Phraseology*
R36VV11/2	"Runway three six, R-V-V one and one-half."
R05LVV1V2	"Runway five left, R-V-V variable between one and two."
R18/2000V3000FT	"Runway one eight, R-V-R variable between two thousand and three thousand. Or Runway one eight visual range variable between two thousand and three thousand."
R26R/2400FT	"Runway two six right visual range two thousand four hundred."

2. When there is a requirement to issue an RVR or RVV value and a visibility condition greater or less than the reportable values of the equipment is indicated, state the condition as MORE THAN or LESS THAN the appropriate minimum or maximum readable value. (See TBL 14-1-7.)

TBL 14-1-7

RVR/RVV

RVR/RVV	*Phraseology*
R16/M0600FT	"Runway one six runway visual range less than six hundred. Or Runway one six R-V-R less than six hundred."
R36L/M0600V2500FT	"Runway three six left, R-V-R variable between less than six hundred and two thousand five hundred. Or Runway three six left visual range variable between less than six hundred and two thousand five hundred."
R36/P6000FT	"Runway three six R-V-R more than six thousand. Or Runway three six visual range more than six thousand."

h. Weather Elements. TBL 14-1-8 depicts sample phraseology for weather element contractions. Intensity refers to precipitation, not descriptors. Proximity is spoken after the phenomenon to which it refers. Descriptors are spoken ahead of weather phenomenon with the exception of "showers" which is spoken after the precipitation. TBL 14-1-9 contains a complete list of weather elements and appropriate phraseology.

i. Ceiling and Sky Coverage.

1. State sky coverage in the same order as reported on the weather observation. Announce ceiling as follows: (See TBL 14-1-10.)

TBL 14-1-8

Examples of Combining Intensity, Descriptors and Weather Phenomenon.

Contractions	*Phraseology*
BLSN	BLOWING SNOW
-FZRAPL	LIGHT FREEZING RAIN, ICE PELLETS
FZRA	FREEZING RAIN
FZDZ	FREEZING DRIZZLE
MIFG	SHALLOW FOG
-SHRA	LIGHT RAIN SHOWERS
SHRA	RAIN SHOWERS
SHSN	SNOW SHOWERS
TSRA	THUNDERSTORM, RAIN
+TSRA	THUNDERSTORM, HEAVY RAIN (SHOWERS)[1]
+TSRAGR	THUNDERSTORM, HEAVY RAIN, HAIL
VCSH	SHOWERS IN THE VICINITY

[1]Since thunderstorms imply showery precipitation, "showers" may be used to describe precipitation that accompany thunderstorms.

TBL 14-1-9

Weather Elements

INTENSITY or PROXIMITY 1		DESCRIPTOR 2		PRECIPITATION 3		OBSCURATION 4		OTHER 5	
-	Light	MI	Shallow	DZ	Drizzle	BR	Mist	PO	Well-Developed Dust/Sand Whirls
		BC	Patchy	RA	Rain	FG	Fog	SQ	Squalls
	Moderate (No Qualifier)	DR	Low Drifting	SN	Snow	FU	Smoke	FC +FC	Funnel Cloud, Tornado or Waterspout
		BL	Blowing	SG	Snow Grains	DU	Dust	SS	Sandstorm
+	Heavy	SH	Showers	IC	Ice Crystals	SA	Sand	DS	Duststorm
		TS	Thunderstorm	PL	Ice Pellets	HZ	Haze		
VC	In the Vicinity	FZ	Freezing	GR	Hail	PY	Spray		
		PR	Partial	GS	Small Hail or Snow Pellets (< 1/4")	VA	Volcanic Ash		
				UP	*Unknown Precipitation				

* Automated stations only.

TBL 14-1-10

Ceiling and Sky Coverage

Designator	*Phraseology*
BKN000[1]	SKY PARTIALLY OBSCURED
BKN000[2]	CEILING LESS THAN FIVE ZERO BROKEN
FEW000[1]	SKY PARTIALLY OBSCURED
FEW000[2]	FEW CLOUDS AT LESS THAN FIVE ZERO
(lowest layer aloft) BKN/OVC	(precede with) CEILING
SCT000[1]	SKY PARTIALLY OBSCURED
SCT000[2]	LESS THAN FIVE ZERO SCATTERED
VV	INDEFINITE CEILING
[1] Surface-based obscurations. Requires remarks, i.e. RMK FG SCT000, FU BKN000, etc. [2] No remark means the layer is aloft.	

2. State cloud heights in tens, hundreds and/or thousands of feet. (See TBL 14-1-11.)

TBL 14-1-11

Cloud Heights

Number	*Phraseology*
000[1]	ZERO
003	THREE HUNDRED
018	ONE THOUSAND EIGHT HUNDRED
200	TWO ZERO THOUSAND
[1] Spoken as zero only when used with VV.	

NOTE-

1. When the ceiling is less than 3,000 feet and variable, the variable limits will be reported in the remarks.

2. When communicating weather information on the TIBS broadcast or telephone, specialist may announce cloud heights in either group form or in hundreds or thousands of feet, such as seventeen thousand or one seven thousand.

3. Announce sky conditions as indicated below. (See TBL 14-1-12.)

TBL 14-1-12

Sky Conditions

Contraction	*Phraseology*
BKN	(height) BROKEN
CLR[1]	CLEAR BELOW ONE TWO THOUSAND
FEW	FEW CLOUDS AT (height)
OVC	(height) OVERCAST
SCT	(height) SCATTERED
SKC	CLEAR
[1] Automated weather reports.	

4. The following are examples of broadcast phraseology of sky and ceiling conditions: (See TBL 14-1-13.)

TBL 14-1-13

Sky and Ceiling Conditions

Condition	*Phraseology*
BKN000 BKN010 BKN050 RMK FG BKN000	SKY PARTIALLY OBSCURED, CEILING ONE THOUSAND BROKEN, FIVE THOUSAND BROKEN. FOG OBSCURING FIVE TO SEVEN EIGHTS OF THE SKY.
BKN010	CEILING ONE THOUSAND BROKEN.
SCT000 SCT020 OVC035 RMK FG SCT000	SKY PARTIALLY OBSCURED, TWO THOUSAND SCATTERED, CEILING THREE THOUSAND FIVE HUNDRED OVERCAST. FOG OBSCURING THREE TO FOUR EIGHTS OF THE SKY.
SCT020 OVC250	TWO THOUSAND SCATTERED, CEILING TWO FIVE THOUSAND OVERCAST.
VV000	INDEFINITE CEILING ZERO.
VV012	INDEFINITE CEILING ONE THOUSAND TWO HUNDRED.

j. Announce surface temperature and dew point by stating the words TEMPERATURE or DEW-POINT, as appropriate, followed by the temperature in degrees Celsius. Temperatures below zero are announced by prefixing the word MINUS before the values. (See TBL 14-1-14.)

TBL 14-1-14

Temperature/Dewpoint

Reading	*Phraseology*
02/M01	"Temperature two, dew point minus one."
04/02	"Temperature four, dew point two."
18/13	"Temperature one eight, dew point one three."

k. Altimeter Setting.

1. State the word ALTIMETER followed by the four digits of the altimeter setting. (See TBL 14-1-15.)

TBL 14-1-15

Altimeter Setting

Altimeter Setting	*Phraseology*
A2989	"Altimeter two niner eight niner."
A3001	"Altimeter three zero zero one."
A3025	"Altimeter three zero two five."

2. Identify the source of all altimeter settings when issued, if not given as part of an identified surface observation. Provide the time of the report if more than one hour old.

PHRASEOLOGY-
(airport name) (time of report if more than one hour old) ALTIMETER (setting).

3. If a request for the altimeter setting in MILLIBARS is received, announce the separate digits of the millibar equivalent value, using the millibar conversion chart, followed by the word MILLIBARS. If the millibar setting is not a whole number, always round down. (See TBL 14-1-16.)

REFERENCE-
Subpara 4-3-5f

TBL 14-1-16

Millibar Conversion

Millibar Conversion	*Phraseology*
956.3	"Altimeter niner five six millibars."
1002.0	"Altimeter one zero zero two millibars."
1058.9	"Altimeter one zero five eight millibars."

4. When altimeter is in excess of 31.00:

(a) Advise all aircraft.

PHRASEOLOGY-
"ALTIMETER IN EXCESS OF THREE ONE ZERO ZERO. HIGH PRESSURE ALTIMETER PROCEDURES ARE IN EFFECT."

(b) Advise VFR aircraft to set altimeter to 31.00 en route.

PHRASEOLOGY-
"RECOMMEND YOU SET ALTIMETER THREE ONE ZERO ZERO EN ROUTE."

14-1-9. WEATHER REMARKS

Announce pertinent remarks from surface weather observations in accordance with FAAO 7340.1, Contractions, and as shown in the following tables. Do not state additive data or other information intended for NWS analysis or processing that does not contribute to the description of the conditions occurring at the station.

a. SKY AND CEILING. (See TBL 14-1-17.)

TBL 14-1-17

Sky and Ceiling

Contraction	*Phraseology*
CIG 005V010	"Ceiling variable between five hundred and one thousand."
CIG 020 RY11	"Ceiling two thousand at runway one one."
CB N MOV E	"Cumulonimbus north moving east."
CBMAM DSNT S	"Cumulonimbus mammatus distant south."
CLDS TPG MT SW	"Clouds topping mountain southwest."
CONTRAILS N FL420	"Condensation trails north at flight level four two zero."
FRQ LTG VC	"Frequent lightning in the vicinity."
LWR CLDS NE	"Lower clouds northeast."
OCNL LTGICCG NW	"Occasional lightning in cloud and cloud to ground northwest."
RDGS OBSCD W-N	"Ridges obscured west through north."

b. Obscuring Phenomena. (See TBL 14-1-18.)

TBL 14-1-18

Obscuring Phenomena

Contraction	*Phraseology*
BLSN SCT000	"Blowing snow obscuring three to four-eights of the sky."
DU BKN000	"Dust obscuring five to seven-eights of the sky."
FG FU FEW000	"Fog and smoke obscuring one to two-eights of the sky."
FU SCT020	"Smoke layer two thousand scattered."
SN BKN000	"Snow obscuring five to seven-eights of the sky."

c. Visibility. (See TBL 14-1-19.)

TBL 14-1-19

Visibility

Contraction	*Phraseology*
SFC VIS 1/2	"Surface visibility one-half."
SFC VIS 15 TWRINC	"Surface visibility one five, tower in clouds."
TWR VIS 3/4	"Tower visibility three-quarters."
VIS S 1 W 1/4	"Visibility south one, west one-quarter."
VIS 1V3	"Visibility variable between one and three."

d. Weather and obstruction to visibility. (See TBL 14-1-20.)

TBL 14-1-20

Weather and Obstruction

Contraction	*Phraseology*
BCFG S	"Patchy fog south."
DUST DEVILS NW	"Dust devils northwest."
FG DSIPTG	"Fog dissipating."
FU DRFTG OVR FLD	"Smoke drifting over field."
FUOCTY	"Smoke over city."
GR 2	"Hailstones two inches in diameter."
INTMT -RA	"Intermittent light rain."
OCNL LTG DSNT NW	"Occasional lightning distant northwest."
OCNL SHRA	"Occasional moderate rain showers."
-RA OCNLY +RA	"Light rain occasionally heavy."
RAB30	"Rain began at three zero."
SNB15E40	"Snow began at one five, ended at four zero."
SHRA	"Rain showers."
SNINCR 5/10	"Snow increase five inches during past hour, ten inches on the ground."
TS OHD MOV E	"Thunderstorm overhead, moving east."
TS W MOV E FRQ LTGCG	"Thunderstorm west moving east, frequent lightning cloud to ground."
UNCONFIRMED TORNADO 15W OKC MOV NE 2015	"Unconfirmed tornado one five west of Oklahoma City, moving northeast sighted at two zero one five zulu."
WET SN	"Wet snow."

e. Wind. (See TBL 14-1-21.)

TBL 14-1-21
Wind

Contraction	*Phraseology*
PK WND 33048/22	"Peak wind three three zero at four eight occurred at two two past the hour."
WSHFT 30	"Wind shifted at three zero."

f. Pressure. (See TBL 14-1-22.)

TBL 14-1-22
Pressure

Contraction	*Phraseology*
PRESFR	"Pressure falling rapidly."
PRESRR	"Pressure rising rapidly."

g. Freezing Level Data. (See TBL 14-1-23.)

TBL 14-1-23
Freezing Level Data

Contraction	*Explanation*
RADAT 87045	Relative humidity 87 percent, only crossing of zero degrees Celsius isotherm was four thousand five hundred M-S-L.
RADAT 87L024105	Relative humidity 87 percent at the lowest crossing of zero degrees Celsius. Two crossings occurred at two thousand four hundred and one zero thousand five hundred M-S-L.
RADAT MISG	The sounding terminated below the first crossing of the zero degree Celsius isotherm. Temperatures were all above freezing.
RADAT ZERO	The entire sounding was below zero degrees Celsius.

h. Icing Data. (See TBL 14-1-24.)

TBL 14-1-24
Icing Data

Contraction	*Explanation*
RAICG 12 MSL	Icing at one thousand two hundred M-S-L.
RAICG 24 MSL SNW	Icing at two thousand four hundred M-S-L in snow.

i. Maintenance Data. (See TBL 14-1-25.)

TBL 14-1-25
Maintenance Data

RVR/RVV	*Phraseology*
PNO	"Precipitation amount not available."
RVRNO	"R-V-R (or runway visual range) information not available."
TSNO	"Thunderstorm/lightning information not available."
VISNO	"Visibility sensor information not available."

14-1-10. WEATHER ADVISORIES

a. When announcing weather advisories, include the complete advisory description including the product name and alphanumeric identification. Specify Eastern, Central, or Western section as applicable when stating WST's.

PHRASEOLOGY-
AIRMET
ALERT WEATHER WATCH, ONE ZERO SEVEN FOR SEVERE THUNDERSTORMS
CONVECTIVE SIGMET TWO SEVEN EASTERN
HOUSTON CENTER WEATHER ADVISORY ONE, ISSUANCE TWO
SIGMET WHISKEY THREE

b. Do not read the OUTLOOK section of WST's when stating the advisory. Data contained in the OUTLOOK concerning convective activity location, movement, and intensity may be extracted for compilation in forecast summarizations.

EXAMPLE-
"Convective SIGMET one seven Eastern-from five zero south of St. Petersburg to three zero south of Columbus, line of thunderstorms three five miles wide moving east at one five knots. Maximum tops four seven thousand."

c. VNR. When VFR flight is proposed and sky conditions or visibilities are present or forecast, surface based or aloft that, in your judgment, would make visual flight doubtful, include one of the following statements:

PHRASEOLOGY-
V-F-R FLIGHT NOT RECOMMENDED (location if applicable) DUE TO (conditions).
or
V-F-R NOT RECOMMENDED.

14-1-11. RAREP'S

Use the following phraseology and procedures for communicating radar reports:

a. Location. Announce the geographic name (not the identifier) and the type of report. Announce the geographic name twice for broadcasts.

EXAMPLE-
"Hondo radar report."
"Memphis, Memphis radar report."
"Lake Charles special radar report."

b. When broadcasting reports, announce the last two digits of the observation time followed by the word OBSERVATION.

EXAMPLE-
"Oklahoma City, Oklahoma City radar report, three five observation."

c. State the type of echo pattern or configuration as follows: (See TBL 14-1-26.)

TBL 14-1-26

Echo Pattern

Contraction	*Meaning*
AREA	Area
CELL	Single cell
FINE LN	Fine line
LN	Line
LYR	Layer
SPRL BAND AREA	Spiral band area

d. State the coverage of echoes in tenths.

EXAMPLE-
"Eight tenths."

e. State the type in accordance with TBL 14-1-27, intensity in accordance with TBL 14-1-28, and intensity trend of the weather in accordance with TBL 14-1-29.

TBL 14-1-27

Type

Symbol	*Meaning*
A	Hail
PL	Ice pellets
L	Drizzle
R	Rain
RW	Rain showers
S	Snow
SW	Snow showers
T	Thunderstorm
ZL	Freezing drizzle
ZR	Freezing rain
Note: Symbols used in RAREP's have not been changed to METAR symbology.	

TBL 14-1-28

Intensity

Symbol	*Intensity*
-	Light
(none)	Moderate
+	Heavy
++	Very Heavy
X	Intense
XX	Extreme
U	Unknown

TBL 14-1-29

Intensity Trend

Symbol	*Trend*
-	Decreasing
+	Increasing
NC	No change
NEW	New echo
Note: No intensity or trend is assigned for nonliquid precipitation.	

f. Describe the area covered by stating the azimuth and range of the points defining the echo pattern. (See TBL 14-1-30.)

TBL 14-1-30

Echo Pattern

Coded	*Phraseology*
86/40 160/60 262/115	"FROM FOUR ZERO EAST TO SIX ZERO SOUTHEAST TO ONE ONE FIVE WEST OF (radar site location)."

g. State the dimensions of the echo pattern in nautical miles using separate digits. The symbol W means WIDE, and D indicates DIAMETER.

h. State the pattern movement referencing the direction to which the echoes are moving and the speed using separate digits. The patterns are decoded L for LINE, C for CELL, and A for AREA. (See TBL 14-1-31.)

TBL 14-1-31

Direction of Movement

Coded	*Phraseology*
C3640	"CELLS MOVING SOUTH AT FOUR ZERO."
L2325	"LINE MOVING NORTHEAST AT TWO FIVE."

i. State the height of the tops in hundreds and/or thousands of feet, and their location by azimuth and distance where indicated. (See TBL 14-1-32.)

TBL 14-1-32

Heights-Tops

Coded	*Phraseology*
MT350 AT 270/20	"MAX TOP THREE FIVE THOUSAND, TWO ZERO MILES WEST OF (radar site location)."

j. State any remarks after decoding from contractions.

k. Do not announce the letters and numbers comprising the digital radar codes at the end of the radar reports.

l. Do not announce those portions of RAREP's containing information on the location of a hurricane eye. These reports begin with the identifying words eye or center.

m. Following is an example of a RAREP as it appears and as it is broadcast.

EXAMPLE-

OKC 1934 LN 8TRW++/+ 86/40 164/60 199/115 15W L2425 MT570 AT 159/65 2 INCH HAIL RPRTD THIS CELL MO1 NO2 ON3 PM34 QM3 RL2 SL9

"Oklahoma City, Oklahoma City, radar report. Three four observation. A line of eight-tenths coverage thunderstorms with very heavy rainshowers increasing in intensity extending from four zero east to six zero south southeast to one one five south southwest of Oklahoma City. One five miles wide. Line moving northeast at two five. Max top five seven thousand, six five southeast of Oklahoma City. Two inch hail reported this cell."

14-1-12. WINDS AND TEMPERATURES ALOFT FORECAST (FD)

When announcing the FD use the following phraseology and procedures:

a. State the altitude, then announce wind direction and speed by the separate digits of the wind direction to the 10-degree multiple, the word AT, and the separate digits of the speed.

b. When the forecast speed is less than 5 knots, the coded group is 9900 and read, LIGHT AND VARIABLE.

c. Encoded wind speed 100 to 199 knots have 50 added to the direction code and 100 subtracted from the speed.

d. If wind speed is forecast at 200 knots or greater, the wind group is coded as 199 knots; i.e., 7799 is decoded 270 degrees at 199 knots or greater.

e. A six-digit group includes forecast temperature. Provide temperatures on request only, stating the word TEMPERATURE followed by the word MINUS, as appropriate, and the separate digits. (See TBL 14-1-33.)

TBL 14-1-33

Altitude

Coded	*Phraseology*
2707	"(altitude), two seven zero at seven."
7799	"(altitude), two seven zero at one niner niner or greater."
850552	"(altitude), three five zero at one zero five, temperature minus five two."
9900+00	"(altitude), light and variable, temperature zero."

14-1-13. NUMBER USAGE

State numbers as follows:

a. Serial numbers. The separate digits. (See TBL 14-1-34.)

TBL 14-1-34

Serial Numbers

Number	*Phraseology*
11,495	"One one four niner five."
20,069	"Two zero zero six niner."

b. Altitudes or flight levels.

1. Altitudes. The separate digits of the thousands plus the hundreds. (See TBL 14-1-35.)

TBL 14-1-35

Altitudes

Altitude	*Phraseology*
5,000	"Five thousand."
10,000	"One zero thousand."
11,500	"One one thousand five hundred."

2. Altitudes may be restated in group form for added clarity if the specialist chooses. (See TBL 14-1-36.)

TBL 14-1-36

Altitudes - *continued*

Altitude	*Phraseology*
10,000	"Ten thousand."
11,500	"Eleven thousand five hundred."

3. Flight levels. The words flight level followed by the separate digits of the flight level. (See TBL 14-1-37.)

TBL 14-1-37

Flight Levels

Flight Level	*Phraseology*
180	"Flight level one eight zero."
270	"Flight level two seven zero."

4. MDA/DH Altitudes. The words minimum descent altitude or decision height followed by separate digits of the MDA/DH altitude. (See TBL 14-1-38.)

TBL 14-1-38

MDA/DH Altitude

Altitude	*Phraseology*
486	"Decision height, four eight six."
1,320	"Minimum descent altitude, one three two zero."

c. Time.

1. General time information. The four separate digits of the hour and minutes in terms of Coordinated Universal Time (UTC). (See TBL 14-1-39.)

TBL 14-1-39

Coordinated Universal Time

Time	*Phraseology*
0115 (UTC)	"Zero one one five."
1315 (UTC)	"One three one five."

2. Upon request. The four separate digits of the hours and minutes in terms of UTC followed by the local time equivalent; or the local time equivalent only. Local time may be based on the 24-hour clock system. (See TBL 14-1-40.)

TBL 14-1-40

Coordinated Universal Time

Time	*Phraseology*
2:30 p.m. or	"Two thirty P-M. local."
2230 (UTC), 2:30 p.m or	"Two two three zero, two thirty P-M. local."
2230 (UTC), 1430 PST	"Two two three zero, one four three zero Pacific or local."

3. Time check. The word "time" followed by the four separate digits of the hour and minutes, and nearest quarter minute. Fractions of a quarter minute less than 8 seconds are stated as the preceding quarter minute; fractions of a quarter minute of 8 seconds or more are stated as the succeeding quarter minute. (See TBL 14-1-41.)

TBL 14-1-41

Time Check

Time	*Phraseology*
1415:06	"Time, one four one five."
1415:10	"Time, one four one five and one-quarter."

4. Abbreviated time. The separate digits of the minutes only. (See TBL 14-1-42.)

TBL 14-1-42

Abbreviated Time

Time	*Phraseology*
1415	"One five."
1420	"Two zero."

NOTE-
Change to the next minute is made at the minute plus 30 seconds.

d. Field elevation. The words field elevation followed by the separate digits of the elevation. (See TBL 14-1-43.)

TBL 14-1-43

Field Elevation

Elevation	*Phraseology*
17 feet	"Field elevation, one seven."
187 feet	"Field elevation, one eight seven."
2,817 feet	"Field elevation, two eight one seven."

e. The number 0, is stated as zero except where it appears in group form.

EXAMPLE-
"Field elevation One Six Zero."
"Cessna Two One Six Zero Seven."
"Boeing Seven - Oh - Seven."

f. Heading. The word heading followed by the three separate digits of the number of degrees, but omit the word degrees. Use heading 360 degrees to indicate a north heading. (See TBL 14-1-44.)

TBL 14-1-44

Heading/Degrees

Heading	*Phraseology*
5 degrees	"Heading, zero zero five."
30 degrees	"Heading, zero three zero."
360 degrees	"Heading, three six zero."

g. Radar beacon codes. The word squawk followed by the separate digits of the four-digit code. (See TBL 14-1-45.)

TBL 14-1-45

Radar Beacon

Code	*Phraseology*
1000	"Squawk one zero zero zero."
2100	"Squawk two one zero zero."

h. Runways. The word runway followed by the separate digits of the runway designation. For a parallel runway, state the word left, right, or center if the letter L, R, or C is included in the designation. (See TBL 14-1-46.)

TBL 14-1-46

Runway Designation

Designation	*Phraseology*
03	"Runway three."
8L	"Runway eight left."
27R	"Runway two seven right."

i. Frequencies.

1. The separate digits of the frequency, inserting the word point where the decimal occurs. When the frequency is in the L/MF or HF band, include the word kilohertz. (See TBL 14-1-47.)

TBL 14-1-47

Frequencies

Frequency	*Phraseology*
302 kHz	"Three zero two kilohertz."
5631 kHz	"Five six three one kilohertz."
126.55 MHz	"One two six point five five."
135.275 MHz	"One three five point two seven."

2. Issue MLS/TACAN frequencies by stating the word CHANNEL followed by the assigned two-or three-digit channel number.

EXAMPLE-
"M-L-S channel five three zero."
"TACAN channel niner seven."

j. Speeds.

1. The separate digits of the speed followed by the word knots. (See TBL 14-1-48.)

TBL 14-1-48

Speed

Speed	*Phraseology*
95	"Niner five knots."
185	"One eight five knots."
250	"Two five zero knots."

2. For Mach speeds, the word Mach, followed by the separate digits of the Mach number inserting the word point where the decimal occurs. (See TBL 14-1-49.)

TBL 14-1-49

Speed

Mach Number	*Phraseology*
0.64	"Mach point six four."
0.7	"Mach point seven."
1.5	"Mach one point five."

k. Miles. The separate digits of the mileage followed by the word mile(s). (See TBL 14-1-50.)

TBL 14-1-50

Miles

Miles	*Phraseology*
30	"Three zero miles."

14-1-14. FACILITY IDENTIFICATION

Identify facilities as follows:

a. Airport traffic control towers: State the name of the facility followed by the word tower. Where military and civil airports are located in the same general area and have similar names, state the name of the military service followed by the name of the military facility and the word tower.

EXAMPLE-
"Barksdale Tower."
"Columbus Tower."
"Navy Jacksonville Tower."

b. Function within a terminal facility. State the name of the facility followed by the name of the function.

EXAMPLE-
"Boston Departure."
"LaGuardia Clearance Delivery."
"O'Hare Ground."

c. Approach control facilities, including TRACON's, RAPCON's, RATCF's, and ARAC's. State the name of the facility followed by the word approach. Where military and civil facilities are located in the same general area and have similar names, state the name of the military service followed by the name of the military facility and the word approach.

EXAMPLE-
"Denver Approach."
"Griffiss Approach."
"Navy Jacksonville Approach."

d. Air route traffic control centers. State the name of the facility followed by the word center.

e. When calling or replying on an interphone line which connects only two facilities, you may omit the facility's name.

EXAMPLE-
"Flight Data."
"Inflight, clearance request."

f. FAA flight service stations.

1. Inflight position. State the name of the FSS followed by the word radio, and position if appropriate.

EXAMPLE-
"Fairbanks Radio."
"Fort Dodge Radio, Inflight 2."

2. Flight Watch position. State the name of the associated ARTCC followed by the words FLIGHT WATCH.

EXAMPLE-
"Indianapolis Flight Watch."

NOTE-
During transition to EFAS consolidation, nonconsolidated facilities will state the name of the parent FSS facility followed by the words FLIGHT WATCH.

3. When calling or replying on interphone lines connecting more than one facility, state the name of the FSS followed by the word radio.

EXAMPLE-
"San Angelo Radio."

4. When answering public access telephone lines, state the geographical name of the FSS and the words Flight Service.

EXAMPLE-
"Burlington Flight Service."
"Miami Flight Service."

g. Radar facilities having ASR or PAR but not providing approach control service. State the name of the facility followed by the letters G-C-A.

EXAMPLE-
"Chanute G-C-A."
"Corpus Christi G-C-A."
"Davison G-C-A."

14-1-15. AIRCRAFT IDENTIFICATION

a. Civil. State the aircraft type, the model, the manufacturer's name, or the prefix November followed by the numbers/letters of the aircraft registration.

EXAMPLE-
"Bonanza One Two Three Four Tango."
"Douglas Three Zero Five Romeo."
"Jet Commander One Four Two Four."
"November One Two Three Four Golf."

NOTE-
The prefix November denotes a U.S. aircraft registry.

1. Air carrier and other civil aircraft having FAA authorized call signs. State the call sign, in accordance with FAAO 7340.1, Contractions, followed by the flight number in group form.

EXAMPLE-
"American Five Twenty-One."
"Commuter Six Eleven."
"General Motors Thirty-Fifteen."
"Eastern Ten Zero Four."
"Delta One Hundred."

2. If aircraft identification becomes a problem, the call sign shall be restated after the flight number of the aircraft involved.

EXAMPLE-
"American Five Twenty-One American."
"Commuter Six Eleven Commuter."
"General Motors Thirty-Seven General Motors."

REFERENCE-
FAAO 7210.3, Para 2-1-2, Facility Standard Operation Procedures Directive.

3. Air taxi and commercial operators not having FAA authorized call signs. State the prefix TANGO on initial contact, if used by the pilot, followed by the registration number. The prefix may be dropped in subsequent communications.

EXAMPLE-
On initial contact.
"Tango Mooney Five Five Five Two Quebec."
or
"Tango November Five Five Five Two Quebec."
On subsequent contacts.
"Mooney Five Two Quebec."
or
"November Five Two Quebec."

b. Lifeguard aircraft.

1. Air carrier/taxi/ambulance. State the prefix, LIFEGUARD, if used by the pilot, followed by the call sign and flight number in group form.

EXAMPLE-
"LIFEGUARD Delta Fifty-One."

NOTE-
Usage of LIFEGUARD call sign indicates that operational priority is requested.

2. Civilian airborne ambulance. State the word LIFEGUARD, followed by the numbers/letters of the registration number.

EXAMPLE-
"LIFEGUARD Two Six Four Six X-Ray."

c. U.S. Military. State one of the following:

1. The service name followed by the word copter, when appropriate, and a maximum of the last five digits of the serial number.

EXAMPLE-
"Air Guard Copter Two Six Three."
"Army Copter Three Two One Seven Six."
"Coast Guard Six One Three Two Seven."
"Navy Five Six Seven One Three."

2. If aircraft identification becomes a problem when the above procedures are used, the call sign shall be restated after the flight number of the aircraft involved.

EXAMPLE-
"Army Copter Three Two One Seven Six Army Copter."
"Coast Guard Six One Three Two Seven Coast Guard."

3. Special military operations. State one of the following followed by a maximum of the last five digits of the serial number:

(a) Air evacuation flights. AIR EVAC, MARINE AIR EVAC, or NAVY AIR EVAC.

EXAMPLE-
"AIR EVAC One Seven Six Five Two."

(b) Rescue flights. (Service name) RESCUE.

EXAMPLE-
"Air Force RESCUE Six One Five Seven Niner."

(c) Air Mobility Command. REACH.

EXAMPLE-
"REACH Seven Eight Five Six Two."

(d) Special Air Mission. U-S-SAM.

EXAMPLE-
"U-S-SAM Niner One Five Six Two."

(e) USAF Contract Aircraft. LOGAIR.

EXAMPLE-
"LOGAIR Seven Five Eight Two Six."

4. Military tactical and training.

(a) U.S. Air Force, Air National Guard, Military District of Washington priority aircraft, and USAF civil disturbance aircraft. Pronounceable words of three, four, five, or six letters followed by a four-, three-, two-, or one-digit number.

EXAMPLE-
"Okey One Five Seven."
"Pokey Four."
"Slug Two Zero."

NOTE-
When the Z suffix described in para 6-5-5, USAF/USN Undergraduate Pilots, para, is added to identify aircraft piloted by USAF undergraduate pilots, the call sign will be limited to a combination of six characters. Do not use this suffix, however, in ground-to-air communication.

(b) Navy or Marine fleet and training command aircraft. The service name and two letters or a digit and a letter (use letter phonetic equivalents) followed by two or three digits.

EXAMPLE-
"Marine Four Charlie Two Three Six."
"Navy Golf Alpha Two One."

(c) NORAD interceptors. An assigned double-letter two-digit flight number.

EXAMPLE-
"Alpha Kilo One Five."

(d) Navy Fleet Support Missions. When handling Navy Fleet Support Mission aircraft, use the words Special Flight Number followed by the number as given by the pilot.

d. Foreign registry. State one of the following:

1. Civil. State the aircraft type, manufacturer's name, or country of origin followed by the letters/-numbers of the aircraft registration, or state the letters or digits of the aircraft registration or call sign.

EXAMPLE-
"Stationair F-L-R-B."
"C-F-L-R-B."
"Canadian Foxtrot Lima Romeo Bravo."

NOTE-
Letters may be spoken individually or phonetically.

2. Air carrier. The abbreviated name of the operating company followed by:

(a) The letters or digits of the registration or call sign.

EXAMPLE-
"Air France F-L-R-L-G."

NOTE-
Letters may be spoken individually or phonetically in accordance with the format used by the pilot.

(b) The flight number in group form, or separate digits may be used if that is the format used by the pilot.

EXAMPLE-
"Scandinavian Six Eight."
"Scandinavian Sixty-Eight."

3. Military, except Canada.

(a) State the name of the country and the military service followed by the separate digits or letters of the registration or call sign.

(b) Canadian Armed Force aircraft shall be identified by the word CANFORCE followed by the separate digits of the serial number.

(c) The Transport Command of the Canadian Armed Force shall be identified by the words Canadian Military.

(d) The Canadian Coast Guard shall be identified as Canadian Coast Guard followed by the separate digits of the serial number.

EXAMPLE-
"Brazilian Air Force Five Three Two Seven Six."
"CANFORCE Five Six Two Seven."

e. Presidential aircraft and Presidential family aircraft.

1. When the President is aboard a military aircraft, state the name of the military service followed by the word one.

EXAMPLE-
"Air Force One."
"Army One."
"Marine One."

2. When the President is aboard a civil aircraft, state the words Executive One.

3. When a member of the President's family is aboard any aircraft, if the U.S. Secret Service or the White House Staff determines it is necessary, state the words Executive One Foxtrot.

f. Vice Presidential aircraft.

1. When the Vice President is aboard a military aircraft, state the name of the military service followed by the word two.

EXAMPLE-
"Air Force Two."
"Army Two."
"Marine Two."

2. When the Vice President is aboard a civil aircraft, state the words Executive Two.

3. When a member of the Vice President's family is aboard any aircraft, if the U.S. Secret Service or the White House Staff determines it is necessary, state the words Executive Two Foxtrot.

g. DOT and FAA flights. The following alphanumeric identifiers radio call signs are for use in air/ground communications when the Secretary of Transportation, Deputy Secretary of Transportation, FAA Administrator, or FAA Deputy Administrator have a requirement to identify themselves:

1. Department of Transportation.

(a) Secretary:

(1) Identifier - DOT-1.

(2) Call Sign - Transport-1.

(b) Deputy Secretary:

(1) Identifier - DOT-2.

(2) Call Sign - Transport-2

2. Federal Aviation Administration.

(a) Administrator:

(1) Identifier - FAA-1.

(2) Call Sign - Safe Air-1.

(b) Deputy Administrator:

(1) Identifier - FAA-2

(2) Call Sign - Safe Air-2.

PHRASEOLOGY-
GRAND FORKS RADIO, TRANSPORT TWO, (message).
MIAMI RADIO, SAFE AIR ONE, (message).

h. Other special flights.

1. Department of Energy flights. State the letters R-A-C (use phonetic alphabet equivalents) followed by the last four separate digits of the aircraft registration number.

EXAMPLE-
"Romeo Alfa Charlie One Six Five Three."

2. Semiautomatic Flight Inspections. State the code name SAFI followed by the separate digits of the grid number as filed.

EXAMPLE-
"SAFI Five Two Seven."

3. Flight Inspection of Navigational Aids. State the call sign Flight Check followed by the digits of the registration number.

EXAMPLE-
"FLIGHT CHECK Three Niner Six Five Four."

4. USAF aircraft engaged in aerial sampling missions. State the call sign SAMP followed by the last three digits of the serial number.

EXAMPLE-
"SAMP Three One Six."

5. The call signs/code words listed in TBL 14-1-51 are designated for use by the assigned participating Department or Agency. These call signs/code words shall only be used in bona fide air interdiction missions.

TBL 14-1-51
Call Signs

AKRON	Bureau of Alcohol, Tobacco, and Firearms.
BOBIK and TYSON	Reserved for assignment.
BOISE	Department of Defense.
DERBY and COLBY	Reserved for assignment by ATP-1.
FLINT	Drug Enforcement Administration.
IDAHO	Other law enforcement agencies with a special need.
JUSTICE	Dept. of Justice Prisoner and Alien Transportation Service (JPATS).
OMAHA	U.S. Customs Service.
ROSS	Federal Bureau of Investigation.
SALEM	U.S. Border Patrol.
ZEAL	U.S. Coast Guard.

i. Use a pilot's name in identification of an aircraft only in special or emergency situations.

14-1-16. AIRCRAFT TYPES

Describe aircraft as follows:

a. Military.

1. Military designator with number spoken in group form; or

2. Service and type; or

3. Type only if no confusion or misidentification is likely.

EXAMPLE-
"Air Force Bomber."
"B-One."
"Bomber."
"F-Fifteen."
"Fighter." "Navy Fighter."

b. Air Carrier.

1. Manufacturer's name or model.

2. Add the company name or other identifying features when confusion or misunderstanding is likely.

EXAMPLE-
"American M-D Eighty."
"American Seven-Zero-Seven."
"Boeing Seven-Oh-Seven."
"L-Ten-Eleven."
"Lockheed Ten Eleven."
"United Seven Thirty-Seven."

c. General Aviation and Air Taxi.

1. Manufacturer's model, name, or designator.

2. Add color when considered advantageous.

EXAMPLE-
"Airliner."
"Blue and White King Air."
"Cessna Four-Oh-One."
"Cessna Three Ten."
"Green Apache."
"P-A Twenty-Two."
"Tri-Pacer."

14-1-17. AIRCRAFT EQUIPMENT CODES

When communicating this information (aircraft equipment suffixes) state the aircraft type, the word slant, and the appropriate phonetic letter equivalent of the suffix.

EXAMPLE-
"Boeing Seven-Oh-Seven slant Romeo."
"D-C Six slant Tango."
"F-Eight-E slant Papa."
"F-Four-C slant November."

14-1-18. AIRWAYS AND ROUTES

Describe airways, routes, or jet routes as follows:

a. VOR/VORTAC/TACAN airways or jet routes. State the word Victor or the letter J followed by the number of the airway or route in group form. For RNAV routes, add the word romeo.

EXAMPLE-
"J Eight Thirty Romeo."
"J Five Thirty-Three."
"Offset one zero miles right of J Eight Thirty Romeo."
"Victor Seven Ten Romeo."
"Victor Twelve."

b. VOR/VORTAC/TACAN alternate airways. State the word Victor followed by the number of the airway in group form and the alternate direction.

EXAMPLE-
"Victor Twelve South."

c. L/MF airways. State the color of the airway followed by the number in group form.

EXAMPLE-
"Blue Eighty-One."

d. North American Route. State the words North American Route followed by the number of the route in group form.

EXAMPLE-
"North American Route Fifty."

e. MTR's. State the letters followed by the number of the route in group form.

EXAMPLE-
"I-R Five Thirty-One."

14-1-19. NAVAID TERMS

a. Announce NAVAID's as follows in TBL 14-1-52:

TBL 14-1-52
NAVAID Terms

Contraction	*Phraseology*
DME	D-M-E
ILS	I-L-S
LOM	Outer compass locator
MLS	M-L-S
NDB	Nondirectional Radio beacon
TACAN	TACK-AN
VOR	V-O-R
VORTAC	VOR- (as in vortex) TACK

b. Describe radials, arcs, courses, bearings, and quadrants of NAVAID's as follows:

1. VOR/VORTAC/TACAN/MLS NAVAID's. State the name of the NAVAID followed by the separate digits of the radial/ azimuth (omitting the word degrees) and the word radial/azimuth.

EXAMPLE-
"Appleton zero five zero radial."
"Lindburg Runway Two Seven MLS two six zero azimuth."

2. Arcs about VOR-DME/VORTAC/TACAN/ MLS NAVAID's. State the distance in miles from the NAVAID followed by the words "mile arc," the direction from the NAVAID in terms of the eight principal points of the compass, the word of, and the name of the NAVAID.

EXAMPLE-
"Two zero mile arc southwest of O'Hare Runway Two Seven Left M-L-S."

3. Quadrant within a radius of NAVAID. State direction from NAVAID in terms of the quadrant, such as NE, SE, SW, NW, followed by the distance in miles from the NAVAID.

EXAMPLE-
"Cleared to fly northeast quadrant of Philipsburg VORTAC within four zero mile radius."

REFERENCE-
Pilot/Controller Glossary, QUADRANT.

4. Nondirectional beacons. State the course to or the bearing from the radio beacon, omitting the word degree, followed by the words course to or bearing from, the name of the radio beacon, and the words radio beacon.

EXAMPLE-
"Three four zero bearing from Randolph Radio Beacon."

14-1-20. NAVAID FIXES

Describe fixes determined by reference to a radial/localizer/azimuth and distance from a VOR-DME/VORTAC/TACAN/ILS-DME or MLS as follows:

a. When a fix is not named, state the name of the NAVAID followed by a specified radial/localizer/azimuth, and state the distance in miles followed by the phrase mile fix.

EXAMPLE-
"Appleton zero five zero radial three seven mile fix."
"Reno localizer back course four mile fix."
"Hobby Runway One Two M-L-S zero niner zero azimuth one two mile fix."

b. When a fix is named, state the name of the fix followed by the phrase D-M-E fix or waypoint, as appropriate.

EXAMPLE-
"Shaum D-M-E Fix."
"Shaum Waypoint."

c. Use specific terms to describe a fix. Do not use expressions such as passing Victor Twelve or passing J Eleven.

14-1-21. RUNWAY CONDITIONS

a. State factual information as reported by airport management concerning the condition of the runway surface and describing the accumulation of precipitation. Furnish quality of braking action as received from pilots or airport management to all aircraft as follows:

1. Describe the quality of braking action using the terms good, fair, poor, or nil. If the pilot or airport management reports braking action in other than the foregoing terms, ask them to categorize braking action in these terms.

2. Include the type of aircraft or vehicle (if known) from which the report is received.

EXAMPLE-
"All runways covered by packed snow six inches deep."
"Braking action poor reported by an F Twenty-Seven."

3. If the braking action report affects only a portion of a runway, obtain enough information from the pilot or airport management to describe braking action in terms easily understood by the pilot.

EXAMPLE-
"Braking action poor first half of runway, reported by a Gulfstream Two."
"Braking action poor beyond the intersection of Runway Two Seven, reported by a Boeing Seven Twenty-Seven."

NOTE-
Descriptive terms, such as first/last half of the runway, should normally be used rather than landmark descriptions; e.g., opposite the fire station, south of a taxiway.

b. State runway friction measurement readings/values as received from airport management to aircraft as follows:

1. At airports with friction measuring devices, provide runway friction reports, as received from airport management, to pilots on request. State the runway number followed by the MU number for each of the three runway zones, the time of the report in UTC, and a word describing the cause of the runway friction problem.

EXAMPLE-
"Runway Two Seven, MU forty-two, forty-one, twenty-eight at one zero one eight ZULU, ice."

2. Issue the runway surface condition and/or the runway condition reading (RCR), if provided, to all USAF and ANG aircraft. Issue the RCR to other aircraft upon request.

EXAMPLE-
"Ice on runway, R-C-R Zero Five, patchy."

NOTE-
USAF has established RCR procedures for determining the average deceleration readings of runways under conditions of water, slush, ice, or snow. The use of RCR code is dependent upon a pilot's having a "stopping capability chart" specifically applicable to his/her aircraft. USAF offices furnish RCR information at airports serving USAF and ANG aircraft.

PILOT/CONTROLLER GLOSSARY

PURPOSE

a. This Glossary was compiled to promote a common understanding of the terms used in the Air Traffic Control system. It includes those terms which are intended for pilot/controller communications. Those terms most frequently used in pilot/controller communications are printed in ***bold italics***. The definitions are primarily defined in an operational sense applicable to both users and operators of the National Airspace System. Use of the Glossary will preclude any misunderstandings concerning the system's design, function, and purpose.

b. Because of the international nature of flying, terms used in the Lexicon, published by the International Civil Aviation Organization (ICAO), are included when they differ from FAA definitions. These terms are followed by "[ICAO]." For the reader's convenience, there are also cross references to related terms in other parts of the Glossary and to other documents, such as the Code of Federal Regulations (CFR's) and the Aeronautical Information Manual (AIM).

c. This Glossary will be revised, as necessary, to maintain a common understanding of the system.

EXPLANATION OF CHANGES

Editorial/format changes were made where necessary. Revision bars were not used due to the insignificant nature of the changes. (ATA-10)

A

AAI-
(See ARRIVAL AIRCRAFT INTERVAL.)

AAR-
(See AIRPORT ARRIVAL RATE.)

ABBREVIATED IFR FLIGHT PLANS- An authorization by ATC requiring pilots to submit only that information needed for the purpose of ATC. It includes only a small portion of the usual IFR flight plan information. In certain instances, this may be only aircraft identification, location, and pilot request. Other information may be requested if needed by ATC for separation/control purposes. It is frequently used by aircraft which are airborne and desire an instrument approach or by aircraft which are on the ground and desire a climb to VFR-on-top.
(See VFR-ON-TOP.)
(Refer to AIM.)

ABEAM- An aircraft is "abeam" a fix, point, or object when that fix, point, or object is approximately 90 degrees to the right or left of the aircraft track. Abeam indicates a general position rather than a precise point.

ABORT- To terminate a preplanned aircraft maneuver; e.g., an aborted takeoff.

ACC [ICAO]-
(See ICAO term AREA CONTROL CENTER.)

ACCELERATE-STOP DISTANCE AVAILABLE- The runway plus stopway length declared available and suitable for the acceleration and deceleration of an airplane aborting a takeoff.

ACCELERATE-STOP DISTANCE AVAILABLE [ICAO]- The length of the take-off run available plus the length of the stopway if provided.

ACDO-
(See AIR CARRIER DISTRICT OFFICE.)

ACKNOWLEDGE- Let me know that you have received my message.
(See ICAO term ACKNOWLEDGE.)

ACKNOWLEDGE [ICAO]- Let me know that you have received and understood this message.

ACL-
(See AIRCRAFT LIST.)

ACLS-
(See AUTOMATIC CARRIER LANDING SYSTEM.)

ACLT-
(See ACTUAL CALCULATED LANDING TIME.)

ACROBATIC FLIGHT- An intentional maneuver involving an abrupt change in an aircraft's attitude, an abnormal attitude, or abnormal acceleration not necessary for normal flight.
(See ICAO term ACROBATIC FLIGHT.)
(Refer to 14 CFR Part 91.)

ACROBATIC FLIGHT [ICAO]- Maneuvers intentionally performed by an aircraft involving an abrupt change in its attitude, an abnormal attitude, or an abnormal variation in speed.

ACTIVE RUNWAY-
(See RUNWAY IN USE/ACTIVE RUNWAY/DUTY RUNWAY.)

ACTUAL CALCULATED LANDING TIME- ACLT is a flight's frozen calculated landing time. An actual time determined at freeze calculated landing time (FCLT) or meter list display interval (MLDI) for the adapted vertex for each arrival aircraft based upon runway configuration, airport acceptance rate, airport arrival delay period, and other metered arrival aircraft. This time is either the vertex time of arrival (VTA) of the aircraft or the tentative calculated landing time (TCLT)/ACLT of the previous aircraft plus the arrival aircraft interval (AAI), whichever is later. This time will not be updated in response to the aircraft's progress.

ACTUAL NAVIGATION PERFORMANCE (ANP)-
(See REQUIRED NAVIGATION PERFORMANCE.)

ADDITIONAL SERVICES- Advisory information provided by ATC which includes but is not limited to the following:

a. Traffic advisories.

b. Vectors, when requested by the pilot, to assist aircraft receiving traffic advisories to avoid observed traffic.

c. Altitude deviation information of 300 feet or more from an assigned altitude as observed on a verified (reading correctly) automatic altitude readout (Mode C).

d. Advisories that traffic is no longer a factor.

e. Weather and chaff information.

f. Weather assistance.

g. Bird activity information.

h. Holding pattern surveillance. Additional services are provided to the extent possible contingent only upon the controller's capability to fit them into the performance of higher priority duties and on the basis of limitations of the radar, volume of traffic, frequency congestion, and controller workload. The controller has complete discretion for determining if he/she is able to provide or continue to provide a service in a particular case. The controller's reason not to provide or continue to provide a service in a particular case is not subject to question by the pilot and need not be made known to him/her.

(See TRAFFIC ADVISORIES.)
(Refer to AIM.)

ADF-
(See AUTOMATIC DIRECTION FINDER.)

ADIZ-
(See AIR DEFENSE IDENTIFICATION ZONE.)

ADLY-
(See ARRIVAL DELAY.)

ADMINISTRATOR- The Federal Aviation Administrator or any person to whom he/she has delegated his/her authority in the matter concerned.

ADR-
(See AIRPORT DEPARTURE RATE.)

ADVISE INTENTIONS- Tell me what you plan to do.

ADVISORY- Advice and information provided to assist pilots in the safe conduct of flight and aircraft movement.
(See ADVISORY SERVICE.)

ADVISORY FREQUENCY- The appropriate frequency to be used for Airport Advisory Service.
(See LOCAL AIRPORT ADVISORY.)
(See UNICOM.)
(Refer to ADVISORY CIRCULAR NO. 90-42.)
(Refer to AIM.)

ADVISORY SERVICE- Advice and information provided by a facility to assist pilots in the safe conduct of flight and aircraft movement.
(See ADDITIONAL SERVICES.)
(See EN ROUTE FLIGHT ADVISORY SERVICE.)
(See LOCAL AIRPORT ADVISORY.)
(See RADAR ADVISORY.)
(See SAFETY ALERT.)
(See TRAFFIC ADVISORIES.)
(Refer to AIM.)

AERIAL REFUELING- A procedure used by the military to transfer fuel from one aircraft to another during flight.
(Refer to VFR/IFR Wall Planning Charts.)

AERODROME- A defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure, and movement of aircraft.

AERODROME BEACON [ICAO]- Aeronautical beacon used to indicate the location of an aerodrome from the air.

AERODROME CONTROL SERVICE [ICAO]- Air traffic control service for aerodrome traffic.

AERODROME CONTROL TOWER [ICAO]- A unit established to provide air traffic control service to aerodrome traffic.

AERODROME ELEVATION [ICAO]- The elevation of the highest point of the landing area.

AERODROME TRAFFIC CIRCUIT [ICAO]- The specified path to be flown by aircraft operating in the vicinity of an aerodrome.

AERONAUTICAL BEACON- A visual NAVAID displaying flashes of white and/or colored light to indicate the location of an airport, a heliport, a landmark, a certain point of a Federal airway in mountainous terrain, or an obstruction.
(See AIRPORT ROTATING BEACON.)
(Refer to AIM.)

AERONAUTICAL CHART- A map used in air navigation containing all or part of the following: topographic features, hazards and obstructions, navigation aids, navigation routes, designated airspace, and airports. Commonly used aeronautical charts are:

a. Sectional Aeronautical Charts (1:500,000)- Designed for visual navigation of slow or medium speed aircraft. Topographic information on these

charts features the portrayal of relief and a judicious selection of visual check points for VFR flight. Aeronautical information includes visual and radio aids to navigation, airports, controlled airspace, restricted areas, obstructions, and related data.

b. VFR Terminal Area Charts (1:250,000)- Depict Class B airspace which provides for the control or segregation of all the aircraft within Class B airspace. The chart depicts topographic information and aeronautical information which includes visual and radio aids to navigation, airports, controlled airspace, restricted areas, obstructions, and related data.

c. World Aeronautical Charts (WAC) (1:1,000,000)- Provide a standard series of aeronautical charts covering land areas of the world at a size and scale convenient for navigation by moderate speed aircraft. Topographic information includes cities and towns, principal roads, railroads, distinctive landmarks, drainage, and relief. Aeronautical information includes visual and radio aids to navigation, airports, airways, restricted areas, obstructions, and other pertinent data.

d. En Route Low Altitude Charts- Provide aeronautical information for en route instrument navigation (IFR) in the low altitude stratum. Information includes the portrayal of airways, limits of controlled airspace, position identification and frequencies of radio aids, selected airports, minimum en route and minimum obstruction clearance altitudes, airway distances, reporting points, restricted areas, and related data. Area charts, which are a part of this series, furnish terminal data at a larger scale in congested areas.

e. En Route High Altitude Charts- Provide aeronautical information for en route instrument navigation (IFR) in the high altitude stratum. Information includes the portrayal of jet routes, identification and frequencies of radio aids, selected airports, distances, time zones, special use airspace, and related information.

f. Instrument Approach Procedures (IAP) Charts- Portray the aeronautical data which is required to execute an instrument approach to an airport. These charts depict the procedures, including all related data, and the airport diagram. Each procedure is designated for use with a specific type of electronic navigation system including NDB, TACAN, VOR, ILS/MLS, and RNAV. These charts are identified by the type of navigational aid(s) which provide final approach guidance.

g. Instrument Departure Procedure (DP) Charts- Designed to expedite clearance delivery and to facilitate transition between takeoff and en route operations. Each DP is presented as a separate chart and may serve a single airport or more than one airport in a given geographical location.

h. Standard Terminal Arrival (STAR) Charts- Designed to expedite air traffic control arrival procedures and to facilitate transition between en route and instrument approach operations. Each STAR procedure is presented as a separate chart and may serve a single airport or more than one airport in a given geographical location.

i. Airport Taxi Charts- Designed to expedite the efficient and safe flow of ground traffic at an airport. These charts are identified by the official airport name; e.g., Ronald Reagan Washington National Airport.

(See ICAO term AERONAUTICAL CHART.)

AERONAUTICAL CHART [ICAO]- A representation of a portion of the earth, its culture and relief, specifically designated to meet the requirements of air navigation.

AERONAUTICAL INFORMATION MANUAL- A primary FAA publication whose purpose is to instruct airmen about operating in the National Airspace System of the U.S. It provides basic flight information, ATC Procedures and general instructional information concerning health, medical facts, factors affecting flight safety, accident and hazard reporting, and types of aeronautical charts and their use.

AERONAUTICAL INFORMATION PUBLICATION (AIP) [ICAO]- A publication issued by or with the authority of a State and containing aeronautical information of a lasting character essential to air navigation.

A/FD-

(See AIRPORT/FACILITY DIRECTORY.)

AFFIRMATIVE- Yes.

AIM-

(See AERONAUTICAL INFORMATION MANUAL.)

AIP [ICAO]-

(See ICAO term AERONAUTICAL INFORMATION PUBLICATION.)

AIRBORNE DELAY- Amount of delay to be encountered in airborne holding.

AIR CARRIER DISTRICT OFFICE- An FAA field office serving an assigned geographical area, staffed with Flight Standards personnel serving the aviation industry and the general public on matters related to the certification and operation of scheduled air carriers and other large aircraft operations.

AIRCRAFT- Device(s) that are used or intended to be used for flight in the air, and when used in air traffic control terminology, may include the flight crew.
(See ICAO term AIRCRAFT.)

AIRCRAFT [ICAO]- Any machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against the earth's surface.

AIRCRAFT APPROACH CATEGORY- A grouping of aircraft based on a speed of 1.3 times the stall speed in the landing configuration at maximum gross landing weight. An aircraft shall fit in only one category. If it is necessary to maneuver at speeds in excess of the upper limit of a speed range for a category, the minimums for the next higher category should be used. For example, an aircraft which falls in Category A, but is circling to land at a speed in excess of 91 knots, should use the approach Category B minimums when circling to land. The categories are as follows:

a. Category A- Speed less than 91 knots.

b. Category B- Speed 91 knots or more but less than 121 knots.

c. Category C- Speed 121 knots or more but less than 141 knots.

d. Category D- Speed 141 knots or more but less than 166 knots.

e. Category E- Speed 166 knots or more.
(Refer to 14 CFR Part 97.)

AIRCRAFT CLASSES- For the purposes of Wake Turbulence Separation Minima, ATC classifies aircraft as Heavy, Large, and Small as follows:

a. Heavy- Aircraft capable of takeoff weights of more than 255,000 pounds whether or not they are operating at this weight during a particular phase of flight.

b. Large- Aircraft of more than 41,000 pounds, maximum certificated takeoff weight, up to 255,000 pounds.

c. Small- Aircraft of 41,000 pounds or less maximum certificated takeoff weight.
(Refer to AIM.)

AIRCRAFT CONFLICT- Predicted conflict, within URET CCLD, of two aircraft, or between aircraft and airspace. A Red alert is used for conflicts when the predicted minimum separation is 5 nautical miles or less. A Yellow alert is used when the predicted minimum separation is between 5 and approximately 12 nautical miles. A Blue alert is used for conflicts between an aircraft and predefined airspace.
(See USER REQUEST EVALUATION TOOL CORE CAPABILITY LIMITED DEPLOYMENT.)

AIRCRAFT LIST (ACL)- A view available with URET CCLD that lists aircraft currently in or predicted to be in a particular sector's airspace. The view contains textual flight data information in line format and may be sorted into various orders based on the specific needs of the sector team.
(See USER REQUEST EVALUATION TOOL CORE CAPABILITY LIMITED DEPLOYMENT.)

AIRCRAFT SURGE LAUNCH AND RECOVERY- Procedures used at USAF bases to provide increased launch and recovery rates in instrument flight rules conditions. ASLAR is based on:

a. Reduced separation between aircraft which is based on time or distance. Standard arrival separation applies between participants including multiple flights until the DRAG point. The DRAG point is a published location on an ASLAR approach where aircraft landing second in a formation slows to a predetermined airspeed. The DRAG point is the reference point at which MARSA applies as expanding elements effect separation within a flight or between subsequent participating flights.

b. ASLAR procedures shall be covered in a Letter of Agreement between the responsible USAF military ATC facility and the concerned Federal Aviation Administration facility. Initial Approach Fix spacing requirements are normally addressed as a minimum.

AIR DEFENSE EMERGENCY- A military emergency condition declared by a designated authority. This condition exists when an attack upon the continental U.S., Alaska, Canada, or U.S. installations in Greenland by hostile aircraft or missiles is considered probable, is imminent, or is taking place.
(Refer to AIM.)

AIR DEFENSE IDENTIFICATION ZONE- The area of airspace over land or water, extending upward from the surface, within which the ready identification, the location, and the control of aircraft are required in the interest of national security.

a. Domestic Air Defense Identification Zone. An ADIZ within the United States along an international boundary of the United States.

b. Coastal Air Defense Identification Zone. An ADIZ over the coastal waters of the United States.

c. Distant Early Warning Identification Zone (DEWIZ). An ADIZ over the coastal waters of the State of Alaska.

Note: ADIZ locations and operating and flight plan requirements for civil aircraft operations are specified in 14 CFR Part 99.

(Refer to AIM.)

AIRMEN'S METEOROLOGICAL INFORMATION-

(See AIRMET.)

AIRMET- In-flight weather advisories issued only to amend the area forecast concerning weather phenomena which are of operational interest to all aircraft and potentially hazardous to aircraft having limited capability because of lack of equipment, instrumentation, or pilot qualifications. AIRMET's concern weather of less severity than that covered by SIGMET's or Convective SIGMET's. AIRMET's cover moderate icing, moderate turbulence, sustained winds of 30 knots or more at the surface, widespread areas of ceilings less than 1,000 feet and/or visibility less than 3 miles, and extensive mountain obscurement.

(See AWW.)
(See CONVECTIVE SIGMET.)
(See CWA.)
(See SIGMET.)
(Refer to AIM.)

AIR NAVIGATION FACILITY- Any facility used in, available for use in, or designed for use in, aid of air navigation, including landing areas, lights, any apparatus or equipment for disseminating weather information, for signaling, for radio-directional finding, or for radio or other electrical communication, and any other structure or mechanism having a similar purpose for guiding or controlling flight in the air or the landing and takeoff of aircraft.

(See NAVIGATIONAL AID.)

AIRPORT- An area on land or water that is used or intended to be used for the landing and takeoff of aircraft and includes its buildings and facilities, if any.

AIRPORT ADVISORY AREA- The area within ten miles of an airport without a control tower or where the tower is not in operation, and on which a Flight Service Station is located.

(See LOCAL AIRPORT ADVISORY.)
(Refer to AIM.)

AIRPORT ARRIVAL RATE (AAR)- A dynamic input parameter specifying the number of arriving aircraft which an airport or airspace can accept from the ARTCC per hour. The AAR is used to calculate the desired interval between successive arrival aircraft.

AIRPORT DEPARTURE RATE (ADR)- A dynamic parameter specifying the number of aircraft which can depart an airport and the airspace can accept per hour.

AIRPORT ELEVATION- The highest point of an airport's usable runways measured in feet from mean sea level.

(See TOUCHDOWN ZONE ELEVATION.)
(See ICAO term AERODROME ELEVATION.)

AIRPORT/FACILITY DIRECTORY- A publication designed primarily as a pilot's operational manual containing all airports, seaplane bases, and heliports open to the public including communications data, navigational facilities, and certain special notices and procedures. This publication is issued in seven volumes according to geographical area.

AIRPORT LIGHTING- Various lighting aids that may be installed on an airport. Types of airport lighting include:

a. Approach Light System (ALS)- An airport lighting facility which provides visual guidance to landing aircraft by radiating light beams in a directional pattern by which the pilot aligns the aircraft with the extended centerline of the runway on his/her final approach for landing. Condenser-Discharge Sequential Flashing Lights/Sequenced Flashing Lights may be installed in conjunction with the ALS at some airports. Types of Approach Light Systems are:

1. ALSF-1- Approach Light System with Sequenced Flashing Lights in ILS Cat-I configuration.

2. ALSF-2- Approach Light System with Sequenced Flashing Lights in ILS Cat-II configuration.

The ALSF-2 may operate as an SSALR when weather conditions permit.

3. SSALF- Simplified Short Approach Light System with Sequenced Flashing Lights.

4. SSALR- Simplified Short Approach Light System with Runway Alignment Indicator Lights.

5. MALSF- Medium Intensity Approach Light System with Sequenced Flashing Lights.

6. MALSR- Medium Intensity Approach Light System with Runway Alignment Indicator Lights.

7. LDIN- Lead-in-light system- Consists of one or more series of flashing lights installed at or near ground level that provides positive visual guidance along an approach path, either curving or straight, where special problems exist with hazardous terrain, obstructions, or noise abatement procedures.

8. RAIL- Runway Alignment Indicator Lights- Sequenced Flashing Lights which are installed only in combination with other light systems.

9. ODALS- Omnidirectional Approach Lighting System consists of seven omnidirectional flashing lights located in the approach area of a nonprecision runway. Five lights are located on the runway centerline extended with the first light located 300 feet from the threshold and extending at equal intervals up to 1,500 feet from the threshold. The other two lights are located, one on each side of the runway threshold, at a lateral distance of 40 feet from the runway edge, or 75 feet from the runway edge when installed on a runway equipped with a VASI.

(Refer to FAAO 6850.2, VISUAL GUIDANCE LIGHTING SYSTEMS.)

b. Runway Lights/Runway Edge Lights- Lights having a prescribed angle of emission used to define the lateral limits of a runway. Runway lights are uniformly spaced at intervals of approximately 200 feet, and the intensity may be controlled or preset.

c. Touchdown Zone Lighting- Two rows of transverse light bars located symmetrically about the runway centerline normally at 100 foot intervals. The basic system extends 3,000 feet along the runway.

d. Runway Centerline Lighting- Flush centerline lights spaced at 50-foot intervals beginning 75 feet from the landing threshold and extending to within 75 feet of the opposite end of the runway.

e. Threshold Lights- Fixed green lights arranged symmetrically left and right of the runway centerline, identifying the runway threshold.

f. Runway End Identifier Lights (REIL)- Two synchronized flashing lights, one on each side of the runway threshold, which provide rapid and positive identification of the approach end of a particular runway.

g. Visual Approach Slope Indicator (VASI)- An airport lighting facility providing vertical visual approach slope guidance to aircraft during approach to landing by radiating a directional pattern of high intensity red and white focused light beams which indicate to the pilot that he/she is "on path" if he/she sees red/white, "above path" if white/white, and "below path" if red/red. Some airports serving large aircraft have three-bar VASI's which provide two visual glide paths to the same runway.

h. Boundary Lights- Lights defining the perimeter of an airport or landing area.

(Refer to AIM.)

AIRPORT MARKING AIDS- Markings used on runway and taxiway surfaces to identify a specific runway, a runway threshold, a centerline, a hold line, etc. A runway should be marked in accordance with its present usage such as:

a. Visual.

b. Nonprecision instrument.

c. Precision instrument.

(Refer to AIM.)

AIRPORT MOVEMENT AREA SAFETY SYSTEM (AMASS)- A software enhancement to ASDE radar which provides logic predicting the path of aircraft landing and/or departing, and aircraft and/or vehicular movements on runways. Visual and aural alarms are activated when logic projects a potential collision.

AIRPORT REFERENCE POINT (ARP)- The approximate geometric center of all usable runway surfaces.

AIRPORT RESERVATION OFFICE- Office responsible for monitoring the operation of the high density rule. Receives and processes requests for IFR operations at high density traffic airports.

AIRPORT ROTATING BEACON- A visual NAVAID operated at many airports. At civil airports, alternating white and green flashes indicate the location of the airport. At military airports, the

beacons flash alternately white and green, but are differentiated from civil beacons by dualpeaked (two quick) white flashes between the green flashes.
(See INSTRUMENT FLIGHT RULES.)
(See SPECIAL VFR OPERATIONS.)
(See ICAO term AERODROME BEACON.)
(Refer to AIM.)

AIRPORT SURFACE DETECTION EQUIPMENT- Radar equipment specifically designed to detect all principal features on the surface of an airport, including aircraft and vehicular traffic, and to present the entire image on a radar indicator console in the control tower. Used to augment visual observation by tower personnel of aircraft and/or vehicular movements on runways and taxiways.

AIRPORT SURVEILLANCE RADAR- Approach control radar used to detect and display an aircraft's position in the terminal area. ASR provides range and azimuth information but does not provide elevation data. Coverage of the ASR can extend up to 60 miles.

AIRPORT TAXI CHARTS-
(See AERONAUTICAL CHART.)

AIRPORT TRAFFIC CONTROL SERVICE- A service provided by a control tower for aircraft operating on the movement area and in the vicinity of an airport.
(See MOVEMENT AREA.)
(See TOWER.)
(See ICAO term AERODROME CONTROL SERVICE.)

AIRPORT TRAFFIC CONTROL TOWER-
(See TOWER.)

AIR ROUTE SURVEILLANCE RADAR- Air route traffic control center (ARTCC) radar used primarily to detect and display an aircraft's position while en route between terminal areas. The ARSR enables controllers to provide radar air traffic control service when aircraft are within the ARSR coverage. In some instances, ARSR may enable an ARTCC to provide terminal radar services similar to but usually more limited than those provided by a radar approach control.

AIR ROUTE TRAFFIC CONTROL CENTER- 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 controller workload permit, certain advisory/assistance services may be provided to VFR aircraft.
(See EN ROUTE AIR TRAFFIC CONTROL SERVICES.)
(See NAS STAGE A.)
(Refer to AIM.)

AIRSPACE CONFLICT- Predicted conflict of an aircraft and active Special Activity Airspace (SAA).

AIRSPACE HIERARCHY- Within the airspace classes, there is a hierarchy and, in the event of an overlap of airspace: Class A preempts Class B, Class B preempts Class C, Class C preempts Class D, Class D preempts Class E, and Class E preempts Class G.

AIRSPEED- The speed of an aircraft relative to its surrounding air mass. The unqualified term "airspeed" means one of the following:

a. Indicated Airspeed- The speed shown on the aircraft airspeed indicator. This is the speed used in pilot/controller communications under the general term "airspeed."
(Refer to 14 CFR Part 1.)

b. True Airspeed- The airspeed of an aircraft relative to undisturbed air. Used primarily in flight planning and en route portion of flight. When used in pilot/controller communications, it is referred to as "true airspeed" and not shortened to "airspeed."

AIRSTART- The starting of an aircraft engine while the aircraft is airborne, preceded by engine shutdown during training flights or by actual engine failure.

AIR TAXI- Used to describe a helicopter/VTOL aircraft movement conducted above the surface but normally not above 100 feet AGL. The aircraft may proceed either via hover taxi or flight at speeds more than 20 knots. The pilot is solely responsible for selecting a safe airspeed/altitude for the operation being conducted.
(See HOVER TAXI.)
(Refer to AIM.)

AIR TRAFFIC- Aircraft operating in the air or on an airport surface, exclusive of loading ramps and parking areas.
(See ICAO term AIR TRAFFIC.)

AIR TRAFFIC [ICAO]- All aircraft in flight or operating on the maneuvering area of an aerodrome.

AIR TRAFFIC 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. The pilot-in-command of an aircraft may not deviate from the provisions of a visual flight rules (VFR) or instrument flight rules (IFR) air traffic clearance except in an emergency or unless an amended clearance has been obtained. Additionally, the pilot may request a different clearance from that which has been issued by air traffic control (ATC) if information available to the pilot makes another course of action more practicable or if aircraft equipment limitations or company procedures forbid compliance with the clearance issued. Pilots may also request clarification or amendment, as appropriate, any time a clearance is not fully understood, or considered unacceptable because of safety of flight. Controllers should, in such instances and to the extent of operational practicality and safety, honor the pilot's request. 14 CFR Part 91.3(a) states: "The pilot in command of an aircraft is directly responsible for, and is the final authority as to, the operation of that aircraft." THE PILOT IS RESPONSIBLE TO REQUEST AN AMENDED CLEARANCE if ATC issues a clearance that would cause a pilot to deviate from a rule or regulation, or in the pilot's opinion, would place the aircraft in jeopardy.

(See ATC INSTRUCTIONS.)

(See ICAO term AIR TRAFFIC CONTROL CLEARANCE.)

AIR TRAFFIC CONTROL- A service operated by appropriate authority to promote the safe, orderly and expeditious flow of air traffic.

(See ICAO term AIR TRAFFIC CONTROL SERVICE.)

AIR TRAFFIC CONTROL CLEARANCE [ICAO]- Authorization for an aircraft to proceed under conditions specified by an air traffic control unit.

Note 1: For convenience, the term air traffic control clearance is frequently abbreviated to clearance when used in appropriate contexts.

Note 2: 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 control clearance relates.

AIR TRAFFIC CONTROL SERVICE-

(See AIR TRAFFIC CONTROL.)

AIR TRAFFIC CONTROL SERVICE [ICAO]- A service provided for the purpose of:

a. Preventing collisions:

1. Between aircraft; and

2. On the maneuvering area between aircraft and obstructions.

b. Expediting and maintaining an orderly flow of air traffic.

AIR TRAFFIC CONTROL SPECIALIST- A person authorized to provide air traffic control service.

(See AIR TRAFFIC CONTROL.)

(See FLIGHT SERVICE STATION.)

(See ICAO term CONTROLLER.)

AIR TRAFFIC CONTROL SYSTEM COMMAND CENTER- An Air Traffic Tactical Operations facility consisting of four operational units.

a. Central Flow Control Function (CFCF). Responsible for coordination and approval of all major intercenter flow control restrictions on a system basis in order to obtain maximum utilization of the airspace.

(See QUOTA FLOW CONTROL.)

b. Central Altitude Reservation Function (CARF). Responsible for coordinating, planning, and approving special user requirements under the Altitude Reservation (ALTRV) concept.

(See ALTITUDE RESERVATION.)

c. Airport Reservation Office (ARO). Responsible for approving IFR flights at designated high density traffic airports (John F. Kennedy, LaGuardia, O'Hare, and Ronald Reagan Washington National) during specified hours.

(Refer to 14 CFR Part 93.)

(Refer to AIRPORT/FACILITY DIRECTORY.)

d. ATC Contingency Command Post. A facility which enables the FAA to manage the ATC system when significant portions of the system's capabilities have been lost or are threatened.

AIR TRAFFIC SERVICE- A generic term meaning:

a. Flight Information Service.

b. Alerting Service.

c. Air Traffic Advisory Service.

d. Air Traffic Control Service:

1. Area Control Service,

2. Approach Control Service, or

3. Airport Control Service.

AIRWAY- A Class E airspace area established in the form of a corridor, the centerline of which is defined by radio navigational aids.
(See FEDERAL AIRWAYS.)
(See ICAO term AIRWAY.)
(Refer to 14 CFR Part 71.)
(Refer to AIM.)

AIRWAY [ICAO]- A control area or portion thereof established in the form of corridor equipped with radio navigational aids.

AIRWAY BEACON- Used to mark airway segments in remote mountain areas. The light flashes Morse Code to identify the beacon site.
(Refer to AIM.)

AIT-
(See AUTOMATED INFORMATION TRANSFER.)

ALERFA (Alert Phase) [ICAO]- A situation wherein apprehension exists as to the safety of an aircraft and its occupants.

ALERT- A notification to a position that there is an aircraft-to-aircraft or aircraft-to-airspace conflict, as detected by Automated Problem Detection (APD).

ALERT AREA-
(See SPECIAL USE AIRSPACE.)

ALERT NOTICE- A request originated by a flight service station (FSS) or an air route traffic control center (ARTCC) for an extensive communication search for overdue, unreported, or missing aircraft.

ALERTING SERVICE- A service provided to notify appropriate organizations regarding aircraft in need of search and rescue aid and assist such organizations as required.

ALNOT- (See ALERT NOTICE.)

ALONG TRACK DISTANCE (LTD)- The distance measured from a point-in-space by systems using area navigation reference capabilities that are not subject to slant range errors.

ALPHANUMERIC DISPLAY- Letters and numerals used to show identification, altitude, beacon code, and other information concerning a target on a radar display.
(See AUTOMATED RADAR TERMINAL SYSTEMS.)
(See NAS STAGE A.)

ALTERNATE AERODROME [ICAO]- An aerodrome to which an aircraft may proceed when it becomes either impossible or inadvisable to proceed to or to land at the aerodrome of intended landing.
Note: The aerodrome from which a flight departs may also be an en-route or a destination alternate aerodrome for the flight.

ALTERNATE AIRPORT- An airport at which an aircraft may land if a landing at the intended airport becomes inadvisable.
(See ICAO term ALTERNATE AERODROME.)

ALTIMETER SETTING- The barometric pressure reading used to adjust a pressure altimeter for variations in existing atmospheric pressure or to the standard altimeter setting (29.92).
(Refer to 14 CFR Part 91.)
(Refer to AIM.)

ALTITUDE- The height of a level, point, or object measured in feet Above Ground Level (AGL) or from Mean Sea Level (MSL).
(See FLIGHT LEVEL.)

a. MSL Altitude- Altitude expressed in feet measured from mean sea level.

b. AGL Altitude- Altitude expressed in feet measured above ground level.

c. Indicated Altitude- The altitude as shown by an altimeter. On a pressure or barometric altimeter it is altitude as shown uncorrected for instrument error and uncompensated for variation from standard atmospheric conditions.
(See ICAO term ALTITUDE.)

ALTITUDE [ICAO]- The vertical distance of a level, a point or an object considered as a point, measured from mean sea level (MSL).

ALTITUDE READOUT- An aircraft's altitude, transmitted via the Mode C transponder feature, that is visually displayed in 100-foot increments on a radar scope having readout capability.
(See ALPHANUMERIC DISPLAY.)
(See AUTOMATED RADAR TERMINAL SYSTEMS.)
(See NAS STAGE A.)
(Refer to AIM.)

ALTITUDE RESERVATION- Airspace utilization under prescribed conditions normally employed for the mass movement of aircraft or other special user requirements which cannot otherwise be

accomplished. ALTRV's are approved by the appropriate FAA facility.

(See AIR TRAFFIC CONTROL SYSTEM COMMAND CENTER.)

ALTITUDE RESTRICTION- An altitude or altitudes, stated in the order flown, which are to be maintained until reaching a specific point or time. Altitude restrictions may be issued by ATC due to traffic, terrain, or other airspace considerations.

ALTITUDE RESTRICTIONS ARE CANCELED- Adherence to previously imposed altitude restrictions is no longer required during a climb or descent.

ALTRV-

(See ALTITUDE RESERVATION.)

AMASS-

(See AIRPORT MOVEMENT AREA SAFETY SYSTEM.)

AMVER-

(See AUTOMATED MUTUAL-ASSISTANCE VESSEL RESCUE SYSTEM.)

APB-

(See AUTOMATED PROBLEM DETECTION BOUNDARY.)

APD-

(See AUTOMATED PROBLEM DETECTION.)

APDIA-

(See AUTOMATED PROBLEM DETECTION INHIBITED AREA.)

APPROACH CLEARANCE- Authorization by ATC for a pilot to conduct an instrument approach. The type of instrument approach for which a clearance and other pertinent information is provided in the approach clearance when required.

(See CLEARED APPROACH.)

(See INSTRUMENT APPROACH PROCEDURE.)

(Refer to AIM.)

(Refer to 14 CFR Part 91.)

APPROACH CONTROL FACILITY- A terminal ATC facility that provides approach control service in a terminal area.

(See APPROACH CONTROL SERVICE.)

(See RADAR APPROACH CONTROL FACILITY.)

APPROACH CONTROL SERVICE- Air traffic control service provided by an approach control facility for arriving and departing VFR/IFR aircraft and, on occasion, en route aircraft. At some airports not served by an approach control facility, the ARTCC provides limited approach control service.

(See ICAO term APPROACH CONTROL SERVICE.)

(Refer to AIM.)

APPROACH CONTROL SERVICE [ICAO]- Air traffic control service for arriving or departing controlled flights.

APPROACH GATE- An imaginary point used within ATC as a basis for vectoring aircraft to the final approach course. The gate will be established along the final approach course 1 mile from the final approach fix on the side away from the airport and will be no closer than 5 miles from the landing threshold.

APPROACH LIGHT SYSTEM-

(See AIRPORT LIGHTING.)

APPROACH SEQUENCE- The order in which aircraft are positioned while on approach or awaiting approach clearance.

(See LANDING SEQUENCE.)

(See ICAO term APPROACH SEQUENCE.)

APPROACH SEQUENCE [ICAO]- The order in which two or more aircraft are cleared to approach to land at the aerodrome.

APPROACH SPEED- The recommended speed contained in aircraft manuals used by pilots when making an approach to landing. This speed will vary for different segments of an approach as well as for aircraft weight and configuration.

APPROPRIATE ATS AUTHORITY [ICAO]- The relevant authority designated by the State responsible for providing air traffic services in the airspace concerned. In the United States, the "appropriate ATS authority" is the Program Director for Air Traffic Planning and Procedures, ATP-1.

APPROPRIATE AUTHORITY-

a. Regarding flight over the high seas: the relevant authority is the State of Registry.

b. Regarding flight over other than the high seas: the relevant authority is the State having sovereignty over the territory being overflown.

APPROPRIATE OBSTACLE CLEARANCE MINIMUM ALTITUDE- Any of the following:

(See Minimum En Route Altitude- MEA.)

(See Minimum IFR Altitude- MIA.)

(See Minimum Obstruction Clearance Altitude- MOCA.)

(See Minimum Vectoring Altitude- MVA.)

APPROPRIATE TERRAIN CLEARANCE MINIMUM ALTITUDE- Any of the following:

(See Minimum En Route Altitude- MEA.)

(See Minimum IFR Altitude- MIA.)

(See Minimum Obstruction Clearance Altitude- MOCA.)

(See Minimum Vectoring Altitude- MVA.)

APRON- A defined area on an airport or heliport intended to accommodate aircraft for purposes of loading or unloading passengers or cargo, refueling, parking, or maintenance. With regard to seaplanes, a ramp is used for access to the apron from the water.

(See ICAO term APRON.)

APRON [ICAO]- A defined area, on a land aerodrome, intended to accommodate aircraft for purposes of loading or unloading passengers, mail or cargo, refueling, parking or maintenance.

ARC- The track over the ground of an aircraft flying at a constant distance from a navigational aid by reference to distance measuring equipment (DME).

AREA CONTROL CENTER [ICAO]- An air traffic control facility primarily responsible for ATC services being provided IFR aircraft during the en route phase of flight. The U.S. equivalent facility is an air route traffic control center (ARTCC).

AREA NAVIGATION- Area Navigation (RNAV) provides enhanced navigational capability to the pilot. RNAV equipment can compute the airplane position, actual track and ground speed and then provide meaningful information relative to a route of flight selected by the pilot. Typical equipment will provide the pilot with distance, time, bearing and crosstrack error relative to the selected "TO" or "active" waypoint and the selected route. Several distinctly different navigational systems with different navigational performance characteristics are capable of providing area navigational functions. Present day RNAV includes INS, LORAN, VOR/DME, and GPS systems. Modern multi-sensor systems can integrate one or more of the above systems to provide a more accurate and reliable navigational system. Due to the different levels of performance, area navigational capabilities can satisfy different levels of required navigational performance (RNP). The major types of equipment are:

a. VORTAC referenced or Course Line Computer (CLC) systems, which account for the greatest number of RNAV units in use. To function, the CLC must be within the service range of a VORTAC.

b. OMEGA/VLF, although two separate systems, can be considered as one operationally. A long-range navigation system based upon Very Low Frequency radio signals transmitted from a total of 17 stations worldwide.

c. Inertial (INS) systems, which are totally self-contained and require no information from external references. They provide aircraft position and navigation information in response to signals resulting from inertial effects on components within the system.

d. MLS Area Navigation (MLS/RNAV), which provides area navigation with reference to an MLS ground facility.

e. LORAN-C is a long-range radio navigation system that uses ground waves transmitted at low frequency to provide user position information at ranges of up to 600 to 1,200 nautical miles at both en route and approach altitudes. The usable signal coverage areas are determined by the signal-to-noise ratio, the envelope-to-cycle difference, and the geometric relationship between the positions of the user and the transmitting stations.

f. GPS is a space-base radio positioning, navigation, and time-transfer system. The system provides highly accurate position and velocity information, and precise time, on a continuous global basis, to an unlimited number of properly equipped users. The system is unaffected by weather, and provides a worldwide common grid reference system.

(See ICAO term AREA NAVIGATION.)

AREA NAVIGATION [ICAO]- A method of navigation which permits aircraft operation on any desired flight path within the coverage of station-referenced navigation aids or within the limits of the capability of self-contained aids, or a combination of these.

AREA NAVIGATION (RNAV) APPROACH CONFIGURATION:

a. STANDARD T- An RNAV approach whose design allows direct flight to any one of three initial approach fixes (IAF) and eliminates the need for

procedure turns. The standard design is to align the procedure on the extended centerline with the missed approach point (MAP) at the runway threshold, the final approach fix (FAF), and the initial approach/intermediate fix (IAF/IF). The other two IAF's will be established perpendicular to the IF.

b. MODIFIED T- An RNAV approach design for single or multiple runways where terrain or operational constraints do not allow for the standard T. The "T" may be modified by increasing or decreasing the angle from the corner IAF(s) to the IF or by eliminating one or both corner IAF's.

c. STANDARD I- An RNAV approach design for a single runway with both corner IAF's eliminated. Course reversal or radar vectoring may be required at busy terminals with multiple runways.

d. TERMINAL ARRIVAL AREA (TAA)- The TAA is controlled airspace established in conjunction with the Standard or Modified T and I RNAV approach configurations. In the standard TAA, there are three areas: straight-in, left base, and right base. The arc boundaries of the three areas of the TAA are published portions of the approach and allow aircraft to transition from the en route structure direct to the nearest IAF. TAA's will also eliminate or reduce feeder routes, departure extensions, and procedure turns or course reversal.

1. STRAIGHT-IN AREA- A 30NM arc centered on the IF bounded by a straight line extending through the IF perpendicular to the intermediate course.

2. LEFT BASE AREA- A 30NM arc centered on the right corner IAF. The area shares a boundary with the straight-in area except that it extends out for 30NM from the IAF and is bounded on the other side by a line extending from the IF through the FAF to the arc.

3. RIGHT BASE AREA- A 30NM arc centered on the left corner IAF. The area shares a boundary with the straight-in area except that it extends out for 30NM from the IAF and is bounded on the other side by a line extending from the IF through the FAF to the arc.

ARINC- An acronym for Aeronautical Radio, Inc., a corporation largely owned by a group of airlines. ARINC is licensed by the FCC as an aeronautical station and contracted by the FAA to provide communications support for air traffic control and meteorological services in portions of international airspace.

ARMY AVIATION FLIGHT INFORMATION BULLETIN- A bulletin that provides air operation data covering Army, National Guard, and Army Reserve aviation activities.

ARO-
(See AIRPORT RESERVATION OFFICE.)

ARRESTING SYSTEM- A safety device consisting of two major components, namely, engaging or catching devices and energy absorption devices for the purpose of arresting both tailhook and/or nontailhook-equipped aircraft. It is used to prevent aircraft from overrunning runways when the aircraft cannot be stopped after landing or during aborted takeoff. Arresting systems have various names; e.g., arresting gear, hook device, wire barrier cable.
(See ABORT.)
(Refer to AIM.)

ARRIVAL AIRCRAFT INTERVAL- An internally generated program in hundredths of minutes based upon the AAR. AAI is the desired optimum interval between successive arrival aircraft over the vertex.

ARRIVAL CENTER- The ARTCC having jurisdiction for the impacted airport.

ARRIVAL DELAY- A parameter which specifies a period of time in which no aircraft will be metered for arrival at the specified airport.

ARRIVAL SECTOR- An operational control sector containing one or more meter fixes.

ARRIVAL SECTOR ADVISORY LIST- An ordered list of data on arrivals displayed at the PVD/MDM of the sector which controls the meter fix.

ARRIVAL SEQUENCING PROGRAM- The automated program designed to assist in sequencing aircraft destined for the same airport.

ARRIVAL STREAM FILTER (ASF)- An on/off filter that allows the conflict notification function to be inhibited for arrival streams into single or multiple airports to prevent nuisance alerts.

ARRIVAL TIME- The time an aircraft touches down on arrival.

ARSR-
(See AIR ROUTE SURVEILLANCE RADAR.)

ARTCC-
(See AIR ROUTE TRAFFIC CONTROL CENTER.)

ARTS-
(See AUTOMATED RADAR TERMINAL SYSTEMS.)

ASDA-
(See ACCELERATE-STOP DISTANCE AVAILABLE.)

ASDA [ICAO]-
(See ICAO Term ACCELERATE-STOP DISTANCE AVAILABLE.)

ASDE-
(See AIRPORT SURFACE DETECTION EQUIPMENT.)

ASF-
(See ARRIVAL STREAM FILTER.)

ASLAR-
(See AIRCRAFT SURGE LAUNCH AND RECOVERY.)

ASP-
(See ARRIVAL SEQUENCING PROGRAM.)

ASR-
(See AIRPORT SURVEILLANCE RADAR.)

ASR APPROACH-
(See SURVEILLANCE APPROACH.)

ATC-
(See AIR TRAFFIC CONTROL.)

ATCAA-
(See ATC ASSIGNED AIRSPACE.)

ATC ADVISES- Used to prefix a message of noncontrol information when it is relayed to an aircraft by other than an air traffic controller.
(See ADVISORY.)

ATC ASSIGNED AIRSPACE- 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.
(See SPECIAL USE AIRSPACE.)

ATC CLEARANCE-
(See AIR TRAFFIC CLEARANCE.)

ATC CLEARS- Used to prefix an ATC clearance when it is relayed to an aircraft by other than an air traffic controller.

ATC INSTRUCTIONS- Directives issued by air traffic control for the purpose of requiring a pilot to take specific actions; e.g., "Turn left heading two five zero," "Go around," "Clear the runway."
(Refer to 14 CFR Part 91.)

ATC PREFERRED ROUTE NOTIFICATION- URET CCLD notification to the appropriate controller of the need to determine if an ATC preferred route needs to be applied, based on destination airport.
(See ROUTE ACTION NOTIFICATION.)
(See USER REQUEST EVALUATION TOOL CORE CAPABILITY LIMITED DEPLOYMENT.)

ATC PREFERRED ROUTES- Preferred routes that are not automatically applied by Host.

ATCRBS-
(See RADAR.)

ATC REQUESTS- Used to prefix an ATC request when it is relayed to an aircraft by other than an air traffic controller.

ATCSCC-
(See AIR TRAFFIC CONTROL SYSTEM COMMAND CENTER.)

ATCSCC DELAY FACTOR- The amount of delay calculated to be assigned prior to departure.

ATCT-
(See TOWER.)

ATIS-
(See AUTOMATIC TERMINAL INFORMATION SERVICE.)

ATIS [ICAO]-
(See ICAO Term AUTOMATIC TERMINAL INFORMATION SERVICE.)

ATS Route [ICAO]- A specified route designed for channelling the flow of traffic as necessary for the provision of air traffic services.
Note: The term "ATS Route" is used to mean variously, airway, advisory route, controlled or uncontrolled route, arrival or departure, etc.

ATTS-
(See AUTOMATED TERMINAL TRACKING SYSTEM.)

AUTOLAND APPROACH- An autoland approach is a precision instrument approach to touchdown and,

in some cases, through the landing rollout. An autoland approach is performed by the aircraft autopilot which is receiving position information and/or steering commands from onboard navigation equipment.

Note: Autoland and coupled approaches are flown in VFR and IFR. It is common for carriers to require their crews to fly coupled approaches and autoland approaches (if certified) when the weather conditions are less than approximately 4,000 RVR.

(See COUPLED APPROACH.)

AUTOMATED INFORMATION TRANSFER- A precoordinated process, specifically defined in facility directives, during which a transfer of altitude control and/or radar identification is accomplished without verbal coordination between controllers using information communicated in a full data block.

AUTOMATED MUTUAL-ASSISTANCE VESSEL RESCUE SYSTEM- A facility which can deliver, in a matter of minutes, a surface picture (SURPIC) of vessels in the area of a potential or actual search and rescue incident, including their predicted positions and their characteristics.

(See FAAO 7110.65, Para 10-6-4, INFLIGHT CONTINGENCIES.)

AUTOMATED PROBLEM DETECTION (APD)- An Automation Processing capability that compares trajectories in order to predict conflicts.

AUTOMATED PROBLEM DETECTION BOUNDARY (APB)- The adapted distance beyond a facilities boundary defining the airspace within which URET CCLD performs conflict detection.

(See USER REQUEST EVALUATION TOOL CORE CAPABILITY LIMITED DEPLOYMENT.)

AUTOMATED PROBLEM DETECTION INHIBITED AREA (APDIA)- Airspace surrounding a terminal area within which APD is inhibited for all flights within that airspace.

AUTOMATED RADAR TERMINAL SYSTEMS- The generic term for the ultimate in functional capability afforded by several automation systems. Each differs in functional capabilities and equipment. ARTS plus a suffix roman numeral denotes a specific system. A following letter indicates a major modification to that system. In general, an ARTS displays for the terminal controller aircraft identification, flight plan data, other flight associated information; e.g., altitude, speed, and aircraft position symbols in conjunction with his/her radar presentation. Normal radar co-exists with the alphanumeric display. In addition to enhancing visualization of the air traffic situation, ARTS facilitate intra/inter-facility transfer and coordination of flight information. These capabilities are enabled by specially designed computers and subsystems tailored to the radar and communications equipments and operational requirements of each automated facility. Modular design permits adoption of improvements in computer software and electronic technologies as they become available while retaining the characteristics unique to each system.

a. ARTS II. A programmable nontracking, computer-aided display subsystem capable of modular expansion. ARTS II systems provide a level of automated air traffic control capability at terminals having low to medium activity. Flight identification and altitude may be associated with the display of secondary radar targets. The system has the capability of communicating with ARTCC's and other ARTS II, IIA, III, and IIIA facilities.

b. ARTS IIA. A programmable radar-tracking computer subsystem capable of modular expansion. The ARTS IIA detects, tracks, and predicts secondary radar targets. The targets are displayed by means of computer-generated symbols, ground speed, and flight plan data. Although it does not track primary radar targets, they are displayed coincident with the secondary radar as well as the symbols and alphanumerics. The system has the capability of communicating with ARTCC's and other ARTS II, IIA, III, and IIIA facilities.

c. ARTS III. The Beacon Tracking Level of the modular programmable automated radar terminal system in use at medium to high activity terminals. ARTS III detects, tracks, and predicts secondary radar-derived aircraft targets. These are displayed by means of computer-generated symbols and alphanumeric characters depicting flight identification, aircraft altitude, ground speed, and flight plan data. Although it does not track primary targets, they are displayed coincident with the secondary radar as well as the symbols and alphanumerics. The system has the capability of communicating with ARTCC's and other ARTS III facilities.

d. ARTS IIIA. The Radar Tracking and Beacon Tracking Level (RT&BTL) of the modular, programmable automated radar terminal system. ARTS IIIA detects, tracks, and predicts primary as well as

secondary radar-derived aircraft targets. This more sophisticated computer-driven system upgrades the existing ARTS III system by providing improved tracking, continuous data recording, and fail-soft capabilities.

AUTOMATED TERMINAL TRACKING SYSTEM (ATTS)- ATTS is used to identify the numerous tracking systems including ARTS IIA, ARTS IIE, ARTS IIIA, ARTS IIIE, STARS, and M-EARTS.

AUTOMATED UNICOM- Provides completely automated weather, radio check capability and airport advisory information on an Automated UNICOM system. These systems offer a variety of features, typically selectable by microphone clicks, on the UNICOM frequency. Availability will be published in the Airport/Facility Directory and approach charts.

AUTOMATIC ALTITUDE REPORT-
(See ALTITUDE READOUT.)

AUTOMATIC ALTITUDE REPORTING- That function of a transponder which responds to Mode C interrogations by transmitting the aircraft's altitude in 100-foot increments.

AUTOMATIC CARRIER LANDING SYSTEM- U.S. Navy final approach equipment consisting of precision tracking radar coupled to a computer data link to provide continuous information to the aircraft, monitoring capability to the pilot, and a backup approach system.

AUTOMATIC DIRECTION FINDER- An aircraft radio navigation system which senses and indicates the direction to a L/MF nondirectional radio beacon (NDB) ground transmitter. Direction is indicated to the pilot as a magnetic bearing or as a relative bearing to the longitudinal axis of the aircraft depending on the type of indicator installed in the aircraft. In certain applications, such as military, ADF operations may be based on airborne and ground transmitters in the VHF/UHF frequency spectrum.
(See BEARING.)
(See NONDIRECTIONAL BEACON.)

AUTOMATIC TERMINAL INFORMATION SERVICE- The continuous broadcast of recorded non-control information in selected terminal areas. Its purpose is to improve controller effectiveness and to relieve frequency congestion by automating the repetitive transmission of essential but routine information; e.g., "Los Angeles information Alfa. One three zero zero Coordinated Universal Time. Weather, measured ceiling two thousand overcast, visibility three, haze, smoke, temperature seven one, dew point five seven, wind two five zero at five, altimeter two niner niner six. I-L-S Runway Two Five Left approach in use, Runway Two Five Right closed, advise you have Alfa."
(See ICAO term AUTOMATIC TERMINAL INFORMATION SERVICE.)
(Refer to AIM.)

AUTOMATIC TERMINAL INFORMATION SERVICE [ICAO]- The provision of current, routine information to arriving and departing aircraft by means of continuous and repetitive broadcasts throughout the day or a specified portion of the day.

AUTOROTATION- A rotorcraft flight condition in which the lifting rotor is driven entirely by action of the air when the rotorcraft is in motion.

a. Autorotative Landing/Touchdown Autorotation. Used by a pilot to indicate that the landing will be made without applying power to the rotor.

b. Low Level Autorotation. Commences at an altitude well below the traffic pattern, usually below 100 feet AGL and is used primarily for tactical military training.

c. 180 degrees Autorotation. Initiated from a downwind heading and is commenced well inside the normal traffic pattern. "Go around" may not be possible during the latter part of this maneuver.

AVAILABLE LANDING DISTANCE (ALD)- The portion of a runway available for landing and roll-out for aircraft cleared for LAHSO. This distance is measured from the landing threshold to the hold-short point.

AVIATION WEATHER SERVICE- A service provided by the National Weather Service (NWS) and FAA which collects and disseminates pertinent weather information for pilots, aircraft operators, and ATC. Available aviation weather reports and forecasts are displayed at each NWS office and FAA FSS.
(See EN ROUTE FLIGHT ADVISORY SERVICE.)
(See TRANSCRIBED WEATHER BROADCAST.)
(See WEATHER ADVISORY.)
(Refer to AIM.)

AWW-
(See SEVERE WEATHER FORECAST ALERTS.)

AZIMUTH (MLS)- A magnetic bearing extending from an MLS navigation facility.

Note: Azimuth bearings are described as magnetic and are referred to as "azimuth" in radio telephone communications.

B

BACK-TAXI- A term used by air traffic controllers to taxi an aircraft on the runway opposite to the traffic flow. The aircraft may be instructed to back-taxi to the beginning of the runway or at some point before reaching the runway end for the purpose of departure or to exit the runway.

BASE LEG-
(See TRAFFIC PATTERN.)

BEACON-
(See AERONAUTICAL BEACON.)
(See AIRPORT ROTATING BEACON.)
(See AIRWAY BEACON.)
(See MARKER BEACON.)
(See NONDIRECTIONAL BEACON.)
(See RADAR.)

BEARING- The horizontal direction to or from any point, usually measured clockwise from true north, magnetic north, or some other reference point through 360 degrees.
(See NONDIRECTIONAL BEACON.)

BELOW MINIMUMS- Weather conditions below the minimums prescribed by regulation for the particular action involved; e.g., landing minimums, takeoff minimums.

BLAST FENCE- A barrier that is used to divert or dissipate jet or propeller blast.

BLIND SPEED- The rate of departure or closing of a target relative to the radar antenna at which cancellation of the primary radar target by moving target indicator (MTI) circuits in the radar equipment causes a reduction or complete loss of signal.
(See ICAO term BLIND VELOCITY.)

BLIND SPOT- An area from which radio transmissions and/or radar echoes cannot be received. The term is also used to describe portions of the airport not visible from the control tower.

BLIND TRANSMISSION-
(See TRANSMITTING IN THE BLIND.)

BLIND VELOCITY [ICAO]- The radial velocity of a moving target such that the target is not seen on primary radars fitted with certain forms of fixed echo suppression.

BLIND ZONE-
(See BLIND SPOT.)

BLOCKED- Phraseology used to indicate that a radio transmission has been distorted or interrupted due to multiple simultaneous radio transmissions.

BOUNDARY LIGHTS-
(See AIRPORT LIGHTING.)

BRAKING ACTION (GOOD, FAIR, POOR, OR NIL)- A report of conditions on the airport movement area providing a pilot with a degree/quality of braking that he/she might expect. Braking action is reported in terms of good, fair, poor, or nil.
(See RUNWAY CONDITION READING.)

BRAKING ACTION ADVISORIES- When tower controllers have received runway braking action reports which include the terms "poor" or "nil," or whenever weather conditions are conducive to deteriorating or rapidly changing runway braking conditions, the tower will include on the ATIS broadcast the statement, "BRAKING ACTION ADVISORIES ARE IN EFFECT." During the time Braking Action Advisories are in effect, ATC will issue the latest braking action report for the runway in use to each arriving and departing aircraft. Pilots should be prepared for deteriorating braking conditions and should request current runway condition information if not volunteered by controllers. Pilots should also be prepared to provide a descriptive runway condition report to controllers after landing.

BREAKOUT- A technique to direct aircraft out of the approach stream. In the context of close parallel operations, a breakout is used to direct threatened aircraft away from a deviating aircraft.

BROADCAST- Transmission of information for which an acknowledgement is not expected.
(See ICAO term BROADCAST.)

BROADCAST [ICAO]- A transmission of information relating to air navigation that is not addressed to a specific station or stations.

C

CALCULATED LANDING TIME- A term that may be used in place of tentative or actual calculated landing time, whichever applies.

CALL FOR RELEASE- Wherein the overlying ARTCC requires a terminal facility to initiate verbal coordination to secure ARTCC approval for release of a departure into the en route environment.

CALL UP- Initial voice contact between a facility and an aircraft, using the identification of the unit being called and the unit initiating the call.
(Refer to AIM.)

CANADIAN MINIMUM NAVIGATION PERFORMANCE SPECIFICATION AIRSPACE- That portion of Canadian domestic airspace within which MNPS separation may be applied.

CARDINAL ALTITUDES- "Odd" or "Even" thousand-foot altitudes or flight levels; e.g., 5,000, 6,000, 7,000, FL 250, FL 260, FL 270.
(See ALTITUDE.)
(See FLIGHT LEVEL.)

CARDINAL FLIGHT LEVELS-
(See CARDINAL ALTITUDES.)

CAT-
(See CLEAR-AIR TURBULENCE.)

CDT PROGRAMS-
(See CONTROLLED DEPARTURE TIME PROGRAMS.)

CEILING- The heights above the earth's surface of the lowest layer of clouds or obscuring phenomena that is reported as "broken," "overcast," or "obscuration," and not classified as "thin" or "partial."
(See ICAO term CEILING.)

CEILING [ICAO]- The height above the ground or water of the base of the lowest layer of cloud below 6,000 meters (20,000 feet) covering more than half the sky.

CENRAP-
(See CENTER RADAR ARTS PRESENTATION/PROCESSING.)

CENRAP-PLUS-
(See CENTER RADAR ARTS PRESENTATION/PROCESSING-PLUS.)

CENTER-
(See AIR ROUTE TRAFFIC CONTROL CENTER.)

CENTER'S AREA- The specified airspace within which an air route traffic control center (ARTCC) provides air traffic control and advisory service.
(See AIR ROUTE TRAFFIC CONTROL CENTER.)
(Refer to AIM.)

CENTER RADAR ARTS PRESENTATION/PROCESSING- A computer program developed to provide a back-up system for airport surveillance radar in the event of a failure or malfunction. The program uses air route traffic control center radar for the processing and presentation of data on the ARTS IIA or IIIA displays.

CENTER RADAR ARTS PRESENTATION/PROCESSING-PLUS- A computer program developed to provide a back-up system for airport surveillance radar in the event of a terminal secondary radar system failure. The program uses a combination of Air Route Traffic Control Center Radar and terminal airport surveillance radar primary targets displayed simultaneously for the processing and presentation of data on the ARTS IIA or IIIA displays.

CENTER WEATHER ADVISORY- An unscheduled weather advisory issued by Center Weather Service Unit meteorologists for ATC use to alert pilots of existing or anticipated adverse weather conditions within the next 2 hours. A CWA may modify or redefine a SIGMET.
(See AWW.)
(See AIRMET.)
(See CONVECTIVE SIGMET.)
(See SIGMET.)
(Refer to AIM.)

CENTRAL EAST PACIFIC- An organized route system between the U.S. West Coast and Hawaii.

CEP-
(See CENTRAL EAST PACIFIC.)

CERAP-
(See COMBINED CENTER-RAPCON.)

CERTIFIED TOWER RADAR DISPLAY (CTRD)- A radar display that provides a presentation of

primary, beacon radar videos, and alphanumeric data from an Air Traffic Control radar system, which is certified by the FAA to provide radar services. Examples include Digital Bright Radar Indicator Tower Equipment (DBRITE), Tower Display Workstation (TDW) and BRITE.

CFR-
(See CALL FOR RELEASE.)

CHAFF- Thin, narrow metallic reflectors of various lengths and frequency responses, used to reflect radar energy. These reflectors when dropped from aircraft and allowed to drift downward result in large targets on the radar display.

CHARTED VFR FLYWAYS- Charted VFR Flyways are flight paths recommended for use to bypass areas heavily traversed by large turbine-powered aircraft. Pilot compliance with recommended flyways and associated altitudes is strictly voluntary. VFR Flyway Planning charts are published on the back of existing VFR Terminal Area charts.

CHARTED VISUAL FLIGHT PROCEDURE APPROACH- An approach conducted while operating on an instrument flight rules (IFR) flight plan which authorizes the pilot of an aircraft to proceed visually and clear of clouds to the airport via visual landmarks and other information depicted on a charted visual flight procedure. This approach must be authorized and under the control of the appropriate air traffic control facility. Weather minimums required are depicted on the chart.

CHASE- An aircraft flown in proximity to another aircraft normally to observe its performance during training or testing.

CHASE AIRCRAFT-
(See CHASE.)

CIRCLE-TO-LAND MANEUVER- A maneuver initiated by the pilot to align the aircraft with a runway for landing when a straight-in landing from an instrument approach is not possible or is not desirable. At tower controlled airports, this maneuver is made only after ATC authorization has been obtained and the pilot has established required visual reference to the airport.
(See CIRCLE TO RUNWAY.)
(See LANDING MINIMUMS.)
(Refer to AIM.)

CIRCLE TO RUNWAY (RUNWAY NUMBER)- Used by ATC to inform the pilot that he/she must circle to land because the runway in use is other than the runway aligned with the instrument approach procedure. When the direction of the circling maneuver in relation to the airport/runway is required, the controller will state the direction (eight cardinal compass points) and specify a left or right downwind or base leg as appropriate; e.g., "Cleared VOR Runway Three Six Approach circle to Runway Two Two," or "Circle northwest of the airport for a right downwind to Runway Two Two."
(See CIRCLE-TO-LAND MANEUVER.)
(See LANDING MINIMUMS.)
(Refer to AIM.)

CIRCLING APPROACH-
(See CIRCLE-TO-LAND MANEUVER.)

CIRCLING MANEUVER-
(See CIRCLE-TO-LAND MANEUVER.)

CIRCLING MINIMA-
(See LANDING MINIMUMS.)

CLASS A AIRSPACE-
(See CONTROLLED AIRSPACE)

CLASS B AIRSPACE-
(See CONTROLLED AIRSPACE)

CLASS C AIRSPACE-
(See CONTROLLED AIRSPACE)

CLASS D AIRSPACE-
(See CONTROLLED AIRSPACE)

CLASS E AIRSPACE-
(See CONTROLLED AIRSPACE)

CLASS G AIRSPACE- That airspace not designated as Class A, B, C, D or E.

CLEAR-AIR TURBULENCE- Turbulence encountered in air where no clouds are present. This term is commonly applied to high-level turbulence associated with wind shear. CAT is often encountered in the vicinity of the jet stream.
(See WIND SHEAR.)
(See JET STREAM.)

CLEAR OF THE RUNWAY-

a. A taxiing aircraft, which is approaching a runway, is clear of the runway when all parts of the aircraft are held short of the applicable holding position marking.

b. A pilot or controller may consider an aircraft, which is exiting or crossing a runway, to be clear of the runway when all parts of the aircraft are beyond the runway edge and there is no ATC restriction to its continued movement beyond the applicable holding position marking.

c. Pilots and controllers shall exercise good judgement to ensure that adequate separation exists between all aircraft on runways and taxiways at airports with inadequate runway edge lines or holding position markings.

CLEARANCE-
(See AIR TRAFFIC CLEARANCE.)

CLEARANCE LIMIT- The fix, point, or location to which an aircraft is cleared when issued an air traffic clearance.
(See ICAO term CLEARANCE LIMIT.)

CLEARANCE LIMIT [ICAO]- The point of which an aircraft is granted an air traffic control clearance.

CLEARANCE VOID IF NOT OFF BY (TIME)- Used by ATC to advise an aircraft that the departure clearance is automatically canceled if takeoff is not made prior to a specified time. The pilot must obtain a new clearance or cancel his/her IFR flight plan if not off by the specified time.
(See ICAO term CLEARANCE VOID TIME.)

CLEARANCE VOID TIME [ICAO]- A time specified by an air traffic control unit at which a clearance ceases to be valid unless the aircraft concerned has already taken action to comply therewith.

CLEARED AS FILED- Means the aircraft is cleared to proceed in accordance with the route of flight filed in the flight plan. This clearance does not include the altitude, DP, or DP Transition.
(See REQUEST FULL ROUTE CLEARANCE.)
(Refer to AIM.)

CLEARED (Type of) APPROACH- ATC authorization for an aircraft to execute a specific instrument approach procedure to an airport; e.g., "Cleared ILS Runway Three Six Approach."
(See APPROACH CLEARANCE.)
(See INSTRUMENT APPROACH PROCEDURE.)
(Refer to 14 CFR Part 91.)
(Refer to AIM.)

CLEARED APPROACH- ATC authorization for an aircraft to execute any standard or special instrument approach procedure for that airport. Normally, an aircraft will be cleared for a specific instrument approach procedure.
(See CLEARED (Type of) APPROACH.)
(See INSTRUMENT APPROACH PROCEDURE.)
(Refer to 14 CFR Part 91.)
(Refer to AIM.)

CLEARED FOR TAKEOFF- ATC authorization for an aircraft to depart. It is predicated on known traffic and known physical airport conditions.

CLEARED FOR THE OPTION- ATC authorization for an aircraft to make a touch-and-go, low approach, missed approach, stop and go, or full stop landing at the discretion of the pilot. It is normally used in training so that an instructor can evaluate a student's performance under changing situations.
(See OPTION APPROACH.)
(Refer to AIM.)

CLEARED THROUGH- ATC authorization for an aircraft to make intermediate stops at specified airports without refiling a flight plan while en route to the clearance limit.

CLEARED TO LAND- ATC authorization for an aircraft to land. It is predicated on known traffic and known physical airport conditions.

CLEARWAY- An area beyond the takeoff runway under the control of airport authorities within which terrain or fixed obstacles may not extend above specified limits. These areas may be required for certain turbine-powered operations and the size and upward slope of the clearway will differ depending on when the aircraft was certificated.
(Refer to 14 CFR Part 1.)

CLIMBOUT- That portion of flight operation between takeoff and the initial cruising altitude.

CLIMB TO VFR- ATC authorization for an aircraft to climb to VFR conditions within Class B, C, D, and E surface areas when the only weather limitation is restricted visibility. The aircraft must remain clear of clouds while climbing to VFR.
(See SPECIAL VFR CONDITIONS.)
(Refer to AIM.)

CLOSE PARALLEL RUNWAYS- Two parallel runways whose extended centerlines are separated by less than 4,300 feet, having a Precision Runway Monitoring (PRM) system that permits simultaneous independent ILS approaches.

CLOSED RUNWAY- A runway that is unusable for aircraft operations. Only the airport management/ military operations office can close a runway.

CLOSED TRAFFIC- Successive operations involving takeoffs and landings or low approaches where the aircraft does not exit the traffic pattern.

CLOUD- A cloud is a visible accumulation of minute water droplets and/or ice particles in the atmosphere above the Earth's surface. Cloud differs from ground fog, fog, or ice fog only in that the latter are, by definition, in contact with the Earth's surface.

CLT-
(See CALCULATED LANDING TIME.)

CLUTTER- In radar operations, clutter refers to the reception and visual display of radar returns caused by precipitation, chaff, terrain, numerous aircraft targets, or other phenomena. Such returns may limit or preclude ATC from providing services based on radar.
(See CHAFF.)
(See GROUND CLUTTER.)
(See PRECIPITATION.)
(See TARGET.)
(See ICAO term RADAR CLUTTER.)

CMNPS-
(See CANADIAN MINIMUM NAVIGATION PERFORMANCE SPECIFICATION AIRSPACE.)

COASTAL FIX- A navigation aid or intersection where an aircraft transitions between the domestic route structure and the oceanic route structure.

CODES- The number assigned to a particular multiple pulse reply signal transmitted by a transponder.
(See DISCRETE CODE.)

COMBINED CENTER-RAPCON- An air traffic facility which combines the functions of an ARTCC and a radar approach control facility.
(See AIR ROUTE TRAFFIC CONTROL CENTER.)
(See RADAR APPROACH CONTROL FACILITY.)

COMMON POINT- A significant point over which two or more aircraft will report passing or have reported passing before proceeding on the same or diverging tracks. To establish/maintain longitudinal separation, a controller may determine a common point not originally in the aircraft's flight plan and then clear the aircraft to fly over the point.
(See SIGNIFICANT POINT.)

COMMON PORTION-
(See COMMON ROUTE.)

COMMON ROUTE- That segment of a North American Route between the inland navigation facility and the coastal fix.

COMMON TRAFFIC ADVISORY FREQUENCY (CTAF)- A frequency designed for the purpose of carrying out airport advisory practices while operating to or from an airport without an operating control tower. The CTAF may be a UNICOM, Multicom, FSS, or tower frequency and is identified in appropriate aeronautical publications.
(Refer to AC 90-42, Traffic Advisory Practices at Airports Without Operating Control Towers.)

COMPASS LOCATOR- A low power, low or medium frequency (L/MF) radio beacon installed at the site of the outer or middle marker of an instrument landing system (ILS). It can be used for navigation at distances of approximately 15 miles or as authorized in the approach procedure.

a. Outer Compass Locator (LOM)- A compass locator installed at the site of the outer marker of an instrument landing system.
(See OUTER MARKER.)

b. Middle Compass Locator (LMM)- A compass locator installed at the site of the middle marker of an instrument landing system.
(See MIDDLE MARKER.)
(See ICAO term LOCATOR.)

COMPASS ROSE- A circle, graduated in degrees, printed on some charts or marked on the ground at an airport. It is used as a reference to either true or magnetic direction.

COMPOSITE FLIGHT PLAN- A flight plan which specifies VFR operation for one portion of flight and IFR for another portion. It is used primarily in military operations.
(Refer to AIM.)

COMPOSITE ROUTE SYSTEM- An organized oceanic route structure, incorporating reduced lateral spacing between routes, in which composite separation is authorized.

COMPOSITE SEPARATION- A method of separating aircraft in a composite route system where, by

management of route and altitude assignments, a combination of half the lateral minimum specified for the area concerned and half the vertical minimum is applied.

COMPULSORY REPORTING POINTS- Reporting points which must be reported to ATC. They are designated on aeronautical charts by solid triangles or filed in a flight plan as fixes selected to define direct routes. These points are geographical locations which are defined by navigation aids/fixes. Pilots should discontinue position reporting over compulsory reporting points when informed by ATC that their aircraft is in "radar contact."

CONFLICT ALERT- A function of certain air traffic control automated systems designed to alert radar controllers to existing or pending situations between tracked targets (known IFR or VFR aircraft) that require his/her immediate attention/action.

(See MODE C INTRUDER ALERT.)

CONFLICT RESOLUTION- The resolution of potential conflictions between aircraft that are radar identified and in communication with ATC by ensuring that radar targets do not touch. Pertinent traffic advisories shall be issued when this procedure is applied.

Note: This procedure shall not be provided utilizing mosaic radar systems.

CONFORMANCE- The condition established when an aircraft's actual position is within the conformance region constructed around that aircraft at its position, according to the trajectory associated with the aircraft's Current Plan.

CONFORMANCE REGION- A volume, bounded laterally, vertically, and longitudinally, within which an aircraft must be at a given time in order to be in conformance with the Current Plan Trajectory for that aircraft. At a given time, the conformance region is determined by the simultaneous application of the lateral, vertical, and longitudinal conformance bounds for the aircraft at the position defined by time and aircraft's trajectory.

CONSOLAN- A low frequency, long-distance NAVAID used principally for transoceanic navigations.

CONTACT-

a. Establish communication with (followed by the name of the facility and, if appropriate, the frequency to be used).

b. A flight condition wherein the pilot ascertains the attitude of his/her aircraft and navigates by visual reference to the surface.

(See CONTACT APPROACH.)
(See RADAR CONTACT.)

CONTACT APPROACH- An approach wherein an aircraft on an IFR flight plan, having an air traffic control authorization, operating clear of clouds with at least 1 mile flight visibility and a reasonable expectation of continuing to the destination airport in those conditions, may deviate from the instrument approach procedure and proceed to the destination airport by visual reference to the surface. This approach will only be authorized when requested by the pilot and the reported ground visibility at the destination airport is at least 1 statute mile.

(Refer to AIM.)

CONTAMINATED RUNWAY- A runway is considered contaminated whenever standing water, ice, snow, slush, frost in any form, heavy rubber, or other substances are present. A runway is contaminated with respect to rubber deposits or other friction-degrading substances when the average friction value for any 500-foot segment of the runway within the ALD fails below the recommended minimum friction level and the average friction value in the adjacent 500-foot segments falls below the maintenance planning friction level.

CONTERMINOUS U.S.- The 48 adjoining States and the District of Columbia.

CONTINENTAL UNITED STATES- The 49 States located on the continent of North America and the District of Columbia.

CONTINUE- When used as a control instruction should be followed by another word or words clarifying what is expected of the pilot. Example: "continue taxi", "continue descent", "continue inbound" etc.

CONTROL AREA [ICAO]- A controlled airspace extending upwards from a specified limit above the earth.

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.

a. Controlled airspace is a generic term that covers Class A, Class B, Class C, Class D, and Class E airspace.

b. Controlled airspace is also that airspace within which all aircraft operators are subject to certain pilot qualifications, operating rules, and equipment requirements in 14 CFR Part 91 (for specific operating requirements, please refer to 14 CFR Part 91). For IFR operations in any class of controlled airspace, a pilot must file an IFR flight plan and receive an appropriate ATC clearance. Each Class B, Class C, and Class D airspace area designated for an airport contains at least one primary airport around which the airspace is designated (for specific designations and descriptions of the airspace classes, please refer to 14 CFR Part 71).

c. Controlled airspace in the United States is designated as follows:

1. CLASS A- Generally, that airspace from 18,000 feet MSL up to and including FL 600, including the airspace overlying the waters within 12 nautical miles of the coast of the 48 contiguous States and Alaska. Unless otherwise authorized, all persons must operate their aircraft under IFR.

2. CLASS B- Generally, that airspace from the surface to 10,000 feet MSL surrounding the nation's busiest airports in terms of airport operations or passenger enplanements. The configuration of each Class B airspace area is individually tailored and consists of a surface area and two or more layers (some Class B airspaces areas resemble upside-down wedding cakes), and is designed to contain all published instrument procedures once an aircraft enters the airspace. An ATC clearance is required for all aircraft to operate in the area, and all aircraft that are so cleared receive separation services within the airspace. The cloud clearance requirement for VFR operations is "clear of clouds."

3. CLASS C- Generally, that airspace from the surface to 4,000 feet above the airport elevation (charted in MSL) surrounding those airports that have an operational control tower, are serviced by a radar approach control, and that have a certain number of IFR operations or passenger enplanements. Although the configuration of each Class C area is individually tailored, the airspace usually consists of a surface area with a 5 nautical mile (NM) radius, an outer circle with a 10NM radius that extends from 1,200 feet to 4,000 feet above the airport elevation and an outer area. Each person must establish two-way radio communications with the ATC facility providing air traffic services prior to entering the airspace and thereafter maintain those communications while within the airspace. VFR aircraft are only separated from IFR aircraft within the airspace.

(See OUTER AREA)

4. CLASS D- Generally, that airspace from the surface to 2,500 feet above the airport elevation (charted in MSL) surrounding those airports that have an operational control tower. The configuration of each Class D airspace area is individually tailored and when instrument procedures are published, the airspace will normally be designed to contain the procedures. Arrival extensions for instrument approach procedures may be Class D or Class E airspace. Unless otherwise authorized, each person must establish two-way radio communications with the ATC facility providing air traffic services prior to entering the airspace and thereafter maintain those communications while in the airspace. No separation services are provided to VFR aircraft.

5. CLASS E- Generally, if the airspace is not Class A, Class B, Class C, or Class D, and it is controlled airspace, it is Class E airspace. Class E airspace extends upward from either the surface or a designated altitude to the overlying or adjacent controlled airspace. When designated as a surface area, the airspace will be configured to contain all instrument procedures. Also in this class are Federal airways, airspace beginning at either 700 or 1,200 feet AGL used to transition to/from the terminal or en route environment, en route domestic, and offshore airspace areas designated below 18,000 feet MSL. Unless designated at a lower altitude, Class E airspace begins at 14,500 MSL over the United States, including that airspace overlying the waters within 12 nautical miles of the coast of the 48 contiguous States and Alaska, up to, but not including 18,000 feet MSL, and the airspace above FL 600.

CONTROLLED AIRSPACE [ICAO]- 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 which covers ATS airspace Classes A, B, C, D, and E.

CONTROLLED DEPARTURE TIME PROGRAMS- These programs are the flow control process whereby aircraft are held on the ground at the departure airport when delays are projected to occur in either the en route system or the terminal of intended landing. The purpose of these programs is to reduce congestion in the air traffic system or to limit the duration of airborne holding in the arrival center or terminal area. A CDT is a specific departure slot shown on the flight plan as an expect departure clearance time (EDCT).

CONTROLLED TIME OF ARRIVAL- The original estimated time of arrival adjusted by the ATCSCC ground delay factor.

CONTROLLER-
(See AIR TRAFFIC CONTROL SPECIALIST.)

CONTROLLER [ICAO]- A person authorized to provide air traffic control services.

CONTROL SECTOR- An airspace area of defined horizontal and vertical dimensions for which a controller or group of controllers has air traffic control responsibility, normally within an air route traffic control center or an approach control facility. Sectors are established based on predominant traffic flows, altitude strata, and controller workload. Pilot-communications during operations within a sector are normally maintained on discrete frequencies assigned to the sector.
(See DISCRETE FREQUENCY.)

CONTROL SLASH- A radar beacon slash representing the actual position of the associated aircraft. Normally, the control slash is the one closest to the interrogating radar beacon site. When ARTCC radar is operating in narrowband (digitized) mode, the control slash is converted to a target symbol.

CONVECTIVE SIGMET- A weather advisory concerning convective weather significant to the safety of all aircraft. Convective SIGMET's are issued for tornadoes, lines of thunderstorms, embedded thunderstorms of any intensity level, areas of thunderstorms greater than or equal to VIP level 4 with an area coverage of $^{4}/_{10}$ (40%) or more, and hail $^{3}/_{4}$ inch or greater.
(See AIRMET.)
(See AWW.)
(See CWA.)
(See SIGMET.)
(Refer to AIM.)

CONVECTIVE SIGNIFICANT METEOROLOGICAL INFORMATION-
(See CONVECTIVE SIGMET.)

COORDINATES- The intersection of lines of reference, usually expressed in degrees/minutes/seconds of latitude and longitude, used to determine position or location.

COORDINATION FIX- The fix in relation to which facilities will handoff, transfer control of an aircraft, or coordinate flight progress data. For terminal facilities, it may also serve as a clearance for arriving aircraft.

COPTER- (See HELICOPTER.)

CORRECTION- An error has been made in the transmission and the correct version follows.

COUPLED APPROACH- A coupled approach is an instrument approach performed by the aircraft autopilot which is receiving position information and/or steering commands from onboard navigation equipment. In general, coupled nonprecision approaches must be discontinued and flown manually at altitudes lower than 50 feet below the minimum descent altitude, and coupled precision approaches must be flown manually below 50 feet AGL.

Note: Coupled and autoland approaches are flown in VFR and IFR. It is common for carriers to require their crews to fly coupled approaches and autoland approaches (if certified) when the weather conditions are less than approximately 4,000 RVR.

(See AUTOLAND APPROACH.)

COURSE-

a. The intended direction of flight in the horizontal plane measured in degrees from north.

b. The ILS localizer signal pattern usually specified as the front course or the back course.

c. The intended track along a straight, curved, or segmented MLS path.
(See BEARING.)
(See INSTRUMENT LANDING SYSTEM.)
(See MICROWAVE LANDING SYSTEM.)
(See RADIAL.)

CPL [ICAO]-
(See ICAO term CURRENT FLIGHT PLAN)

CRITICAL ENGINE- The engine which, upon failure, would most adversely affect the performance or handling qualities of an aircraft.

CROSS (FIX) AT (ALTITUDE)- Used by ATC when a specific altitude restriction at a specified fix is required.

CROSS (FIX) AT OR ABOVE (ALTITUDE)- Used by ATC when an altitude restriction at a specified fix is required. It does not prohibit the aircraft from crossing the fix at a higher altitude than specified; however, the higher altitude may not be one that will violate a succeeding altitude restriction or altitude assignment.
(See ALTITUDE RESTRICTION.)
(Refer to AIM.)

CROSS (FIX) AT OR BELOW (ALTITUDE)- Used by ATC when a maximum crossing altitude at a specific fix is required. It does not prohibit the aircraft from crossing the fix at a lower altitude; however, it must be at or above the minimum IFR altitude.
(See ALTITUDE RESTRICTION.)
(See MINIMUM IFR ALTITUDES.)
(Refer to 14 CFR Part 91.)

CROSSWIND-

a. When used concerning the traffic pattern, the word means "crosswind leg."
(See TRAFFIC PATTERN.)

b. When used concerning wind conditions, the word means a wind not parallel to the runway or the path of an aircraft.
(See CROSSWIND COMPONENT.)

CROSSWIND COMPONENT- The wind component measured in knots at 90 degrees to the longitudinal axis of the runway.

CRUISE- Used in an ATC clearance to authorize a pilot to conduct flight at any altitude from the minimum IFR altitude up to and including the altitude specified in the clearance. The pilot may level off at any intermediate altitude within this block of airspace. Climb/descent within the block is to be made at the discretion of the pilot. However, once the pilot starts descent and verbally reports leaving an altitude in the block, he/she may not return to that altitude without additional ATC clearance. Further, it is approval for the pilot to proceed to and make an approach at destination airport and can be used in conjunction with:

a. An airport clearance limit at locations with a standard/special instrument approach procedure. The CFR's require that if an instrument letdown to an airport is necessary, the pilot shall make the letdown in accordance with a standard/special instrument approach procedure for that airport, or

b. An airport clearance limit at locations that are within/below/outside controlled airspace and without a standard/special instrument approach procedure. Such a clearance is NOT AUTHORIZATION for the pilot to descend under IFR conditions below the applicable minimum IFR altitude nor does it imply that ATC is exercising control over aircraft in Class G airspace; however, it provides a means for the aircraft to proceed to destination airport, descend, and land in accordance with applicable CFR's governing VFR flight operations. Also, this provides search and rescue protection until such time as the IFR flight plan is closed.
(See INSTRUMENT APPROACH PROCEDURE.)

CRUISE CLIMB- A climb technique employed by aircraft, usually at a constant power setting, resulting in an increase of altitude as the aircraft weight decreases.

CRUISING ALTITUDE- An altitude or flight level maintained during en route level flight. This is a constant altitude and should not be confused with a cruise clearance.
(See ALTITUDE.)
(See ICAO term CRUISING LEVEL.)

CRUISING LEVEL-
(See CRUISING ALTITUDE.)

CRUISING LEVEL [ICAO]- A level maintained during a significant portion of a flight.

CT MESSAGE- An EDCT time generated by the ATCSCC to regulate traffic at arrival airports. Normally, a CT message is automatically transferred from the Traffic Management System computer to the NAS en route computer and appears as an EDCT. In the event of a communication failure between the TMS and the NAS, the CT message can be manually entered by the TMC at the en route facility.

CTA-
(See CONTROLLED TIME OF ARRIVAL.)
(See ICAO term CONTROL AREA.)

CTAF-
(See COMMON TRAFFIC ADVISORY FREQUENCY.)

CTRD-
(See CERTIFIED TOWER RADAR DISPLAY.)

CURRENT FLIGHT PLAN [ICAO]- The flight plan, including changes, if any, brought about by subsequent clearances.

CURRENT PLAN- The ATC clearance the aircraft has received and is expected to fly.

CVFP APPROACH-
(See CHARTED VISUAL FLIGHT PROCEDURE APPROACH.)

CWA-
(See CENTER WEATHER ADVISORY and WEATHER ADVISORY.)

D

DA [ICAO]-

(See ICAO Term DECISION ALTITUDE/DECISION HEIGHT.)

DAIR-

(See DIRECT ALTITUDE AND IDENTITY READOUT.)

DANGER AREA [ICAO]- An airspace of defined dimensions within which activities dangerous to the flight of aircraft may exist at specified times.

Note: The term "Danger Area" is not used in reference to areas within the United States or any of its possessions or territories.

DATA BLOCK-

(See ALPHANUMERIC DISPLAY.)

DEAD RECKONING- Dead reckoning, as applied to flying, is the navigation of an airplane solely by means of computations based on airspeed, course, heading, wind direction, and speed, groundspeed, and elapsed time.

DECISION ALTITUDE/DECISION HEIGHT [ICAO]- A specified altitude or height (A/H) in the precision approach at which a missed approach must be initiated if the required visual reference to continue the approach has not been established.

Note 1: Decision altitude [DA] is referenced to mean sea level [MSL] and decision height [DH] is referenced to the threshold elevation.

Note 2: The required visual reference means that section of the visual aids or of the approach area which should have been in view for sufficient time for the pilot to have made an assessment of the aircraft position and rate of change of position, in relation to the desired flight path.

DECISION HEIGHT- With respect to the operation of aircraft, means the height at which a decision must be made during an ILS, MLS, or PAR instrument approach to either continue the approach or to execute a missed approach.

(See ICAO term DECISION ALTITUDE/DECISION HEIGHT.)

DECODER- The device used to decipher signals received from ATCRBS transponders to effect their display as select codes.

(See CODES.)
(See RADAR.)

DEFENSE VISUAL FLIGHT RULES- Rules applicable to flights within an ADIZ conducted under the visual flight rules in 14 CFR Part 91.

(See AIR DEFENSE IDENTIFICATION ZONE.)
(Refer to 14 CFR Part 91.)
(Refer to 14 CFR Part 99.)

DELAY INDEFINITE (REASON IF KNOWN) EXPECT FURTHER CLEARANCE (TIME)- Used by ATC to inform a pilot when an accurate estimate of the delay time and the reason for the delay cannot immediately be determined; e.g., a disabled aircraft on the runway, terminal or center area saturation, weather below landing minimums, etc.

(See EXPECT FURTHER CLEARANCE (TIME).)

DELAY TIME- The amount of time that the arrival must lose to cross the meter fix at the assigned meter fix time. This is the difference between ACLT and VTA.

DEPARTURE CENTER- The ARTCC having jurisdiction for the airspace that generates a flight to the impacted airport.

DEPARTURE CONTROL- A function of an approach control facility providing air traffic control service for departing IFR and, under certain conditions, VFR aircraft.

(See APPROACH CONTROL FACILITY.)
(Refer to AIM.)

DEPARTURE SEQUENCING PROGRAM- A program designed to assist in achieving a specified interval over a common point for departures.

DEPARTURE TIME- The time an aircraft becomes airborne.

DESCENT SPEED ADJUSTMENTS- Speed deceleration calculations made to determine an accurate VTA. These calculations start at the transition point and use arrival speed segments to the vertex.

DESIRED COURSE-

a. True- A predetermined desired course direction to be followed (measured in degrees from true north).

b. Magnetic- A predetermined desired course direction to be followed (measured in degrees from local magnetic north).

DESIRED TRACK- The planned or intended track between two waypoints. It is measured in degrees from either magnetic or true north. The instantaneous angle may change from point to point along the great circle track between waypoints.

DETRESFA (DISTRESS PHASE) [ICAO]- The code word used to designate an emergency phase wherein there is reasonable certainty that an aircraft and its occupants are threatened by grave and imminent danger or require immediate assistance.

DEVIATIONS-

a. A departure from a current clearance, such as an off course maneuver to avoid weather or turbulence.

b. Where specifically authorized in the CFR's and requested by the pilot, ATC may permit pilots to deviate from certain regulations.

(Refer to AIM.)

DF-

(See DIRECTION FINDER.)

DF APPROACH PROCEDURE- Used under emergency conditions where another instrument approach procedure cannot be executed. DF guidance for an instrument approach is given by ATC facilities with DF capability.

(See DF GUIDANCE.)
(See DIRECTION FINDER.)
(Refer to AIM.)

DF FIX- The geographical location of an aircraft obtained by one or more direction finders.

(See DIRECTION FINDER.)

DF GUIDANCE- Headings provided to aircraft by facilities equipped with direction finding equipment. These headings, if followed, will lead the aircraft to a predetermined point such as the DF station or an airport. DF guidance is given to aircraft in distress or to other aircraft which request the service. Practice DF guidance is provided when workload permits.

(See DIRECTION FINDER.)
(See DF FIX.)
(Refer to AIM.)

DF STEER-

(See DF GUIDANCE.)

DH-

(See DECISION HEIGHT.)

DH [ICAO]-

(See ICAO Term DECISION ALTITUDE/ DECISION HEIGHT.)

DIRECT- Straight line flight between two navigational aids, fixes, points, or any combination thereof. When used by pilots in describing off-airway routes, points defining direct route segments become compulsory reporting points unless the aircraft is under radar contact.

DIRECT ALTITUDE AND IDENTITY READOUT- The DAIR System is a modification to the AN/TPX-42 Interrogator System. The Navy has two adaptations of the DAIR System-Carrier Air Traffic Control Direct Altitude and Identification Readout System for Aircraft Carriers and Radar Air Traffic Control Facility Direct Altitude and Identity Readout System for land-based terminal operations. The DAIR detects, tracks, and predicts secondary radar aircraft targets. Targets are displayed by means of computer-generated symbols and alphanumeric characters depicting flight identification, altitude, ground speed, and flight plan data. The DAIR System is capable of interfacing with ARTCC's.

DIRECTION FINDER- A radio receiver equipped with a directional sensing antenna used to take bearings on a radio transmitter. Specialized radio direction finders are used in aircraft as air navigation aids. Others are ground-based, primarily to obtain a "fix" on a pilot requesting orientation assistance or to locate downed aircraft. A location "fix" is established by the intersection of two or more bearing lines plotted on a navigational chart using either two separately located Direction Finders to obtain a fix on an aircraft or by a pilot plotting the bearing indications of his/her DF on two separately located ground-based transmitters, both of which can be identified on his/her chart. UDF's receive signals in the ultra high frequency radio broadcast band; VDF's in the very high frequency band; and UVDF's in both bands. ATC provides DF service at those air traffic control towers and flight service stations listed in the Airport/Facility Directory and the DOD FLIP IFR En Route Supplement.

(See DF FIX.)
(See DF GUIDANCE.)

DISCRETE BEACON CODE-

(See DISCRETE CODE.)

DISCRETE CODE- As used in the Air Traffic Control Radar Beacon System (ATCRBS), any one of the 4096 selectable Mode 3/A aircraft transponder codes except those ending in zero zero; e.g., discrete codes: 0010, 1201, 2317, 7777; nondiscrete codes: 0100, 1200, 7700. Nondiscrete codes are normally reserved for radar facilities that are not equipped with discrete decoding capability and for other purposes such as emergencies (7700), VFR aircraft (1200), etc.
(See RADAR.)
(Refer to AIM.)

DISCRETE FREQUENCY- A separate radio frequency for use in direct pilot-controller communications in air traffic control which reduces frequency congestion by controlling the number of aircraft operating on a particular frequency at one time. Discrete frequencies are normally designated for each control sector in en route/terminal ATC facilities. Discrete frequencies are listed in the Airport/Facility Directory and the DOD FLIP IFR En Route Supplement.
(See CONTROL SECTOR.)

DISPLACED THRESHOLD- A threshold that is located at a point on the runway other than the designated beginning of the runway.
(See THRESHOLD.)
(Refer to AIM.)

DISTANCE MEASURING EQUIPMENT- Equipment (airborne and ground) used to measure, in nautical miles, the slant range distance of an aircraft from the DME navigational aid.
(See MICROWAVE LANDING SYSTEM.)
(See TACAN.)
(See VORTAC.)

DISTRESS- A condition of being threatened by serious and/or imminent danger and of requiring immediate assistance.

DIVE BRAKES-
(See SPEED BRAKES.)

DIVERSE VECTOR AREA- In a radar environment, that area in which a prescribed departure route is not required as the only suitable route to avoid obstacles. The area in which random radar vectors below the MVA/MIA, established in accordance with the TERPS criteria for diverse departures, obstacles and terrain avoidance, may be issued to departing aircraft.

DME-
(See DISTANCE MEASURING EQUIPMENT.)

DME FIX- A geographical position determined by reference to a navigational aid which provides distance and azimuth information. It is defined by a specific distance in nautical miles and a radial, azimuth, or course (i.e., localizer) in degrees magnetic from that aid.
(See DISTANCE MEASURING EQUIPMENT.)
(See FIX.)
(See MICROWAVE LANDING SYSTEM.)

DME SEPARATION- Spacing of aircraft in terms of distances (nautical miles) determined by reference to distance measuring equipment (DME).
(See DISTANCE MEASURING EQUIPMENT.)

DOD FLIP- Department of Defense Flight Information Publications used for flight planning, en route, and terminal operations. FLIP is produced by the National Imagery and Mapping Agency (NIMA) for world-wide use. United States Government Flight Information Publications (en route charts and instrument approach procedure charts) are incorporated in DOD FLIP for use in the National Airspace System (NAS).

DOMESTIC AIRSPACE- Airspace which overlies the continental land mass of the United States plus Hawaii and U.S. possessions. Domestic airspace extends to 12 miles offshore.

DOWNBURST- A strong downdraft which induces an outburst of damaging winds on or near the ground. Damaging winds, either straight or curved, are highly divergent. The sizes of downbursts vary from 1/2 mile or less to more than 10 miles. An intense downburst often causes widespread damage. Damaging winds, lasting 5 to 30 minutes, could reach speeds as high as 120 knots.

DOWNWIND LEG-
(See TRAFFIC PATTERN.)

DP-
(See INSTRUMENT DEPARTURE PROCEDURE.)

DRAG CHUTE- A parachute device installed on certain aircraft which is deployed on landing roll to assist in deceleration of the aircraft.

DSP-
(See DEPARTURE SEQUENCING PROGRAM.)

DT-
(See DELAY TIME.)

DUE REGARD- A phase of flight wherein an aircraft commander of a State-operated aircraft assumes responsibility to separate his/her aircraft from all other aircraft.

(See also FAAO 7110.65, Para 1-2-1, WORD MEANINGS.)

DUTY RUNWAY-

(See RUNWAY IN USE/ACTIVE RUNWAY/DUTY RUNWAY.)

DVA-

(See DIVERSE VECTOR AREA.)

DVFR-

(See DEFENSE VISUAL FLIGHT RULES.)

DVFR FLIGHT PLAN- A flight plan filed for a VFR aircraft which intends to operate in airspace within which the ready identification, location, and control of aircraft are required in the interest of national security.

DYNAMIC- Continuous review, evaluation, and change to meet demands.

DYNAMIC RESTRICTIONS- Those restrictions imposed by the local facility on an "as needed" basis to manage unpredictable fluctuations in traffic demands.

E

EDCT-
(See EXPECT DEPARTURE CLEARANCE TIME.)

EFC-
(See EXPECT FURTHER CLEARANCE (TIME).)

ELT-
(See EMERGENCY LOCATOR TRANSMITTER.)

EMERGENCY- A distress or an urgency condition.

EMERGENCY LOCATOR TRANSMITTER- A radio transmitter attached to the aircraft structure which operates from its own power source on 121.5 MHz and 243.0 MHz. It aids in locating downed aircraft by radiating a downward sweeping audio tone, 2-4 times per second. It is designed to function without human action after an accident.
(Refer to 14 CFR Part 91.)
(Refer to AIM.)

E-MSAW-
(See EN ROUTE MINIMUM SAFE ALTITUDE WARNING.)

ENGINEERED PERFORMANCE STANDARDS- A mathematically derived runway capacity standard. EPS's are calculated for each airport on an individual basis and reflect that airport's aircraft mix, operating procedures, runway layout, and specific weather conditions. EPS's do not give consideration to staffing, experience levels, equipment outages, and in-trail restrictions as does the AAR.

EN ROUTE AIR TRAFFIC CONTROL SERVICES- Air traffic control service provided aircraft on IFR flight plans, generally by centers, when these aircraft are operating between departure and destination terminal areas. When equipment, capabilities, and controller workload permit, certain advisory/assistance services may be provided to VFR aircraft.
(See AIR ROUTE TRAFFIC CONTROL CENTER.)
(See NAS STAGE A.)
(Refer to AIM.)

EN ROUTE CHARTS-
(See AERONAUTICAL CHART.)

EN ROUTE DESCENT- Descent from the en route cruising altitude which takes place along the route of flight.

EN ROUTE FLIGHT ADVISORY SERVICE- A service specifically designed to provide, upon pilot request, timely weather information pertinent to his/her type of flight, intended route of flight, and altitude. The FSS's providing this service are listed in the Airport/Facility Directory.
(See FLIGHT WATCH.)
(Refer to AIM.)

EN ROUTE HIGH ALTITUDE CHARTS-
(See AERONAUTICAL CHART.)

EN ROUTE LOW ALTITUDE CHARTS-
(See AERONAUTICAL CHART.)

EN ROUTE MINIMUM SAFE ALTITUDE WARNING- A function of the NAS Stage A en route computer that aids the controller by alerting him when a tracked aircraft is below or predicted by the computer to go below a predetermined minimum IFR altitude (MIA).

EN ROUTE SPACING PROGRAM- A program designed to assist the exit sector in achieving the required in-trail spacing.

EPS-
(See ENGINEERED PERFORMANCE STANDARDS.)

ESP-
(See EN ROUTE SPACING PROGRAM.)

ESTABLISHED-To be stable or fixed on a route, route segment, altitude, heading, etc.

ESTIMATED ELAPSED TIME [ICAO]- The estimated time required to proceed from one significant point to another.
(See ICAO Term TOTAL ESTIMATED ELAPSED TIME.)

ESTIMATED OFF-BLOCK TIME [ICAO]- The estimated time at which the aircraft will commence movement associated with departure.

ESTIMATED POSITION ERROR (EPE)-
(See Required Navigation Performance)

ESTIMATED TIME OF ARRIVAL- The time the flight is estimated to arrive at the gate (scheduled

operators) or the actual runway on times for non-scheduled operators.

ESTIMATED TIME EN ROUTE- The estimated flying time from departure point to destination (lift-off to touchdown).

ETA-
(See ESTIMATED TIME OF ARRIVAL.)

ETE-
(See ESTIMATED TIME EN ROUTE.)

EXECUTE MISSED APPROACH- Instructions issued to a pilot making an instrument approach which means continue inbound to the missed approach point and execute the missed approach procedure as described on the Instrument Approach Procedure Chart or as previously assigned by ATC. The pilot may climb immediately to the altitude specified in the missed approach procedure upon making a missed approach. No turns should be initiated prior to reaching the missed approach point. When conducting an ASR or PAR approach, execute the assigned missed approach procedure immediately upon receiving instructions to "execute missed approach."
(Refer to AIM.)

EXPECT (ALTITUDE) AT (TIME) or (FIX)- Used under certain conditions to provide a pilot with an altitude to be used in the event of two-way communications failure. It also provides altitude information to assist the pilot in planning.
(Refer to AIM.)

EXPECT DEPARTURE CLEARANCE TIME- The runway release time assigned to an aircraft in a controlled departure time program and shown on the flight progress strip as an EDCT.

EXPECT FURTHER CLEARANCE (TIME)- The time a pilot can expect to receive clearance beyond a clearance limit.

EXPECT FURTHER CLEARANCE VIA (AIRWAYS, ROUTES OR FIXES)- Used to inform a pilot of the routing he/she can expect if any part of the route beyond a short range clearance limit differs from that filed.

EXPEDITE- Used by ATC when prompt compliance is required to avoid the development of an imminent situation. Expedite climb/descent normally indicates to a pilot that the approximate best rate of climb/descent should be used without requiring an exceptional change in aircraft handling characteristics.

F

FAF-
(See FINAL APPROACH FIX.)

FAST FILE- A system whereby a pilot files a flight plan via telephone that is tape recorded and then transcribed for transmission to the appropriate air traffic facility. Locations having a fast file capability are contained in the Airport/Facility Directory.
(Refer to AIM.)

FAWP- Final Approach Waypoint

FCLT-
(See FREEZE CALCULATED LANDING TIME.)

FEATHERED PROPELLER- A propeller whose blades have been rotated so that the leading and trailing edges are nearly parallel with the aircraft flight path to stop or minimize drag and engine rotation. Normally used to indicate shutdown of a reciprocating or turboprop engine due to malfunction.

FEDERAL AIRWAYS-
(See LOW ALTITUDE AIRWAY STRUCTURE.)

FEEDER FIX- The fix depicted on Instrument Approach Procedure Charts which establishes the starting point of the feeder route.

FEEDER ROUTE- A route depicted on instrument approach procedure charts to designate routes for aircraft to proceed from the en route structure to the initial approach fix (IAF).
(See INSTRUMENT APPROACH PROCEDURE.)

FERRY FLIGHT- A flight for the purpose of:

a. Returning an aircraft to base.

b. Delivering an aircraft from one location to another.

c. Moving an aircraft to and from a maintenance base.- Ferry flights, under certain conditions, may be conducted under terms of a special flight permit.

FIELD ELEVATION-
(See AIRPORT ELEVATION.)

FILED- Normally used in conjunction with flight plans, meaning a flight plan has been submitted to ATC.

FILED EN ROUTE DELAY- Any of the following preplanned delays at points/areas along the route of flight which require special flight plan filing and handling techniques.

a. Terminal Area Delay. A delay within a terminal area for touch-and-go, low approach, or other terminal area activity.

b. Special Use Airspace Delay. A delay within a Military Operations Area, Restricted Area, Warning Area, or ATC Assigned Airspace.

c. Aerial Refueling Delay. A delay within an Aerial Refueling Track or Anchor.

FILED FLIGHT PLAN- The flight plan as filed with an ATS unit by the pilot or his/her designated representative without any subsequent changes or clearances.

FINAL- Commonly used to mean that an aircraft is on the final approach course or is aligned with a landing area.
(See FINAL APPROACH COURSE.)
(See FINAL APPROACH-IFR.)
(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

FINAL APPROACH [ICAO]- That part of an instrument approach procedure which commences at the specified final approach fix or point, or where such a fix or point is not specified.

a. At the end of the last procedure turn, base turn or inbound turn of a racetrack procedure, if specified; or

b. At the point of interception of the last track specified in the approach procedure; and ends at a point in the vicinity of an aerodrome from which:

1. A landing can be made; or

2. A missed approach procedure is initiated.

FINAL APPROACH COURSE- A bearing/radial/track of an instrument approach leading to a runway or an extended runway centerline all without regard to distance.

FINAL APPROACH FIX- The fix from which the final approach (IFR) to an airport is executed and which identifies the beginning of the final approach segment. It is designated on Government charts by the Maltese Cross symbol for nonprecision

approaches and the lightning bolt symbol for precision approaches; or when ATC directs a lower-than-published glideslope/path intercept altitude, it is the resultant actual point of the glideslope/path intercept.

(See FINAL APPROACH POINT.)

(See GLIDESLOPE INTERCEPT ALTITUDE.)

(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

FINAL APPROACH-IFR- The flight path of an aircraft which is inbound to an airport on a final instrument approach course, beginning at the final approach fix or point and extending to the airport or the point where a circle-to-land maneuver or a missed approach is executed.

(See FINAL APPROACH COURSE.)

(See FINAL APPROACH FIX.)

(See FINAL APPROACH POINT.)

(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

(See ICAO term FINAL APPROACH.)

FINAL APPROACH POINT- The point, applicable only to a nonprecision approach with no depicted FAF (such as an on airport VOR), where the aircraft is established inbound on the final approach course from the procedure turn and where the final approach descent may be commenced. The FAP serves as the FAF and identifies the beginning of the final approach segment.

(See FINAL APPROACH FIX.)

(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

FINAL APPROACH SEGMENT-

(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

FINAL APPROACH SEGMENT [ICAO]- That segment of an instrument approach procedure in which alignment and descent for landing are accomplished.

FINAL CONTROLLER- The controller providing information and final approach guidance during PAR and ASR approaches utilizing radar equipment.

(See RADAR APPROACH.)

FINAL MONITOR AID- A high resolution color display that is equipped with the controller alert system hardware/software which is used in the precision runway monitor (PRM) system. The display includes alert algorithms providing the target predictors, a color change alert when a target penetrates or is predicted to penetrate the no transgression zone (NTZ), a color change alert if the aircraft transponder becomes inoperative, synthesized voice alerts, digital mapping, and like features contained in the PRM system.

(See RADAR APPROACH.)

FINAL MONITOR CONTROLLER- Air Traffic Control Specialist assigned to radar monitor the flight path of aircraft during simultaneous parallel and simultaneous close parallel ILS approach operations. Each runway is assigned a final monitor controller during simultaneous parallel and simultaneous close parallel ILS approaches. Final monitor controllers shall utilize the Precision Runway Monitor (PRM) system during simultaneous close parallel ILS approaches.

FIR-

(See FLIGHT INFORMATION REGION.)

FIRST TIER CENTER- The ARTCC immediately adjacent to the impacted center.

FIX- A geographical position determined by visual reference to the surface, by reference to one or more radio NAVAID's, by celestial plotting, or by another navigational device.

FIX BALANCING- A process whereby aircraft are evenly distributed over several available arrival fixes reducing delays and controller workload.

FLAG- A warning device incorporated in certain airborne navigation and flight instruments indicating that:

a. Instruments are inoperative or otherwise not operating satisfactorily, or

b. Signal strength or quality of the received signal falls below acceptable values.

FLAG ALARM-

(See FLAG.)

FLAMEOUT- An emergency condition caused by a loss of engine power.

FLAMEOUT PATTERN- An approach normally conducted by a single-engine military aircraft experiencing loss or anticipating loss of engine power or control. The standard overhead approach starts at a relatively high altitude over a runway ("high key") followed by a continuous 180 degree turn to a high, wide position ("low key") followed by a continuous 180 degree turn final. The standard straight-in pattern starts at a point that results in a straight-in approach

with a high rate of descent to the runway. Flameout approaches terminate in the type approach requested by the pilot (normally fullstop).

FLIGHT CHECK- A call-sign prefix used by FAA aircraft engaged in flight inspection/certification of navigational aids and flight procedures. The word "recorded" may be added as a suffix; e.g., "Flight Check 320 recorded" to indicate that an automated flight inspection is in progress in terminal areas.

(See FLIGHT INSPECTION.)

(Refer to AIM.)

FLIGHT FOLLOWING-

(See TRAFFIC ADVISORIES.)

FLIGHT INFORMATION REGION- An airspace of defined dimensions within which Flight Information Service and Alerting Service are provided.

a. Flight Information Service. A service provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights.

b. Alerting Service. A service provided to notify appropriate organizations regarding aircraft in need of search and rescue aid and to assist such organizations as required.

FLIGHT INFORMATION SERVICE- A service provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights.

FLIGHT INSPECTION- Inflight investigation and evaluation of a navigational aid to determine whether it meets established tolerances.

(See FLIGHT CHECK.)

(See NAVIGATIONAL AID.)

FLIGHT LEVEL- 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 (FL) 250 represents a barometric altimeter indication of 25,000 feet; FL 255, an indication of 25,500 feet.

(See ICAO term FLIGHT LEVEL.)

FLIGHT LEVEL [ICAO]- A surface of constant atmospheric pressure which is related to a specific pressure datum, 1013.2 hPa (1013.2 mb), and is separated from other such surfaces by specific pressure intervals.

Note 1: A pressure type altimeter calibrated in accordance with the standard atmosphere:

a. When set to a QNH altimeter setting, will indicate altitude;

b. When set to a QFE altimeter setting, will indicate height above the QFE reference datum; and

c. When set to a pressure of 1013.2 hPa (1013.2 mb), may be used to indicate flight levels.

Note 2: The terms 'height' and 'altitude,' used in Note 1 above, indicate altimetric rather than geometric heights and altitudes.

FLIGHT LINE- A term used to describe the precise movement of a civil photogrammetric aircraft along a predetermined course(s) at a predetermined altitude during the actual photographic run.

FLIGHT MANAGEMENT SYSTEMS- A computer system that uses a large data base to allow routes to be preprogrammed and fed into the system by means of a data loader. The system is constantly updated with respect to position accuracy by reference to conventional navigation aids. The sophisticated program and its associated data base insures that the most appropriate aids are automatically selected during the information update cycle.

FLIGHT MANAGEMENT SYSTEM PROCEDURE- An arrival, departure, or approach procedure developed for use by aircraft with a slant (/) E or slant (/) F equipment suffix.

FLIGHT PATH- A line, course, or track along which an aircraft is flying or intended to be flown.

(See COURSE.)

(See TRACK.)

FLIGHT PLAN- Specified information relating to the intended flight of an aircraft that is filed orally or in writing with an FSS or an ATC facility.

(See FAST FILE.)

(See FILED.)

(Refer to AIM.)

FLIGHT PLAN AREA- The geographical area assigned by regional air traffic divisions to a flight service station for the purpose of search and rescue for VFR aircraft, issuance of NOTAMs, pilot briefing, in-flight services, broadcast, emergency services, flight data processing, international

operations, and aviation weather services. Three letter identifiers are assigned to every flight service station and are annotated in AFD's and FAAO 7350.7, LOCATION IDENTIFIERS, as tie-in facilities.

(See FAST FILE.)
(See FILED.)
(Refer to AIM.)

FLIGHT RECORDER- A general term applied to any instrument or device that records information about the performance of an aircraft in flight or about conditions encountered in flight. Flight recorders may make records of airspeed, outside air temperature, vertical acceleration, engine RPM, manifold pressure, and other pertinent variables for a given flight.

(See ICAO term FLIGHT RECORDER.)

FLIGHT RECORDER [ICAO]- Any type of recorder installed in the aircraft for the purpose of complementing accident/incident investigation.

Note: See Annex 6 Part I, for specifications relating to flight recorders.

FLIGHT SERVICE STATION- Air traffic facilities which provide pilot briefing, en route communications and VFR search and rescue services, assist lost aircraft and aircraft in emergency situations, relay ATC clearances, originate Notices to Airmen, broadcast aviation weather and NAS information, receive and process IFR flight plans, and monitor NAVAID's. In addition, at selected locations, FSS's provide En Route Flight Advisory Service (Flight Watch), take weather observations, issue airport advisories, and advise Customs and Immigration of transborder flights.

(Refer to AIM.)

FLIGHT STANDARDS DISTRICT OFFICE- An FAA field office serving an assigned geographical area and staffed with Flight Standards personnel who serve the aviation industry and the general public on matters relating to the certification and operation of air carrier and general aviation aircraft. Activities include general surveillance of operational safety, certification of airmen and aircraft, accident prevention, investigation, enforcement, etc.

FLIGHT TEST- A flight for the purpose of:

a. Investigating the operation/flight characteristics of an aircraft or aircraft component.

b. Evaluating an applicant for a pilot certificate or rating.

FLIGHT VISIBILITY-
(See VISIBILITY.)

FLIGHT WATCH- A shortened term for use in air-ground contacts to identify the flight service station providing En Route Flight Advisory Service; e.g., "Oakland Flight Watch."

(See EN ROUTE FLIGHT ADVISORY SERVICE.)

FLIP-
(See DOD FLIP.)

FLOW CONTROL- Measures designed to adjust the flow of traffic into a given airspace, along a given route, or bound for a given aerodrome (airport) so as to ensure the most effective utilization of the airspace.

(See QUOTA FLOW CONTROL.)
(Refer to AIRPORT/FACILITY DIRECTORY.)

FLY-BY WAYPOINT- A fly-by waypoint requires the use of turn anticipation to avoid overshoot of the next flight segment.

FLY HEADING (DEGREES)- Informs the pilot of the heading he/she should fly. The pilot may have to turn to, or continue on, a specific compass direction in order to comply with the instructions. The pilot is expected to turn in the shorter direction to the heading unless otherwise instructed by ATC.

FLY-OVER WAYPOINT- A fly-over waypoint precludes any turn until the waypoint is overflown and is followed by an intercept maneuver of the next flight segment.

FMA-
(See FINAL MONITOR AID.)

FMS-
(See FLIGHT MANAGEMENT SYSTEM.)

FMSP-
(See FLIGHT MANAGEMENT SYSTEM PROCEDURE.)

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 wingman.

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 altitude reservation (ALTRV) or under the provisions of a letter of agreement.

3. When the operations are conducted in airspace specifically designed for a special activity.

(See ALTITUDE RESERVATION.)

(Refer to 14 CFR Part 91.)

FRC-

(See REQUEST FULL ROUTE CLEARANCE.)

FREEZE/FROZEN- Terms used in referring to arrivals which have been assigned ACLT's and to the lists in which they are displayed.

FREEZE CALCULATED LANDING TIME- A dynamic parameter number of minutes prior to the meter fix calculated time of arrival for each aircraft when the TCLT is frozen and becomes an ACLT (i.e., the VTA is updated and consequently the TCLT is modified as appropriate until FCLT minutes prior to meter fix calculated time of arrival, at which time updating is suspended and an ACLT and a frozen meter fix crossing time (MFT) is assigned).

FREEZE SPEED PARAMETER- A speed adapted for each aircraft to determine fast and slow aircraft. Fast aircraft freeze on parameter FCLT and slow aircraft freeze on parameter MLDI.

FRICTION MEASUREMENT- A measurement of the friction characteristics of the runway pavement surface using continuous self-watering friction measurement equipment in accordance with the specifications, procedures and schedules contained in AC 150/5320-12, Measurement, Construction, and Maintenance of Skid Resistant Airport Pavement Surfaces.

FSDO-

(See FLIGHT STANDARDS DISTRICT OFFICE.)

FSPD-

(See FREEZE SPEED PARAMETER.)

FSS-

(See FLIGHT SERVICE STATION.)

FUEL DUMPING- Airborne release of usable fuel. This does not include the dropping of fuel tanks.

(See JETTISONING OF EXTERNAL STORES.)

FUEL REMAINING- A phrase used by either pilots or controllers when relating to the fuel remaining on board until actual fuel exhaustion. When transmitting such information in response to either a controller question or pilot initiated cautionary advisory to air traffic control, pilots will state the APPROXIMATE NUMBER OF MINUTES the flight can continue with the fuel remaining. All reserve fuel SHOULD BE INCLUDED in the time stated, as should an allowance for established fuel gauge system error.

FUEL SIPHONING- Unintentional release of fuel caused by overflow, puncture, loose cap, etc.

FUEL VENTING-

(See FUEL SIPHONING.)

G

GATE HOLD PROCEDURES- Procedures at selected airports to hold aircraft at the gate or other ground location whenever departure delays exceed or are anticipated to exceed 15 minutes. The sequence for departure will be maintained in accordance with initial call-up unless modified by flow control restrictions. Pilots should monitor the ground control/clearance delivery frequency for engine start/taxi advisories or new proposed start/taxi time if the delay changes.

(See FLOW CONTROL.)

GCA-

(See GROUND CONTROLLED APPROACH.)

GENERAL AVIATION- That portion of civil aviation which encompasses all facets of aviation except air carriers holding a certificate of public convenience and necessity from the Civil Aeronautics Board and large aircraft commercial operators.

(See ICAO term GENERAL AVIATION.)

GENERAL AVIATION [ICAO]- All civil aviation operations other than scheduled air services and nonscheduled air transport operations for remuneration or hire.

GEO MAP- The digitized map markings associated with the ASR-9 Radar System.

GLIDEPATH-

(See GLIDESLOPE.)

GLIDEPATH INTERCEPT ALTITUDE-

(See GLIDESLOPE INTERCEPT ALTITUDE.)

GLIDESLOPE- Provides vertical guidance for aircraft during approach and landing. The glideslope/glidepath is based on the following:

a. Electronic components emitting signals which provide vertical guidance by reference to airborne instruments during instrument approaches such as ILS/MLS, or

b. Visual ground aids, such as VASI, which provide vertical guidance for a VFR approach or for the visual portion of an instrument approach and landing.

c. PAR. Used by ATC to inform an aircraft making a PAR approach of its vertical position (elevation) relative to the descent profile.

(See ICAO term GLIDEPATH.)

GLIDEPATH [ICAO]- A descent profile determined for vertical guidance during a final approach.

GLIDESLOPE INTERCEPT ALTITUDE- The minimum altitude to intercept the glideslope/path on a precision approach. The intersection of the published intercept altitude with the glideslope/path, designated on Government charts by the lightning bolt symbol, is the precision FAF; however, when the approach chart shows an alternative lower glideslope intercept altitude, and ATC directs a lower altitude, the resultant lower intercept position is then the FAF.

(See FINAL APPROACH FIX.)

(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

GLOBAL POSITIONING SYSTEM (GPS)- A space-base radio positioning, navigation, and time-transfer system. The system provides highly accurate position and velocity information, and precise time, on a continuous global basis, to an unlimited number of properly equipped users. The system is unaffected by weather, and provides a worldwide common grid reference system. The GPS concept is predicated upon accurate and continuous knowledge of the spatial position of each satellite in the system with respect to time and distance from a transmitting satellite to the user. The GPS receiver automatically selects appropriate signals from the satellites in view and translates these into three-dimensional position, velocity, and time. System accuracy for civil users is normally 100 meters horizontally.

GO AHEAD- Proceed with your message. Not to be used for any other purpose.

GO AROUND- Instructions for a pilot to abandon his/her approach to landing. Additional instructions may follow. Unless otherwise advised by ATC, a VFR aircraft or an aircraft conducting visual approach should overfly the runway while climbing to traffic pattern altitude and enter the traffic pattern via the crosswind leg. A pilot on an IFR flight plan making an instrument approach should execute the

published missed approach procedure or proceed as instructed by ATC; e.g., "Go around" (additional instructions if required).
(See LOW APPROACH.)
(See MISSED APPROACH.)

GPD-
(See GRAPHIC PLAN DISPLAY.)

GPS-
(See GLOBAL POSITIONING SYSTEM.)

GRAPHIC PLAN DISPLAY (GPD)- A view available with URET CCLD that provides a graphic display of aircraft, traffic, and notification of predicted conflicts. Graphic routes for Current Plans and Trial Plans are displayed upon controller request.
(See USER REQUEST EVALUATION TOOL CORE CAPABILITY LIMITED DEPLOYMENT.)

GROUND CLUTTER- A pattern produced on the radar scope by ground returns which may degrade other radar returns in the affected area. The effect of ground clutter is minimized by the use of moving target indicator (MTI) circuits in the radar equipment resulting in a radar presentation which displays only targets which are in motion.
(See CLUTTER.)

GROUND COMMUNICATION OUTLET (GCO)- An unstaffed, remotely controlled, ground/ground communications facility. Pilots at uncontrolled airports may contact ATC and FSS via VHF to a telephone connection to obtain an instrument clearance or close a VFR or IFR flight plan. They may also get an updated weather briefing prior to takeoff. Pilots will use four "key clicks" on the VHF radio to contact the appropriate ATC facility or six "key clicks" to contact the FSS. The GCO system is intended to be used only on the ground.

GROUND CONTROLLED APPROACH- A radar approach system operated from the ground by air traffic control personnel transmitting instructions to the pilot by radio. The approach may be conducted with surveillance radar (ASR) only or with both surveillance and precision approach radar (PAR). Usage of the term "GCA" by pilots is discouraged except when referring to a GCA facility. Pilots should specifically request a "PAR" approach when a precision radar approach is desired or request an "ASR" or "surveillance" approach when a nonprecision radar approach is desired.
(See RADAR APPROACH.)

GROUND DELAY- The amount of delay attributed to ATC, encountered prior to departure, usually associated with a CDT program.

GROUND SPEED- The speed of an aircraft relative to the surface of the earth.

GROUND STOP- Normally, the last initiative to be utilized; this method mandates that the terminal facility will not allow any departures to enter the ARTCC airspace until further notified.

GROUND VISIBILITY-
(See VISIBILITY.)

H

HAA-
(See HEIGHT ABOVE AIRPORT.)

HAL-
(See HEIGHT ABOVE LANDING.)

HANDOFF- An action taken to transfer the radar identification of an aircraft from one controller to another if the aircraft will enter the receiving controller's airspace and radio communications with the aircraft will be transferred.

HAT-
(See HEIGHT ABOVE TOUCHDOWN.)

HAVE NUMBERS- Used by pilots to inform ATC that they have received runway, wind, and altimeter information only.

HAZARDOUS INFLIGHT WEATHER ADVISORY SERVICE- Continuous recorded hazardous inflight weather forecasts broadcasted to airborne pilots over selected VOR outlets defined as an HIWAS BROADCAST AREA.

HAZARDOUS WEATHER INFORMATION- Summary of significant meteorological information (SIGMET/WS), convective significant meteorological information (convective SIGMET/WST), urgent pilot weather reports (urgent PIREP/UUA), center weather advisories (CWA), airmen's meteorological information (AIRMET/WA) and any other weather such as isolated thunderstorms that are rapidly developing and increasing in intensity, or low ceilings and visibilities that are becoming widespread which is considered significant and are not included in a current hazardous weather advisory.

HEAVY (AIRCRAFT)-
(See AIRCRAFT CLASSES.)

HEIGHT ABOVE AIRPORT- The height of the Minimum Descent Altitude above the published airport elevation. This is published in conjunction with circling minimums.
(See MINIMUM DESCENT ALTITUDE.)

HEIGHT ABOVE LANDING- The height above a designated helicopter landing area used for helicopter instrument approach procedures.
(Refer to 14 CFR Part 97.)

HEIGHT ABOVE TOUCHDOWN- The height of the Decision Height or Minimum Descent Altitude above the highest runway elevation in the touchdown zone (first 3,000 feet of the runway). HAT is published on instrument approach charts in conjunction with all straight-in minimums.
(See DECISION HEIGHT.)
(See MINIMUM DESCENT ALTITUDE.)

HELICOPTER- Rotorcraft that, for its horizontal motion, depends principally on its engine-driven rotors.
(See ICAO term HELICOPTER.)

HELICOPTER [ICAO]- A heavier-than-air aircraft supported in flight chiefly by the reactions of the air on one or more power-driven rotors on substantially vertical axes.

HELIPAD- A small, designated area, usually with a prepared surface, on a heliport, airport, landing/takeoff area, apron/ramp, or movement area used for takeoff, landing, or parking of helicopters.

HELIPORT- An area of land, water, or structure used or intended to be used for the landing and takeoff of helicopters and includes its buildings and facilities if any.

HELIPORT REFERENCE POINT (HRP)- The geographic center of a heliport.

HERTZ- The standard radio equivalent of frequency in cycles per second of an electromagnetic wave. Kilohertz (KHz) is a frequency of one thousand cycles per second. Megahertz (MHz) is a frequency of one million cycles per second.

HF-
(See HIGH FREQUENCY.)

HF COMMUNICATIONS-
(See HIGH FREQUENCY COMMUNICATIONS.)

HIGH FREQUENCY- The frequency band between 3 and 30 MHz.
(See HIGH FREQUENCY COMMUNICATIONS.)

HIGH FREQUENCY COMMUNICATIONS- High radio frequencies (HF) between 3 and 30 MHz used for air-to-ground voice communication in overseas operations.

HIGH SPEED EXIT-
(See HIGH SPEED TAXIWAY.)

HIGH SPEED TAXIWAY- A long radius taxiway designed and provided with lighting or marking to define the path of aircraft, traveling at high speed (up to 60 knots), from the runway center to a point on the center of a taxiway. Also referred to as long radius exit or turn-off taxiway. The high speed taxiway is designed to expedite aircraft turning off the runway after landing, thus reducing runway occupancy time.

HIGH SPEED TURNOFF-
(See HIGH SPEED TAXIWAY.)

HIWAS-
(See HAZARDOUS INFLIGHT WEATHER ADVISORY SERVICE.)

HIWAS AREA-
(See HAZARDOUS INFLIGHT WEATHER ADVISORY SERVICE.)

HIWAS BROADCAST AREA- A geographical area of responsibility including one or more HIWAS outlet areas assigned to an AFSS/FSS for hazardous weather advisory broadcasting.

HIWAS OUTLET AREA- An area defined as a 150 NM radius of a HIWAS outlet, expanded as necessary to provide coverage.

HOLDING PROCEDURE-
(See HOLD PROCEDURE.)

HOLD PROCEDURE- A predetermined maneuver which keeps aircraft within a specified airspace while awaiting further clearance from air traffic control. Also used during ground operations to keep aircraft within a specified area or at a specified point while awaiting further clearance from air traffic control.
(See HOLDING FIX.)
(Refer to AIM.)

HOLD-SHORT POINT- A point on the runway beyond which a landing aircraft with a LAHSO clearance is not authorized to proceed. This point may be located prior to an intersecting runway, taxiway, predetermined point, or approach/departure flight path.

HOLDING FIX- A specified fix identifiable to a pilot by NAVAID's or visual reference to the ground used as a reference point in establishing and maintaining the position of an aircraft while holding.
(See FIX.)
(See VISUAL HOLDING.)
(Refer to AIM.)

HOLDING POINT [ICAO]- A specified location, identified by visual or other means, in the vicinity of which the position of an aircraft in flight is maintained in accordance with air traffic control clearances.

HOLD FOR RELEASE- Used by ATC to delay an aircraft for traffic management reasons; i.e., weather, traffic volume, etc. Hold for release instructions (including departure delay information) are used to inform a pilot or a controller (either directly or through an authorized relay) that an IFR departure clearance is not valid until a release time or additional instructions have been received.
(See ICAO term HOLDING POINT.)

HOLD-SHORT POSITION MARKING- The painted runway marking located at the hold-short point on all LAHSO runways.

HOLD-SHORT POSITION LIGHTS- Flashing in-pavement white lights located at specified hold-short points.

HOLD-SHORT POSITION SIGNS- Red and white holding position signs located alongside the hold-short point.

HOMING- Flight toward a NAVAID, without correcting for wind, by adjusting the aircraft heading to maintain a relative bearing of zero degrees.
(See BEARING.)
(See ICAO term HOMING.)

HOMING [ICAO]- The procedure of using the direction-finding equipment of one radio station with the emission of another radio station, where at least one of the stations is mobile, and whereby the mobile station proceeds continuously towards the other station.

HOVER CHECK- Used to describe when a helicopter/VTOL aircraft requires a stabilized hover to conduct a performance/power check prior to hover taxi, air taxi, or takeoff. Altitude of the hover will vary based on the purpose of the check.

HOVER TAXI- Used to describe a helicopter/VTOL aircraft movement conducted above the surface and

in ground effect at airspeeds less than approximately 20 knots. The actual height may vary, and some helicopters may require hover taxi above 25 feet AGL to reduce ground effect turbulence or provide clearance for cargo slingloads.

(See AIR TAXI.)
(See HOVER CHECK.)
(Refer to AIM.)

HOW DO YOU HEAR ME?- A question relating to the quality of the transmission or to determine how well the transmission is being received.

HZ-

(See HERTZ.)

I

IAF-
(See INITIAL APPROACH FIX.)

IAP-
(See INSTRUMENT APPROACH PROCEDURE.)

IAWP- Initial Approach Waypoint

ICAO-
(See ICAO Term INTERNATIONAL CIVIL AVIATION ORGANIZATION.)

ICING- The accumulation of airframe ice.

Types of icing are:

a. Rime Ice- Rough, milky, opaque ice formed by the instantaneous freezing of small supercooled water droplets.

b. Clear Ice- A glossy, clear, or translucent ice formed by the relatively slow freezing or large supercooled water droplets.

c. Mixed- A mixture of clear ice and rime ice.

Intensity of icing:

a. Trace- Ice becomes perceptible. Rate of accumulation is slightly greater than the rate of sublimation. Deicing/anti-icing equipment is not utilized unless encountered for an extended period of time (over 1 hour).

b. Light- The rate of accumulation may create a problem if flight is prolonged in this environment (over 1 hour). Occasional use of deicing/anti-icing equipment removes/prevents accumulation. It does not present a problem if the deicing/anti-icing equipment is used.

c. Moderate- The rate of accumulation is such that even short encounters become potentially hazardous and use of deicing/anti-icing equipment or flight diversion is necessary.

d. Severe- The rate of accumulation is such that deicing/anti-icing equipment fails to reduce or control the hazard. Immediate flight diversion is necessary.

IDENT- A request for a pilot to activate the aircraft transponder identification feature. This will help the controller to confirm an aircraft identity or to identify an aircraft.
(Refer to AIM.)

IDENT FEATURE- The special feature in the Air Traffic Control Radar Beacon System (ATCRBS) equipment. It is used to immediately distinguish one displayed beacon target from other beacon targets.
(See IDENT.)

IF-
(See INTERMEDIATE FIX.)

IFIM-
(See INTERNATIONAL FLIGHT INFORMATION MANUAL.)

IF NO TRANSMISSION RECEIVED FOR (TIME)- Used by ATC in radar approaches to prefix procedures which should be followed by the pilot in event of lost communications.
(See LOST COMMUNICATIONS.)

IFR-
(See INSTRUMENT FLIGHT RULES.)

IFR AIRCRAFT- An aircraft conducting flight in accordance with instrument flight rules.

IFR CONDITIONS- Weather conditions below the minimum for flight under visual flight rules.
(See INSTRUMENT METEOROLOGICAL CONDITIONS.)

IFR DEPARTURE PROCEDURE-
(See IFR TAKEOFF MINIMUMS AND DEPARTURE PROCEDURES.)
(Refer to AIM.)

IFR FLIGHT-
(See IFR AIRCRAFT.)

IFR LANDING MINIMUMS-
(See LANDING MINIMUMS.)

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 below 10,000 feet MSL at airspeeds in excess of 250 knots IAS.

IFR TAKEOFF MINIMUMS AND DEPARTURE PROCEDURES- Title 14 Code of Federal

Regulations Part 91, prescribes standard takeoff rules for certain civil users. At some airports, obstructions or other factors require the establishment of nonstandard takeoff minimums, departure procedures, or both to assist pilots in avoiding obstacles during climb to the minimum en route altitude. Those airports are listed in FAA/DOD Instrument Approach Procedures (IAP's) Charts under a section entitled "IFR Takeoff Minimums and Departure Procedures." The FAA/DOD IAP chart legend illustrates the symbol used to alert the pilot to nonstandard takeoff minimums and departure procedures. When departing IFR from such airports or from any airports where there are no departure procedures, DP's, or ATC facilities available, pilots should advise ATC of any departure limitations. Controllers may query a pilot to determine acceptable departure directions, turns, or headings after takeoff. Pilots should be familiar with the departure procedures and must assure that their aircraft can meet or exceed any specified climb gradients.

IF/IAWP- Intermediate Fix/Initial Approach Waypoint. The waypoint where the final approach course of a T approach meets the crossbar of the T. When designated (in conjunction with a TAA) this waypoint will be used as an IAWP when approaching the airport from certain directions, and as an IFWP when beginning the approach from another IAWP.

IFWP- Intermediate Fix Waypoint

ILS-
(See INSTRUMENT LANDING SYSTEM.)

ILS CATEGORIES- 1. ILS Category I. An ILS approach procedure which provides for approach to a height above touchdown of not less than 200 feet and with runway visual range of not less than 1,800 feet.- 2. ILS Category II. An ILS approach procedure which provides for approach to a height above touchdown of not less than 100 feet and with runway visual range of not less than 1,200 feet.- 3. ILS Category III:

a. IIIA.-An ILS approach procedure which provides for approach without a decision height minimum and with runway visual range of not less than 700 feet.

b. IIIB.-An ILS approach procedure which provides for approach without a decision height minimum and with runway visual range of not less than 150 feet.

c. IIIC.-An ILS approach procedure which provides for approach without a decision height minimum and without runway visual range minimum.

ILS PRM APPROACH- An instrument landing system (ILS) approach conducted to parallel runways whose extended centerlines are separated by less than 4,300 feet and the parallel runways have a Precision Runway Monitoring (PRM) system that permits simultaneous independent ILS approaches.

IM-
(See INNER MARKER.)

IMC-
(See INSTRUMENT METEOROLOGICAL CONDITIONS.)

IMMEDIATELY- Used by ATC or pilots when such action compliance is required to avoid an imminent situation.

INCERFA Uncertainty Phase) [ICAO]- A situation wherein uncertainty exists as to the safety of an aircraft and its occupants.

INCREASE SPEED TO (SPEED)-
(See SPEED ADJUSTMENT.)

INERTIAL NAVIGATION SYSTEM- An RNAV system which is a form of self-contained navigation.
(See Area Navigation/RNAV.)

INFLIGHT REFUELING-
(See AERIAL REFUELING.)

INFLIGHT WEATHER ADVISORY-
(See WEATHER ADVISORY.)

INFORMATION REQUEST- A request originated by an FSS for information concerning an overdue VFR aircraft.

INITIAL APPROACH FIX- The fixes depicted on instrument approach procedure charts that identify the beginning of the initial approach segment(s).
(See FIX.)
(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

INITIAL APPROACH SEGMENT-
(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

INITIAL APPROACH SEGMENT [ICAO]- That segment of an instrument approach procedure

between the initial approach fix and the intermediate approach fix or, where applicable, the final approach fix or point.

INLAND NAVIGATION FACILITY- A navigation aid on a North American Route at which the common route and/or the noncommon route begins or ends.

INNER MARKER- A marker beacon used with an ILS (CAT II) precision approach located between the middle marker and the end of the ILS runway, transmitting a radiation pattern keyed at six dots per second and indicating to the pilot, both aurally and visually, that he/she is at the designated decision height (DH), normally 100 feet above the touchdown zone elevation, on the ILS CAT II approach. It also marks progress during a CAT III approach.

(See INSTRUMENT LANDING SYSTEM.)

(Refer to AIM.)

INNER MARKER BEACON-

(See INNER MARKER.)

INREQ-

(See INFORMATION REQUEST.)

INS-

(See INERTIAL NAVIGATION SYSTEM.)

INSTRUMENT APPROACH-

(See INSTRUMENT APPROACH PROCEDURE.)

INSTRUMENT APPROACH PROCEDURE- A series of predetermined maneuvers for the orderly transfer of an aircraft under instrument flight conditions from the beginning of the initial approach to a landing or to a point from which a landing may be made visually. It is prescribed and approved for a specific airport by competent authority.

(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

(Refer to 14 CFR Part 91.)

(Refer to AIM.)

a. U.S. civil standard instrument approach procedures are approved by the FAA as prescribed under 14 CFR Part 97 and are available for public use.

b. U.S. military standard instrument approach procedures are approved and published by the Department of Defense.

c. Special instrument approach procedures are approved by the FAA for individual operators but are not published in 14 CFR Part 97 for public use.

(See ICAO term INSTRUMENT APPROACH PROCEDURE.)

INSTRUMENT APPROACH PROCEDURE [ICAO]- A series of predetermined maneuvers by reference to flight instruments with specified protection from obstacles from the initial approach fix, or where applicable, from the beginning of a defined arrival route to a point from which a landing can be completed and thereafter, if a landing is not completed, to a position at which holding or en route obstacle clearance criteria apply.

INSTRUMENT APPROACH PROCEDURES CHARTS-

(See AERONAUTICAL CHART.)

INSTRUMENT DEPARTURE PROCEDURE (DP)- A preplanned instrument flight rule (IFR) air traffic control departure procedure printed for pilot use in graphic and/or textual form. DP's provide transition from the terminal to the appropriate en route structure.

(See IFR TAKEOFF MINIMUMS AND DEPARTURE PROCEDURES.)

(Refer to AIM.)

INSTRUMENT DEPARTURE PROCEDURE (DP) CHARTS-

(See AERONAUTICAL CHART.)

INSTRUMENT FLIGHT RULES- Rules governing the procedures for conducting instrument flight. Also a term used by pilots and controllers to indicate type of flight plan.

(See INSTRUMENT METEOROLOGICAL CONDITIONS.)

(See VISUAL FLIGHT RULES.)

(See VISUAL METEOROLOGICAL CONDITIONS.)

(See ICAO term INSTRUMENT FLIGHT RULES.)

(Refer to AIM.)

INSTRUMENT FLIGHT RULES [ICAO]- A set of rules governing the conduct of flight under instrument meteorological conditions.

INSTRUMENT LANDING SYSTEM- A precision instrument approach system which normally consists of the following electronic components and visual aids:

a. Localizer.
(See LOCALIZER.)

b. Glideslope.
(See GLIDESLOPE.)

c. Outer Marker.
(See OUTER MARKER.)

d. Middle Marker.
(See MIDDLE MARKER.)

e. Approach Lights.
(See AIRPORT LIGHTING.)
(Refer to 14 CFR Part 91.)
(Refer to AIM.)

INSTRUMENT METEOROLOGICAL CONDITIONS- Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling less than the minima specified for visual meteorological conditions.
(See INSTRUMENT FLIGHT RULES.)
(See VISUAL FLIGHT RULES.)
(See VISUAL METEOROLOGICAL CONDITIONS.)

INSTRUMENT RUNWAY- A runway equipped with electronic and visual navigation aids for which a precision or nonprecision approach procedure having straight-in landing minimums has been approved.
(See ICAO term INSTRUMENT RUNWAY.)

INSTRUMENT RUNWAY [ICAO]- One of the following types of runways intended for the operation of aircraft using instrument approach procedures:

a. Nonprecision Approach Runway-An instrument runway served by visual aids and a nonvisual aid providing at least directional guidance adequate for a straight-in approach.

b. Precision Approach Runway, Category I-An instrument runway served by ILS and visual aids intended for operations down to 60 m (200 feet) decision height and down to an RVR of the order of 800 m.

c. Precision Approach Runway, Category II-An instrument runway served by ILS and visual aids intended for operations down to 30 m (100 feet) decision height and down to an RVR of the order of 400 m.

d. Precision Approach Runway, Category III-An instrument runway served by ILS to and along the surface of the runway and:

1. Intended for operations down to an RVR of the order of 200 m (no decision height being applicable) using visual aids during the final phase of landing;

2. Intended for operations down to an RVR of the order of 50 m (no decision height being applicable) using visual aids for taxiing;

3. Intended for operations without reliance on visual reference for landing or taxiing.

Note 1: See Annex 10 Volume I, Part I, Chapter 3, for related ILS specifications.

Note 2: Visual aids need not necessarily be matched to the scale of nonvisual aids provided. The criterion for the selection of visual aids is the conditions in which operations are intended to be conducted.

INTEGRITY- The ability of a system to provide timely warnings to users when the system should not be used for navigation.

INTERMEDIATE APPROACH SEGMENT-
(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

INTERMEDIATE APPROACH SEGMENT [ICAO]- That segment of an instrument approach procedure between either the intermediate approach fix and the final approach fix or point, or between the end of a reversal, race track or dead reckoning track procedure and the final approach fix or point, as appropriate.

INTERMEDIATE FIX- The fix that identifies the beginning of the intermediate approach segment of an instrument approach procedure. The fix is not normally identified on the instrument approach chart as an intermediate fix (IF).
(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

INTERMEDIATE LANDING- On the rare occasion that this option is requested, it should be approved. The departure center, however, must advise the ATCSCC so that the appropriate delay is carried over and assigned at the intermediate airport. An intermediate landing airport within the arrival center will not be accepted without coordination with and the approval of the ATCSCC.

INTERNATIONAL AIRPORT- Relating to international flight, it means:

a. An airport of entry which has been designated by the Secretary of Treasury or Commissioner of Customs as an international airport for customs service.

b. A landing rights airport at which specific permission to land must be obtained from customs authorities in advance of contemplated use.

c. Airports designated under the Convention on International Civil Aviation as an airport for use by international commercial air transport and/or international general aviation.

(See ICAO term INTERNATIONAL AIRPORT.)
(Refer to AIRPORT/FACILITY DIRECTORY.)
(Refer to IFIM.)

INTERNATIONAL AIRPORT [ICAO]- Any airport designated by the Contracting State in whose territory it is situated as an airport of entry and departure for international air traffic, where the formalities incident to customs, immigration, public health, animal and plant quarantine and similar procedures are carried out.

INTERNATIONAL CIVIL AVIATION ORGANIZATION [ICAO]- A specialized agency of the United Nations whose objective is to develop the principles and techniques of international air navigation and to foster planning and development of international civil air transport.

a. Regions include:

1. African-Indian Ocean Region
2. Caribbean Region
3. European Region
4. Middle East/Asia Region
5. North American Region
6. North Atlantic Region
7. Pacific Region
8. South American Region

INTERNATIONAL FLIGHT INFORMATION MANUAL- A publication designed primarily as a pilot's preflight planning guide for flights into foreign airspace and for flights returning to the U.S. from foreign locations.

INTERROGATOR- The ground-based surveillance radar beacon transmitter-receiver, which normally scans in synchronism with a primary radar, transmitting discrete radio signals which repetitiously request all transponders on the mode being used to reply. The replies received are mixed with the primary radar returns and displayed on the same plan position indicator (radar scope). Also, applied to the airborne element of the TACAN/DME system.

(See TRANSPONDER.)
(Refer to AIM.)

INTERSECTING RUNWAYS- Two or more runways which cross or meet within their lengths.

(See INTERSECTION.)

INTERSECTION-

a. A point defined by any combination of courses, radials, or bearings of two or more navigational aids.

b. Used to describe the point where two runways, a runway and a taxiway, or two taxiways cross or meet.

INTERSECTION DEPARTURE- A departure from any runway intersection except the end of the runway.

(See INTERSECTION.)

INTERSECTION TAKEOFF-

(See INTERSECTION DEPARTURE.)

IR-

(See IFR MILITARY TRAINING ROUTES.)

I SAY AGAIN- The message will be repeated.

J

JAMMING- Electronic or mechanical interference which may disrupt the display of aircraft on radar or the transmission/reception of radio communications/ navigation.

JET BLAST- Jet engine exhaust (thrust stream turbulence).

(See WAKE TURBULENCE.)

JET ROUTE- A route designed to serve aircraft operations from 18,000 feet MSL up to and including flight level 450. The routes are referred to as "J" routes with numbering to identify the designated route; e.g., J105.

(See Class A AIRSPACE.)
(Refer to 14 CFR Part 71.)

JET STREAM- A migrating stream of high-speed winds present at high altitudes.

JETTISONING OF EXTERNAL STORES- Airborne release of external stores; e.g., tiptanks, ordnance.

(See FUEL DUMPING.)
(Refer to 14 CFR Part 91.)

JOINT USE RESTRICTED AREA-

(See RESTRICTED AREA.)

K

KNOWN TRAFFIC- With respect to ATC clearances, means aircraft whose altitude, position, and intentions are known to ATC.

L

LAA-
(See LOCAL AIRPORT ADVISORY.)

LAAS-
(See LOW ALTITUDE ALERT SYSTEM.)

LAHSO- An acronym for "Land and Hold Short Operation." These operations include landing and holding short of an intersecting runway, a taxiway, a predetermined point, or an approach/departure flightpath.

LAHSO-DRY- Land and hold short operations on runways that are dry.

LAHSO-WET- Land and hold short operations on runways that are wet (but not contaminated).

LAND AND HOLD SHORT OPERATIONS- Operations which include simultaneous takeoffs and landings and/or simultaneous landings when a landing aircraft is able and is instructed by the controller to hold-short of the intersecting runway/taxiway or designated hold-short point. Pilots are expected to promptly inform the controller if the hold short clearance cannot be accepted.
(See PARALLEL RUNWAYS.)
(Refer to AIM.)

LANDING AREA- Any locality either on land, water, or structures, including airports/heliports and intermediate landing fields, which is used, or intended to be used, for the landing and takeoff of aircraft whether or not facilities are provided for the shelter, servicing, or for receiving or discharging passengers or cargo.
(See ICAO term LANDING AREA.)

LANDING AREA [ICAO]- That part of a movement area intended for the landing or take-off of aircraft.

LANDING DIRECTION INDICATOR- A device which visually indicates the direction in which landings and takeoffs should be made.
(See TETRAHEDRON.)
(Refer to AIM.)

LANDING DISTANCE AVAILABLE [ICAO]- The length of runway which is declared available and suitable for the ground run of an aeroplane landing.

LANDING MINIMUMS- The minimum visibility prescribed for landing a civil aircraft while using an instrument approach procedure. The minimum applies with other limitations set forth in 14 CFR Part 91 with respect to the Minimum Descent Altitude (MDA) or Decision Height (DH) prescribed in the instrument approach procedures as follows:

a. Straight-in landing minimums. A statement of MDA and visibility, or DH and visibility, required for a straight-in landing on a specified runway, or

b. Circling minimums. A statement of MDA and visibility required for the circle-to-land maneuver.

Note: Descent below the established MDA or DH is not authorized during an approach unless the aircraft is in a position from which a normal approach to the runway of intended landing can be made and adequate visual reference to required visual cues is maintained.

(See CIRCLE-TO-LAND MANEUVER.)
(See DECISION HEIGHT.)
(See INSTRUMENT APPROACH PROCEDURE.)
(See MINIMUM DESCENT ALTITUDE.)
(See STRAIGHT-IN LANDING.)
(See VISIBILITY.)
(Refer to 14 CFR Part 91.)

LANDING ROLL- The distance from the point of touchdown to the point where the aircraft can be brought to a stop or exit the runway.

LANDING SEQUENCE- The order in which aircraft are positioned for landing.
(See APPROACH SEQUENCE.)

LAST ASSIGNED ALTITUDE- The last altitude/flight level assigned by ATC and acknowledged by the pilot.
(See MAINTAIN.)
(Refer to 14 CFR Part 91.)

LATERAL NAVIGATION (LNAV)– A function of area navigation (RNAV) equipment which calculates, displays, and provides lateral guidance to a profile or path.

LATERAL SEPARATION- The lateral spacing of aircraft at the same altitude by requiring operation on different routes or in different geographical locations.
(See SEPARATION.)

LDA-
(See LOCALIZER TYPE DIRECTIONAL AID.)
(See ICAO Term LANDING DISTANCE AVAILABLE.)

LF-
(See LOW FREQUENCY.)

LIGHTED AIRPORT- An airport where runway and obstruction lighting is available.
(See AIRPORT LIGHTING.)
(Refer to AIM.)

LIGHT GUN- A handheld directional light signaling device which emits a brilliant narrow beam of white, green, or red light as selected by the tower controller. The color and type of light transmitted can be used to approve or disapprove anticipated pilot actions where radio communication is not available. The light gun is used for controlling traffic operating in the vicinity of the airport and on the airport movement area.
(Refer to AIM.)

LOCALIZER- The component of an ILS which provides course guidance to the runway.
(See INSTRUMENT LANDING SYSTEM.)
(See ICAO term LOCALIZER COURSE.)
(Refer to AIM.)

LOCALIZER COURSE [ICAO]- The locus of points, in any given horizontal plane, at which the DDM (difference in depth of modulation) is zero.

LOCALIZER OFFSET- An angular offset of the localizer from the runway extended centerline in a direction away from the no transgression zone (NTZ) that increases the normal operating zone (NOZ) width. An offset requires a 50 foot increase in DH and is not authorized for CAT II and CAT III approaches.

LOCALIZER TYPE DIRECTIONAL AID- A NAVAID used for nonprecision instrument approaches with utility and accuracy comparable to a localizer but which is not a part of a complete ILS and is not aligned with the runway.
(Refer to AIM.)

LOCALIZER USABLE DISTANCE- The maximum distance from the localizer transmitter at a specified altitude, as verified by flight inspection, at which reliable course information is continuously received.
(Refer to AIM.)

LOCAL AIRPORT ADVISORY [LAA]- A service provided by flight service stations or the military at airports not serviced by an operating control tower. This service consists of providing information to arriving and departing aircraft concerning wind direction and speed, favored runway, altimeter setting, pertinent known traffic, pertinent known field conditions, airport taxi routes and traffic patterns, and authorized instrument approach procedures. This information is advisory in nature and does not constitute an ATC clearance.
(See AIRPORT ADVISORY AREA.)

LOCAL TRAFFIC- Aircraft operating in the traffic pattern or within sight of the tower, or aircraft known to be departing or arriving from flight in local practice areas, or aircraft executing practice instrument approaches at the airport.
(See TRAFFIC PATTERN.)

LOCATOR [ICAO]- An LM/MF NDB used as an aid to final approach.
Note: A locator usually has an average radius of rated coverage of between 18.5 and 46.3 km (10 and 25 NM).

LONGITUDINAL SEPARATION- The longitudinal spacing of aircraft at the same altitude by a minimum distance expressed in units of time or miles.
(See SEPARATION.)
(Refer to AIM.)

LONG RANGE NAVIGATION-
(See LORAN.)

LORAN- An electronic navigational system by which hyperbolic lines of position are determined by measuring the difference in the time of reception of synchronized pulse signals from two fixed transmitters. Loran A operates in the 1750-1950 KHz frequency band. Loran C and D operate in the 100-110 KHz frequency band.
(Refer to AIM.)

LOST COMMUNICATIONS- Loss of the ability to communicate by radio. Aircraft are sometimes referred to as NORDO (No Radio). Standard pilot procedures are specified in 14 CFR Part 91. Radar controllers issue procedures for pilots to follow in the event of lost communications during a radar approach when weather reports indicate that an aircraft will

likely encounter IFR weather conditions during the approach.

(Refer to 14 CFR Part 91.)

(Refer AIM.)

LOW ALTITUDE AIRWAY STRUCTURE- The network of airways serving aircraft operations up to but not including 18,000 feet MSL.

(See AIRWAY.)

(Refer to AIM.)

LOW ALTITUDE ALERT, CHECK YOUR ALTITUDE IMMEDIATELY-

(See SAFETY ALERT.)

LOW ALTITUDE ALERT SYSTEM- An automated function of the TPX-42 that alerts the controller when a Mode C transponder equipped aircraft on an IFR flight plan is below a predetermined minimum safe altitude. If requested by the pilot, Low Altitude Alert System monitoring is also available to VFR Mode C transponder equipped aircraft.

LOW APPROACH- An approach over an airport or runway following an instrument approach or a VFR approach including the go-around maneuver where the pilot intentionally does not make contact with the runway.

(Refer to AIM.)

LOW FREQUENCY- The frequency band between 30 and 300 KHz.

(Refer to AIM.)

M

M-EARTS-
(See MICRO-EN ROUTE AUTOMATED RADAR TRACKING SYSTEM.)

MAA-
(See MAXIMUM AUTHORIZED ALTITUDE.)

MACH NUMBER- The ratio of true airspeed to the speed of sound; e.g., MACH .82, MACH 1.6.
(See AIRSPEED.)

MACH TECHNIQUE [ICAO]- Describes a control technique used by air traffic control whereby turbojet aircraft operating successively along suitable routes are cleared to maintain appropriate MACH numbers for a relevant portion of the en route phase of flight. The principle objective is to achieve improved utilization of the airspace and to ensure that separation between successive aircraft does not decrease below the established minima.

MAHWP- Missed Approach Holding Waypoint

MAINTAIN-

a. Concerning altitude/flight level, the term means to remain at the altitude/flight level specified. The phrase "climb and" or "descend and" normally precedes "maintain" and the altitude assignment; e.g., "descend and maintain 5,000."

b. Concerning other ATC instructions, the term is used in its literal sense; e.g., maintain VFR.

MAINTENANCE PLANNING FRICTION LEVEL- The friction level specified in AC 150/5320-12, Measurement, Construction, and Maintenance of Skid Resistant Airport Pavement Surfaces, which represents the friction value below which the runway pavement surface remains acceptable for any category or class of aircraft operations but which is beginning to show signs of deterioration. This value will vary depending on the particular friction measurement equipment used.

MAKE SHORT APPROACH- Used by ATC to inform a pilot to alter his/her traffic pattern so as to make a short final approach.
(See TRAFFIC PATTERN.)

MANDATORY ALTITUDE- An altitude depicted on an instrument Approach Procedure Chart requiring the aircraft to maintain altitude at the depicted value.

MAP-
(See MISSED APPROACH POINT.)

MARKER BEACON- An electronic navigation facility transmitting a 75 MHz vertical fan or bone-shaped radiation pattern. Marker beacons are identified by their modulation frequency and keying code, and when received by compatible airborne equipment, indicate to the pilot, both aurally and visually, that he/she is passing over the facility.
(See INNER MARKER.)
(See MIDDLE MARKER.)
(See OUTER MARKER.)
(Refer to AIM.)

MARSA-
(See MILITARY AUTHORITY ASSUMES RESPONSIBILITY FOR SEPARATION OF AIRCRAFT.)

MAWP- Missed Approach Waypoint

MAXIMUM AUTHORIZED ALTITUDE- A published altitude representing the maximum usable altitude or flight level for an airspace structure or route segment. It is the highest altitude on a Federal airway, jet route, area navigation low or high route, or other direct route for which an MEA is designated in 14 CFR Part 95 at which adequate reception of navigation aid signals is assured.

MAYDAY- The international radiotelephony distress signal. When repeated three times, it indicates imminent and grave danger and that immediate assistance is requested.
(See PAN-PAN.)
(Refer to AIM.)

MCA-
(See MINIMUM CROSSING ALTITUDE.)

MDA-
(See MINIMUM DESCENT ALTITUDE.)

MEA-
(See MINIMUM EN ROUTE IFR ALTITUDE.)

METEOROLOGICAL IMPACT STATEMENT- An unscheduled planning forecast describing conditions expected to begin within 4 to 12 hours which

may impact the flow of air traffic in a specific center's (ARTCC) area.

METER FIX TIME/SLOT TIME- A calculated time to depart the meter fix in order to cross the vertex at the ACLT. This time reflects descent speed adjustment and any applicable time that must be absorbed prior to crossing the meter fix.

METER LIST DISPLAY INTERVAL- A dynamic parameter which controls the number of minutes prior to the flight plan calculated time of arrival at the meter fix for each aircraft, at which time the TCLT is frozen and becomes an ACLT; i.e., the VTA is updated and consequently the TCLT modified as appropriate until frozen at which time updating is suspended and an ACLT is assigned. When frozen, the flight entry is inserted into the arrival sector's meter list for display on the sector PVD/MDM. MLDI is used if filed true airspeed is less than or equal to freeze speed parameters (FSPD).

METERING- A method of time-regulating arrival traffic flow into a terminal area so as not to exceed a predetermined terminal acceptance rate.

METERING AIRPORTS- Airports adapted for metering and for which optimum flight paths are defined. A maximum of 15 airports may be adapted.

METERING FIX- A fix along an established route from over which aircraft will be metered prior to entering terminal airspace. Normally, this fix should be established at a distance from the airport which will facilitate a profile descent 10,000 feet above airport elevation (AAE) or above.

METERING POSITION(S)- Adapted PVD's/MDM's and associated "D" positions eligible for display of a metering position list. A maximum of four PVD's/MDM's may be adapted.

METERING POSITION LIST- An ordered list of data on arrivals for a selected metering airport displayed on a metering position PVD/MDM.

MFT-
(See METER FIX TIME/SLOT TIME.)

MHA-
(See MINIMUM HOLDING ALTITUDE.)

MIA-
(See MINIMUM IFR ALTITUDES.)

MICROBURST- A small downburst with outbursts of damaging winds extending 2.5 miles or less. In spite of its small horizontal scale, an intense microburst could induce wind speeds as high as 150 knots
(Refer to AIM.)

MICRO-EN ROUTE AUTOMATED RADAR TRACKING SYSTEM (M-EARTS)- An automated radar and radar beacon tracking system capable of employing both short-range (ASR) and long-range (ARSR) radars. This microcomputer driven system provides improved tracking, continuous data recording, and use of full digital radar displays.

MICROWAVE LANDING SYSTEM- A precision instrument approach system operating in the microwave spectrum which normally consists of the following components:

a. Azimuth Station.

b. Elevation Station.

c. Precision Distance Measuring Equipment.

(See MLS CATEGORIES.)

MIDDLE COMPASS LOCATOR-
(See COMPASS LOCATOR.)

MIDDLE MARKER- A marker beacon that defines a point along the glideslope of an ILS normally located at or near the point of decision height (ILS Category I). It is keyed to transmit alternate dots and dashes, with the alternate dots and dashes keyed at the rate of 95 dot/dash combinations per minute on a 1300 Hz tone, which is received aurally and visually by compatible airborne equipment.
(See INSTRUMENT LANDING SYSTEM.)
(See MARKER BEACON.)
(Refer to AIM.)

MID RVR-
(See VISIBILITY.)

MILES-IN-TRAIL- A specified distance between aircraft, normally, in the same stratum associated with the same destination or route of flight.

MILITARY AUTHORITY ASSUMES RESPONSIBILITY FOR SEPARATION OF AIRCRAFT- 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-
(See SPECIAL USE AIRSPACE.)

MILITARY TRAINING ROUTES- Airspace of defined vertical and lateral dimensions established

for the conduct of military flight training at airspeeds in excess of 250 knots IAS.

(See IFR MILITARY TRAINING ROUTES.)

(See VFR MILITARY TRAINING ROUTES.)

MINIMA-

(See MINIMUMS.)

MINIMUM CROSSING ALTITUDE- The lowest altitude at certain fixes at which an aircraft must cross when proceeding in the direction of a higher minimum en route IFR altitude (MEA).

(See MINIMUM EN ROUTE IFR ALTITUDE.)

MINIMUM DESCENT ALTITUDE- The lowest altitude, expressed in feet above mean sea level, to which descent is authorized on final approach or during circle-to-land maneuvering in execution of a standard instrument approach procedure where no electronic glideslope is provided.

(See NONPRECISION APPROACH PROCEDURE.)

MINIMUM EN ROUTE IFR ALTITUDE- The lowest published altitude between radio fixes which assures acceptable navigational signal coverage and meets obstacle clearance requirements between those fixes. The MEA prescribed for a Federal airway or segment thereof, area navigation low or high route, or other direct route applies to the entire width of the airway, segment, or route between the radio fixes defining the airway, segment, or route.

(Refer to 14 CFR Part 91.)

(Refer to 14 CFR Part 95.)

(Refer to AIM.)

MINIMUM FRICTION LEVEL- The friction level specified in AC 150/5320-12, Measurement, Construction, and Maintenance of Skid Resistant Airport Pavement Surfaces, that represents the minimum recommended wet pavement surface friction value for any turbojet aircraft engaged in LAHSO. This value will vary with the particular friction measurement equipment used.

MINIMUM FUEL- Indicates that an aircraft's fuel supply has reached a state where, upon reaching the destination, it can accept little or no delay. This is not an emergency situation but merely indicates an emergency situation is possible should any undue delay occur.

(Refer to AIM.)

MINIMUM HOLDING ALTITUDE- The lowest altitude prescribed for a holding pattern which assures navigational signal coverage, communications, and meets obstacle clearance requirements.

MINIMUM IFR ALTITUDES- Minimum altitudes for IFR operations as prescribed in 14 CFR Part 91. These altitudes are published on aeronautical charts and prescribed in 14 CFR Part 95 for airways and routes, and in 14 CFR Part 97 for standard instrument approach procedures. If no applicable minimum altitude is prescribed in 14 CFR Part 95 or 14 CFR Part 97, the following minimum IFR altitude applies:

a. In designated mountainous areas, 2,000 feet above the highest obstacle within a horizontal distance of 4 nautical miles from the course to be flown; or

b. Other than mountainous areas, 1,000 feet above the highest obstacle within a horizontal distance of 4 nautical miles from the course to be flown; or

c. As otherwise authorized by the Administrator or assigned by ATC.

(See MINIMUM CROSSING ALTITUDE.)

(See MINIMUM EN ROUTE IFR ALTITUDE.)

(See MINIMUM OBSTRUCTION CLEARANCE ALTITUDE.)

(See MINIMUM SAFE ALTITUDE.)

(See MINIMUM VECTORING ALTITUDE.)

(Refer to 14 CFR Part 91.)

MINIMUM NAVIGATION PERFORMANCE SPECIFICATION- A set of standards which require aircraft to have a minimum navigation performance capability in order to operate in MNPS designated airspace. In addition, aircraft must be certified by their State of Registry for MNPS operation.

MINIMUM NAVIGATION PERFORMANCE SPECIFICATION AIRSPACE- Designated airspace in which MNPS procedures are applied between MNPS certified and equipped aircraft. Under certain conditions, non-MNPS aircraft can operate in MNPSA. However, standard oceanic separation minima is provided between the non-MNPS aircraft and other traffic. Currently, the only designated MNPSA is described as follows:

a. Between FL 285 and FL 420;

b. Between latitudes 27°N and the North Pole;

c. In the east, the eastern boundaries of the CTA's Santa Maria Oceanic, Shanwick Oceanic, and Reykjavik;

d. In the west, the western boundaries of CTA's Reykjavik and Gander Oceanic and New York Oceanic excluding the area west of 60°W and south of 38°30'N.

MINIMUM OBSTRUCTION CLEARANCE ALTITUDE- The lowest published altitude in effect between radio fixes on VOR airways, off-airway routes, or route segments which meets obstacle clearance requirements for the entire route segment and which assures acceptable navigational signal coverage only within 25 statute (22 nautical) miles of a VOR.

(Refer to 14 CFR Part 91.)

(Refer to 14 CFR Part 95.)

MINIMUM RECEPTION ALTITUDE- The lowest altitude at which an intersection can be determined.

(Refer to 14 CFR Part 95.)

MINIMUM SAFE ALTITUDE-

a. The minimum altitude specified in 14 CFR Part 91 for various aircraft operations.

b. Altitudes depicted on approach charts which provide at least 1,000 feet of obstacle clearance for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These altitudes will be identified as Minimum Sector Altitudes or Emergency Safe Altitudes and are established as follows:

1. Minimum Sector Altitudes. Altitudes depicted on approach charts which provide at least 1,000 feet of obstacle clearance within a 25-mile radius of the navigation facility upon which the procedure is predicated. Sectors depicted on approach charts must be at least 90 degrees in scope. These altitudes are for emergency use only and do not necessarily assure acceptable navigational signal coverage.

(See ICAO term Minimum Sector Altitude.)

2. Emergency Safe Altitudes. Altitudes depicted on approach charts which provide at least 1,000 feet of obstacle clearance in nonmountainous areas and 2,000 feet of obstacle clearance in designated mountainous areas within a 100-mile radius of the navigation facility upon which the procedure is predicated and normally used only in military procedures. These altitudes are identified on published procedures as "Emergency Safe Altitudes."

MINIMUM SAFE ALTITUDE WARNING- A function of the ARTS III computer that aids the controller by alerting him when a tracked Mode C equipped aircraft is below or is predicted by the computer to go below a predetermined minimum safe altitude.

(Refer to AIM.)

MINIMUM SECTOR ALTITUDE [ICAO]- The lowest altitude which may be used under emergency conditions which will provide a minimum clearance of 300 m (1,000 feet) above all obstacles located in an area contained within a sector of a circle of 46 km (25 NM) radius centered on a radio aid to navigation.

MINIMUMS- Weather condition requirements established for a particular operation or type of operation; e.g., IFR takeoff or landing, alternate airport for IFR flight plans, VFR flight, etc.

(See IFR CONDITIONS.)

(See IFR TAKEOFF MINIMUMS AND DEPARTURE PROCEDURES.)

(See LANDING MINIMUMS.)

(See VFR CONDITIONS.)

(Refer to 14 CFR Part 91.)

(Refer to AIM.)

MINIMUM VECTORING ALTITUDE- The lowest MSL altitude at which an IFR aircraft will be vectored by a radar controller, except as otherwise authorized for radar approaches, departures, and missed approaches. The altitude meets IFR obstacle clearance criteria. It may be lower than the published MEA along an airway or J-route segment. It may be utilized for radar vectoring only upon the controller's determination that an adequate radar return is being received from the aircraft being controlled. Charts depicting minimum vectoring altitudes are normally available only to the controllers and not to pilots.

(Refer to AIM.)

MINUTES-IN-TRAIL- A specified interval between aircraft expressed in time. This method would more likely be utilized regardless of altitude.

MIS-

(See METEOROLOGICAL IMPACT STATEMENT.)

MISSED APPROACH-

a. A maneuver conducted by a pilot when an instrument approach cannot be completed to a landing. The route of flight and altitude are shown on instrument approach procedure charts. A pilot executing a missed approach prior to the Missed Approach Point (MAP) must continue along the final

approach to the MAP. The pilot may climb immediately to the altitude specified in the missed approach procedure.

b. A term used by the pilot to inform ATC that he/she is executing the missed approach.

c. At locations where ATC radar service is provided, the pilot should conform to radar vectors when provided by ATC in lieu of the published missed approach procedure.

(See MISSED APPROACH POINT.)
(Refer to AIM.)

MISSED APPROACH POINT- A point prescribed in each instrument approach procedure at which a missed approach procedure shall be executed if the required visual reference does not exist.

(See MISSED APPROACH.)
(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

MISSED APPROACH PROCEDURE [ICAO]- The procedure to be followed if the approach cannot be continued.

MISSED APPROACH SEGMENT-

(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

MLDI-

(See METER LIST DISPLAY INTERVAL.)

MLS-

(See MICROWAVE LANDING SYSTEM.)

MLS CATEGORIES-

a. MLS Category I. An MLS approach procedure which provides for an approach to a height above touchdown of not less than 200 feet and a runway visual range of not less than 1,800 feet.

b. MLS Category II. Undefined until data gathering/analysis completion.

c. MLS Category III. Undefined until data gathering/analysis completion.

MM-

(See MIDDLE MARKER.)

MNPS-

(See MINIMUM NAVIGATION PERFORMANCE SPECIFICATION.)

MNPSA-

(See MINIMUM NAVIGATION PERFORMANCE-SPECIFICATION AIRSPACE.)

MOA-

(See MILITARY OPERATIONS AREA.)

MOCA-

(See MINIMUM OBSTRUCTION CLEARANCE ALTITUDE.)

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.

(See INTERROGATOR.)
(See RADAR.)
(See TRANSPONDER.)
(See ICAO term MODE.)
(Refer to AIM.)

MODE (SSR MODE) [ICAO]- The letter or number assigned to a specific pulse spacing of the interrogation signals transmitted by an interrogator. There are 4 modes, A, B, C and D specified in Annex 10, corresponding to four different interrogation pulse spacings.

MODE C INTRUDER ALERT- A function of certain air traffic control automated systems designed to alert radar controllers to existing or pending situations between a tracked target (known IFR or VFR aircraft) and an untracked target (unknown IFR or VFR aircraft) that requires immediate attention/action.

(See CONFLICT ALERT.)

MONITOR- (When used with communication transfer) listen on a specific frequency and stand by for instructions. Under normal circumstances do not establish communications.

MONITOR ALERT (MA)- A function of the ETMS that provides traffic management personnel with a tool for predicting potential capacity problems in individual operational sectors. The MA is an indication that traffic management personnel need to analyze a particular sector for actual activity and to determine the required action(s), if any, needed to control the demand.

MONITOR ALERT PARAMETER (MAP)- The number designated for use in monitor alert processing by the ETMS. The MAP is designated for each operational sector for increments of 15 minutes.

MOVEMENT AREA- The runways, taxiways, and other areas of an airport/heliport which are utilized

for taxiing/hover taxiing, air taxiing, takeoff, and landing of aircraft, exclusive of loading ramps and parking areas. At those airports/heliports with a tower, specific approval for entry onto the movement area must be obtained from ATC.

(See ICAO term MOVEMENT AREA.)

MOVEMENT AREA [ICAO]- That part of an aerodrome to be used for the takeoff, landing and taxiing of aircraft, consisting of the maneuvering area and the apron(s).

MOVING TARGET INDICATOR- An electronic device which will permit radar scope presentation only from targets which are in motion. A partial remedy for ground clutter.

MRA-

(See MINIMUM RECEPTION ALTITUDE.)

MSA-

(See MINIMUM SAFE ALTITUDE.)

MSAW-

(See MINIMUM SAFE ALTITUDE WARNING.)

MTI-

(See MOVING TARGET INDICATOR.)

MTR-

(See MILITARY TRAINING ROUTES.)

MULTICOM- A mobile service not open to public correspondence used to provide communications essential to conduct the activities being performed by or directed from private aircraft.

MULTIPLE RUNWAYS- The utilization of a dedicated arrival runway(s) for departures and a dedicated departure runway(s) for arrivals when feasible to reduce delays and enhance capacity.

MVA-

(See MINIMUM VECTORING ALTITUDE.)

N

NAS-
(See NATIONAL AIRSPACE SYSTEM.)

NAS STAGE A- The en route ATC system's radar, computers and computer programs, controller plan view displays (PVD's/Radar Scopes), input/output devices, and the related communications equipment which are integrated to form the heart of the automated IFR air traffic control system. This equipment performs Flight Data Processing (FDP) and Radar Data Processing (RDP). It interfaces with automated terminal systems and is used in the control of en route IFR aircraft.
(Refer to AIM.)

NATIONAL AIRSPACE SYSTEM- 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.

NATIONAL BEACON CODE ALLOCATION PLAN AIRSPACE- Airspace over United States territory located within the North American continent between Canada and Mexico, including adjacent territorial waters outward to about boundaries of oceanic control areas (CTA)/Flight Information Regions (FIR).
(See FLIGHT INFORMATION REGION.)

NATIONAL FLIGHT DATA CENTER- A facility in Washington D.C., established by FAA to operate a central aeronautical information service for the collection, validation, and dissemination of aeronautical data in support of the activities of government, industry, and the aviation community. The information is published in the National Flight Data Digest.
(See NATIONAL FLIGHT DATA DIGEST.)

NATIONAL FLIGHT DATA DIGEST- 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 ROUTE PROGRAM (NRP)- The NRP is a set of rules and procedures which are designed to increase the flexibility of user flight planning within published guidelines.

NATIONAL SEARCH AND RESCUE PLAN- An interagency agreement which provides for the effective utilization of all available facilities in all types of search and rescue missions.

NAVAID-
(See NAVIGATIONAL AID.)

NAVAID CLASSES- VOR, VORTAC, and TACAN aids are classed according to their operational use. The three classes of NAVAID's are:

a. T- Terminal.

b. L- Low altitude.

c. H- High altitude.

Note: The normal service range for T, L, and H class aids is found in the AIM. Certain operational requirements make it necessary to use some of these aids at greater service ranges than specified. Extended range is made possible through flight inspection determinations. Some aids also have lesser service range due to location, terrain, frequency protection, etc. Restrictions to service range are listed in Airport/Facility Directory.

NAVIGABLE AIRSPACE- Airspace at and above the minimum flight altitudes prescribed in the CFR's including airspace needed for safe takeoff and landing.
(Refer to 14 CFR Part 91.)

NAVIGATIONAL AID- Any visual or electronic device airborne or on the surface which provides point-to-point guidance information or position data to aircraft in flight.
(See AIR NAVIGATION FACILITY.)

NBCAP AIRSPACE-
(See NATIONAL BEACON CODE ALLOCATION PLAN AIRSPACE.)

NDB-
(See NONDIRECTIONAL BEACON.)

NEGATIVE- "No," or "permission not granted," or "that is not correct."

NEGATIVE CONTACT- Used by pilots to inform ATC that:

a. Previously issued traffic is not in sight. It may be followed by the pilot's request for the controller to provide assistance in avoiding the traffic.

b. They were unable to contact ATC on a particular frequency.

NFDC-
(See NATIONAL FLIGHT DATA CENTER.)

NFDD-
(See NATIONAL FLIGHT DATA DIGEST.)

NIGHT- The time between the end of evening civil twilight and the beginning of morning civil twilight, as published in the American Air Almanac, converted to local time.
(See ICAO term NIGHT.)

NIGHT [ICAO]- The hours between the end of evening civil twilight and the beginning of morning civil twilight or such other period between sunset and sunrise as may be specified by the appropriate authority.

Note: Civil twilight ends in the evening when the center of the sun's disk is 6 degrees below the horizon and begins in the morning when the center of the sun's disk is 6 degrees below the horizon.

NO GYRO APPROACH- A radar approach/vector provided in case of a malfunctioning gyro-compass or directional gyro. Instead of providing the pilot with headings to be flown, the controller observes the radar track and issues control instructions "turn right/left" or "stop turn" as appropriate.
(Refer to AIM.)

NO GYRO VECTOR-
(See NO GYRO APPROACH.)

NO TRANSGRESSION ZONE (NTZ)- The NTZ is a 2,000 foot wide zone, located equidistant between parallel runway final approach courses in which flight is not allowed.

NONAPPROACH CONTROL TOWER- Authorizes aircraft to land or takeoff at the airport controlled by the tower or to transit the Class D airspace. The primary function of a nonapproach control tower is the sequencing of aircraft in the traffic pattern and on the landing area. Nonapproach control towers also separate aircraft operating under instrument flight rules clearances from approach controls and centers. They provide ground control services to aircraft, vehicles, personnel, and equipment on the airport movement area.

NONCOMMON ROUTE/PORTION- That segment of a North American Route between the inland navigation facility and a designated North American terminal.

NONCOMPOSITE SEPARATION- Separation in accordance with minima other than the composite separation minimum specified for the area concerned.

NONDIRECTIONAL BEACON- An L/MF or UHF radio beacon transmitting nondirectional signals whereby the pilot of an aircraft equipped with direction finding equipment can determine his/her bearing to or from the radio beacon and "home" on or track to or from the station. When the radio beacon is installed in conjunction with the Instrument Landing System marker, it is normally called a Compass Locator.
(See AUTOMATIC DIRECTION FINDER.)
(See COMPASS LOCATOR.)

NONMOVEMENT AREAS- Taxiways and apron (ramp) areas not under the control of air traffic.

NONPRECISION APPROACH-
(See NONPRECISION APPROACH PROCEDURE.)

NONPRECISION APPROACH PROCEDURE- A standard instrument approach procedure in which no electronic glideslope is provided; e.g., VOR, TACAN, NDB, LOC, ASR, LDA, or SDF approaches.

NONRADAR- Precedes other terms and generally means without the use of radar, such as:

a. Nonradar Approach. Used to describe instrument approaches for which course guidance on final approach is not provided by ground-based precision or surveillance radar. Radar vectors to the final approach course may or may not be provided by ATC. Examples of nonradar approaches are VOR, NDB, TACAN, and ILS/MLS approaches.
(See FINAL APPROACH COURSE.)
(See FINAL APPROACH-IFR.)
(See INSTRUMENT APPROACH PROCEDURE.)
(See RADAR APPROACH.)

b. Nonradar Approach Control. An ATC facility providing approach control service without the use of radar.

(See APPROACH CONTROL FACILITY.)
(See APPROACH CONTROL SERVICE.)

c. Nonradar Arrival. An aircraft arriving at an airport without radar service or at an airport served by a radar facility and radar contact has not been established or has been terminated due to a lack of radar service to the airport.

(See RADAR ARRIVAL.)
(See RADAR SERVICE.)

d. Nonradar Route. A flight path or route over which the pilot is performing his/her own navigation. The pilot may be receiving radar separation, radar monitoring, or other ATC services while on a nonradar route.

(See RADAR ROUTE.)

e. Nonradar Separation. The spacing of aircraft in accordance with established minima without the use of radar; e.g., vertical, lateral, or longitudinal separation.

(See RADAR SEPARATION.)
(See ICAO term NONRADAR SEPARATION.)

NONRADAR SEPARATION [ICAO]- The separation used when aircraft position information is derived from sources other than radar.

NOPAC-
(See NORTH PACIFIC.)

NORDO-
(See LOST COMMUNICATIONS.)

NORMAL OPERATING ZONE (NOZ)- The NOZ is the operating zone within which aircraft flight remains during normal independent simultaneous parallel ILS approaches.

NORTH AMERICAN ROUTE- A numerically coded route preplanned over existing airway and route systems to and from specific coastal fixes serving the North Atlantic. North American Routes consist of the following:

a. Common Route/Portion. That segment of a North American Route between the inland navigation facility and the coastal fix.

b. Noncommon Route/Portion. That segment of a North American Route between the inland navigation facility and a designated North American terminal.

c. Inland Navigation Facility. A navigation aid on a North American Route at which the common route and/or the noncommon route begins or ends.

d. Coastal Fix. A navigation aid or intersection where an aircraft transitions between the domestic route structure and the oceanic route structure.

NORTH MARK- A beacon data block sent by the host computer to be displayed by the ARTS on a 360 degree bearing at a locally selected radar azimuth and distance. The North Mark is used to ensure correct range/azimuth orientation during periods of CENRAP.

NORTH PACIFIC- An organized route system between the Alaskan west coast and Japan.

NOTAM-
(See NOTICE TO AIRMEN.)

NOTAM [ICAO]- A notice containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to personnel concerned with flight operations.

a. I Distribution- Distribution by means of telecommunication.

b. II Distribution- Distribution by means other than telecommunications.

NOTICE TO AIRMEN- 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 of, or hazard in the National Airspace System) the timely knowledge of which is essential to personnel concerned with flight operations.

a. NOTAM(D)- A NOTAM given (in addition to local dissemination) distant dissemination beyond the area of responsibility of the Flight Service Station. These NOTAM's will be stored and available until canceled.

b. NOTAM(L)- A NOTAM given local dissemination by voice and other means, such as telautograph and telephone, to satisfy local user requirements.

c. FDC NOTAM- A NOTAM regulatory in nature, transmitted by USNOF and given system wide dissemination.

(See ICAO term NOTAM.)

NOTICES TO AIRMEN PUBLICATION- A publication issued every 28 days, designed primarily for

the pilot, which contains current NOTAM information considered essential to the safety of flight as well as supplemental data to other aeronautical publications. The contraction NTAP is used in NOTAM text.
(See NOTICE TO AIRMEN.)

NTAP-
(See NOTICES TO AIRMEN PUBLICATION.)

NUMEROUS TARGETS VICINITY (LOCATION)- A traffic advisory issued by ATC to advise pilots that targets on the radar scope are too numerous to issue individually.
(See TRAFFIC ADVISORIES.)

O

OBSTACLE- An existing object, object of natural growth, or terrain at a fixed geographical location or which may be expected at a fixed location within a prescribed area with reference to which vertical clearance is or must be provided during flight operation.

OBSTACLE FREE ZONE- The OFZ is a three dimensional volume of airspace which protects for the transition of aircraft to and from the runway. The OFZ clearing standard precludes taxiing and parked airplanes and object penetrations, except for frangible NAVAID locations that are fixed by function. Additionally, vehicles, equipment, and personnel may be authorized by air traffic control to enter the area using the provisions of FAAO 7110.65, Para 3-1-5, VEHICLES/EQUIPMENT/PERSONNEL ON RUNWAYS. The runway OFZ and when applicable, the inner-approach OFZ, and the inner-transitional OFZ, comprise the OFZ.

a. Runway OFZ. The runway OFZ is a defined volume of airspace centered above the runway. The runway OFZ is the airspace above a surface whose elevation at any point is the same as the elevation of the nearest point on the runway centerline. The runway OFZ extends 200 feet beyond each end of the runway. The width is as follows:

1. For runways serving large airplanes, the greater of:

(a) 400 feet, or

(b) 180 feet, plus the wingspan of the most demanding airplane, plus 20 feet per 1,000 feet of airport elevation.

2. For runways serving only small airplanes:

(a) 300 feet for precision instrument runways.

(b) 250 feet for other runways serving small airplanes with approach speeds of 50 knots, or more.

(c) 120 feet for other runways serving small airplanes with approach speeds of less than 50 knots.

b. Inner-approach OFZ. The inner-approach OFZ is a defined volume of airspace centered on the approach area. The inner-approach OFZ applies only to runways with an approach lighting system. The inner-approach OFZ begins 200 feet from the runway threshold at the same elevation as the runway threshold and extends 200 feet beyond the last light unit in the approach lighting system. The width of the inner-approach OFZ is the same as the runway OFZ and rises at a slope of 50 (horizontal) to 1 (vertical) from the beginning.

c. Inner-transitional OFZ. The inner transitional surface OFZ is a defined volume of airspace along the sides of the runway and inner-approach OFZ and applies only to precision instrument runways. The inner-transitional surface OFZ slopes 3 (horizontal) to 1 (vertical) out from the edges of the runway OFZ and inner-approach OFZ to a height of 150 feet above the established airport elevation.

(Refer to AC 150/5300-13, Chapter 3.)
(Refer to FAAO 7110.65, Para 3-1-5, VEHICLES/EQUIPMENT/PERSONNEL ON RUNWAYS.)

OBSTRUCTION- Any object/obstacle exceeding the obstruction standards specified by 14 CFR Part 77, Subpart C.

OBSTRUCTION LIGHT- A light or one of a group of lights, usually red or white, frequently mounted on a surface structure or natural terrain to warn pilots of the presence of an obstruction.

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.

OCEANIC DISPLAY AND PLANNING SYSTEM- An automated digital display system which provides flight data processing, conflict probe, and situation display for oceanic air traffic control.

OCEANIC NAVIGATIONAL ERROR REPORT- A report filed when an aircraft exiting oceanic airspace has been observed by radar to be off course. ONER reporting parameters and procedures are contained in FAAO 7110.82, Monitoring of Navigational Performance In Oceanic Areas.

OCEANIC PUBLISHED ROUTE- A route established in international airspace and charted or

described in flight information publications, such as Route Charts, DOD Enroute Charts, Chart Supplements, NOTAM's, and Track Messages.

OCEANIC TRANSITION ROUTE- An ATS route established for the purpose of transitioning aircraft to/from an organized track system.

ODAPS-
(See OCEANIC DISPLAY AND PLANNING SYSTEM.)

OFF COURSE- A term used to describe a situation where an aircraft has reported a position fix or is observed on radar at a point not on the ATC-approved route of flight.

OFF-ROUTE VECTOR- A vector by ATC which takes an aircraft off a previously assigned route. Altitudes assigned by ATC during such vectors provide required obstacle clearance.

OFFSET PARALLEL RUNWAYS- Staggered runways having centerlines which are parallel.

OFFSHORE/CONTROL AIRSPACE AREA- That portion of airspace between the U.S. 12 NM limit and the oceanic CTA/FIR boundary within which air traffic control is exercised. These areas are established to provide air traffic control services. Offshore/Control Airspace Areas may be classified as either Class A airspace or Class E airspace.

OFT-
(See OUTER FIX TIME.)

OM-
(See OUTER MARKER.)

OMEGA- An RNAV system designed for long-range navigation based upon ground-based electronic navigational aid signals.

ON COURSE-

a. Used to indicate that an aircraft is established on the route centerline.

b. Used by ATC to advise a pilot making a radar approach that his/her aircraft is lined up on the final approach course.
(See ON-COURSE INDICATION.)

ON-COURSE INDICATION- An indication on an instrument, which provides the pilot a visual means of determining that the aircraft is located on the centerline of a given navigational track, or an indication on a radar scope that an aircraft is on a given track.

ONE-MINUTE WEATHER- The most recent one minute updated weather broadcast received by a pilot from an uncontrolled airport ASOS/AWOS.

ONER-
(See OCEANIC NAVIGATIONAL ERROR REPORT.)

OPERATIONAL-
(See DUE REGARD.)

OPPOSITE DIRECTION AIRCRAFT- Aircraft are operating in opposite directions when:

a. They are following the same track in reciprocal directions; or

b. Their tracks are parallel and the aircraft are flying in reciprocal directions; or

c. Their tracks intersect at an angle of more than 135°.

OPTION APPROACH- An approach requested and conducted by a pilot which will result in either a touch-and-go, missed approach, low approach, stop-and-go, or full stop landing.
(See CLEARED FOR THE OPTION.)
(Refer to AIM.)

ORGANIZED TRACK SYSTEM- A series of ATS routes which are fixed and charted; i.e., CEP, NOPAC, or flexible and described by NOTAM; i.e., NAT TRACK MESSAGE.

OROCA- An off-route altitude which provides obstruction clearance with a 1,000 foot buffer in nonmountainous terrain areas and a 2,000 foot buffer in designated mountainous areas within the United States. This altitude may not provide signal coverage from ground-based navigational aids, air traffic control radar, or communications coverage.

OTR-
(See OCEANIC TRANSITION ROUTE.)

OTS-
(See ORGANIZED TRACK SYSTEM.)

OUT- The conversation is ended and no response is expected.

OUTER AREA (associated with Class C airspace)- Nonregulatory airspace surrounding designated Class C airspace airports wherein ATC provides radar vectoring and sequencing on a full-time basis for all IFR and participating VFR aircraft. The service

provided in the outer area is called Class C service which includes: IFR/IFR-standard IFR separation; IFR/VFR-traffic advisories and conflict resolution; and VFR/VFR-traffic advisories and, as appropriate, safety alerts. The normal radius will be 20 nautical miles with some variations based on site-specific requirements. The outer area extends outward from the primary Class C airspace airport and extends from the lower limits of radar/radio coverage up to the ceiling of the approach control's delegated airspace excluding the Class C charted area and other airspace as appropriate.

(See CONFLICT RESOLUTION.)
(See CONTROLLED AIRSPACE.)

OUTER COMPASS LOCATOR-
(See COMPASS LOCATOR.)

OUTER FIX- A general term used within ATC to describe fixes in the terminal area, other than the final approach fix. Aircraft are normally cleared to these fixes by an Air Route Traffic Control Center or an Approach Control Facility. Aircraft are normally cleared from these fixes to the final approach fix or final approach course.

OUTER FIX- An adapted fix along the converted route of flight, prior to the meter fix, for which crossing times are calculated and displayed in the metering position list.

OUTER FIX TIME- A calculated time to depart the outer fix in order to cross the vertex at the ACLT. The time reflects descent speed adjustments and any applicable delay time that must be absorbed prior to crossing the meter fix.

OUTER MARKER- A marker beacon at or near the glideslope intercept altitude of an ILS approach. It is keyed to transmit two dashes per second on a 400 Hz tone, which is received aurally and visually by compatible airborne equipment. The OM is normally located four to seven miles from the runway threshold on the extended centerline of the runway.

(See INSTRUMENT LANDING SYSTEM.)
(See MARKER BEACON.)
(Refer to AIM.)

OVER- My transmission is ended; I expect a response.

OVERHEAD MANEUVER- A series of predetermined maneuvers prescribed for aircraft (often in formation) for entry into the visual flight rules (VFR) traffic pattern and to proceed to a landing. An overhead maneuver is not an instrument flight rules (IFR) approach procedure. An aircraft executing an overhead maneuver is considered VFR and the IFR flight plan is cancelled when the aircraft reaches the "initial point" on the initial approach portion of the maneuver. The pattern usually specifies the following:

a. The radio contact required of the pilot.

b. The speed to be maintained.

c. An initial approach 3 to 5 miles in length.

d. An elliptical pattern consisting of two 180 degree turns.

e. A break point at which the first 180 degree turn is started.

f. The direction of turns.

g. Altitude (at least 500 feet above the conventional pattern).

h. A "Roll-out" on final approach not less than 1/4 mile from the landing threshold and not less than 300 feet above the ground.

OVERLYING CENTER- The ARTCC facility that is responsible for arrival/departure operations at a specific terminal.

P

P TIME-
(See PROPOSED DEPARTURE TIME.)

PAN-PAN- The international radio-telephony urgency signal. When repeated three times, indicates uncertainty or alert followed by the nature of the urgency.
(See MAYDAY.)
(Refer to AIM.)

PAR-
(See PRECISION APPROACH RADAR.)

PAR [ICAO]-
(See ICAO Term PRECISION APPROACH RADAR.)

PARALLEL ILS APPROACHES- Approaches to parallel runways by IFR aircraft which, when established inbound toward the airport on the adjacent final approach courses, are radar-separated by at least 2 miles.
(See FINAL APPROACH COURSE.)
(See SIMULTANEOUS ILS APPROACHES.)

PARALLEL MLS APPROACHES-
(See PARALLEL ILS APPROACHES.)

PARALLEL OFFSET ROUTE- A parallel track to the left or right of the designated or established airway/route. Normally associated with Area Navigation (RNAV) operations.
(See AREA NAVIGATION.)

PARALLEL RUNWAYS- Two or more runways at the same airport whose centerlines are parallel. In addition to runway number, parallel runways are designated as L (left) and R (right) or, if three parallel runways exist, L (left), C (center), and R (right).

PBCT-
(See PROPOSED BOUNDARY CROSSING TIME.)

PERMANENT ECHO- Radar signals reflected from fixed objects on the earth's surface; e.g., buildings, towers, terrain. Permanent echoes are distinguished from "ground clutter" by being definable locations rather than large areas. Under certain conditions they may be used to check radar alignment.

PHOTO RECONNAISSANCE- Military activity that requires locating individual photo targets and navigating to the targets at a preplanned angle and altitude. The activity normally requires a lateral route width of 16 NM and altitude range of 1,500 feet to 10,000 feet AGL.

PIDP-
(See PROGRAMMABLE INDICATOR DATA PROCESSOR.)

PILOT BRIEFING- A service provided by the FSS to assist pilots in flight planning. Briefing items may include weather information, NOTAMS, military activities, flow control information, and other items as requested.
(Refer to AIM.)

PILOT IN COMMAND- The pilot responsible for the operation and safety of an aircraft during flight time.
(Refer to 14 CFR Part 91.)

PILOT'S DISCRETION- When used in conjunction with altitude assignments, means that ATC has offered the pilot the option of starting climb or descent whenever he/she wishes and conducting the climb or descent at any rate he/she wishes. He/she may temporarily level off at any intermediate altitude. However, once he/she has vacated an altitude, he/she may not return to that altitude.

PILOT WEATHER REPORT- A report of meteorological phenomena encountered by aircraft in flight.
(Refer to AIM.)

PIREP-
(See PILOT WEATHER REPORT.)

PLANS DISPLAY- A display available in URET CCLD that provides detailed flight plan and predicted conflict information in textual format for requested Current Plans and all Trial Plans.
(See USER REQUEST EVALUATION TOOL CORE CAPABILITY LIMITED DEPLOYMENT.)

POINT OUT-
(See RADAR POINT OUT.)

POLAR TRACK STRUCTURE- A system of organized routes between Iceland and Alaska which overlie Canadian MNPS Airspace.

POSITION REPORT- A report over a known location as transmitted by an aircraft to ATC.

(Refer to AIM.)

POSITION SYMBOL- A computer-generated indication shown on a radar display to indicate the mode of tracking.

POSITIVE CONTROL- The separation of all air traffic within designated airspace by air traffic control.

PRACTICE INSTRUMENT APPROACH- An instrument approach procedure conducted by a VFR or an IFR aircraft for the purpose of pilot training or proficiency demonstrations.

PREARRANGED COORDINATION- A standardized procedure which permits an air traffic controller to enter the airspace assigned to another air traffic controller without verbal coordination. The procedures are defined in a facility directive which ensures standard separation between aircraft.

PRECIPITATION- Any or all forms of water particles (rain, sleet, hail, or snow) that fall from the atmosphere and reach the surface.

PRECISION APPROACH-

(See PRECISION APPROACH PROCEDURE.)

PRECISION APPROACH PROCEDURE- A standard instrument approach procedure in which an electronic glideslope/glidepath is provided; e.g., ILS, MLS, and PAR.

(See INSTRUMENT LANDING SYSTEM.)

(See MICROWAVE LANDING SYSTEM.)

(See PRECISION APPROACH RADAR.)

PRECISION APPROACH RADAR- Radar equipment in some ATC facilities operated by the FAA and/or the military services at joint-use civil/military locations and separate military installations to detect and display azimuth, elevation, and range of aircraft on the final approach course to a runway. This equipment may be used to monitor certain nonradar approaches, but is primarily used to conduct a precision instrument approach (PAR) wherein the controller issues guidance instructions to the pilot based on the aircraft's position in relation to the final approach course (azimuth), the glidepath (elevation), and the distance (range) from the touchdown point on the runway as displayed on the radar scope.

Note: The abbreviation "PAR" is also used to denote preferential arrival routes in ARTCC computers.

(See GLIDEPATH.)

(See PAR.)

(See PREFERENTIAL ROUTES.)

(See ICAO term PRECISION APPROACH RADAR.)

(Refer to AIM.)

PRECISION APPROACH RADAR [ICAO]- Primary radar equipment used to determine the position of an aircraft during final approach, in terms of lateral and vertical deviations relative to a nominal approach path, and in range relative to touchdown.

Note: Precision approach radars are designed to enable pilots of aircraft to be given guidance by radio communication during the final stages of the approach to land.

PRECISION RUNWAY MONITOR (PRM)- Provides air traffic controllers with high precision secondary surveillance data for aircraft on final approach to parallel runways that have extended centerlines separated by less than 4,300 feet. High resolution color monitoring displays (FMA) are required to present surveillance track data to controllers along with detailed maps depicting approaches and no transgression zone.

PREFERENTIAL ROUTES- Preferential routes (PDR's, PAR's, and PDAR's) are adapted in ARTCC computers to accomplish inter/intrafacility controller coordination and to assure that flight data is posted at the proper control positions. Locations having a need for these specific inbound and outbound routes normally publish such routes in local facility bulletins, and their use by pilots minimizes flight plan route amendments. When the workload or traffic situation permits, controllers normally provide radar vectors or assign requested routes to minimize circuitous routing. Preferential routes are usually confined to one ARTCC's area and are referred to by the following names or acronyms:

a. Preferential Departure Route (PDR). A specific departure route from an airport or terminal area to an en route point where there is no further need for flow control. It may be included in an Instrument Departure Procedure (DP) or a Preferred IFR Route.

b. Preferential Arrival Route (PAR). A specific arrival route from an appropriate en route point to an

airport or terminal area. It may be included in a Standard Terminal Arrival (STAR) or a Preferred IFR Route. The abbreviation "PAR" is used primarily within the ARTCC and should not be confused with the abbreviation for Precision Approach Radar.

c. Preferential Departure and Arrival Route (PDAR). A route between two terminals which are within or immediately adjacent to one ARTCC's area. PDAR's are not synonymous with Preferred IFR Routes but may be listed as such as they do accomplish essentially the same purpose.

(See NAS STAGE A.)
(See PREFERRED IFR ROUTES.)

PREFERRED IFR ROUTES- Routes established between busier airports to increase system efficiency and capacity. They normally extend through one or more ARTCC areas and are designed to achieve balanced traffic flows among high density terminals. IFR clearances are issued on the basis of these routes except when severe weather avoidance procedures or other factors dictate otherwise. Preferred IFR Routes are listed in the Airport/Facility Directory. If a flight is planned to or from an area having such routes but the departure or arrival point is not listed in the Airport/Facility Directory, pilots may use that part of a Preferred IFR Route which is appropriate for the departure or arrival point that is listed. Preferred IFR Routes are correlated with DP's and STAR's and may be defined by airways, jet routes, direct routes between NAVAID's, Waypoints, NAVAID radials/DME, or any combinations thereof.

(See CENTER'S AREA.)
(See INSTRUMENT DEPARTURE PROCEDURE.)
(See PREFERENTIAL ROUTES.)
(See STANDARD TERMINAL ARRIVAL.)
(Refer to AIRPORT/FACILITY DIRECTORY.)
(Refer to NOTICES TO AIRMEN PUBLICATION.)

PRE-FLIGHT PILOT BRIEFING-
(See PILOT BRIEFING.)

PREVAILING VISIBILITY-
(See VISIBILITY.)

PRM-
(See ILS PRM APPROACH and PRECISION RUNWAY MONITOR.)

PROCEDURE TURN- The maneuver prescribed when it is necessary to reverse direction to establish an aircraft on the intermediate approach segment or final approach course. The outbound course, direction of turn, distance within which the turn must be completed, and minimum altitude are specified in the procedure. However, unless otherwise restricted, the point at which the turn may be commenced and the type and rate of turn are left to the discretion of the pilot.

(See ICAO term PROCEDURE TURN.)

PROCEDURE TURN [ICAO]- A maneuver in which a turn is made away from a designated track followed by a turn in the opposite direction to permit the aircraft to intercept and proceed along the reciprocal of the designated track.

Note 1: Procedure turns are designated "left" or "right" according to the direction of the initial turn.

Note 2: Procedure turns may be designated as being made either in level flight or while descending, according to the circumstances of each individual approach procedure.

PROCEDURE TURN INBOUND- That point of a procedure turn maneuver where course reversal has been completed and an aircraft is established inbound on the intermediate approach segment or final approach course. A report of "procedure turn inbound" is normally used by ATC as a position report for separation purposes.

(See FINAL APPROACH COURSE.)
(See PROCEDURE TURN.)
(See SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE.)

PROFILE DESCENT- An uninterrupted descent (except where level flight is required for speed adjustment; e.g., 250 knots at 10,000 feet MSL) from cruising altitude/level to interception of a glideslope or to a minimum altitude specified for the initial or intermediate approach segment of a nonprecision instrument approach. The profile descent normally terminates at the approach gate or where the glideslope or other appropriate minimum altitude is intercepted.

PROGRAMMABLE INDICATOR DATA PROCESSOR- The PIDP is a modification to the AN/TPX-42 interrogator system currently installed in fixed RAPCON's. The PIDP detects, tracks, and predicts secondary radar aircraft targets. These are displayed by means of computer-generated symbols and alphanumeric characters depicting flight identification, aircraft altitude, ground speed, and flight plan data. Although primary radar targets are not tracked, they are displayed coincident with the secondary

radar targets as well as with the other symbols and alphanumerics. The system has the capability of interfacing with ARTCC's.

PROGRESS REPORT-
(See POSITION REPORT.)

PROGRESSIVE TAXI- Precise taxi instructions given to a pilot unfamiliar with the airport or issued in stages as the aircraft proceeds along the taxi route.

PROHIBITED AREA-
(See SPECIAL USE AIRSPACE.)
(See ICAO term PROHIBITED AREA.)

PROHIBITED AREA [ICAO]- An airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is prohibited.

PROPOSED BOUNDARY CROSSING TIME- Each center has a PBCT parameter for each internal airport. Proposed internal flight plans are transmitted to the adjacent center if the flight time along the proposed route from the departure airport to the center boundary is less than or equal to the value of PBCT or if airport adaptation specifies transmission regardless of PBCT.

PROPOSED DEPARTURE TIME- The time a scheduled flight will depart the gate (scheduled operators) or the actual runway off time for nonscheduled operators. For EDCT purposes, the ATCSCC adjusts the "P" time for scheduled operators to reflect the runway off times.

PROTECTED AIRSPACE- The airspace on either side of an oceanic route/track that is equal to one-half the lateral separation minimum except where reduction of protected airspace has been authorized.

PT-
(See PROCEDURE TURN.)

PTS-
(See POLAR TRACK STRUCTURE.)

PUBLISHED ROUTE- A route for which an IFR altitude has been established and published; e.g., Federal Airways, Jet Routes, Area Navigation Routes, Specified Direct Routes.

Q

QUEUING-
(See STAGING/QUEUING.)

QNE- The barometric pressure used for the standard altimeter setting (29.92 inches Hg.).

QNH- The barometric pressure as reported by a particular station.

QUADRANT- A quarter part of a circle, centered on a NAVAID, oriented clockwise from magnetic north as follows: NE quadrant 000-089, SE quadrant 090-179, SW quadrant 180-269, NW quadrant 270-359.

QUICK LOOK- A feature of NAS Stage A and ARTS which provides the controller the capability to display full data blocks of tracked aircraft from other control positions.

QUOTA FLOW CONTROL- A flow control procedure by which the Central Flow Control Function (CFCF) restricts traffic to the ARTC Center area having an impacted airport, thereby avoiding sector/area saturation.
(See AIR TRAFFIC CONTROL SYSTEM COMMAND CENTER.)
(Refer to AIRPORT/FACILITY DIRECTORY.)

R

RADAR- A device which, by measuring the time interval between transmission and reception of radio pulses and correlating the angular orientation of the radiated antenna beam or beams in azimuth and/or elevation, provides information on range, azimuth, and/or elevation of objects in the path of the transmitted pulses.

a. Primary Radar- A radar system in which a minute portion of a radio pulse transmitted from a site is reflected by an object and then received back at that site for processing and display at an air traffic control facility.

b. Secondary Radar/Radar Beacon (ATCRBS)- A radar system in which the object to be detected is fitted with cooperative equipment in the form of a radio receiver/transmitter (transponder). Radar pulses transmitted from the searching transmitter/receiver (interrogator) site are received in the cooperative equipment and used to trigger a distinctive transmission from the transponder. This reply transmission, rather than a reflected signal, is then received back at the transmitter/receiver site for processing and display at an air traffic control facility.

(See INTERROGATOR.)
(See TRANSPONDER.)
(See ICAO term RADAR.)
(Refer to AIM.)

RADAR [ICAO]- A radio detection device which provides information on range, azimuth and/or elevation of objects.

a. Primary Radar- Radar system which uses reflected radio signals.

b. Secondary Radar- Radar system wherein a radio signal transmitted from a radar station initiates the transmission of a radio signal from another station.

RADAR ADVISORY- The provision of advice and information based on radar observations.

(See ADVISORY SERVICE.)

RADAR ALTIMETER-

(See RADIO ALTIMETER.)

RADAR APPROACH- An instrument approach procedure which utilizes Precision Approach Radar (PAR) or Airport Surveillance Radar (ASR).

(See AIRPORT SURVEILLANCE RADAR.)
(See INSTRUMENT APPROACH PROCEDURE.)
(See PRECISION APPROACH RADAR.)
(See SURVEILLANCE APPROACH.)
(See ICAO term RADAR APPROACH.)
(Refer to AIM.)

RADAR APPROACH [ICAO]- An approach, executed by an aircraft, under the direction of a radar controller.

RADAR APPROACH CONTROL FACILITY- A terminal ATC facility that uses radar and nonradar capabilities to provide approach control services to aircraft arriving, departing, or transiting airspace controlled by the facility.

(See APPROACH CONTROL SERVICE.)

a. Provides radar ATC services to aircraft operating in the vicinity of one or more civil and/or military airports in a terminal area. The facility may provide services of a ground controlled approach (GCA); i.e., ASR and PAR approaches. A radar approach control facility may be operated by FAA, USAF, US Army, USN, USMC, or jointly by FAA and a military service. Specific facility nomenclatures are used for administrative purposes only and are related to the physical location of the facility and the operating service generally as follows:

1. Army Radar Approach Control (ARAC) (Army).

2. Radar Air Traffic Control Facility (RATCF) (Navy/FAA).

3. Radar Approach Control (RAPCON) (Air Force/FAA).

4. Terminal Radar Approach Control (TRACON) (FAA).

5. Air Traffic Control Tower (ATCT) (FAA). (Only those towers delegated approach control authority.).

RADAR ARRIVAL- An aircraft arriving at an airport served by a radar facility and in radar contact with the facility.

(See NONRADAR.)

RADAR BEACON-
(See RADAR.)

RADAR CLUTTER [ICAO]- The visual indication on a radar display of unwanted signals.

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," he/she automatically discontinues reporting over compulsory reporting points.
(See RADAR CONTACT LOST.)
(See RADAR FLIGHT FOLLOWING.)
(See RADAR SERVICE.)
(See RADAR SERVICE TERMINATED.)
(Refer to AIM.)

b. The term used to inform the controller that the aircraft is identified and approval is granted for the aircraft to enter the receiving controllers airspace.
(See ICAO term RADAR CONTACT.)

RADAR CONTACT [ICAO]- The situation which exists when the radar blip or radar position symbol of a particular aircraft is seen and identified on a radar display.

RADAR CONTACT LOST- Used by ATC to inform a pilot that radar data used to determine the aircraft's position is no longer being received, or is no longer reliable and radar service is no longer being provided. The loss may be attributed to several factors including the aircraft merging with weather or ground clutter, the aircraft operating below radar line of sight coverage, the aircraft entering an area of poor radar return, failure of the aircraft transponder, or failure of the ground radar equipment.
(See CLUTTER.)
(See RADAR CONTACT.)

RADAR ENVIRONMENT- An area in which radar service may be provided.
(See ADDITIONAL SERVICES.)
(See RADAR CONTACT.)
(See RADAR SERVICE.)
(See TRAFFIC ADVISORIES.)

RADAR FLIGHT FOLLOWING- The observation of the progress of radar identified aircraft, whose primary navigation is being provided by the pilot, wherein the controller retains and correlates the aircraft identity with the appropriate target or target symbol displayed on the radar scope.
(See RADAR CONTACT.)
(See RADAR SERVICE.)
(Refer to AIM.)

RADAR IDENTIFICATION- The process of ascertaining that an observed radar target is the radar return from a particular aircraft.
(See RADAR CONTACT.)
(See RADAR SERVICE.)
(See ICAO term RADAR IDENTIFICATION.)

RADAR IDENTIFICATION [ICAO]- The process of correlating a particular radar blip or radar position symbol with a specific aircraft.

RADAR IDENTIFIED AIRCRAFT- An aircraft, the position of which has been correlated with an observed target or symbol on the radar display.
(See RADAR CONTACT.)
(See RADAR CONTACT LOST.)

RADAR MONITORING-
(See RADAR SERVICE.)

RADAR NAVIGATIONAL GUIDANCE-
(See RADAR SERVICE.)

RADAR POINT OUT- An action taken by a controller to transfer the radar identification of an aircraft to another controller if the aircraft will or may enter the airspace or protected airspace of another controller and radio communications will not be transferred.

RADAR REQUIRED- A term displayed on charts and approach plates and included in FDC NOTAM's to alert pilots that segments of either an instrument approach procedure or a route are not navigable because of either the absence or unusability of a NAVAID. The pilot can expect to be provided radar navigational guidance while transiting segments labeled with this term.
(See RADAR ROUTE.)
(See RADAR SERVICE.)

RADAR ROUTE- A flight path or route over which an aircraft is vectored. Navigational guidance and altitude assignments are provided by ATC.
(See FLIGHT PATH.)
(See ROUTE.)

RADAR SEPARATION-
(See RADAR SERVICE.)

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 pilot of a radar identified aircraft.

a. 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/MLS approaches, it includes advice and instructions whenever an aircraft nears or exceeds the prescribed PAR safety limit or simultaneous ILS/MLS no transgression zone.

(See ADDITIONAL SERVICES.)

(See TRAFFIC ADVISORIES.)

b. Radar Navigational Guidance- Vectoring aircraft to provide course guidance.

c. Radar Separation- Radar spacing of aircraft in accordance with established minima.

(See ICAO term RADAR SERVICE.)

RADAR SERVICE [ICAO]- Term used to indicate a service provided directly by means of radar.

a. Monitoring- The use of radar for the purpose of providing aircraft with information and advice relative to significant deviations from nominal flight path.

b. Separation- The separation used when aircraft position information is derived from radar sources.

RADAR SERVICE TERMINATED- Used by ATC to inform a pilot that he/she will no longer be provided any of the services that could be received while in radar contact. Radar service is automatically terminated, and the pilot is not advised in the following cases:

a. An aircraft cancels its IFR flight plan, except within Class B airspace, Class C airspace, a TRSA, or where Basic Radar service is provided.

b. An aircraft conducting an instrument, visual, or contact approach has landed or has been instructed to change to advisory frequency.

c. An arriving VFR aircraft, receiving radar service to a tower-controlled airport within Class B airspace, Class C airspace, a TRSA, or where sequencing service is provided, has landed; or to all other airports, is instructed to change to tower or advisory frequency.

d. An aircraft completes a radar approach.

RADAR SURVEILLANCE- The radar observation of a given geographical area for the purpose of performing some radar function.

RADAR TRAFFIC ADVISORIES- Advisories issued to alert pilots to known or observed radar traffic which may affect the intended route of flight of their aircraft.

(See TRAFFIC ADVISORIES.)

RADAR TRAFFIC INFORMATION SERVICE-

(See TRAFFIC ADVISORIES.)

RADAR VECTORING [ICAO]- Provision of navigational guidance to aircraft in the form of specific headings, based on the use of radar.

RADAR WEATHER ECHO INTENSITY LEVELS- Existing radar systems cannot detect turbulence. However, there is a direct correlation between the degree of turbulence and other weather features associated with thunderstorms and the radar weather echo intensity. The National Weather Service has categorized radar weather echo intensity for precipitation into six levels. These levels are sometimes expressed during communications as "VIP LEVEL" 1 through 6 (derived from the component of the radar that produces the information- Video Integrator and Processor). The following list gives the "VIP LEVELS" in relation to the precipitation intensity within a thunderstorm:

a. Level 1. WEAK

b. Level 2. MODERATE

c. Level 3. STRONG

d. Level 4. VERY STRONG

e. Level 5. INTENSE

f. Level 6. EXTREME

(Refer to AC 00-45, Aviation Weather Services.)

RADIAL- A magnetic bearing extending from a VOR/VORTAC/TACAN navigation facility.

RADIO-

a. A device used for communication.

b. Used to refer to a flight service station; e.g., "Seattle Radio" is used to call Seattle FSS.

RADIO ALTIMETER- Aircraft equipment which makes use of the reflection of radio waves from the ground to determine the height of the aircraft above the surface.

RADIO BEACON-

(See NONDIRECTIONAL BEACON.)

RADIO DETECTION AND RANGING-
(See RADAR.)

RADIO MAGNETIC INDICATOR- An aircraft navigational instrument coupled with a gyro compass or similar compass that indicates the direction of a selected NAVAID and indicates bearing with respect to the heading of the aircraft.

RAMP-
(See APRON.)

RANDOM ALTITUDE- An altitude inappropriate for direction of flight and/or not in accordance with FAAO 7110.65, Para 4-5-1, VERTICAL SEPARATION MINIMA.

RANDOM ROUTE- Any route not established or charted/published or not otherwise available to all users.

RC-
(See ROAD RECONNAISSANCE.)

RCAG-
(See REMOTE COMMUNICATIONS AIR/GROUND FACILITY.)

RCC-
(See RESCUE COORDINATION CENTER.)

RCO-
(See REMOTE COMMUNICATIONS OUTLET.)

RCR-
(See RUNWAY CONDITION READING.)

READ BACK- Repeat my message back to me.

RECEIVER AUTONOMOUS INTEGRITY MONITORING (RAIM)- A technique whereby a civil GNSS receiver/processor determines the integrity of the GNSS navigation signals without reference to sensors or non-DoD integrity systems other than the receiver itself. This determination is achieved by a consistency check among redundant pseudorange measurements.

RECEIVING CONTROLLER- A controller/facility receiving control of an aircraft from another controller/facility.

RECEIVING FACILITY-
(See RECEIVING CONTROLLER.)

RECONFORMANCE- The automated process of bringing an aircraft's Current Plan Trajectory into conformance with its track.

REDUCE SPEED TO (SPEED)-
(See SPEED ADJUSTMENT.)

REIL-
(See RUNWAY END IDENTIFIER LIGHTS.)

RELEASE TIME- A departure time restriction issued to a pilot by ATC (either directly or through an authorized relay) when necessary to separate a departing aircraft from other traffic.
(See ICAO term RELEASE TIME.)

RELEASE TIME [ICAO]- Time prior to which an aircraft should be given further clearance or prior to which it should not proceed in case of radio failure.

REMOTE COMMUNICATIONS AIR/GROUND FACILITY- An unmanned VHF/UHF transmitter/receiver facility which is used to expand ARTCC air/ground communications coverage and to facilitate direct contact between pilots and controllers. RCAG facilities are sometimes not equipped with emergency frequencies 121.5 MHz and 243.0 MHz.
(Refer to AIM.)

REMOTE COMMUNICATIONS OUTLET- An unmanned communications facility remotely controlled by air traffic personnel. RCO's serve FSS's. RTR's serve terminal ATC facilities. An RCO or RTR may be UHF or VHF and will extend the communication range of the air traffic facility. There are several classes of RCO's and RTR's. The class is determined by the number of transmitters or receivers. Classes A through G are used primarily for air/ground purposes. RCO and RTR class O facilities are nonprotected outlets subject to undetected and prolonged outages. RCO (O's) and RTR (O's) were established for the express purpose of providing ground-to-ground communications between air traffic control specialists and pilots located at a satellite airport for delivering en route clearances, issuing departure authorizations, and acknowledging instrument flight rules cancellations or departure/landing times. As a secondary function, they may be used for advisory purposes whenever the aircraft is below the coverage of the primary air/ground frequency.

REMOTE TRANSMITTER/RECEIVER-
(See REMOTE COMMUNICATIONS OUTLET.)

REPORT- Used to instruct pilots to advise ATC of specified information; e.g., "Report passing Hamilton VOR."

REPORTING POINT- A geographical location in relation to which the position of an aircraft is reported.

(See COMPULSORY REPORTING POINTS.)

(See ICAO term REPORTING POINT.)

(Refer to AIM.)

REPORTING POINT [ICAO]- A specified geographical location in relation to which the position of an aircraft can be reported.

REQUEST FULL ROUTE CLEARANCE- Used by pilots to request that the entire route of flight be read verbatim in an ATC clearance. Such request should be made to preclude receiving an ATC clearance based on the original filed flight plan when a filed IFR flight plan has been revised by the pilot, company, or operations prior to departure.

REQUIRED NAVIGATION PERFORMANCE (RNP)– A statement of the navigational performance necessary for operation within a defined airspace. The following terms are commonly associated with RNP:

a. Required Navigation Performance Level or Type (RNP-X). A value, in nautical miles (NM), from the intended horizontal position within which an aircraft would be at least 95-percent of the total flying time.

b. Required Navigation Performance (RNP) Airspace. A generic term designating airspace, route (s), leg (s), operation (s), or procedure (s) where minimum required navigational performance (RNP) have been established.

c. Actual Navigation Performance (ANP). A measure of the current estimated navigational performance. Also referred to as Estimated Position Error (EPE).

d. Estimated Position Error (EPE). A measure of the current estimated navigational performance. Also referred to as Actual Navigation Performance (ANP).

e. Lateral Navigation (LNAV). A function of area navigation (RNAV) equipment which calculates, displays, and provides lateral guidance to a profile or path.

f. Vertical Navigation (VNAV). A function of area navigation (RNAV) equipment which calculates, displays, and provides vertical guidance to a profile or path.

RESCUE COORDINATION CENTER- A search and rescue (SAR) facility equipped and manned to coordinate and control SAR operations in an area designated by the SAR plan. The U.S. Coast Guard and the U.S. Air Force have responsibility for the operation of RCC's.

(See ICAO term RESCUE CO-ORDINATION CENTRE.)

RESCUE CO-ORDINATION CENTRE [ICAO]- A unit responsible for promoting efficient organization of search and rescue service and for coordinating the conduct of search and rescue operations within a search and rescue region.

RESOLUTION ADVISORY-A display indication given to the pilot by the traffic alert and collision avoidance systems (TCAS II) recommending a maneuver to increase vertical separation relative to an intruding aircraft. Positive, negative, and vertical speed limit (VSL) advisories constitute the resolution advisories. A resolution advisory is also classified as corrective or preventive

RESTRICTED AREA-

(See SPECIAL USE AIRSPACE.)

(See ICAO term RESTRICTED AREA.)

RESTRICTED AREA [ICAO]- An airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is restricted in accordance with certain specified conditions.

RESUME OWN NAVIGATION- Used by ATC to advise a pilot to resume his/her own navigational responsibility. It is issued after completion of a radar vector or when radar contact is lost while the aircraft is being radar vectored.

(See RADAR CONTACT LOST.)

(See RADAR SERVICE TERMINATED.)

RESUME NORMAL SPEED- Used by ATC to advise a pilot that previously issued speed control restrictions are deleted. An instruction to "resume normal speed" does not delete speed restrictions that are applicable to published procedures of upcoming segments of flight, unless specifically stated by ATC. This does not relieve the pilot of those speed

restrictions which are applicable to 14 CFR Section 91.117.

RMI-
(See RADIO MAGNETIC INDICATOR.)

RNAV-
(See AREA NAVIGATION.)
(See ICAO Term AREA NAVIGATION.)

RNAV APPROACH- An instrument approach procedure which relies on aircraft area navigation equipment for navigational guidance.
(See AREA NAVIGATION.)
(See INSTRUMENT APPROACH PROCEDURE.)

ROAD RECONNAISSANCE- Military activity requiring navigation along roads, railroads, and rivers. Reconnaissance route/route segments are seldom along a straight line and normally require a lateral route width of 10 NM to 30 NM and an altitude range of 500 feet to 10,000 feet AGL.

ROGER- I have received all of your last transmission. It should not be used to answer a question requiring a yes or a no answer.
(See AFFIRMATIVE.)
(See NEGATIVE.)

ROLLOUT RVR-
(See VISIBILITY.)

ROUTE- A defined path, consisting of one or more courses in a horizontal plane, which aircraft traverse over the surface of the earth.
(See AIRWAY.)
(See JET ROUTE.)
(See PUBLISHED ROUTE.)
(See UNPUBLISHED ROUTE.)

ROUTE ACTION NOTIFICATION- URET CCLD notification that a PAR/PDR/PDAR has been applied to the flight plan.
(See ATC PREFERRED ROUTE NOTIFICATION.)
(See USER REQUEST EVALUATION TOOL CORE CAPABILITY LIMITED DEPLOYMENT.)

ROUTE SEGMENT- As used in Air Traffic Control, a part of a route that can be defined by two navigational fixes, two NAVAID's, or a fix and a NAVAID.
(See FIX.)
(See ROUTE.)
(See ICAO term ROUTE SEGMENT.)

ROUTE SEGMENT [ICAO]- A portion of a route to be flown, as defined by two consecutive significant points specified in a flight plan.

RSA-
(See RUNWAY SAFETY AREA.)

RTR-
(See REMOTE TRANSMITTER/RECEIVER.)

RUNWAY- A defined rectangular area on a land airport prepared for the landing and takeoff run of aircraft along its length. Runways are normally numbered in relation to their magnetic direction rounded off to the nearest 10 degrees; e.g., Runway 1, Runway 25.
(See PARALLEL RUNWAYS.)
(See ICAO term RUNWAY.)

RUNWAY [ICAO]- A defined rectangular area on a land aerodrome prepared for the landing and take-off of aircraft.

RUNWAY CENTERLINE LIGHTING-
(See AIRPORT LIGHTING.)

RUNWAY CONDITION READING- Numerical decelerometer readings relayed by air traffic controllers at USAF and certain civil bases for use by the pilot in determining runway braking action. These readings are routinely relayed only to USAF and Air National Guard Aircraft.
(See BRAKING ACTION.)

RUNWAY END IDENTIFIER LIGHTS-
(See AIRPORT LIGHTING.)

RUNWAY GRADIENT- The average slope, measured in percent, between two ends or points on a runway. Runway gradient is depicted on Government aerodrome sketches when total runway gradient exceeds 0.3%.

RUNWAY HEADING- The magnetic direction that corresponds with the runway centerline extended, not the painted runway number. When cleared to "fly or maintain runway heading," pilots are expected to fly or maintain the heading that corresponds with the extended centerline of the departure runway. Drift correction shall not be applied; e.g., Runway 4, actual magnetic heading of the runway centerline 044, fly 044.

RUNWAY IN USE/ACTIVE RUNWAY/DUTY RUNWAY- Any runway or runways currently being used for takeoff or landing. When multiple runways are used, they are all considered active runways. In the metering sense, a selectable adapted item which specifies the landing runway configuration or direction of traffic flow. The adapted optimum flight plan from each transition fix to the vertex is determined by the runway configuration for arrival metering processing purposes.

RUNWAY LIGHTS-
(See AIRPORT LIGHTING.)

RUNWAY MARKINGS-
(See AIRPORT MARKING AIDS.)

RUNWAY OVERRUN- In military aviation exclusively, a stabilized or paved area beyond the end of a runway, of the same width as the runway plus shoulders, centered on the extended runway centerline.

RUNWAY PROFILE DESCENT- An instrument flight rules (IFR) air traffic control arrival procedure to a runway published for pilot use in graphic and/or textual form and may be associated with a STAR. Runway Profile Descents provide routing and may depict crossing altitudes, speed restrictions, and headings to be flown from the en route structure to the point where the pilot will receive clearance for and execute an instrument approach procedure. A Runway Profile Descent may apply to more than one runway if so stated on the chart.
(Refer to AIM.)

RUNWAY SAFETY AREA- A defined surface surrounding the runway prepared, or suitable, for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway. The dimensions of the RSA vary and can be determined by using the criteria contained within AC 150/5300-13, Airport Design, Chapter 3. Figure 3-1 in AC 150/5300-13 depicts the RSA. The design standards dictate that the RSA shall be:

a. Cleared, graded, and have no potentially hazardous ruts, humps, depressions, or other surface variations;

b. Drained by grading or storm sewers to prevent water accumulation;

c. Capable, under dry conditions, of supporting snow removal equipment, aircraft rescue and fire-fighting equipment, and the occasional passage of aircraft without causing structural damage to the aircraft; and,

d. Free of objects, except for objects that need to be located in the runway safety area because of their function. These objects shall be constructed on low impact resistant supports (frangible mounted structures) to the lowest practical height with the frangible point no higher than 3 inches above grade.
(Refer to AC 150/5300-13, Airport Design, Chapter 3.)

RUNWAY USE PROGRAM- A noise abatement runway selection plan designed to enhance noise abatement efforts with regard to airport communities for arriving and departing aircraft. These plans are developed into runway use programs and apply to all turbojet aircraft 12,500 pounds or heavier; turbojet aircraft less than 12,500 pounds are included only if the airport proprietor determines that the aircraft creates a noise problem. Runway use programs are coordinated with FAA offices, and safety criteria used in these programs are developed by the Office of Flight Operations. Runway use programs are administered by the Air Traffic Service as "Formal" or "Informal" programs.

a. Formal Runway Use Program- An approved noise abatement program which is defined and acknowledged in a Letter of Understanding between Flight Operations, Air Traffic Service, the airport proprietor, and the users. Once established, participation in the program is mandatory for aircraft operators and pilots as provided for in 14 CFR Section 91.129.

b. Informal Runway Use Program- An approved noise abatement program which does not require a Letter of Understanding, and participation in the program is voluntary for aircraft operators/pilots.

RUNWAY VISIBILITY VALUE-
(See VISIBILITY.)

RUNWAY VISUAL RANGE-
(See VISIBILITY.)

S

SAA-
(See SPECIAL ACTIVITY AIRSPACE.)

SAFETY ALERT- A safety alert issued by ATC to aircraft under their control if ATC is aware the aircraft is at an altitude which, in the controller's judgment, places the aircraft in unsafe proximity to terrain, obstructions, or other aircraft. The controller may discontinue the issuance of further alerts if the pilot advises he/she is taking action to correct the situation or has the other aircraft in sight.

a. Terrain/Obstruction Alert- A safety alert issued by ATC to aircraft under their control if ATC is aware the aircraft is at an altitude which, in the controller's judgment, places the aircraft in unsafe proximity to terrain/obstructions; e.g., "Low Altitude Alert, check your altitude immediately."

b. Aircraft Conflict Alert- A safety alert issued by ATC to aircraft under their control if ATC is aware of an aircraft that is not under their control at an altitude which, in the controller's judgment, places both aircraft in unsafe proximity to each other. With the alert, ATC will offer the pilot an alternate course of action when feasible; e.g., "Traffic Alert, advise you turn right heading zero niner zero or climb to eight thousand immediately."

Note: The issuance of a safety alert is contingent upon the capability of the controller to have an awareness of an unsafe condition. The course of action provided will be predicated on other traffic under ATC control. Once the alert is issued, it is solely the pilot's prerogative to determine what course of action, if any, he/she will take.

SAIL BACK- A maneuver during high wind conditions (usually with power off) where float plane movement is controlled by water rudders/opening and closing cabin doors.

SAME DIRECTION AIRCRAFT- Aircraft are operating in the same direction when:

a. They are following the same track in the same direction; or

b. Their tracks are parallel and the aircraft are flying in the same direction; or

c. Their tracks intersect at an angle of less than 45 degrees.

SAR-
(See SEARCH AND RESCUE.)

SAY AGAIN- Used to request a repeat of the last transmission. Usually specifies transmission or portion thereof not understood or received; e.g., "Say again all after ABRAM VOR."

SAY ALTITUDE- Used by ATC to ascertain an aircraft's specific altitude/flight level. When the aircraft is climbing or descending, the pilot should state the indicated altitude rounded to the nearest 100 feet.

SAY HEADING- Used by ATC to request an aircraft heading. The pilot should state the actual heading of the aircraft.

SDF-
(See SIMPLIFIED DIRECTIONAL FACILITY.)

SEA LANE- A designated portion of water outlined by visual surface markers for and intended to be used by aircraft designed to operate on water.

SEARCH AND RESCUE- 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 any air traffic facility or be transmitted directly to the Rescue Coordination Center by telephone.
(See FLIGHT SERVICE STATION.)
(See RESCUE COORDINATION CENTER.)
(Refer to AIM.)

SEARCH AND RESCUE FACILITY- A facility responsible for maintaining and operating a search and rescue (SAR) service to render aid to persons and property in distress. It is any SAR unit, station, NET, or other operational activity which can be usefully employed during an SAR Mission; e.g., a Civil Air Patrol Wing, or a Coast Guard Station.
(See SEARCH AND RESCUE.)

SECTIONAL AERONAUTICAL CHARTS-
(See AERONAUTICAL CHART.)

SECTOR LIST DROP INTERVAL- A parameter number of minutes after the meter fix time when arrival aircraft will be deleted from the arrival sector list.

SEE AND AVOID- When weather conditions permit, pilots operating IFR or VFR are required to observe and maneuver to avoid other aircraft. Right-of-way rules are contained in 14 CFR Part 91.

SEGMENTED CIRCLE- A system of visual indicators designed to provide traffic pattern information at airports without operating control towers.

(Refer to AIM.)

SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE- An instrument approach procedure may have as many as four separate segments depending on how the approach procedure is structured.

a. Initial Approach- The segment between the initial approach fix and the intermediate fix or the point where the aircraft is established on the intermediate course or final approach course.

(See ICAO term INITIAL APPROACH SEGMENT.)

b. Intermediate Approach- The segment between the intermediate fix or point and the final approach fix.

(See ICAO term INTERMEDIATE APPROACH SEGMENT.)

c. Final Approach- The segment between the final approach fix or point and the runway, airport, or missed approach point.

(See ICAO term FINAL APPROACH SEGMENT.)

d. Missed Approach- The segment between the missed approach point or the point of arrival at decision height and the missed approach fix at the prescribed altitude.

(Refer to 14 CFR Part 97.)

(See ICAO term MISSED APPROACH PROCEDURE.)

SELECTED GROUND DELAYS- A traffic management procedure whereby selected flights are issued ground delays to better regulate traffic flows over a particular fix or area.

SEPARATION- In air traffic control, the spacing of aircraft to achieve their safe and orderly movement in flight and while landing and taking off.

(See SEPARATION MINIMA.)

(See ICAO term SEPARATION.)

SEPARATION [ICAO]- Spacing between aircraft, levels or tracks.

SEPARATION MINIMA- The minimum longitudinal, lateral, or vertical distances by which aircraft are spaced through the application of air traffic control procedures.

(See SEPARATION.)

SERVICE- A generic term that designates functions or assistance available from or rendered by air traffic control. For example, Class C service would denote the ATC services provided within a Class C airspace area.

SEVERE WEATHER AVOIDANCE PLAN- An approved plan to minimize the affect of severe weather on traffic flows in impacted terminal and/or ARTCC areas. SWAP is normally implemented to provide the least disruption to the ATC system when flight through portions of airspace is difficult or impossible due to severe weather.

SEVERE WEATHER FORECAST ALERTS- Preliminary messages issued in order to alert users that a Severe Weather Watch Bulletin (WW) is being issued. These messages define areas of possible severe thunderstorms or tornado activity. The messages are unscheduled and issued as required by the National Severe Storm Forecast Center at Kansas City, Missouri.

(See AIRMET.)

(See CONVECTIVE SIGMET.)

(See CWA.)

(See SIGMET.)

SFA-

(See SINGLE FREQUENCY APPROACH.)

SFO-

(See SIMULATED FLAMEOUT.)

SHF-

(See SUPER HIGH FREQUENCY.)

SHORT RANGE CLEARANCE- A clearance issued to a departing IFR flight which authorizes IFR flight to a specific fix short of the destination while air traffic control facilities are coordinating and obtaining the complete clearance.

SHORT TAKEOFF AND LANDING AIRCRAFT- An aircraft which, at some weight within its approved operating weight, is capable of operating from a STOL runway in compliance with the applicable STOL characteristics, airworthiness, operations, noise, and pollution standards.
(See VERTICAL TAKEOFF AND LANDING AIRCRAFT.)

SIAP-
(See STANDARD INSTRUMENT APPROACH PROCEDURE.)

SIDESTEP MANEUVER- A visual maneuver accomplished by a pilot at the completion of an instrument approach to permit a straight-in landing on a parallel runway not more than 1,200 feet to either side of the runway to which the instrument approach was conducted.
(Refer to AIM.)

SIGMET- A weather advisory issued concerning weather significant to the safety of all aircraft. SIGMET advisories cover severe and extreme turbulence, severe icing, and widespread dust or sandstorms that reduce visibility to less than 3 miles.
(See AIRMET.)
(See AWW.)
(See CONVECTIVE SIGMET.)
(See CWA.)
(See ICAO term SIGMET INFORMATION.)
(Refer to AIM.)

SIGMET INFORMATION [ICAO]- Information issued by a meteorological watch office concerning the occurrence or expected occurrence of specified en-route weather phenomena which may affect the safety of aircraft operations.

SIGNIFICANT METEOROLOGICAL INFORMATION-
(See SIGMET.)

SIGNIFICANT POINT- A point, whether a named intersection, a NAVAID, a fix derived from a NAVAID(s), or geographical coordinate expressed in degrees of latitude and longitude, which is established for the purpose of providing separation, as a reporting point, or to delineate a route of flight.

SIMPLIFIED DIRECTIONAL FACILITY- A NAVAID used for nonprecision instrument approaches. The final approach course is similar to that of an ILS localizer except that the SDF course may be offset from the runway, generally not more than 3 degrees, and the course may be wider than the localizer, resulting in a lower degree of accuracy.
(Refer to AIM.)

SIMULATED FLAMEOUT- A practice approach by a jet aircraft (normally military) at idle thrust to a runway. The approach may start at a runway (high key) and may continue on a relatively high and wide downwind leg with a continuous turn to final. It terminates in landing or low approach. The purpose of this approach is to simulate a flameout.
(See FLAMEOUT.)

SIMULTANEOUS ILS APPROACHES- An approach system permitting simultaneous ILS/MLS approaches to airports having parallel runways separated by at least 4,300 feet between centerlines. Integral parts of a total system are ILS/MLS, radar, communications, ATC procedures, and appropriate airborne equipment.
(See PARALLEL RUNWAYS.)
(Refer to AIM.)

SIMULTANEOUS MLS APPROACHES-
(See SIMULTANEOUS ILS APPROACHES.)

SINGLE DIRECTION ROUTES- Preferred IFR Routes which are sometimes depicted on high altitude en route charts and which are normally flown in one direction only.
(See PREFERRED IFR ROUTES.)
(Refer to AIRPORT/FACILITY DIRECTORY.)

SINGLE FREQUENCY APPROACH- A service provided under a letter of agreement to military single-piloted turbojet aircraft which permits use of a single UHF frequency during approach for landing. Pilots will not normally be required to change frequency from the beginning of the approach to touchdown except that pilots conducting an en route descent are required to change frequency when control is transferred from the air route traffic control center to the terminal facility. The abbreviation "SFA" in the DOD FLIP IFR Supplement under "Communications" indicates this service is available at an aerodrome.

SINGLE-PILOTED AIRCRAFT- A military turbojet aircraft possessing one set of flight controls, tandem cockpits, or two sets of flight controls but operated by one pilot is considered single-piloted by ATC when determining the appropriate air traffic service to be applied.
(See SINGLE FREQUENCY APPROACH.)

SLASH- A radar beacon reply displayed as an elongated target.

SLDI-
(See SECTOR LIST DROP INTERVAL.)

SLOT TIME-
(See METER FIX TIME/SLOT TIME.)

SLOW TAXI- To taxi a float plane at low power or low RPM.

SN-
(See SYSTEM STRATEGIC NAVIGATION.)

SPEAK SLOWER- Used in verbal communications as a request to reduce speech rate.

SPECIAL ACTIVITY AIRSPACE (SAA)- Any airspace with defined dimensions within the National Airspace System wherein limitations may be imposed upon aircraft operations. This airspace may be restricted areas, prohibited areas, military operations areas, air ATC assigned airspace, and any other designated airspace areas. The dimensions of this airspace are programmed into URET CCLD and can be designated as either active or inactive by screen entry. Aircraft trajectories are constantly tested against the dimensions of active areas and alerts issued to the applicable sectors when violations are predicted.
(See USER REQUEST EVALUATION TOOL CORE CAPABILITY LIMITED DEPLOYMENT.)

SPECIAL EMERGENCY- A condition of air piracy or other hostile act by a person(s) aboard an aircraft which threatens the safety of the aircraft or its passengers.

SPECIAL INSTRUMENT APPROACH PROCEDURE-
(See INSTRUMENT APPROACH PROCEDURE.)

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 and/or wherein limitations may be imposed upon aircraft operations that are not a part of those activities. Types of special use airspace are:

a. Alert Area- Airspace which may contain a high volume of pilot training activities or an unusual type of aerial activity, neither of which is hazardous to aircraft. Alert Areas are depicted on aeronautical charts for the information of nonparticipating pilots. All activities within an Alert Area are conducted in accordance with Federal Aviation Regulations, and pilots of participating aircraft as well as pilots transiting the area are equally responsible for collision avoidance.

b. Controlled Firing Area- Airspace wherein activities are conducted under conditions so controlled as to eliminate hazards to nonparticipating aircraft and to ensure the safety of persons and property on the ground.

c. Military Operations Area (MOA)- A MOA is airspace established outside of Class A airspace area to separate or segregate certain nonhazardous military activities from IFR traffic and to identify for VFR traffic where these activities are conducted.
(Refer to AIM.)

d. Prohibited Area- Airspace designated under 14 CFR Part 73 within which no person may operate an aircraft without the permission of the using agency.
(Refer to AIM.)
(Refer to En Route Charts.)

e. Restricted Area- Airspace designated under 14 CFR Part 73, within which the flight of aircraft, while not wholly prohibited, is subject to restriction. Most restricted areas are designated joint use and IFR/VFR operations in the area may be authorized by the controlling ATC facility when it is not being utilized by the using agency. Restricted areas are depicted on en route charts. Where joint use is authorized, the name of the ATC controlling facility is also shown.
(Refer to 14 CFR Part 73.)
(Refer to AIM.)

f. 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.

SPECIAL VFR CONDITIONS- Meteorological conditions that are less than those required for basic VFR flight in Class B, C, D, or E surface areas and in which some aircraft are permitted flight under visual flight rules.
(See SPECIAL VFR OPERATIONS.)
(Refer to 14 CFR Part 91.)

SPECIAL VFR FLIGHT [ICAO]- A VFR flight cleared by air traffic control to operate within Class B, C, D, and E surface areas in metrological conditions below VMC.

SPECIAL VFR OPERATIONS- Aircraft operating in accordance with clearances within Class B, C, D, and E surface areas in weather conditions less than the basic VFR weather minima. Such operations must be requested by the pilot and approved by ATC.

(See SPECIAL VFR CONDITIONS.)

(See ICAO term SPECIAL VFR FLIGHT.)

SPEED-

(See AIRSPEED.)

(See GROUND SPEED.)

SPEED ADJUSTMENT- An ATC procedure used to request pilots to adjust aircraft speed to a specific value for the purpose of providing desired spacing. Pilots are expected to maintain a speed of plus or minus 10 knots or 0.02 Mach number of the specified speed. Examples of speed adjustments are:

a. "Increase/reduce speed to Mach point (number.)"

b. "Increase/reduce speed to (speed in knots)" or "Increase/reduce speed (number of knots) knots."

SPEED BRAKES- Moveable aerodynamic devices on aircraft that reduce airspeed during descent and landing.

SPEED SEGMENTS- Portions of the arrival route between the transition point and the vertex along the optimum flight path for which speeds and altitudes are specified. There is one set of arrival speed segments adapted from each transition point to each vertex. Each set may contain up to six segments.

SQUAWK (Mode, Code, Function)- Activate specific modes/codes/functions on the aircraft transponder; e.g., "Squawk three/alpha, two one zero five, low."

(See TRANSPONDER.)

STAGING/QUEUING- The placement, integration, and segregation of departure aircraft in designated movement areas of an airport by departure fix, EDCT, and/or restriction.

STANDARD INSTRUMENT APPROACH PROCEDURE-

(See INSTRUMENT APPROACH PROCEDURE.)

STANDARD RATE TURN- A turn of three degrees per second.

STANDARD TERMINAL ARRIVAL- A preplanned instrument flight rule (IFR) air traffic control arrival procedure published for pilot use in graphic and/or textual form. STAR's provide transition from the en route structure to an outer fix or an instrument approach fix/arrival waypoint in the terminal area.

STANDARD TERMINAL ARRIVAL CHARTS-

(See AERONAUTICAL CHART.)

STAND BY- Means the controller or pilot must pause for a few seconds, usually to attend to other duties of a higher priority. Also means to wait as in "stand by for clearance." The caller should reestablish contact if a delay is lengthy. "Stand by" is not an approval or denial.

STAR-

(See STANDARD TERMINAL ARRIVAL.)

STATE AIRCRAFT- Aircraft used in military, customs and police service, in the exclusive service of any government, or of any political subdivision, thereof including the government of any state, territory, or possession of the United States or the District of Columbia, but not including any government-owned aircraft engaged in carrying persons or property for commercial purposes.

STATIC RESTRICTIONS- Those restrictions that are usually not subject to change, fixed, in place, and/or published.

STATIONARY RESERVATIONS- Altitude reservations which encompass activities in a fixed area. Stationary 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.

STEPDOWN FIX- A fix permitting additional descent within a segment of an instrument approach procedure by identifying a point at which a controlling obstacle has been safely overflown.

STEP TAXI- To taxi a float plane at full power or high RPM.

STEP TURN- A maneuver used to put a float plane in a planing configuration prior to entering an active sea lane for takeoff. The STEP TURN maneuver should only be used upon pilot request.

STEREO ROUTE- A routinely used route of flight established by users and ARTCC's identified by a

coded name; e.g., ALPHA 2. These routes minimize flight plan handling and communications.

STOL AIRCRAFT-
(See SHORT TAKEOFF AND LANDING AIRCRAFT.)

STOP ALTITUDE SQUAWK- Used by ATC to inform an aircraft to turn-off the automatic altitude reporting feature of its transponder. It is issued when the verbally reported altitude varies 300 feet or more from the automatic altitude report.
(See ALTITUDE READOUT.)
(See TRANSPONDER.)

STOP AND GO- A procedure wherein an aircraft will land, make a complete stop on the runway, and then commence a takeoff from that point.
(See LOW APPROACH.)
(See OPTION APPROACH.)

STOP BURST-
(See STOP STREAM.)

STOP BUZZER-
(See STOP STREAM.)

STOPOVER FLIGHT PLAN- A flight plan format which permits in a single submission the filing of a sequence of flight plans through interim full-stop destinations to a final destination.

STOP SQUAWK (Mode or Code)- Used by ATC to tell the pilot to turn specified functions of the aircraft transponder off.
(See STOP ALTITUDE SQUAWK.)
(See TRANSPONDER.)

STOP STREAM- Used by ATC to request a pilot to suspend electronic countermeasure activity.
(See JAMMING.)

STOPWAY- An area beyond the takeoff runway no less wide than the runway and centered upon the extended centerline of the runway, able to support the airplane during an aborted takeoff, without causing structural damage to the airplane, and designated by the airport authorities for use in decelerating the airplane during an aborted takeoff.

STRAIGHT-IN APPROACH IFR- An instrument approach wherein final approach is begun without first having executed a procedure turn, not necessarily completed with a straight-in landing or made to straight-in landing minimums.
(See LANDING MINIMUMS.)
(See STRAIGHT-IN APPROACH VFR.)
(See STRAIGHT-IN LANDING.)

STRAIGHT-IN APPROACH VFR- Entry into the traffic pattern by interception of the extended runway centerline (final approach course) without executing any other portion of the traffic pattern.
(See TRAFFIC PATTERN.)

STRAIGHT-IN LANDING- A landing made on a runway aligned within 30° of the final approach course following completion of an instrument approach.
(See STRAIGHT-IN APPROACH IFR.)

STRAIGHT-IN LANDING MINIMUMS-
(See LANDING MINIMUMS.)

STRAIGHT-IN MINIMUMS-
(See STRAIGHT-IN LANDING MINIMUMS.)

STRATEGIC PLANNING- Planning whereby solutions are sought to resolve potential conflicts.

SUBSTITUTIONS- Users are permitted to exchange CTA's. Normally, the airline dispatcher will contact the ATCSCC with this request. The ATCSCC shall forward approved substitutions to the TMU's who will notify the appropriate terminals. Permissible swapping must not change the traffic load for any given hour of an EQF program.

SUBSTITUTE ROUTE- A route assigned to pilots when any part of an airway or route is unusable because of NAVAID status. These routes consist of:

a. Substitute routes which are shown on U.S. Government charts.

b. Routes defined by ATC as specific NAVAID radials or courses.

c. Routes defined by ATC as direct to or between NAVAID's.

SUNSET AND SUNRISE- The mean solar times of sunset and sunrise as published in the Nautical Almanac, converted to local standard time for the locality concerned. Within Alaska, the end of evening civil twilight and the beginning of morning civil twilight, as defined for each locality.

SUPER HIGH FREQUENCY- The frequency band between 3 and 30 gigahertz (GHz). The elevation and azimuth stations of the microwave landing system

operate from 5031 MHz to 5091 MHz in this spectrum.

SUPPLEMENTAL WEATHER SERVICE LOCATION- Airport facilities staffed with contract personnel who take weather observations and provide current local weather to pilots via telephone or radio. (All other services are provided by the parent FSS.)

SUPPS- Refers to ICAO Document 7030 Regional Supplementary Procedures. SUPPS contain procedures for each ICAO Region which are unique to that Region and are not covered in the worldwide provisions identified in the ICAO Air Navigation Plan. Procedures contained in Chapter 8 are based in part on those published in SUPPS.

SURFACE AREA- The airspace contained by the lateral boundary of the Class B, C, D, or E airspace designated for an airport that begins at the surface and extends upward.

SURPIC- A description of surface vessels in the area of a Search and Rescue incident including their predicted positions and their characteristics.

(Refer to FAAO 7110.65, Para 10-6-4, INFLIGHT CONTINGENCIES.)

SURVEILLANCE APPROACH- An instrument approach wherein the air traffic controller issues instructions, for pilot compliance, based on aircraft position in relation to the final approach course (azimuth), and the distance (range) from the end of the runway as displayed on the controller's radar scope. The controller will provide recommended altitudes on final approach if requested by the pilot.

(Refer to AIM.)

SWAP-

(See SEVERE WEATHER AVOIDANCE PLAN.)

SWSL-

(See SUPPLEMENTAL WEATHER SERVICE LOCATION.)

SYSTEM STRATEGIC NAVIGATION- Military activity accomplished by navigating along a preplanned route using internal aircraft systems to maintain a desired track. This activity normally requires a lateral route width of 10 NM and altitude range of 1,000 feet to 6,000 feet AGL with some route segments that permit terrain following.

T

TACAN-
(See TACTICAL AIR NAVIGATION.)

TACAN-ONLY AIRCRAFT- An aircraft, normally military, possessing TACAN with DME but no VOR navigational system capability. Clearances must specify TACAN or VORTAC fixes and approaches.

TACTICAL AIR NAVIGATION- An ultra-high frequency electronic rho-theta air navigation aid which provides suitably equipped aircraft a continuous indication of bearing and distance to the TACAN station.
(See VORTAC.)
(Refer to AIM.)

TAILWIND- Any wind more than 90 degrees to the longitudinal axis of the runway. The magnetic direction of the runway shall be used as the basis for determining the longitudinal axis.

TAKEOFF AREA-
(See LANDING AREA.)

TAKE-OFF DISTANCE AVAILABLE [ICAO]- The length of the take-off run available plus the length of the clearway, if provided.

TAKE-OFF RUN AVAILABLE [ICAO]- The length of runway declared available and suitable for the ground run of an aeroplane take-off.

TARGET- The indication shown on a radar display resulting from a primary radar return or a radar beacon reply.
(See RADAR.)
(See TARGET SYMBOL.)
(See ICAO term TARGET.)

TARGET [ICAO]- In radar:

a. Generally, any discrete object which reflects or retransmits energy back to the radar equipment.

b. Specifically, an object of radar search or surveillance.

TARGET RESOLUTION- A process to ensure that correlated radar targets do not touch. Target resolution shall be applied as follows:

a. Between the edges of two primary targets or the edges of the ASR-9 primary target symbol.

b. Between the end of the beacon control slash and the edge of a primary target.

c. Between the ends of two beacon control slashes.

Note 1: MANDATORY TRAFFIC ADVISORIES AND SAFETY ALERTS SHALL BE ISSUED WHEN THIS PROCEDURE IS USED.

Note 2: This procedure shall not be provided utilizing mosaic radar systems.

TARGET SYMBOL- A computer-generated indication shown on a radar display resulting from a primary radar return or a radar beacon reply.

TAXI- The movement of an airplane under its own power on the surface of an airport (14 CFR Section 135.100 [Note]). Also, it describes the surface movement of helicopters equipped with wheels.
(See AIR TAXI.)
(See HOVER TAXI.)
(Refer to 14 CFR Section 135.100.)
(Refer to AIM.)

TAXI INTO POSITION AND HOLD- Used by ATC to inform a pilot to taxi onto the departure runway in takeoff position and hold. It is not authorization for takeoff. It is used when takeoff clearance cannot immediately be issued because of traffic or other reasons.
(See CLEARED FOR TAKEOFF.)

TAXI PATTERNS- Patterns established to illustrate the desired flow of ground traffic for the different runways or airport areas available for use.

TCAS-
(See TRAFFIC ALERT AND COLLISION AVOIDANCE SYSTEM.)

TCH-
(See THRESHOLD CROSSING HEIGHT.)

TCLT-
(See TENTATIVE CALCULATED LANDING TIME.)

TDZE-
(See TOUCHDOWN ZONE ELEVATION.)

TELEPHONE INFORMATION BRIEFING SERVICE- A continuous telephone recording of meteorological and/or aeronautical information.
(Refer to AIM.)

TENTATIVE CALCULATED LANDING TIME- A projected time calculated for adapted vertex for each arrival aircraft based upon runway configuration, airport acceptance rate, airport arrival delay period, and other metered arrival aircraft. This time is either the VTA of the aircraft or the TCLT/ACLT of the previous aircraft plus the AAI, whichever is later. This time will be updated in response to an aircraft's progress and its current relationship to other arrivals.

TERMINAL AREA- A general term used to describe airspace in which approach control service or airport traffic control service is provided.

TERMINAL AREA FACILITY- A facility providing air traffic control service for arriving and departing IFR, VFR, Special VFR, and on occasion en route aircraft.

(See APPROACH CONTROL FACILITY.)
(See TOWER.)

TERMINAL RADAR SERVICE AREA- Airspace surrounding designated airports wherein ATC provides radar vectoring, sequencing, and separation on a full-time basis for all IFR and participating VFR aircraft. The AIM contains an explanation of TRSA. TRSA's are depicted on VFR aeronautical charts. Pilot participation is urged but is not mandatory.

TERMINAL VFR RADAR SERVICE- A national program instituted to extend the terminal radar services provided instrument flight rules (IFR) aircraft to visual flight rules (VFR) aircraft. The program is divided into four types service referred to as basic radar service, terminal radar service area (TRSA) service, Class B service and Class C service. The type of service provided at a particular location is contained in the Airport/Facility Directory.

a. Basic Radar Service- These services are provided for VFR aircraft by all commissioned terminal radar facilities. Basic radar service includes safety alerts, traffic advisories, limited radar vectoring when requested by the pilot, and sequencing at locations where procedures have been established for this purpose and/or when covered by a letter of agreement. The purpose of this service is to adjust the flow of arriving IFR and VFR aircraft into the traffic pattern in a safe and orderly manner and to provide traffic advisories to departing VFR aircraft.

b. TRSA Service- This service provides, in addition to basic radar service, sequencing of all IFR and participating VFR aircraft to the primary airport and separation between all participating VFR aircraft. The purpose of this service is to provide separation between all participating VFR aircraft and all IFR aircraft operating within the area defined as a TRSA.

c. Class C Service- This service provides, in addition to basic radar service, approved separation between IFR and VFR aircraft, and sequencing of VFR aircraft, and sequencing of VFR arrivals to the primary airport.

d. Class B Service- This service provides, in addition to basic radar service, approved separation of aircraft based on IFR, VFR, and/or weight, and sequencing of VFR arrivals to the primary airport(s).

(See CONTROLLED AIRSPACE.)
(See TERMINAL RADAR SERVICE AREA.)
(Refer to AIM.)
(Refer to AIRPORT/FACILITY DIRECTORY.)

TERMINAL-VERY HIGH FREQUENCY OMNIDIRECTIONAL RANGE STATION- A very high frequency terminal omnirange station located on or near an airport and used as an approach aid.

(See NAVIGATIONAL AID.)
(See VOR.)

TERRAIN FOLLOWING- The flight of a military aircraft maintaining a constant AGL altitude above the terrain or the highest obstruction. The altitude of the aircraft will constantly change with the varying terrain and/or obstruction.

TETRAHEDRON- A device normally located on uncontrolled airports and used as a landing direction indicator. The small end of a tetrahedron points in the direction of landing. At controlled airports, the tetrahedron, if installed, should be disregarded because tower instructions supersede the indicator.

(See SEGMENTED CIRCLE.)
(Refer to AIM.)

TF-

(See TERRAIN FOLLOWING.)

THAT IS CORRECT- The understanding you have is right.

360 OVERHEAD-

(See OVERHEAD MANEUVER.)

THRESHOLD- The beginning of that portion of the runway usable for landing.

(See AIRPORT LIGHTING.)
(See DISPLACED THRESHOLD.)

THRESHOLD CROSSING HEIGHT- The theoretical height above the runway threshold at which the

aircraft's glideslope antenna would be if the aircraft maintains the trajectory established by the mean ILS glideslope or MLS glidepath.

(See GLIDESLOPE.)

(See THRESHOLD.)

THRESHOLD LIGHTS-

(See AIRPORT LIGHTING.)

TIBS-

(See TELEPHONE INFORMATION BRIEFING SERVICE.)

TIME GROUP- Four digits representing the hour and minutes from the Coordinated Universal Time (UTC) clock. FAA uses UTC for all operations. The term "ZULU" may be used to denote UTC. The word "local" or the time zone equivalent shall be used to denote local when local time is given during radio and telephone communications. When written, a time zone designator is used to indicate local time; e.g. "0205M" (Mountain). The local time may be based on the 24-hour clock system. The day begins at 0000 and ends at 2359.

TMPA-

(See TRAFFIC MANAGEMENT PROGRAM ALERT.)

TMU-

(See TRAFFIC MANAGEMENT UNIT.)

TODA [ICAO]-

(See ICAO Term TAKE-OFF DISTANCE AVAILABLE.)

TORA [ICAO]-

(See ICAO Term TAKE-OFF RUN AVAILABLE.)

TORCHING- The burning of fuel at the end of an exhaust pipe or stack of a reciprocating aircraft engine, the result of an excessive richness in the fuel air mixture.

TOTAL ESTIMATED ELAPSED TIME [ICAO]- For IFR flights, the estimated time required from take-off to arrive over that designated point, defined by reference to navigation aids, from which it is intended that an instrument approach procedure will be commenced, or, if no navigation aid is associated with the destination aerodrome, to arrive over the destination aerodrome. For VFR flights, the estimated time required from take-off to arrive over the destination aerodrome.

(See ICAO term ESTIMATED ELAPSED TIME.)

TOUCH-AND-GO- An operation by an aircraft that lands and departs on a runway without stopping or exiting the runway.

TOUCH-AND-GO LANDING-

(See TOUCH-AND-GO.)

TOUCHDOWN-

a. The point at which an aircraft first makes contact with the landing surface.

b. Concerning a precision radar approach (PAR), it is the point where the glide path intercepts the landing surface.

(See ICAO term TOUCHDOWN.)

TOUCHDOWN [ICAO]- The point where the nominal glide path intercepts the runway.

Note: Touchdown as defined above is only a datum and is not necessarily the actual point at which the aircraft will touch the runway.

TOUCHDOWN RVR-

(See VISIBILITY.)

TOUCHDOWN ZONE- The first 3,000 feet of the runway beginning at the threshold. The area is used for determination of Touchdown Zone Elevation in the development of straight-in landing minimums for instrument approaches.

(See ICAO term TOUCHDOWN ZONE.)

TOUCHDOWN ZONE [ICAO]- The portion of a runway, beyond the threshold, where it is intended landing aircraft first contact the runway.

TOUCHDOWN ZONE ELEVATION- The highest elevation in the first 3,000 feet of the landing surface. TDZE is indicated on the instrument approach procedure chart when straight-in landing minimums are authorized.

(See TOUCHDOWN ZONE.)

TOUCHDOWN ZONE LIGHTING-

(See AIRPORT LIGHTING.)

TOWER- A terminal facility that uses air/ground communications, visual signaling, and other devices to provide ATC services to aircraft operating in the vicinity of an airport or on the movement area. Authorizes aircraft to land or takeoff at the airport

controlled by the tower or to transit the Class D airspace area regardless of flight plan or weather conditions (IFR or VFR). A tower may also provide approach control services (radar or nonradar).

(See AIRPORT TRAFFIC CONTROL SERVICE.)
(See APPROACH CONTROL FACILITY.)
(See APPROACH CONTROL SERVICE.)
(See MOVEMENT AREA.)
(See TOWER EN ROUTE CONTROL SERVICE.)
(See ICAO term AERODROME CONTROL TOWER.)
(Refer to AIM.)

TOWER EN ROUTE CONTROL SERVICE- The control of IFR en route traffic within delegated airspace between two or more adjacent approach control facilities. This service is designed to expedite traffic and reduce control and pilot communication requirements.

TOWER TO TOWER-
(See TOWER EN ROUTE CONTROL SERVICE.)

TPX-42- A numeric beacon decoder equipment/system. It is designed to be added to terminal radar systems for beacon decoding. It provides rapid target identification, reinforcement of the primary radar target, and altitude information from Mode C.

(See AUTOMATED RADAR TERMINAL SYSTEMS.)
(See TRANSPONDER.)

TRACEABLE PRESSURE STANDARD- The facility station pressure instrument, with certification/calibration traceable to the National Institute of Standards and Technology. Traceable pressure standards may be mercurial barometers, commissioned ASOS or dual transducer AWOS, or portable pressure standards or DASI.

TRACK- The actual flight path of an aircraft over the surface of the earth.

(See COURSE.)
(See FLIGHT PATH.)
(See ROUTE.)
(See ICAO term TRACK.)

TRACK [ICAO]- The projection on the earth's surface of the path of an aircraft, the direction of which path at any point is usually expressed in degrees from North (True, Magnetic, or Grid).

TRAFFIC-

a. A term used by a controller to transfer radar identification of an aircraft to another controller for the purpose of coordinating separation action. Traffic is normally issued:

1. In response to a handoff or point out,

2. In anticipation of a handoff or point out, or

3. In conjunction with a request for control of an aircraft.

b. A term used by ATC to refer to one or more aircraft.

TRAFFIC ADVISORIES- Advisories issued 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 their 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 1: 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 2: 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 of his/her responsibility to see and avoid other aircraft. Pilots are cautioned that there are many times when the controller is not able to give traffic advisories concerning all traffic in the aircraft's proximity; in other words, when a pilot requests or is receiving traffic advisories, he/she should not assume that all traffic will be issued.

(Refer to AIM.)

TRAFFIC ALERT (aircraft call sign), TURN (left/right) IMMEDIATELY, (climb/descend) AND MAINTAIN (altitude).

(See SAFETY ALERT.)

TRAFFIC ALERT AND COLLISION AVOIDANCE SYSTEM- An airborne collision avoidance system based on radar beacon signals which operates independent of ground-based equipment. TCAS-I generates traffic advisories only. TCAS-II generates traffic advisories, and resolution (collision avoidance) advisories in the vertical plane.

TRAFFIC INFORMATION-
(See TRAFFIC ADVISORIES.)

TRAFFIC IN SIGHT- Used by pilots to inform a controller that previously issued traffic is in sight.
(See NEGATIVE CONTACT.)
(See TRAFFIC ADVISORIES.)

TRAFFIC MANAGEMENT PROGRAM ALERT- A term used in a Notice to Airmen (NOTAM) issued in conjunction with a special traffic management program to alert pilots to the existence of the program and to refer them to either the Notices to Airmen publication or a special traffic management program advisory message for program details. The contraction TMPA is used in NOTAM text.

TRAFFIC MANAGEMENT UNIT- The entity in ARTCC's and designated terminals responsible for direct involvement in the active management of facility traffic. Usually under the direct supervision of an assistant manager for traffic management.

TRAFFIC NO FACTOR- Indicates that the traffic described in a previously issued traffic advisory is no factor.

TRAFFIC NO LONGER OBSERVED- Indicates that the traffic described in a previously issued traffic advisory is no longer depicted on radar, but may still be a factor.

TRAFFIC PATTERN- The traffic flow that is prescribed for aircraft landing at, taxiing on, or taking off from an airport. The components of a typical traffic pattern are upwind leg, crosswind leg, downwind leg, base leg, and final approach.

a. Upwind Leg- A flight path parallel to the landing runway in the direction of landing.

b. Crosswind Leg- A flight path at right angles to the landing runway off its upwind end.

c. Downwind Leg- A flight path parallel to the landing runway in the direction opposite to landing. The downwind leg normally extends between the crosswind leg and the base leg.

d. Base Leg- A flight path at right angles to the landing runway off its approach end. The base leg normally extends from the downwind leg to the intersection of the extended runway centerline.

e. Final Approach. A flight path in the direction of landing along the extended runway centerline. The final approach normally extends from the base leg to the runway. An aircraft making a straight-in approach VFR is also considered to be on final approach.
(See STRAIGHT-IN APPROACH VFR.)
(See TAXI PATTERNS.)
(See ICAO term AERODROME TRAFFIC CIRCUIT.)
(Refer to 14 CFR Part 91.)
(Refer to AIM.)

TRAFFIC SITUATION DISPLAY (TSD)- TSD is a computer system that receives radar track data from all 20 CONUS ARTCC's, organizes this data into a mosaic display, and presents it on a computer screen. The display allows the traffic management coordinator multiple methods of selection and highlighting of individual aircraft or groups of aircraft. The user has the option of superimposing these aircraft positions over any number of background displays. These background options include ARTCC boundaries, any stratum of en route sector boundaries, fixes, airways, military and other special use airspace, airports, and geopolitical boundaries. By using the TSD, a coordinator can monitor any number of traffic situations or the entire systemwide traffic flows.

TRAJECTORY- A URET CCLD representation of the path an aircraft is predicted to fly based upon a Current Plan or Trial Plan.
(See USER REQUEST EVALUATION TOOL CORE CAPABILITY LIMITED DEPLOYMENT.)

TRAJECTORY MODELING- The automated process of calculating a trajectory.

TRANSCRIBED WEATHER BROADCAST- A continuous recording of meteorological and aeronautical information that is broadcast on L/MF and VOR facilities for pilots.
(Refer to AIM.)

TRANSFER OF CONTROL- That action whereby the responsibility for the separation of an aircraft is transferred from one controller to another.
(See ICAO term TRANSFER OF CONTROL.)

TRANSFER OF CONTROL [ICAO]- Transfer of responsibility for providing air traffic control service.

TRANSFERRING CONTROLLER- A controller/facility transferring control of an aircraft to another controller/facility.
(See ICAO term TRANSFERRING UNIT/CONTROLLER.)

TRANSFERRING FACILITY-
(See TRANSFERRING CONTROLLER.)

TRANSFERRING UNIT/CONTROLLER [ICAO]- Air traffic control unit/air traffic controller in the process of transferring the responsibility for providing air traffic control service to an aircraft to the next air traffic control unit/air traffic controller along the route of flight.

Note: See definition of accepting unit/controller.

TRANSITION-

a. The general term that describes the change from one phase of flight or flight condition to another; e.g., transition from en route flight to the approach or transition from instrument flight to visual flight.

b. A published procedure (DP Transition) used to connect the basic DP to one of several en route airways/jet routes, or a published procedure (STAR Transition) used to connect one of several en route airways/jet routes to the basic STAR.

(Refer to DP/STAR Charts.)

TRANSITIONAL AIRSPACE- That portion of controlled airspace wherein aircraft change from one phase of flight or flight condition to another.

TRANSITION POINT- A point at an adapted number of miles from the vertex at which an arrival aircraft would normally commence descent from its en route altitude. This is the first fix adapted on the arrival speed segments.

TRANSMISSOMETER- An apparatus used to determine visibility by measuring the transmission of light through the atmosphere. It is the measurement source for determining runway visual range (RVR) and runway visibility value (RVV).

(See VISIBILITY.)

TRANSMITTING IN THE BLIND- A transmission from one station to other stations in circumstances where two-way communication cannot be established, but where it is believed that the called stations may be able to receive the transmission.

TRANSPONDER- The airborne radar beacon receiver/transmitter portion of the Air Traffic Control Radar Beacon System (ATCRBS) which automatically receives radio signals from interrogators on the ground, and selectively replies with a specific reply pulse or pulse group only to those interrogations being received on the mode to which it is set to respond.

(See INTERROGATOR.)

(See ICAO term TRANSPONDER.)

(Refer to AIM.)

TRANSPONDER [ICAO]- A receiver/transmitter which will generate a reply signal upon proper interrogation; the interrogation and reply being on different frequencies.

TRANSPONDER CODES-

(See CODES.)

TRIAL PLAN- A proposed amendment which utilizes automation to analyze and display potential conflicts along the predicted trajectory of the selected aircraft.

TRSA-

(See TERMINAL RADAR SERVICE AREA.)

TSD-

(See TRAFFIC SITUATION DISPLAY.)

TURBOJET AIRCRAFT- An aircraft having a jet engine in which the energy of the jet operates a turbine which in turn operates the air compressor.

TURBOPROP AIRCRAFT- An aircraft having a jet engine in which the energy of the jet operates a turbine which drives the propeller.

TURN ANTICIPATION- (maneuver anticipation).

TVOR-

(See TERMINAL-VERY HIGH FREQUENCY OMNIDIRECTIONAL RANGE STATION.)

TWEB-

(See TRANSCRIBED WEATHER BROADCAST.)

TWO-WAY RADIO COMMUNICATIONS FAILURE- (See LOST COMMUNICATIONS.)

U

UDF-
(See DIRECTION FINDER.)

UHF-
(See ULTRAHIGH FREQUENCY.)

ULTRAHIGH FREQUENCY- The frequency band between 300 and 3,000 MHz. The bank of radio frequencies used for military air/ground voice communications. In some instances this may go as low as 225 MHz and still be referred to as UHF.

ULTRALIGHT VEHICLE- An aeronautical vehicle operated for sport or recreational purposes which does not require FAA registration, an airworthiness certificate, nor pilot certification. They are primarily single occupant vehicles, although some two-place vehicles are authorized for training purposes. Operation of an ultralight vehicle in certain airspace requires authorization from ATC.
(Refer to 14 CFR Part 103.)

UNABLE- Indicates inability to comply with a specific instruction, request, or clearance.

UNDER THE HOOD- Indicates that the pilot is using a hood to restrict visibility outside the cockpit while simulating instrument flight. An appropriately rated pilot is required in the other control seat while this operation is being conducted.
(Refer to 14 CFR Part 91.)

UNICOM- A nongovernment communication facility which may provide airport information at certain airports. Locations and frequencies of UNICOM's are shown on aeronautical charts and publications.
(See AIRPORT/FACILITY DIRECTORY.)
(Refer to AIM.)

UNPUBLISHED ROUTE- A route for which no minimum altitude is published or charted for pilot use. It may include a direct route between NAVAID's, a radial, a radar vector, or a final approach course beyond the segments of an instrument approach procedure.
(See PUBLISHED ROUTE.)
(See ROUTE.)

UPWIND LEG-
(See TRAFFIC PATTERN.)

URET-
(See USER REQUEST EVALUATION TOOL CORE CAPABILITY LIMITED DEPLOYMENT.)

URET CCLD-
(See USER REQUEST EVALUATION TOOL CORE CAPABILITY LIMITED DEPLOYMENT.)

URGENCY- A condition of being concerned about safety and of requiring timely but not immediate assistance; a potential distress condition.
(See ICAO term URGENCY.)

URGENCY [ICAO]- A condition concerning the safety of an aircraft or other vehicle, or of person on board or in sight, but which does not require immediate assistance.

USAFIB-
(See ARMY AVIATION FLIGHT INFORMATION BULLETIN.)

USER REQUEST EVALUATION TOOL CORE CAPABILITY LIMITED DEPLOYMENT (URET CCLD)- User Request Evaluation Tool Core Capability Limited Deployment is an automated tool provided at each Radar Associate position in selected En Route facilities. This tool utilizes flight and radar data to determine present and future trajectories for all active and proposal aircraft and provides enhanced, automated flight data management.

UVDF-
(See DIRECTION FINDER.)

V

VASI-
(See VISUAL APPROACH SLOPE INDICATOR.)

VDF-
(See DIRECTION FINDER.)

VDP-
(See VISUAL DESCENT POINT.)

VECTOR- A heading issued to an aircraft to provide navigational guidance by radar.
(See ICAO term RADAR VECTORING.)

VERIFY- Request confirmation of information; e.g., "verify assigned altitude."

VERIFY SPECIFIC DIRECTION OF TAKEOFF (OR TURNS AFTER TAKEOFF)- Used by ATC to ascertain an aircraft's direction of takeoff and/or direction of turn after takeoff. It is normally used for IFR departures from an airport not having a control tower. When direct communication with the pilot is not possible, the request and information may be relayed through an FSS, dispatcher, or by other means.
(See IFR TAKEOFF MINIMUMS AND DEPARTURE PROCEDURES.)

VERTEX- The last fix adapted on the arrival speed segments. Normally, it will be the outer marker of the runway in use. However, it may be the actual threshold or other suitable common point on the approach path for the particular runway configuration.

VERTEX TIME OF ARRIVAL- A calculated time of aircraft arrival over the adapted vertex for the runway configuration in use. The time is calculated via the optimum flight path using adapted speed segments.

VERTICAL NAVIGATION (VNAV)– A function of area navigation (RNAV) equipment which calculates, displays, and provides vertical guidance to a profile or path.

VERTICAL SEPARATION- Separation established by assignment of different altitudes or flight levels.
(See SEPARATION.)
(See ICAO term VERTICAL SEPARATION.)

VERTICAL SEPARATION [ICAO]- Separation between aircraft expressed in units of vertical distance.

VERTICAL TAKEOFF AND LANDING AIRCRAFT- Aircraft capable of vertical climbs and/or descents and of using very short runways or small areas for takeoff and landings. These aircraft include, but are not limited to, helicopters.
(See SHORT TAKEOFF AND LANDING AIRCRAFT.)

VERY HIGH FREQUENCY- The frequency band between 30 and 300 MHz. Portions of this band, 108 to 118 MHz, are used for certain NAVAID's; 118 to 136 MHz are used for civil air/ground voice communications. Other frequencies in this band are used for purposes not related to air traffic control.

VERY HIGH FREQUENCY OMNIDIRECTIONAL RANGE STATION-
(See VOR.)

VERY LOW FREQUENCY- The frequency band between 3 and 30 KHz.

VFR-
(See VISUAL FLIGHT RULES.)

VFR AIRCRAFT- An aircraft conducting flight in accordance with visual flight rules.
(See VISUAL FLIGHT RULES.)

VFR CONDITIONS- Weather conditions equal to or better than the minimum for flight under visual flight rules. The term may be used as an ATC clearance/instruction only when:

a. An IFR aircraft requests a climb/descent in VFR conditions.

b. The clearance will result in noise abatement benefits where part of the IFR departure route does not conform to an FAA approved noise abatement route or altitude.

c. A pilot has requested a practice instrument approach and is not on an IFR flight plan.

Note: Note: All pilots receiving this authorization must comply with the VFR visibility and distance from cloud criteria in 14 CFR Part 91. Use of the term does not relieve controllers of their responsibility to separate aircraft in Class B and Class C airspace or TRSA's as required by

FAAO 7110.65. When used as an ATC clearance/instruction, the term may be abbreviated "VFR;" e.g., "MAINTAIN VFR," "CLIMB/DESCEND VFR," etc.

VFR FLIGHT-
(See VFR AIRCRAFT.)

VFR MILITARY TRAINING ROUTES- 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 below 10,000 feet MSL at airspeeds in excess of 250 knots IAS.

VFR NOT RECOMMENDED- An advisory provided by a flight service station to a pilot during a preflight or inflight weather briefing that flight under visual flight rules is not recommended. To be given when the current and/or forecast weather conditions are at or below VFR minimums. It does not abrogate the pilot's authority to make his/her own decision.

VFR-ON-TOP- ATC authorization for an IFR aircraft to operate in VFR conditions at any appropriate VFR altitude (as specified in 14 CFR and as restricted by ATC). A pilot receiving this authorization must comply with the VFR visibility, distance from cloud criteria, and the minimum IFR altitudes specified in 14 CFR Part 91. The use of this term does not relieve controllers of their responsibility to separate aircraft in Class B and Class C airspace or TRSA's as required by FAAO 7110.65.

VFR TERMINAL AREA CHARTS-
(See AERONAUTICAL CHART.)

VFR WAYPOINT-
(See WAYPOINT.)

VHF-
(See VERY HIGH FREQUENCY.)

VHF OMNIDIRECTIONAL RANGE/TACTICAL AIR NAVIGATION-
(See VORTAC.)

VIDEO MAP- An electronically displayed map on the radar display that may depict data such as airports, heliports, runway centerline extensions, hospital emergency landing areas, NAVAID's and fixes, reporting points, airway/route centerlines, boundaries, handoff points, special use tracks, obstructions, prominent geographic features, map alignment indicators, range accuracy marks, minimum vectoring altitudes.

VISIBILITY- The ability, as determined by atmospheric conditions and expressed in units of distance, to see and identify prominent unlighted objects by day and prominent lighted objects by night. Visibility is reported as statute miles, hundreds of feet or meters.
(Refer to 14 CFR Part 91.)
(Refer to AIM.)

a. Flight Visibility- The average forward horizontal distance, from the cockpit of an aircraft in flight, at which prominent unlighted objects may be seen and identified by day and prominent lighted objects may be seen and identified by night.

b. Ground Visibility- Prevailing horizontal visibility near the earth's surface as reported by the United States National Weather Service or an accredited observer.

c. Prevailing Visibility- The greatest horizontal visibility equaled or exceeded throughout at least half the horizon circle which need not necessarily be continuous.

d. Runway Visibility Value (RVV)- The visibility determined for a particular runway by a transmissometer. A meter provides a continuous indication of the visibility (reported in miles or fractions of miles) for the runway. RVV is used in lieu of prevailing visibility in determining minimums for a particular runway.

e. Runway Visual Range (RVR)- An instrumentally derived value, based on standard calibrations, that represents the horizontal distance a pilot will see down the runway from the approach end. It is based on the sighting of either high intensity runway lights or on the visual contrast of other targets whichever yields the greater visual range. RVR, in contrast to prevailing or runway visibility, is based on what a pilot in a moving aircraft should see looking down the runway. RVR is horizontal visual range, not slant visual range. It is based on the measurement of a transmissometer made near the touchdown point of the instrument runway and is reported in hundreds of feet. RVR is used in lieu of RVV and/or prevailing visibility in determining minimums for a particular runway.

1. Touchdown RVR- The RVR visibility readout values obtained from RVR equipment serving the runway touchdown zone.

2. Mid-RVR- The RVR readout values obtained from RVR equipment located midfield of the runway.

3. Rollout RVR- The RVR readout values obtained from RVR equipment located nearest the rollout end of the runway.

(See ICAO term FLIGHT VISIBILITY.)
(See ICAO term GROUND VISIBILITY.)
(See ICAO term RUNWAY VISUAL RANGE.)
(See ICAO term VISIBILITY.)

VISIBILITY [ICAO]- The ability, as determined by atmospheric conditions and expressed in units of distance, to see and identify prominent unlighted objects by day and prominent lighted objects by night.

a. Flight Visibility-The visibility forward from the cockpit of an aircraft in flight.

b. Ground Visibility-The visibility at an aerodrome as reported by an accredited observer.

c. Runway Visual Range [RVR]-The range over which the pilot of an aircraft on the centerline of a runway can see the runway surface markings or the lights delineating the runway or identifying its centerline.

VISUAL APPROACH- An approach conducted on an instrument flight rules (IFR) flight plan which authorizes the pilot to proceed visually and clear of clouds to the airport. The pilot must, at all times, have either the airport or the preceding aircraft in sight. This approach must be authorized and under the control of the appropriate air traffic control facility. Reported weather at the airport must be ceiling at or above 1,000 feet and visibility of 3 miles or greater.

(See ICAO term VISUAL APPROACH.)

VISUAL APPROACH [ICAO]- An approach by an IFR flight when either part or all of an instrument approach procedure is not completed and the approach is executed in visual reference to terrain.

VISUAL APPROACH SLOPE INDICATOR-

(See AIRPORT LIGHTING.)

VISUAL DESCENT POINT- A defined point on the final approach course of a nonprecision straight-in approach procedure from which normal descent from the MDA to the runway touchdown point may be commenced, provided the approach threshold of that runway, or approach lights, or other markings identifiable with the approach end of that runway are clearly visible to the pilot.

VISUAL FLIGHT RULES- Rules that govern the procedures for conducting flight under visual conditions. The term "VFR" is also used in the United States to indicate weather conditions that are equal to or greater than minimum VFR requirements. In addition, it is used by pilots and controllers to indicate type of flight plan.

(See INSTRUMENT FLIGHT RULES.)
(See INSTRUMENT METEOROLOGICAL CONDITIONS.)
(See VISUAL METEOROLOGICAL CONDITIONS.)
(Refer to 14 CFR Part 91.)
(Refer to AIM.)

VISUAL HOLDING- The holding of aircraft at selected, prominent geographical fixes which can be easily recognized from the air.

(See HOLDING FIX.)

VISUAL METEOROLOGICAL CONDITIONS- Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling equal to or better than specified minima.

(See INSTRUMENT FLIGHT RULES.)
(See INSTRUMENT METEOROLOGICAL CONDITIONS.)
(See VISUAL FLIGHT RULES.)

VISUAL SEPARATION- A means employed by ATC to separate aircraft in terminal areas and en route airspace in the NAS. There are two ways to effect this separation:

a. The tower controller sees the aircraft involved and issues instructions, as necessary, to ensure that the aircraft avoid each other.

b. A pilot sees the other aircraft involved and upon instructions from the controller provides his/her own separation by maneuvering his/her aircraft as necessary to avoid it. This may involve following another aircraft or keeping it in sight until it is no longer a factor.

(See SEE AND AVOID.)
(Refer to 14 CFR Part 91.)

VLF-

(See VERY LOW FREQUENCY.)

VMC-

(See VISUAL METEOROLOGICAL CONDITIONS.)

VOICE SWITCHING AND CONTROL SYSTEM- The VSCS is a computer controlled switching system that provides air traffic controllers with all voice

circuits (air to ground and ground to ground) necessary for air traffic control.
(See VOICE SWITCHING AND CONTROL SYSTEM.)
(Refer to AIM.)

VOR- A ground-based electronic navigation aid transmitting very high frequency navigation signals, 360 degrees in azimuth, oriented from magnetic north. Used as the basis for navigation in the National Airspace System. The VOR periodically identifies itself by Morse Code and may have an additional voice identification feature. Voice features may be used by ATC or FSS for transmitting instructions/information to pilots.
(See NAVIGATIONAL AID.)
(Refer to AIM.)

VORTAC- A navigation aid providing VOR azimuth, TACAN azimuth, and TACAN distance measuring equipment (DME) at one site.
(See DISTANCE MEASURING EQUIPMENT.)
(See NAVIGATIONAL AID.)
(See TACAN.)
(See VOR.)
(Refer to AIM.)

VORTICES- Circular patterns of air created by the movement of an airfoil through the air when generating lift. As an airfoil moves through the atmosphere in sustained flight, an area of area of low pressure is created above it. The air flowing from the high pressure area to the low pressure area around and about the tips of the airfoil tends to roll up into two rapidly rotating vortices, cylindrical in shape. These vortices are the most predominant parts of aircraft wake turbulence and their rotational force is dependent upon the wing loading, gross weight, and speed of the generating aircraft. The vortices from medium to heavy aircraft can be of extremely high velocity and hazardous to smaller aircraft.
(See AIRCRAFT CLASSES.)
(See WAKE TURBULENCE.)
(Refer to AIM.)

VOR TEST SIGNAL-
(See VOT.)

VOT- A ground facility which emits a test signal to check VOR receiver accuracy. Some VOT's are available to the user while airborne, and others are limited to ground use only.
(See AIRPORT/FACILITY DIRECTORY.)
(Refer to 14 CFR Part 91.)
(Refer to AIM.)

VR-
(See VFR MILITARY TRAINING ROUTES.)

VSCS-
(See VOICE SWITCHING AND CONTROL SYSTEM.)

VTA-
(See VERTEX TIME OF ARRIVAL.)

VTOL AIRCRAFT-
(See VERTICAL TAKEOFF AND LANDING AIRCRAFT.)

W

WA-
(See AIRMET.)
(See WEATHER ADVISORY.)

WAAS-
(See WIDE-AREA AUGMENTATION SYSTEM.)

WAKE TURBULENCE- Phenomena resulting from the passage of an aircraft through the atmosphere. The term includes vortices, thrust stream turbulence, jet blast, jet wash, propeller wash, and rotor wash both on the ground and in the air.
(See AIRCRAFT CLASSES.)
(See JET BLAST.)
(See VORTICES.)
(Refer to AIM.)

WARNING AREA-
(See SPECIAL USE AIRSPACE.)

WAYPOINT- A predetermined geographical position used for route/instrument approach definition, progress reports, published VFR routes, visual reporting points or points for transitioning and/or circumnavigating controlled and/or special use airspace, that is defined relative to a VORTAC station or in terms of latitude/longitude coordinates.

WEATHER ADVISORY- In aviation weather forecast practice, an expression of hazardous weather conditions not predicted in the area forecast, as they affect the operation of air traffic and as prepared by the NWS.
(See AIRMET.)
(See SIGMET.)

WHEN ABLE- When used in conjunction with ATC instructions, gives the pilot the latitude to delay compliance until a condition or event has been reconciled. Unlike "pilot discretion," when instructions are prefaced "when able," the pilot is expected to seek the first opportunity to comply. Once a maneuver has been initiated, the pilot is expected to continue until the specifications of the instructions have been met. "When able," should not be used when expeditious compliance is required.

WIDE-AREA AUGMENTATION SYSTEM (WAAS)- The WAAS is a satellite navigation system consisting of the equipment and software which augments the GPS Standard Positioning Service (SPS). The WAAS provides enhanced integrity, accuracy, availability, and continuity over and above GPS SPS. The differential correction function provides improved accuracy required for precision approach.

WILCO- I have received your message, understand it, and will comply with it.

WIND SHEAR- A change in wind speed and/or wind direction in a short distance resulting in a tearing or shearing effect. It can exist in a horizontal or vertical direction and occasionally in both.

WIND GRID DISPLAY- A display that presents the latest forecasted wind data overlaid on a map of the ARTCC area. Wind data is automatically entered and updated periodically by transmissions from the National Weather Service. Winds at specific altitudes, along with temperatures and air pressure can be viewed.

WING TIP VORTICES-
(See VORTICES.)

WORDS TWICE-

a. As a request: "Communication is difficult. Please say every phrase twice."

b. As information: "Since communications are difficult, every phrase in this message will be spoken twice."

WORLD AERONAUTICAL CHARTS-
(See AERONAUTICAL CHART.)

WS-
(See SIGMET.)
(See WEATHER ADVISORY.)

WST-
(See CONVECTIVE SIGMET.)
(See WEATHER ADVISORY.)

APPENDIX B
ICAO FLIGHT PLANS

1. ICAO Model Flight Plan Form.
2. Instructions for the Completion of the Flight Plan Form.
3. Instructions for the Transmission of a Filed Flight Plan (FPL) Message.
4. Instructions for the Transmission of a Supplementary Flight Plan (SPL) Message.
5. Example of Completed Flight Plan Form.
6. ICAO Model Flight Plan, Reverse Side.
7. ICAO Model Repetitive Flight Plan (RPL) Listing Form.
8. Example of a Completed Repetitive Flight Plan (RPL) Listing Form.

1. ICAO Model Flight Plan Form

Department of Transportation
Federal Aviation Administration

International Flight Plan

PRIORITY

FF

ADDRESSEE(S)

FILING TIME

ORIGINATOR

SPECIFIC IDENTIFICATION OF ADDRESSEE(S) AND/OR ORIGINATOR

3 MESSAGE

(FPL

7. AIRCRAFT IDENTIFICATION

8 FLIGHT RULES

TYPE OF FLIGHT

9. NUMBER

TYPE OF AIRCRAFT

WAKE TURBULENCE CAT.

10 EQUIPMENT

13 DEPARTURE AERODROME

TIME

15 CRUISING SPEED

LEVEL

ROUTE

16. DESTINATION AERODROME

TOTAL EET
HR. MIN.

ALTN AERODROME

2ND. ALTN AERODROME

18 OTHER INFORMATION

SUPPLEMENTARY INFORMATION (NOT TO BE TRANSMITTED IN FPL MESSAGE)

19

ENDURANCE
HR. MIN.

PERSONS ON BOARD

EMERGENCY RADIO

UHF VHF ELBA

E/

P/

R/ U V E

SURVIVAL EQUIPMENT

POLAR DESERT MARITIME JUNGLE

S / P D M J

J / L F U V

JACKETS

MARKER CAPACITY COVER COLOUR

D / C

AIRCRAFT COLOUR AND MARKINGS

A /

REMARKS

N /

PILOT-IN-COMMAND

C /

FILED BY	ACCEPTED BY	ADDITIONAL INFORMATION

2. Instructions for the Completion of the Flight Plan Form

2.1 General

Adhere closely to the prescribed formats and manner of specifying data.

Commence inserting data in the first space provided. Where excess space is available leave unused spaces blank.

Insert all clock times in 4 figures UTC.

Insert all estimated elapsed times in 4 figures (hours and minutes).

Shaded area preceding Item 3 - to be completed by ATS and COM services, unless the responsibility for originating flight plan messages has been delegated.

Note.- The term "aerodrome" where used in the flight plan is intended to cover also sites other than aerodromes which may be used by certain types of aircraft, e.g., helicopters or balloons.

2.2 Instruction for insertion of ATS data

Complete Items 7 to 18 as indicated hereunder.

Complete also Item 19 as indicated hereunder, when so required by the appropriate ATS authority or when otherwise deemed necessary.

Note.- Item numbers on the form are not consecutive, as they correspond to Field Type numbers in ATS messages.

ITEM 7: AIRCRAFT IDENTIFICATION (MAXIMUM 7 CHARACTERS)

INSERT one of the following aircraft identifications, not exceeding 7 characters:

a. The registration marking of the aircraft (e.g., EIAKO, 4XBCD, N2567GA), when:

1. In radiotelephony the call sign to be used by the aircraft will consist of this identification alone (e.g. OOTEK), or preceded by the ICAO telephony designator for the aircraft operating agency (e.g. SABENA OOTEK);
2. The aircraft is not equipped with radio;

OR

b. The ICAO designator for the aircraft operating agency followed by the flight identification number (e.g., KLM511, NGA213, JTR25) when in radiotelephony the call sign to be used by the aircraft will consist of the ICAO telephony designator for the operating agency followed by the flight identification (e.g. KLM511, NIGERIA213, HERBIE25).

Note.- Provisions for the use of radiotelephony call signs are contained in Annex 10, Volume II, Chapter 5. ICAO designators and telephony designators for aircraft operating agencies are contained in Doc 8585 - Designators for Aircraft Operating Agencies, Aeronautical Authorities and Services.

ITEM 8: FLIGHT RULES AND TYPE OF FLIGHT (1 OR 2 CHARACTERS)

Flight Rules

INSERT one of the following letters to denote the category of flight rules with which the pilot intends to comply:

I if IFR.

V if VFR.

Y if IFR first.*

Z if VFR first.*

*If indicating either Y or Z, specify in Item 15 the point or points where a change of flight rules is planned.

Type of Flight

INSERT one of the following letters to denote the type of flight when so required by the appropriate ATS authority:

S if scheduled air transport

N if non-scheduled air transport operation

G if general aviation

M if military

X if other than any of the defined categories above.

ITEM 9: NUMBER AND TYPE OF AIRCRAFT AND WAKE TURBULENCE DATA

Number of aircraft (1 or 2 characters)

INSERT the number of aircraft, if more than one.

Type of aircraft (2 to 4 characters)

INSERT the appropriate designator as specified in ICAO Doc 8643, *Aircraft Type Designators*,

OR if no such designator has been assigned, or in case of formation flights comprising more than one type,

INSERT ZZZZ, and *SPECIFY* in Item 18, the (numbers and) type(s) of aircraft preceded by TYP/.

Wake Turbulence category (1 character)

INSERT an oblique stroke followed by one of the following letters to indicate the wake turbulence category of the aircraft:

H - HEAVY, to indicate an aircraft type with a maximum certificated take-off mass of 136,000 kg or more;

M - MEDIUM to indicate an aircraft type with a maximum certificated take-off mass of less than 36,000 kg but more than 7,000 kg;

L - LIGHT, to indicate an aircraft type with a maximum certificated take-off mass of 7,000 kg or less.

ITEM 10: EQUIPMENT

Radio communication, navigation and approach aid equipment

INSERT one letter as follows:

N if no COM/NAV/approach aid equipment for the route to be flown is carried, or the equipment is unserviceable,

OR

S if standard COM/NAV/ approach aid equipment for the route to be flown is carried and serviceable (*see Note 1*)

AND/OR

INSERT one or more of the following letters to indicate the COM/NAV/approach aid equipment available and serviceable:

A	(Not allocated)	M	Omega
B	(Not allocated)	O	VOR
C	LORAN C	P	(Not Allocated)
D	DME	Q	(Not allocated)
E	(Not allocated)	R	RNP type certification (*See Note 5*)
F	ADF	T	TACAN
G	(GNSS)	U	UHF RTF
H	HF RTF	V	VHF RTF
I	Intertial Navigation	W	when prescribed by ATS
J	(Data Link) *(See Note 3)*	X	when prescribed by ATS
K	MLS	Y	when prescribed by ATS
L	ILS	Z	Other equipment carried (*See Note 2*).

Note 1.- Standard equipment is considered to be VHF RTF, ADF, VOR and ILS, unless another combination is prescribed by the appropriate ATS authority.

Note 2.- If the letter Z is used, specify in Item 18 the other equipment carried, preceded by COM/ and/or NAV/, as appropriate.

Note 3.- If the letter J is used, specify in Item 18 the equipment carried, preceded by DAT/ followed by one or more letters, as appropriate.

Note 4.- Information on navigation capability is provided to ATC for clearance and routing purposes.

Note 5.- Inclusion of letter R indicates that an aircraft meets the RNP type prescribed for the route segment(s) and/or route(s) concerned.

Surveillance equipment

INSERT one or two of the following letters to describe the serviceable surveillance equipment carried:

SSR equipment:

N	Nil
A	Transponder - Mode A (4 digits - 4,096 codes)
C	Transponder - Mode A (4 digits - 4,096 codes) and Mode C
X	Transponder - Mode S without both aircraft identification and pressure-altitude transmission
P	Transponder - Mode S, including pressure-altitude transmission, but no aircraft identification transmission
I	Transponder - Mode S, including aircraft identification transmission, but no pressure-altitude transmission
S	Transponder - Mode S, including both pressure-altitude and aircraft identification transmission.

ADS equipment:

D	ADS capability

ITEM: 13 DEPARTURE AERODROME AND TIME (8 CHARACTERS)

INSERT the ICAO four-letter location indicator of the departure aerodrome,

OR if no location indicator has been assigned,

INSERT ZZZZ and *SPECIFY*, in Item 18, the name of the aerodrome preceded by DEP/,

OR if the flight plan is received from an aircraft in flight,

INSERT AFIL, and *SPECIFY*, in Item 18, the ICAO four-letter location indicator of the location of the ATS unit from which supplementary flight plan data can be obtained, preceded by DEP/,

THEN, WITHOUT A SPACE

INSERT for a flight plan submitted before departure on the same day, use estimated 4-digit off-block time, (HHMM)

OR for a flight plan that will be activated on a different day, use a 6-digit date-time group, the first 2 digits will be the date and the next 4 digits will be the proposed departure time, (DDHHMM)

ITEM 15: ROUTE

INSERT the first cruising speed as in (a) and the first cruising level as in (b), without a space between them.

THEN following the arrow, *INSERT* the route description as in (c).

a. Cruising speed (maximum 5 characters)

INSERT the True Air Speed for the first or the whole cruising portion of the flight, in terms of:

Kilometres per hour, expressed as K followed by 4 figures (e.g., K0830),

or

Knots, expressed as N followed by 4 figures (e.g., N0485),

or

Mach number, when so prescribed by the appropriate ATS authority, to the nearest hundredth of unit Mach, expressed as M followed by 3 figures (e.g., M082).

b. Cruising level (maximum 5 characters)

INSERT the planned cruising level for the first or the whole portion of the route to be flown, in terms of:

Flight level, expressed as F followed by 3 figures (e.g., F085; F330),

or

*Standard Metric Level in tens of meters, expressed as S followed by 4 figures (e.g., S1130)

or

Altitude in hundreds of feet, expressed as A followed by 3 figures (e.g., A045; A100),

or

Altitude in tens of meters, expressed as M followed by 4 figures (e.g., M0840),

or

for uncontrolled VFR flights, the letters VFR.

* When so prescribed by the appropriate ATS authorities.

c. Route (including changes of speed, level and/or flight rules)

Flights along designated ATS routes

INSERT if the departure aerodrome is located on, or connected to the ATS route, the designator of the first ATS route,

OR if the departure aerodrome is not on, or connected to the ATS route, the letters DCT followed by the point of joining the first ATS route, followed by the designator of the ATS route.

THEN

INSERT each point at which either a change of speed or level, a change of ATS route, and/or a change of flight rules is planned,

Note. - When a transition is planned between a lower and upper ATS route and the routes are oriented in the same direction, the point of transition need not be inserted.

FOLLOWED IN EACH CASE

by the designator of the next ATS route segment, even if the same as the previous one,

OR by DCT, if the flight to the next point will be outside a designated route, unless both points are defined by geographical coordinates.

Flights outside designated ATS routes

INSERT points normally not more than 30 minutes flying time or 370 km (200 NM) apart, including each point at which a change of speed or level, a change of track, or a change of flight rules is planned.

OR when required by appropriate ATS authority(ies),

DEFINE the track of flights operating predominantly in an east-west direction between 70°N and 70°S by reference to significant points formed by the intersections of half or whole degrees of latitude with meridians spaced at intervals of 10° of longitude. For flights operating in areas outside those latitudes the tracks shall be defined by significant points formed by the intersection of parallels of latitude with meridians normally spaced at 20° of longitude. The distance between significant points shall, as far as possible, not exceed one hour's flight time. Additional significant points shall be established as deemed necessary.

For flights operating predominantly in a north-south direction, define tracks by reference to significant points formed by the intersection of whole degrees of longitude with specified parallels of latitude which are spaced at 5 degrees.

INSERT DCT between successive points unless both points are defined by geographical coordinates or by bearing and distance.

USE ONLY the conventions in (1) to (5) below and *SEPARATE* each sub-item by a space.

1. **ATS route (2 to 7 characters)**

   The coded designator assigned to the route or route segment including, where appropriate, the coded designator assigned to the standard departure or arrival route (e.g., BCKI, B1, R14, UB10, KODAP2A).

2. **Significant point (2 to 11 characters)**

   The coded designator (2 to 5 characters) assigned to the point (e.g., LN, MAY, HADDY),

   or,

   if no coded designator has been assigned, one of the following ways:

   Degrees only (7 characters):

   2 figures describing latitude in degrees, followed by "N" (North) or "S" (South), followed by 3 figures describing longitude in degrees, followed by "E" (East) or "W" (West). Make up the correct number of figures, where necessary, by insertion of zeros, e.g., 46N078W.

   Degrees and minutes (11 characters):

   4 figures describing latitude in degrees and tens and units of minutes followed by "N" (North) or "S" (South), followed by 5 figures describing longitude in degrees and tens and units of minutes, followed by "E" (East) or "W" (West). Make up the correct number of figures, where necessary, by insertion of zeros, e.g., 4620N07805W.

   Bearing and distance from a navigation aid:

   The identification of the navigation aid (normally a VOR), in the form of 2 or 3 characters, THEN the bearing from the aid in the form of 3 figures giving degrees magnetic, THEN the distance from the aid in the form of 3 figures expressing nautical miles. Make up the correct number of figures, where necessary, by insertion of zeros - e.g., a point 180° magnetic at a distance of 40 nautical miles from VOR "DUB" should be expressed as DUB180040.

3. **Change of speed or level (maximum 21 characters)**

The point at which a change of speed (5% TAS or 0.01 Mach or more) or a change of level is planned, expressed exactly as in (2) above, followed by an oblique stroke and both the cruising speed and the cruising level, expressed exactly as in (a) and (b) above, without a space between them, even when only one of these quantities will be changed.

Examples: LN/NO284AO45

MAY/NO305F180

HADDY/NO420F330

4602NO7805W/NO500F350

46NO78W/MO82F330

DUB180040/NO350M0840

4. **Change of flight rules (maximum 3 characters)**

The point at which the change of flight rules is planned, expressed exactly as in (2) or (3) above as appropriate, followed by a space and one of the following:

VFR if from IFR to VFR

IFR if from VFR to IFR

Examples: LN VFR

LN/N0284A050 IFR

5. **Cruise climb (maximum 28 characters)**

The letter C followed by an oblique stroke; *THEN* the point at which cruise climb is planned to start, expressed exactly as in (2) above, followed by an oblique stroke; *THEN* the speed to be maintained during cruise climb, expressed exactly as in (a) above, followed by the two levels defining the layer to be occupied during cruise climb, each level expressed exactly as in (b) above, or the level above which cruise is planned followed by the letters PLUS, without a space between them.

Examples: C/48N050W/M082F290F350

C/48N050W/M082F290PLUS

C/52N050W/M220F580F620

ITEM 16: DESTINATION AERODROME AND TOTAL ESTIMATED ELAPSED TIME, ALTERNATE AERODROME(S)

Destination aerodrome and total estimated elapsed time (8 characters)

INSERT the ICAO four-letter location indicator or the destination aerodrome followed, without a space, by the total estimated elapsed time,

OR if no location indicator has been assigned,

INSERT ZZZZ followed, without a space, by the total estimated elapsed time, and SPECIFY in Item 18 the name of the aerodrome, preceded by DEST/.

Note.- For a flight plan received from an aircraft in flight, the total estimated elapsed time is the estimated time from the first point of the route to which the flight plan applies.

Alternate aerodrome(s) (4 characters)

INSERT the ICAO four-letter location indicators(s) of not more than two alternate aerodromes, separated by a space,

OR if no location indicator has been assigned to the alternate aerodrome,

INSER ZZZZ and SPECIFY in Item 18 the name of the aerodrome, preceded by ALTN/.

ITEM 18: OTHER INFORMATION

INSERT 0 (zero) if no other information,

OR any other necessary information in the preferred sequence shown hereunder, in the form of the appropriate indicator followed by an oblique stroke and the information to be recorded:

EET/ Significant points or FIR boundary designators and accumulated estimated elapsed times to such points or FIR boundaries, when so prescribed on the basis of regional air navigation agreements, or by the appropriate ATS authority.

Examples: EET/CAP0745 XYZ0830

EET/EINN0204

RIF/ The route details to the revised destination aerodrome, followed by the ICAO four-letter location indicator of the aerodrome. The revised route is subject to re-clearance in flight.

Examples: RIF/DTA HEC KLAX

RIF/ESP G94 CLA APPH

RIF/LEMD

REG/ The registration markings of the aircraft, if different from the aircraft identification in Item 7.

SEL/ SELCAL Code, if so prescribed by the appropriate ATS authority.

OPR/ Name of the operator, if not obvious from the aircraft identification in Item 7.

STS/ Reason for special handling by ATS, e.g., hospital aircraft, one engine inoperative, e.g. STS/HOSP, STS/ONE ENG INOP.

TYP/ Type(s) of aircraft, preceded if necessary by number(s) of aircraft, if ZZZZ is inserted in Item 9.

PER/ Aircraft performance data, if so prescribed by the appropriate ATS authority.

COM/ Significant data related to communication equipment as required by the appropriate ATS authority, e.g., COM/UHF only.

DAT/ Significant data related to data link capability, using one or more letters, S, H, V, and M, e.g., DAT/S for satellite data link, DAT/H for HF data link, DAT/V for VHF data link, DAT/M for SSR Mode S data link.

NAV/ Significant data related to navigation equipment as required by the appropriate ATS authority, e.g., NAV/INS.

DEP/ Name of departure aerodrome, if ZZZZ is inserted in Item 13, or the ICAO four-letter location indicator of the location of the ATS unit from which supplementary flight plan data can be obtained, if AFIL is inserted in Item 13.

DEST/ Name of destination aerodrome, if ZZZZ is inserted in Item 16.

ALTN/ Name of alternate aerodrome(s), if ZZZZ is inserted in Item 16.

RALT/ Name of en route alternate aerodrome(s).

RMK/ Any other plain language remarks when required by the appropriate ATS authority or deemed necessary.

ITEM 19: SUPPLEMENTARY INFORMATION

Endurance

After E/ *INSERT* a 4-figure group giving the fuel endurance in hours and minutes.

Persons on board

After P/ *INSERT* the total number of persons (passengers and crew) on board, when required by the appropriate ATS authority. *INSERT TBN* (to be notified) if the total number of persons is not known at the time of filing.

Emergency and survival equipment

R/ (Radio) *CROSS OUT* U if UHF on frequency 243.0 MHz is not available. *CROSS OUT* V if VHF on frequency 121.5 MHz is not available. *CROSS OUT* E if emergency location beacon - aircraft (ELBA) is not available.

S/ (SURVIVAL EQUIPMENT)
CROSS OUT all indicators if survival equipment is not carried. *CROSS OUT* P if polar survival equipment is not carried.
CROSS OUT D if desert survival equipment is not carried. *CROSS OUT* M if maritime survival equipment is not carried. CROSS OUT J if jungle survival equipment is not carried.

J/ (JACKETS) *CROSS OUT* all indicators if life jackets are not carried. *CROSS OUT* L if life jackets are not equipped with lights. *CROSS OUT* F if life jackets are not equipped with florescent. CROSS OUT U or V or both as in R/ above to indicate radio capability of jackets, if any.

D/ (DINGHIES)
(NUMBER) *CROSS OUT* indicators D and C if no dinghies are carried, or *INSERT* number of dinghies carried; and

(CAPACITY) *INSERT* total capacity, in persons, of all dinghies carried; and

(COVER) *CROSS OUT* indicator C if dinghies are not covered; and

(COLOR) *INSERT* color of dinghies if carried.

A/ (AIRCRAFT COLOR AND MARKINGS)
INSERT color of aircraft and significant markings.

N/ (REMARKS) *CROSS OUT* indicator N if no remarks, or *INDICATE* any other survival equipment carried and any other remarks regarding survival equipment.

C/ (PILOT) *INSERT* name of pilot-in-command.

2.3 Filed by

INSERT the name of the unit, agency or person filing the flight plan.

2.4 Acceptance of the flight plan

Indicate acceptance of the flight plan in the manner prescribed by the appropriate ATS authority.

2.5 Instructions for insertion of COM data

Items to be completed

COMPLETE the top two shaded lines of the form, and *COMPLETE* the third shaded line only when necessary, in accordance with the provisions in PANS-RAC, Part IX, 2.1.2, unless ATS prescribes otherwise.

3. Instructions for the Transmission of a Filed Flight Plan (FPL) Message

3.1 Correction of obvious errors

Unless otherwise prescribed, CORRECT obvious format errors and/or omissions (i.e. oblique stokes) to ensure adherence as specified in Section 2.

3.2 Items to be transmitted

TRANSMIT items as indicated hereunder, unless otherwise prescribed:

a. the items in the shaded lines, above Item 3;

b. commencing with <<≡ (FPL of Item 3:

all symbols and data in the unshaded boxes to the) <<≡ at the end of Item 18, additional alignment functions as necessary to prevent the inclusion of more than 69 characters in any line of Items 15 and 18. The alignment function is to be inserted only in lieu of a space so as not to break up a group of data, letter shifts and figure shifts (not preprinted on the form) as necessary;

c. the AFTN Ending, as described below:

3.3 End-of-Text Signal

a. one LETTER SHIFT

b. two CARRIAGE RETURNS, one LINE FEED

Page-feed Sequence

Seven LINE FEEDS

End-of-Message Signal

Four of the letter N.

4. Instructions for the Transmission of a Supplementary Flight Plan (SPL) Message

4.1 Items to be transmitted

Transmit items as indicated hereunder, unless otherwise prescribed:

a. AFTN Priority Indicator, Addressee Indicators <<≡, Filing Time, Originator Indicator <<≡ and, if necessary, specific identification of addressees and/or originator;

b. commencing with <<≡ (SPL of Item 3:

all symbols and data in the unshaded areas of boxes down to the) <<≡ at the end of Item 18, additional alignment functions as necessary to prevent the inclusion of more than 69 characters in any line of Items 15 or 18. The alignment function is to be inserted only in lieu of a space, so as not to break up a group of data, letter shifts and figure shifts (not preprinted on the form) as necessary;

c. the AFTN Ending, as described below:

4.2 END-of-Text Signal

a. one LETTER SHIFT

b. two CARRIAGE RETURNS, one LINE FEED

Page-feed Sequence

Seven LINE FEEDS

End-of-Message Signal

Four of the letter N.

5. Example of Completed Flight Plan Form

Department of Transportation
Federal Aviation Administration

International Flight Plan

PRIORITY: FF

ADDRESSEE(S): EHAAZQZX EBURZQZX EDDYZQZX LFFFZQZX
LFRRZQZX LFBBZQZX LECMZQZX LPPCZQZX

FILING TIME: 1 9 0 8 3 6

ORIGINATOR: E H A M Z P Z X

SPECIFIC IDENTIFICATION OF ADDRESSEE(S) AND/OR ORIGINATOR:

3 MESSAGE: (FPL

7. AIRCRAFT IDENTIFICATION: A C F 4 0 2

8 FLIGHT RULES: I

TYPE OF FLIGHT: N

9. NUMBER:

TYPE OF AIRCRAFT: E A 3 0

WAKE TURBULENCE CAT.: H

10 EQUIPMENT: S / C

10 DEPARTURE AERODROME: E H A M

TIME: 0 9 4 0

10 CRUISING SPEED: 0 8 3 0

LEVEL: F 2 9 0

ROUTE: LEK 2B LEK UA6 XMM/M078F330
UA6 PON UR10N CHW UA5 NTS DCT 4611N00412W
DCT STG UA5 FTM FATIM1A

16. DESTINATION AERODROME: L P P T

TOTAL EET HR. MIN.: 0 2 3 0

ALTN AERODROME: L P P R

2ND. ALTN AERODROME:

18 OTHER INFORMATION: REG / FBVGA SEL / EJFL
EET / LPPC0158

SUPPLEMENTARY INFORMATION (NOT TO BE TRANSMITTED IN FPL MESSAGES)

19 RANGE

ENDURANCE HR. MIN.: E/ 0 3 4 5

PERSONS ON BOARD: P/ 3 0 0

EMERGENCY RADIO: R/ U (UHF) V (VHF) E (ELBA)

SURVIVAL EQUIPMENT: S / (POLAR) X (DESERT) X (MARITIME) M (JUNGLE) X

JACKETS: J / L (LIGHT) F (FLOURES) X (UHF) X (VHF)

DINGHIES: D / NUMBER 1 1 / CAPACITY 3 3 0 / COVER C / COLOUR YELLOW

AIRCRAFT COLOUR AND MARKINGS: A / WHITE

REMARKS: N /

PILOT-IN-COMMAND: C / DENKE

FILED BY	ACCEPTED BY	ADDITIONAL INFORMATION
AIR CHARTER INT.		

FAA Form 7233-4 (5-93) Supersedes Previous Edition

6. ICAO Model Flight Plan, Reverse Side

Pre-Flight Pilot Checklist

Aircraft Identification	Time of Briefing

		Remarks
WEATHER (Destination) (Alternate)	☐ Present	
	☐ Forcast	
WEATHER (Un Route)	☐ Present	
	☐ Forcast	
	☐ PIREPS	
WINDS ALOFT	☐ Best Crzg Alt.	
NAV AID & COMM STATUS	☐ Designator	
	☐ En Route	
AIRPORT CONDITIONS	☐ Destination	
	☐ Alternate	
ADIZ	☐ Airspace Restrictions	

Report Weather Conditions Aloft

Report immediately weather conditions encountered - particularly cloud tops, upper cloud layers, thunderstorms, ice, turbulence, winds and temperature.

Position	Altitude	Time	Weather Conditions

Civil Aircraft Pilots

FAR Part 91 states that each person operating a civil aircraft of U.S. registry over the high seas shall comply with annex 2 to the Convention of International Civil Aviation, International Standards - Rules of the Air. Annex 2 requires the submission of a flight plan containing items 1-19 prior to operating any flight across international waters. Failure to file could result in a civil penalty not to exceed $1,000 for each violation (Section 901 of the Federal Aviation Act of 1958, as amended).

Check data as soon as practicable after entering foreign airspace, as our international data may be inaccurate or incomplete.

Agency Display Of Estimated Burden For International Flight Plan

This public report burden for this collection of information is estimated to average 2.5 minutes per response.

If you wish to comment on the accuracy of the estimate or make suggestions for reducing this burden, please direct your comments to OMB and the FAA at the following addresses.

Office of Management and Budget
Paperwork Reduction Project 2120-0026
Washington, DC 20503

- and -

U.S. Department of Transportation
Federal Aviation Administration
Terminal and Flight Services
Operations and Procedures, ATO-120
800 Independence Avenue, SW
Washington DC 20591

Please DO NOT RETURN your form to either of these addresses

7. ICAO Model Repetitive Flight Plan (RPL) Listing Form

REPETITIVE FLIGHT PLAN LISTING

A OPERATOR	B ADDRESSEE(S)	C DEPARTURE AERODROME(S)	D DATE ___ yymmdd	E SERIAL NO. ___	F PAGE OF __ / __
			G SUPPLEMENTARY DATA (Item 19)AT		

H + -	I VALID FROM yymmdd	J VALID UNTIL yymmdd	K DAYS OF OPERATION 1	2	3	4	5	6	7	L AIRCRAFT IDENTIFICATION (Item 7)	M TYPE OF AIRCRAFT & TURBULENCE CATEGORY (Item 9)		N DEPARTURE AERODROME AND TIME (Item 13)		O ROUTE (Item 15) CRUISING SPEED	LEVEL	ROUTE	P DESTINATION AERODROME AND TOTAL ELAPSED TIME (Item 16)		Q REMARKS

7.1 Instructions for the completion of the repetitive flight plan (RPL) listings form

7.2 General

List only flight plans that will operate in accordance with IFR. (Flight rules I in FPL format).

It is assumed that all aircraft are operating as scheduled flights (Type of flight S in FPL format), otherwise notify in Q (Remarks).

It is assumed that all aircraft operating on RPL's are equipped with 4096-code transplanters with modes A and C. Otherwise, notify Q (Remarks).

List flight plans in alphabetical order of the location indicator of the departure aerodrome.

List flight plans for each departure - aerodrome in chronological order of estimated off-block times.

Adhere closely to the data conventions as indicated for the Flight Plan Form unless otherwise specifically indicated in 7.5.

Insert all clock times in 4 figures UTC.

Insert all estimated elapsed times in 4 figures (hours and minutes).

Insert data on a separate line for each segment of operations with one or more stops; i.e., from any departure aerodrome to the next destination aerodrome even through call sign or flight number is the same for multiple segments.

Clearly identify additions and deletions in accordance with Item H at 7.4. Subsequent listings shall list the corrected and added data, and deleted flight plans shall be omitted.

Number pages by indicating number of pages and total number of pages in submission.

Utilize more than one line for any RPL where the space provided for items O and Q on one line is not sufficient.

7.3 A flight shall be cancelled as follows:

a. indicate a minus sign in item H followed by all other items of the cancelled flight;

b. insert a subsequent entry denoted by a plus sign in item H and the date of the last flight in item J, with all other items of the cancelled flight unchanged.

7.4 Modification to a flight shall be made as follows:

a. carry out the cancellation as indicated in 7.2; and

b. insert a third entry giving the new flight plan(s) with the appropriate items modified as necessary, including the new validity dates in items I and J.

Note.- All entries related to the same flight will be inserted in succession in the order specified above.

7.5 Instructions for insertion of RPL data

Complete Items A to Q as indicated hereunder.

ITEM A: OPERATOR

INSERT Name of operator.

ITEM B: ADDRESSEE(S)

INSERT Name of agency(ies) designated by States to administer RPL's for FIR's or areas of responsibility concerned with the route of flight.

ITEM C: DEPARTURE AERODROME(S)

INSERT Location indicator(s) of departure aerodrome(s).

ITEM D: DATE

INSERT On each page of submission the date (year, month, day) in a 6-figure group that the listing was submitted.

ITEM E: SERIAL NUMBER

INSERT Serial number of submission (2 numerics) indicating last two digits of year, a dash, and the sequential number of the submission for the year indicated (start with numeral 1 each new year).

ITEM F: PAGE OF

INSERT Page number and total number of pages submitted.

ITEM G: SUPPLEMENTARY DATA AT

INSERT Name of contact where information normally provided under Item 19 of the FPL is kept readily available and can be supplied without delay.

ITEM H: ENTRY TYPE

INSERT A minus sign (-) for each flight plan that is to be deleted from the listing.

INSERT A plus sign (+) for each initial listing and, in the case of subsequent submissions, for each flight plan not listed in the previous submission.

Note - No information is required under this item for any flight plan which is unchanged from the previous submission.

ITEM I: VALID FROM

INSERT First date (year, month, day) upon which the flight is scheduled to operate.

ITEM J: VALID UNTIL

INSERT Last date (year, month, day) upon which the flight is scheduled to operate as listed, or UFN if the duration is unknown

ITEM K: DAYS OF OPERATION

INSERT Number corresponding to the day of the week in the appropriate column; Monday = 1 through Sunday = 7.

INSERT 0 for each day of non-operation in the appropriate column.

ITEM L: AIRCRAFT IDENTIFICATION (Item 7 of the ICAO flight plan)

INSERT Aircraft identification to be used for the flight.

ITEM M: TYPE OF AIRCRAFT AND WAKE TURBULENCE CATEGORY (Item 9 of the ICAO flight plan)

INSERT Appropriate ICAO designator as specified in ICAO Doc 8643 - Aircraft Type Designators.

INSERT H, M or L indicator as appropriate:

H - HEAVY to indicate an aircraft type with a maximum certificated take-off mass of 136,000 kg or more,

M - MEDIUM to indicate an aircraft type with a maximum certificated take-off mass of less than 136,000 kg but more than 7,000 kg,

L - LIGHT to indicate an aircraft type with a maximum certificated take-off mass of 7,000 kg or less.

ITEM N: DEPARTURE AERODROME AND TIME (Item 13 of the ICAO flight plan)

INSERT Location indicator of the departure aerodrome.

INSERT The off-block time, i.e., the estimated time that the aircraft will commence movement associated with departure.

ITEM O: ROUTE (Item 15 of the ICAO flight plan)

a. Cruising Speed

INSERT The true airspeed for the first or whole cruising portion of the flight in accordance with Item 15(a) of the ICAO flight plan.

b. Cruising level

INSERT The planned cruising level for the first or whole portion of the route in accordance with Item 15(b) of the ICAO flight plan.

c. Route

INSERT The entire route in accordance with Item 15(c) of the ICAO flight plan.

ITEM P: DESTINATION AERODROME AND TOTAL ESTIMATED ELAPSED TIME (Item 16 of the ICAO flight plan)

INSERT Location indicator of the destination aerodrome.

INSERT The total estimated elapsed time.

ITEM Q: REMARKS

INSERT Items of information as required by the appropriate ATS authority, items normally notified in Item 18 of the ICAO flight plan and any other information pertinent to the flight of concern to ATS.

8. Example of a Completed Repetitive Flight Plan (RPL) Listing Form

REPETITIVE FLIGHT PLAN LISTING

A OPERATOR	B ADDRESSEE(S)	C DEPARTURE AERODROME(S)	D DATE	E SERIAL NO.	F PAGE OF
BRITISH AIRWAYS	UK STORED FLIGHT PLAN OFFICE EGTXZBZX Chef de la Subdivision Informatique 9 rue de Champagne 91205 Athiemons France	EGLL	800305 (yymmdd)	80-12	3 / 3
			G SUPPLEMENTARY DATA (Item 19)AT		
			BAW Briefing Office		

H + -	I VALID FROM yymmdd	J VALID UNTIL yymmdd	K DAYS OF OPERATION 1	2	3	4	5	6	7	L AIRCRAFT IDENTIFICATION (Item 7)	M TYPE OF AIRCRAFT & TURBULENCE CATEGORY (Item 9)		N DEPARTURE AERODROME AND TIME (Item 13)		O ROUTE (Item 15) CRUISING SPEED	LEVEL	ROUTE	P DESTINATION AERODROME AND TOTAL ELAPSED TIME (Item 16)		Q REMARKS
+	800401	811031	1	2	3	4	5	6	7	BAW004	H821	M	EGLL	0700	N0440	F210	A1E UA1E DPE UA16 MAN	LFPG	0045	
+	800401	800731	1	2	3	4	5	6	7	BAW092	H821	M	EGLL	1800	N0440	F210	A1E UA1E DPE UA16 MAN	LFPG	0045	
+	800801	811031	1	0	3	0	5	0	7	BAW092	H821	M	EGLL	1800	N0440	F210	A1E UA1E DPE UA16 MAN	LFPG	0045	
+	800801	800880	0	0	0	0	0	0	7	BAW092	H821	M	EGLL	1805	N0450	F270	A18 UA18 RBT UA9 MTL			
																	UA3W STP DCT GL	LFMN	0130	
-	800103	800930	0	0	0	0	0	6	7	BAW092	B737	M	EGLL	1810	N0480	F190	A1E UA1E DPE UA16 MAN	LFPG	0400	CHARTERED ACFT
+	800103	800815	0	0	0	0	0	6	7	BAW092	B737	M	EGLL	1810	N0430	F190	A1E UA1E DPE UA16 MAN	LFPG	0400	CHARTERED ACFT

APPENDIX C

Q SIGNALS

SIGNIFICATION		
SIGNAL		**ANSWER**
	Question of Interrogatory Form (Signal followed by letter Q)	Information or Advise Form (Signal only, except as noted)
QAL	Has aircraft... landed at your location (or at...)?	Aircraft...landed here at....hours (or landed...at...hours).
QRU	Have you anything for me [or for... (location or person]?	I have nothing for you [or for...(location or person)].
QSL	Can you acknowledge receipt of transmission number... (or type message)?	I acknowledge receipt of transmission number... (or type of message).
QSM	Shall I repeat the last message (transmission or portion indicated sent to me or transmission(s) from...)?	Repeat the last message (transmission or portion indicated) sent to me (or transmission(s) from...). A--not received. B--partially received (garbled).
QTA	Shall I cancel message number...(or other identification)?	Cancel message number...(or other identification).

INDEX

[References are to page numbers]

A

Airport Lighting, 11-1-1
ALS Intensity Setting, 11-1-1
HIRL, 11-1-3
MIRL, 11-1-3
REDL, 11-1-1
REIL, 11-1-3
RVV/RVR, 11-1-4
SFL, 11-1-1
VASI, 11-1-3

B

Bomb Threats, 5-2-4

Broadcast Procedures
HIWAS, 2-5-1, 2-5-2
Speech Rate, 2-1-1
TIBS for AFSS, 2-4-1
TWEB, 2-2-1, 2-2-2
Types, 2-1-1

C

Changes, Recommendation for procedural, 1-1-1

Communication System, Interphone, 12-1-1

Communication System, DATA, 10-1-1

Control Symbology, 4-2-6

D

Duty
Familiarization and Transfer of Position Responsibility, 1-3-1
Priority, 1-3-1

E

Effective Date of this Order, 1-1-1

Emergency Services
ADF/VOR, 5-4-1, 5-4-2, 5-4-4
DF, 5-3-1, 5-3-2
General, 5-1-1, 5-1-2
Operations, 5-2-1
ELT, 5-2-2, 5-2-3
SCATANA, 5-2-5

F

Flight Data
Flight Plan Handling, 6-4-1, 6-4-3, 6-4-4, 6-4-5
Change in ETA, 6-4-6
Military Flights to/from U.S., 6-4-7
Flight Plan Proposals, 6-2-1, 6-2-4
General, 6-1-1
IFR Flight Plan Handling, 6-3-1, 6-3-2, 6-3-8
IFR/DVFR ADIZ Flight Plans, 6-6-1
Law Enforcement Messages, 6-7-1
Military Operations, 6-5-1, 6-5-2
NonEmergency Parachute Jumping, 6-8-1

I

Inflight Services, 4-1-1
Data Recording, 4-2-1
Aircraft Contacts, 4-2-6
Flight Progress, 4-2-4
EFAS, 4-6-1, 4-6-2, 4-6-3
LAA, 4-4-1, 4-4-2, 4-4-3
Radio Communications, 4-3-1, 4-3-3, 4-3-4
Blind Transmission, 4-3-5
Routine Radio Contacts, 4-3-2
Special VFR, 4-5-1, 4-5-2

[References are to page numbers]

International Operations, 7-1-1
AIREPS, 7-1-6
Alerting Service, 7-3-1
ARTCC Relay of VFR Messages, 7-1-9
Customs Notification and ADIZ, 7-2-1
Flight Plan Cancellations, 7-1-5
Messages and Formats, 7-1-1
Flight Plan, 7-1-4
ICAO, 7-1-5
Service Messages, 7-1-2
Movement and Control
Canadian, 7-4-1
Mexican, 7-5-1

N

NAVAID Monitoring, 13-1-1
By AF Personnel, 13-1-2
Check, 13-1-1
Malfunctions, 13-1-1

P

Phraseology, 14-1-1, 14-1-10, 14-1-12, 14-1-13, 14-1-17, 14-1-18
Weather, 14-1-2

Pilot Briefing, 3-1-1, 3-1-3
Preflight, 3-2-1, 3-2-2, 3-2-3

S

Search and Rescue
ALNOTs, 8-4-1
General, 8-1-1
INREQs, 8-3-1
Other SARs, 8-5-1
Overdue Aircraft, 8-2-1

T

Terms of Reference, 1-2-1

Terms of reference, Abbreviations, 1-2-1

W

Weather Service, FAA's
CWA, 9-11-1
FAs, 9-6-1
FDs, 9-4-1
Flight Advisories: WS, WA, WST, 9-8-1
FTs, 9-5-1
MIS, 9-10-1
SD/ROB, 9-3-1
Severe Weather Forecasts, 9-7-1
TWEB, 9-9-1
UA/UUA, 9-1-1, 9-2-1