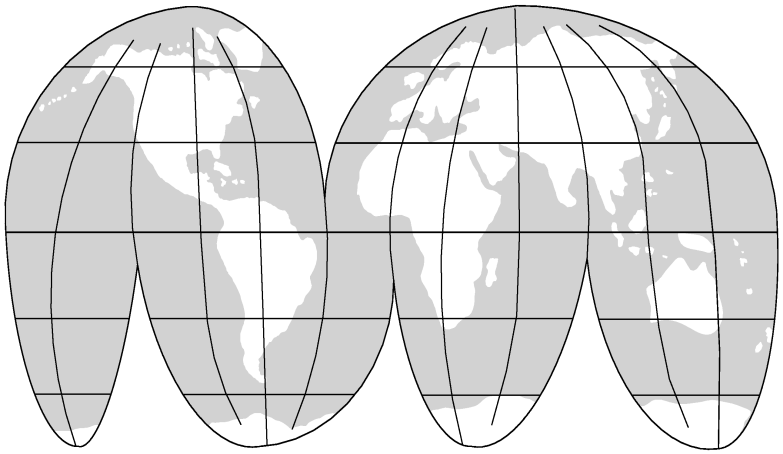
GP

DoD
FLIGHT INFORMATION PUBLICATION

GENERAL PLANNING



18 DEC 2008

NEXT ISSUE 30 JUL 2009

PCN EFFECTIVE 9 APR 2009

Consult NOTAMS for latest information.

Published by
NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY
ST. LOUIS, MISSOURI

NGA Aeronautical Services is an ISO 9001:2000 certified organization.

©Copyright 2008 by the United States Government
No copyright claimed under Title 17 U.S.C.

NSN 7641014109532
NGA REF. NO. PLANXGP

EFF. DATE 08353

SPECIAL NOTICE

12 FEBRUARY 2009

COUNTRY NAME AND CODE CHANGES

Within the aeronautical products effective 12 February 2009:
The country of Serbia will change country code from RB to RI.
Kosovo will become a country with KV as the country code.

15 JANUARY 2009

COUNTRY NAME AND CODE CHANGES

Within the aeronautical products effective 15 January 2009:
The country of East Timor will change country name to Timor-Leste.
The following islands have been removed from country code GP and area individual countries as follows:
Saint Barthelemy - country code TB.
Saint Martin - country code RN.

INTRODUCTION

GENERAL - The DoD FLIP Planning document consists of one (1) General Planning Section, nine (9) Area Planning Sections. NOTE: AP/4 and 4A have been added), plus six (6) charts (FLIP AP/1B). Since it is designed for US military use, FLIP Planning contains aeronautical information that may not be applicable to other users of this product. The General Planning Section contains information that is applicable worldwide. It is supplemented by the information published in the nine Area Publication Sections. Refer to Chapter 3 for a more detailed description of the FLIP Planning Documents.

REVISION CYCLE - General Planning (GP) is revised every 32 weeks. The cutoff and effective dates of GP and all Area Planning Sections are published in Chapter 11.

INTERNET - DAFIF, E-CHUM, Enroute Supplements and Planning Documents available at https://www.geointel.nga.mil

CUSTOMER HELP - For questions concerning this or other NGA products or services, please phone the NGA Enterprise Service Center 1-800-455-0899 or DSN 287-9811.

AMENDMENTS - General Planning is amended by a scheduled Planning Change Notice (PCN) published 16 weeks after the effective date of General Planning, and by Urgent Change Notices (UCNs) as required.

NEW OR MODIFIED DATA - A vertical line appearing in the margin identifies new or modified data.

REVISIONS AND QUALITY REPORTS - Forward revisions and quality reports through the appropriate channels shown in General Planning Chapter 11.

TABLE OF CONTENTS

SPECIAL NOTICES - Inside Front Cover

TABLE OF CONTENTS - Pages 1, 2, 3, 4

	Para	Page
CHAPTER 1 - INDEX FOR AERONAUTICAL INFORMATION		1-1
CHAPTER 2 - EXPLANATION OF TERMS		
EXPLANATION OF TERMS	2-1	2-1
CHAPTER 3 - FLIP PROGRAM		
GENERAL	3-1	3-1
PLANNING PUBLICATIONS	3-2	3-1
FLIGHT INFORMATION HANDBOOK	3-3	3-1
ENROUTE AND TERMINAL PUBLICATIONS	3-4	3-1
UNITED STATES	3-4	3-1
ALASKA	3-4	3-2
CANADA AND NORTH ATLANTIC	3-4	3-2
CARIBBEAN AND SOUTH AMERICA	3-4	3-2
EUROPE, NORTH AFRICA AND MIDDLE EAST	3-4	3-3
AFRICA	3-4	3-3
PACIFIC, AUSTRALASIA AND ANTARCTICA	3-4	3-3
EASTERN EUROPE AND ASIA	3-4	3-4
FLIP PRODUCTS BY GEOGRAPHIC AREA (Graphic)		3-5
FOREIGN CLEARANCE GUIDE	3-5	3-6
NGA CATALOG OF MAPS, CHARTS, AND RELATED PRODUCTS PART 1, VOLUME 1	3-6	3-6
DIGITAL AERONAUTICAL FLIGHT INFORMATION FILE (DAFIF)	3-7	3-6
CAUTION DIGITAL DATA INTEGRITY	3-8	3-6
NEW IAP CHART FORMAT AND RNAV CHART MINIMA	3-9	3-6

CHAPTER 4 - FLIGHT PLANS

USE OF FLIGHT PLANS 4-1 4-1
DD FORM 175 MILITARY FLIGHT PLAN 4-2 4-1
DD FORM 175 MILITARY FLIGHT PLAN (Graphics) 4-2
FLIGHT PLAN VIP CODES 4-3 4-28
DD FORM 1801 (DoD INTERNATIONAL FLIGHT PLAN) 4-4 4-30
DoD INTERNATIONAL FLIGHT PLAN-(Graphic) 4-32
ICAO FLIGHT PLAN (Graphic) 4-33
ALTITUDE RESERVATION DURING OCEANIC CROSSING 4-5 4-40
FAA FORM 7233-1 FLIGHT PLAN and FAA FORM 7233-4 INTERNATIONAL FLIGHT PLAN (Graphic) 4-5 4-41

CHAPTER 5 - AIRCRAFT CODES

CODES FOR AIRCRAFT IDENTIFICATION 5-1 5-1

CHAPTER 6 - PILOT PROCEDURES

NATIONAL PROCEDURES

GENERAL INFORMATION/FIR/UIR COVERAGE 6-1 6-1
AIRSPACE STRUCTURE 6-2 6-1
MINIMUM NAVIGATION & COMMUNICATIONS EQUIPMENT 6-3 6-1
AIR TRAFFIC AT A CONTROLLED AERODROME 6-4 6-2

VISUAL FLIGHT RULES

MAXIMUM AIRSPEEDS 6-5 6-2

INSTRUMENT FLIGHT RULES

RVSM RULES 6-6 6-3
RNP REQUIREMENTS 6-7 6-8

FLIGHT PLANNING

GENERAL AIR TRAFFIC 6-8 6-8
FILING FLIGHT PLANS (DAY/NIGHT) 6-9 6-9
CLEARANCE INFORMATION 6-10 6-11
SUPPLEMENTARY AIRPORT INFORMATION 6-11 6-14

ENROUTE

AIRWAY/ROUTES INCLUDING CONDITIONAL ROUTE INFORMATION 6-12 6-14

TERMINAL

TERMINAL AREA PROCEDURES 6-13 6-15

ADDITIONAL INFORMATION

RADAR ASSISTED FLIGHT INFORMATION SERVICES 6-14 6-19

CHAPTER 7 - INTERNATIONAL CIVIL AVIATION ORGANIZATION

SECTION A - ORGANIZATION OF THE ICAO

GENERAL 7-1 7-1
ICAO MEMBER NATIONS 7-2 7-1
COMPLIANCE WITH ICAO PROCEDURES 7-3 7-1
COMPATIBILITY OF ICAO PROCEDURES 7-4 7-2
TERRITORIAL APPLICATION OF ICAO PROCEDURES 7-5 7-2
ICAO AIR TRAFFIC SERVICES 7-6 7-2

ICAO REGIONAL CHART (Graphic) 7-4
ATS AIRSPACE CLASSIFICATIONS (TABLE) 7-5

SECTION B - ICAO STANDARD PROCEDURES

GENERAL 7-7 7-6
VISUAL FLIGHT RULES 7-8 7-6
INSTRUMENT FLIGHT RULES. 7-9 7-7
PROCEDURES APPLICABLE TO ALL IFR FLIGHTS 7-10 7-7
IFR FLIGHTS WITHIN CONTROLLED AIRSPACE. 7-11 7-7
IFR FLIGHTS OUTSIDE CONTROLLED AIRSPACE. 7-12 7-8
SECONDARY SURVEILLANCE RADAR (SSR) TRANSPONDER PROCEDURES (ICAO Doc. 8168) 7-13 7-8
ALTIMETER SETTING 7-14 7-8
HOLDING PROCEDURES 7-15 7-9
IDENTIFICATION OF AIR TRAFFIC SERVICE ROUTES 7-16 7-9
VERTICAL SEPARATION. 7-17 7-10
AIR TRAFFIC CONTROL CLEARANCES. 7-18 7-11
EMERGENCY PROCEDURES 7-19 7-12
DIMENSIONAL UNITS . . (TABLE A). 7-20 7-13
. . (TABLE B) 7-14

CHAPTER 8 - OPERATIONS AND FIRINGS OVER THE HIGH SEAS

GENERAL 8-1 8-1
APPLICABILITY 8-2 8-1
DEFINITIONS 8-3 8-1
POLICY 8-4 8-1
SELECTION OF OPERATING AREAS. 8-5 8-1
NOTICES TO AIRMAN OR MARINERS. 8-6 8-1
OPERATIONS CONDUCTED UNDER ICAO PROCEDURES 8-7 8-1
OPERATIONS NOT CONDUCTED UNDER ICAO PROCEDURES. 8-8 8-1
OPERATIONS IN FOREIGN AIR DEFENSE IDENTIFICATION ZONES (ADIZ) 8-9 8-2
PROCEDURES FOR MISSILE/PROJECTILE FIRINGS 8-10 8-2
SPECIAL PROVISIONS 8-11 8-2
PREVENTION OF INCIDENTS ON OR OVER THE HIGH SEAS (INCSEA) 8-12 8-2
PREVENTION OF DANGEROUS MILITARY ACTIVITIES BETWEEN THE US AND RUSSIA 8-13 8-2
MILITARY FLIGHTS IN INTERNATIONAL AIRSPACE, INTERNATIONAL STRAITS AND
ARCHIPELAGIC SEA LANES. 8-14 8-3

CHAPTER 9 - RESERVED

CHAPTER 10 - LORAN CHART COVERAGE

ATLANTIC AREA LORAN-C COVERAGE (Graphic) 10-1
PACIFIC AREA LORAN-C COVERAGE (Graphic). 10-2

CHAPTER 11 - FLIP REVISIONS/QUALITY REPORTS/REQUISITIONS/DISTRIBUTION/ SCHEDULES

REQUIREMENTS 11-1 11-1
REVISIONS. 11-2 11-1
QUALITY REPORTS. 11-3 11-5
REQUISITIONING 11-4 11-5
AUTOMATIC DISTRIBUTION, FLIGHT INFORMATION PUBLICATIONS (FLIP) 11-5 11-6
FLIP PRODUCT DISPOSAL 11-6 11-7
REVISION SCHEDULE. 11-7 11-7
FLIP PLANNING CUT-OFF DATES. 11-7a 11-7
FLIP ENROUTE CUT-OFF DATES. 11-7b 11-8
FLIP TERMINAL CUT-OFF DATES 11-7c 11-9

INTENTIONALLY
LEFT
BLANK

Chapter 1

INDEX FOR AERONAUTICAL INFORMATION

Index lists sections and chapters of FLIP Planning in which information may be found and/or other primary publications to which reference may be made.

FIH . . . . . FLIGHT INFORMATION HANDBOOK
ES . . . . . FLIP ENROUTE SUPPLEMENT
  AF . . . . . AFRICA
  AK . . . . . ALASKA
  CA . . . . . CANADA AND NORTH ATLANTIC
  CR . . . . . CARIBBEAN AND SOUTH AMERICA
  EA . . . . . EASTERN EUROPE AND AISA
  EU . . . . . EUROPE, NORTH AFRICA AND MIDDLE EAST
  PC . . . . . PACIFIC, AUSTRALASIA AND ANTARCTICA
  IFR . . . . . US
  VFR . . . . . US
EC . . . . . FLIP ENROUTE CHARTS (Low and High Altitude)
E LA . . . . . FLIP ENROUTE LOW ALTITUDE
E HA . . . . . FLIP ENROUTE HIGH ALTITUDE
AAC . . . . . AREA ARRIVAL CHART DEPICTING TERRAIN DATA
TC . . . . . FLIP TERMINAL CHARTS (Low and High Altitude)
T LA . . . . . FLIP TERMINAL LOW ALTITUDE
T HA . . . . . FLIP TERMINAL HIGH ALTITUDE
SID . . . . . STANDARD INSTRUMENT DEPARTURE
FCG . . . . . FOREIGN CLEARANCE GUIDE
GP, AP/1 (8). . FLIP PLANNING SECTION (chapter)
STAR . . . . . STANDARD TERMINAL ARRIVAL

ABBREVIATIONS . . . . . FIH, ES
ADIZ . . . . . EC, ES
AFTERBURNER CLIMB . . . . . GP (6)
AIRCRAFT CATEGORIES . . . . . GP (2)
AIRCRAFT CLASSIFICATION NUMBERS . . . . . FIH
AIRCRAFT CODES . . . . . GP (5)
AIRCRAFT SPEED BELOW 10,000 FEET MSL . . . . . GP (6)
AIRCRAFT STARTING UNITS . . . . . ES
AIRCRAFT WAKE TURBULENCE . . . . . GP (6)
AIR EMERGENCY CODE . . . . . ES
AIREP FORMS (ICAO). . . . . FIH
AIRPORT DIAGRAMS . . . . . TLA, THA, SID
AIRPORT DIRECTORY . . . . . ES
AIRPORT RADAR SERVICE AREAS
  (ARSA). . . . . GP (2), AP/1 (3), ES (IFR)
AIRPORT SERVICING . . . . . ES
AIRPORT SKETCH . . . . . ES, TC
AIRPORT TRAFFIC AREA PROCEDURES . . . . . GP (6)
AIRPORT TRAFFIC CONTROL VISUAL SIGNALS . . . . . ES
AIRPORTS OF DEPARTURE . . . . . FCG
AIRPORTS OF ENTRY (AOE) . . . . . FCG
AIRSPACE CLASSIFICATIONS (ICAO). . . . . GP (7)
AIRSPACE, SPECIAL USE AP/1A, 2A, 3A, 4A
AIR TRAFFIC CONTROL CLEARANCES . . . . . GP (6), (7)
AIR TRAFFIC CONTROL RADAR FACILITIES . . . . . ES
AIR TRAFFIC SERVICES (ICAO) . . . . . GP (7)
AIRWAYS
  air/ground stations. . . . . ES
  controlled . . . . . EC
  high altitude (depiction). . . . . E HA
  high altitude (defined) AP/1
  low altitude (depiction) . . . . . E LA
  positive controlled area (description) . . . . . ES (IFR)
  systems. AP/1
  uncontrolled . . . . . EC
ALERT AREAS. AP/1A, 3A
ALPHABET PHONETIC (ICAO) . . . . . ES
ALTIMETER
  changeover procedure. . . . . ES (AK) (FIH)
  setting . . . . . GP (7), AP/1, 2, 3, 4
ALTITUDE, CRUISING DIAGRAMS CHART . . . . . ES, E LA, E HA
ALTITUDE TRANSITION. . . . . GP (7)
ALTITUDE VERIFICATION PROCEDURES . . . . . GP (6)
APPROACH CLEARANCES. . . . . GP (6)
APPROACH CONTROL FREQUENCIES AND CALL . . . . . ES
APPROACH LIGHTING . . . . . ES, FIH, TLA, THA
APPROACH PROCEDURES (ICAO) . . . . . GP (7)
AREA (RANDOM) NAVIGATION
  ROUTES (RNAV). . . . . GP (4) (7), AP/1, AP/2
ARMY FLIGHT OPERATIONS DETACHMENT AP/2 (1)
ARRESTING GEAR . . . . . ES, TC
ARTCC/ACC
  air/ground communications . . . . . GP (6), ES (PC, AK, CA)
  boundaries . . . . . EC
  frequencies . . . . . ES, EC
ASR (AIRPORT SURVEILLANCE RADAR) . . . . . ES
AUTOMATED WEATHER OBSERVATION SYSTEM
  (AWOS) . . . . . FIH
AUTOMATIC TERMINAL INFORMATION SERVICE
  (ATIS). . . . . FIH
AVIATION WEATHER CODES . . . . . FIH
  United Kingdom color coded weather conditions . . . . . FIH
  pilot weather reports (PIREPs) format . . . . . FIH
  world meteorological organization ground/ air code . . . FIH

BARRIER, JET . . . . . Refer Arresting Gear
BEACONS
  marker. . . . . ES
  radio . . . . . ES
BIRD HAZARD DATA AP/2 (9)
BODY, SIGNALS . . . . . FIH
BOUNDARIES
  ADIZ . . . . . EC, ES
  ARTCC/ACC . . . . . EC
  control zone . . . . . EC
  FIR/CTA. . . . . ES, EC
  FLIP PLANNING . . . . . GP, AP/1, 1A, 1B, 2, 2A, 3, 3A, 4, 4A
  ICAO Regional . . . . . GP, AP/1, 2, 3, 4
  time zones. . . . . EC, FIH
  UIR. . . . . E HA
BROADCASTING STATIONS, COMMERCIAL . . . . . E LA
BUFFER ZONES
  depiction . . . . . EC, ES (PC)
  procedures . . . . . ES (PC)

CANADIAN MINIMUM NAVIGATION PERFORMANCE SPECIFICATONS (CMNPS) AIRSPACE AP/1 (3)
CHANGEOVER POINTS . . . . . GP (6)
CHANGES IN ENROUTE CLEARANCE . . . . . GP (6), ES
CHANGES OF FLIGHT PLAN ENROUTE . . . . . GP (6), ES
CIRVIS REPORTS . . . . . FIH
CITY/AIRPORT CROSS REFERENCE
LISTING . . . . . ES (VFR, EU, PC, AF, CR)
CLEARANCE
air traffic control . . . . . GP (6), (7), AP/1, 2, 3, 4
approach . . . . . GP (6)
combination . . . . . GP (6)
departure . . . . . GP (6)
enroute . . . . . GP (6), ES
foreign . . . . . FCG
IFR . . . . . GP (6)
VFR conditions on top . . . . . GP (6)
CLIMB RATES . . . . . GP (2)
CODES
air emergency . . . . . ES
aviation weather . . . . . FIH
NOTAM . . . . . FIH
Morse . . . . . ES
NATO Color Codes . . . . . FIH
VIP . . . . . GP (4)
World meteorological organization ground/air . . . . . FIH
COMBINATION CLEARANCE . . . . . GP (6)
COMMERCIAL BROADCASTING STATIONS, SELECTED . E LA
COMMUNICATIONS
air ground communications enroute GP (6), ES (PC, AK, CA)
enroute radio networks, ICAO . . . . . ES, FIH
frequencies airport . . . . . ES
frequencies ARTCC/ACC . . . . . ES
international procedures . . . . . GP (7)
USAF Global High Frequency (HF) System . . . . . FIH
voice reports . . . . . GP (6), AP/1, 2, 3, 4
CONSOL/CONSOLAN FACILITIES . . . . . ES, EC
CONTINENTAL CONTROL AREA DESCRIPTION AP/1
CONTROL AREAS, OCEANIC . . . . . EC
CONTROL TOWER DATA . . . . . ES
CONTROL ZONES, DEPICTION . . . . . EC
CONTROLLED VFR FLIGHT IN BLOCK
AIRSPACE, CANADA AP/1 (3)
CONVERSION TABLES . . . . . FIH
COORDINATES, AIRPORT . . . . . ES
COORDINATES, NAVIGATIONAL AIDS . . . . . ES
CRUISING ALTITUDE DIAGRAMS . . . . . ES, E LA, E HA
CRUISING ALTITUDE FLIGHT
LEVELS . . . . . AAC, AP/1, 2, 3, 4, EC, ES
CRUISING LEVELS, TABLE OF . . . . . GP (7)
CURRENCY EXCHANGE . . . . . FCG
CUSTOMS AVAILABILITY . . . . . FCG, ES (IFR)

DEPARTURE
control frequencies . . . . . ES, SID
radar . . . . . GP (6)
standard instrument departure . . . . . SID
DEPARTURE PROCEDURES, ICAO . . . . . GP (7)
DIGITAL AERONAUTICAL FLIGHT INFORMATION FILE
(DAFIF) . . . . . GP (3)
DIMENSIONAL UNITS TABLE . . . . . GP (7)
DIRECTION FINDER AVAILABILITY . . . . . ES
DIRECTION FINDER PROCEDURES . . . . . ES
DIRECTORY OF AIRPORTS . . . . . ES
DISINSECTIZATION . . . . . FCG
DISTRESS AND URGENCY SIGNALS
aircraft witnessing . . . . . GP (7), FIH
radar distress patterns . . . . . FIH
when intercepted . . . . . FIH
DIVISIONS OF UNITED STATES AIRSPACE AP/1

ELEVATIONS, AIRPORTS . . . . . ES
EMERGENCY PROCEDURES
aircraft witnessing distress . . . . . FIH
air/ground emergency procedures . . . . . FIH
distress and urgency signals . . . . . FIH
hijacked aircraft procedures . . . . . FIH
IFF/SIF . . . . . GP (6)
in-flight technical assistance . . . . . FIH
recommended procedures for the
interceptor after interceptionFIH
recommended procedures for aircraft in
distress when intercepted . . . . . FIH
recommended procedures for any emergency
phase(uncertainty, alert, distress, lost) . . . . . FIH
two-way radio failure
FAA procedures, ICAO procedures, visual
signals when radio inoperative, country/theater
exceptions to standard procedures . . . . . FIH
ENROUTE CLEARANCE . . . . . GP (6)
ENROUTE PREFERRED ROUTES AP/1, 2, 3, 4
EXCHANGE, CURRENCY . . . . . FCG

FACILITIES
classification, Nav Aids . . . . . ES
consolan . . . . . ES, EC
coordinates, Nav Aids . . . . . ES
frequencies, Nav Aids . . . . . ES
PAR . . . . . ES
FIR (FLIGHT INFORMATION REGION)
FIR/CTA boundaries . . . . . EC
FIR/CTA frequencies . . . . . ES, EC
position reporting . . . . . GP (7), AP/1, 2, 3, 4
FLEET AREA CONTROL and
SURVEILLANCE FACILITY (FACSFAC) . . . . . ES (IFR)
FLIGHT PLANS . . . . . GP (4), (6), AP/2
FLIGHT SERVICE FAA . . . . . ES (IFR)
FLIP PLANNING
BOUNDARIES . . . . . GP, AP/1, 1A, 1B, 2, 2A, 3, 3A, 4, 4A
FLIP PUBLICATION FLIP
program . . . . . GP (12)
procurement . . . . . DoD CATALOG OF AERONAUTICAL PUBLICATIONS
FOREIGN AIRCRAFT AND PERSONNEL CLEARANCE . . . . . FCG
FOREIGN CLEARANCE BASES (FCB) . . . . . FCG
FOREIGN CLEARANCE GUIDE . . . . . GP (3)
FREQUENCIES
airport terminal . . . . . ES
approach control . . . . . ES
ARTCC/ACC . . . . . ES, EC
departure control . . . . . ES
FIR/CTA . . . . . ES, EC
FSS . . . . . ES (IFR)
navigational facilities . . . . . ES
special use AP/1
FREQUENCY PAIRING PLAN . . . . . FIH
FSS (FLIGHT SERVICE STATIONS) FREQUENCIES . . . . . ES (IFR)

GROUND CONTROL AVAILABILITY . . . . . ES

HIGH ALTITUDE AREA SYSTEM AP/1
HIGH ALTITUDE ROUTE STRUCTURE
depiction . . . . . E HA
system description AP/1
HOLDING PROCEDURES . . . . . GP (6)

IATA INFLIGHT BROADCAST PROCEDURE (IFBP)
AFRICA REGION . . . . . FIH
CSA REGION . . . . . FIH
ICAO
AIREP forms . . . . . FIH

air traffic service . . . . . GP (7)
communications . . . . . GP (7)
compliance with . . . . . GP (7)
emergency procedures . . . . . GP (7)
enroute radio networks . . . . . ES, FIH
HF aeronautical station list . . . . . FIH
identification of ATS routes . . . . . GP (7)
IFR procedures . . . . . GP (7)
interception signals . . . . . FIH
member nations . . . . . GP (7)
NOTAM code . . . . . FIH
phonetic alphabet . . . . . ES
position reports . . . . . FIH
procedures and rules . . . . . GP (7)
regional charts AP/1, 2, 3, 4
regional procedures AP/1, 2, 3, 4
table of cruising levels . . . . . GP (7)
vertical separation . . . . . GP (7)
VFR procedures . . . . . GP (7)
IDENTIFICATION CREDENTIALS . . . . . FCG
IFF/SIF PROCEDURE . . . . . GP (6)
IFR, CLEARANCES . . . . . GP (6)
IFR, TWO-WAY RADIO FAILURE . . . . . FIH, ES
ILS, AVAILABILITY AND STATUS . . . . . ES
ILS CRITICAL AREAS . . . . . GP (6)
ILS DATA . . . . . ES
ILS PROCEDURES . . . . . TC
IMMUNIZATION REQUIREMENTS . . . . . FCG
IN FLIGHT TECHNICAL ASSISTANCE . . . . . FIH
INSTRUMENT APPROACH PROCEDURES . . . . . TC
INSTRUMENT PROCEDURES, ICAO . . . . . GP (7)
INTERCEPTION BY RESCUE AIRCRAFT . . . . . FIH
INTERCEPTION SIGNALS
Country exceptions to ICAO Standard . . . . . FIH
ICAO Standard . . . . . FIH
INTERNATIONAL PROCEDURES (ICAO) . . . . . GP (7)
ISOGONIC LINES AND VALUES, DEPICTED . . . . . AACDTD, EC

JET AIRCRAFT STARTING UNITS (JASU) . . . . . ES

LF/MF RADIO RANGE DATA . . . . . ES
LF/MF RADIO RANGE DEPICTION . . . . . EC
LIGHTING, AIRPORT . . . . . ES, FIH
LORAN CHART COVERAGE . . . . . GP (10)
LOST OR IN DISTRESS PROCEDURES . . . . . FIH
LOW ALTITUDE AIRWAY DEPICTION . . . . . E LA
LOW ALTITUDE AIRWAY SYSTEM DESCRIPTION AP/1
LOW COST VISUAL APPROACH SLOPE
INDICATOR (LCVASI) . . . . . GP (6), FIH

MALFUNCTION REPORTS . . . . . ES
MARINE RADIO BEACON DATA . . . . . ES
MARINE RADIO BEACON DEPICTION . . . . . EC
MARKER BEACONS . . . . . ES
MARSA . . . . . GP (6)
MEASUREMENTS, UNITS OF . . . . . AP/1, 2, 3, 4, FIH
MEMBER NATIONS (ICAO) . . . . . GP (7)
METEOROLOGICAL INFORMATION . . . . . FIH
MIJI . . . . . FIH, GP (2)
MILITARY ASSUMES RESPONSIBILITY FOR SEPARATION OF
AIRCRAFT (MARSA) . . . . . GP (6)
MILITARY CLIMB CORRIDORS . . . . . EC, AP/3A
MILITARY DROP ZONE . . . . . Refer Parachute Jumping Areas
MILITARY FLIGHTS IN INTERNATIONAL AIRSPACE,
INTERNATIONAL STRAITS, AND
ARCHIPELAGIC SEA LANES . . . . . GP(8)
MILITARY FLYING AREAS AP/3A
MILITARY OPERATIONS AREAS (MOA) . GP(2), AP/1A, ELA, TC
MILITARY TRAINING ROUTES AP/1B, 3
MINIMUM ENROUTE ALTITUDES DEPICTION . . . . . EC
MINIMUM NAVIGATION PERFORMANCE
SPECIFICATIONS (MNPS) AIRSPACE AP/2 (6)
MODE 4, REGISTER OF NATIONAL CLEARANCE AND
OPERATIONAL REQUIREMENTS ON THE USE OF IFF
MARK XII . . . . . FIH
MORSE CODE . . . . . ES

NATIONAL, REGIONAL/FIR/SUPPLEMENTARY
PROCEDURES AP/1, 2, 3, 4
NATIONAL ROUTE PROGRAM (NRP) . . . . . GP (4), AP/1
NAVIGATIONAL AID COORDINATES . . . . . AACDTD, EC, ES
NAVIGATIONAL AID FACILITIES CLASSIFICATION . . . . . ES
NEAR COLLISION REPORT AP/2 (1)
NGA CATALOG OF MAPS, CHARTS AND
RELATED PRODUCTS, PART 1, VOLUME I . . . . . GP(3)
NO-NOTAM PREVENTIVE MAINTENANCE
PROCEDURES . . . . . ES
NORTH PACIFIC OCEANIC CONTROL AREA (NOPAC)
depiction . . . . . EC
description . . . . . AP/3 (3), ES (AK)
NOTAM BRIEFING PROCEDURE . . . . . ES
NOTAM CODE . . . . . FIH
NOTAM INFORMATION ON FAA FACILITIES . . . . . GP (6)
NOTAM SYSTEM . . . . . GP (6)

OCEANIC CONTROL AREAS . . . . . EC
OPERATIONS AND FIRINGS OVER THE HIGH SEAS . . . . . GP (8)

PARACHUTE JUMPING AREAS AP/1A, 2A, 3A, 4A
PAR FACILITIES . . . . . ES
PASSPORT AND VISA REQUIREMENTS . . . . . FCG
PAULIN SIGNALS . . . . . FIH
PHONETIC ALPHABET . . . . . ES
PILOT CONTROL OF AIRPORT LIGHTING . . . . . FIH
PILOT PROCEDURES . . . . . GP (6)
PILOT TO METRO SERVICE, USAF (PMSV) . . . . . FIH
PILOT TO METRO SERVICE, USN/USMC (PMSV) . . . . . FIH
PILOT WEATHER REPORTS . . . . . FIH
POLLUTION REPORTS (POLREP) FORMAT . . . . . FIH
POSITION REPORTING
PROCEDURE ENROUTE . . . . . FIH, AP/1, 2, 3, 4
POSITIVE CONTROL AREA . . . . . FIH, AP/1
PRECISION APPROACH PATH INDICATOR (PAPI) . . . . . FIH
PREFERRED ROUTES
ENROUTE AP/1, 2, 3, 4
PROCEDURES
ADIZ . . . . . ES
airport traffic area . . . . . GP (6)
air ground communications . . . . . ES
air traffic control . . . . . FIH
altimeter changeover . . . . . GP (7)
altitude verification . . . . . GP (6)
approach (ICAO) . . . . . GP (7)
Buffer Zone . . . . . ES (PC, EU)
CIRVIS . . . . . FIH
communications (ICAO) . . . . . GP (7)
departure . . . . . GP (6), (7)
departure radar . . . . . GP (6)
descent emergency (ICAO) . . . . . GP (7)
direction finder . . . . . ES
distress . . . . . FIH
emergency, general . . . . . FIH, GP (7)
enroute . . . . . GP (6)
FIR/UIR AP/1, 2, 3, 4
flight service, FAA . . . . . ES (IFR), FIH
holding . . . . . GP (6)
ICAO . . . . . GP (7)
IFF/SIF . . . . . GP (6)
ILS . . . . . TC
instrument approach . . . . . TC

instrument (ICAO) . . . . . GP (7)
international (ICAO) . . . . . GP (7)
interception by rescue aircraft . . . . . FIH
international communications . . . . . GP (7)
lost or in distress . . . . . FIH
national AP/1, 2, 3, 4
No-NOTAM preventive maintenance . . . . . ES
NOPAC . . . . . ES (PC)
NOTAM briefing . . . . . ES
pilot . . . . . GP (6)
Pilot Weather Reports (PIREPs) . . . . . FIH
position reporting enroute . . . . . FIH, AP/1, 2, 3, 4
positive control areas AP/1
radar letdown . . . . . ES
radar terminal ATC . . . . . GP (6)
regional AP/1, 2, 3, 4
restricted area AP/1
SID . . . . . GP (6), SID
theater AP/1, 2, 3 (1), 4
transponder . . . . . GP (6)
two-way radio failure . . . . . FIH
VOR receiver check points . . . . . ES, GP, AP/1, 2, 3, 4
PROCUREMENT OF FLIP
PUBLICATIONS . . . . . DoD CATALOG OF AERONAUTICAL PUBLICATIONS
PROHIBITED AREA AP/1A, 2A, 3A, 4A

QUADRANTAL CRUISING LEVELS . . . . . EC

RADAR
air traffic control facilities . . . . . ES
arrival ATC procedures . . . . . GP (6)
ASR (airport surveillance radar) . . . . . TC
availability (ASR-PAR) . . . . . ES
departure . . . . . GP (6)
IFF/SIF procedures . . . . . GP (6)
letdown minimums . . . . . TC
monitoring capability . . . . . ES
terminal programs VFR . . . . . GP (6)
traffic information service . . . . . GP (6)
RADIO BEACON DATA . . . . . ES
RADIO BEACON MARINE . . . . . ES
RADIO FAILURE, TWO-WAY . . . . . FIH
RADIO STATIONS, ARMED FORCES (AFRS) . . . . ES (CR, EU, PC)
REFUELING TRACKS OR REFUELING
AREAS . . . . . ES (AK), AP/1B, 2 (7), 3
REGIONAL SUPPLEMENTARY PROCEDURES
AFRICA-INDIAN OCEAN REGION AP/2
CARIBBEAN REGION AP/1
EUROPEAN REGION AP/2, 4
MIDDLE EAST/ASIA REGION AP/2, 3, 4
NORTH AMERICAN REGION AP/1
NORTH ATLANTIC REGION AP/1, 2
PACIFIC REGION AP/3
SOUTH AMERICAN REGION AP/1
REGIONAL CHARTS AP/1, 2, 3, 4
RESTRICTED AREAS
description AP/1A, 2A, 3A, 4A
U.S. procedures AP/1
RUNWAY CONDITION READING (RCR) . . . . . FIH

SECONDARY SURVEILLANCE RADAR (SSR) TRANSPONDER
PROCEDURES (ICAO Doc. 8168) . . . . . GP (7)
SECURITY CONTROL OF AIR TRAFFIC . . . . . GP (6)
SELECTED APPROACH LIGHTING SYSTEMS . . . . . FIH
SFA-UHF SINGLE FREQUENCY APPROACH . . . . . GP (6)
SPECIAL RULES AREA . . . . . ES (EU), EC (EU)
SPECIAL RULES ZONE . . . . . ES (EU), EC (EU)
STANDARD INSTRUMENT
DEPARTURE (SID) . . . . . GP (6), SID

TABLES
conversion . . . . . FIH
cruising levels (ICAO) . . . . . GP (7)
dimensional units . . . . . GP (7)
TACAN DATA . . . . . ES
TEMPERATURE ERROR . . . . . FIH
TERMINAL CONTROL AREA AP/1, 2, 3, 4
TERMINAL RADAR PROGRAMS (VFR) . . . . . GP (6)
TERMS, EXPLANATION OF . . . . . GP (2)
THEATER SUPPLEMENTARY NOTICES/
PROCEDURES AP/1, 2, 3 (1), 4
TIME SIGNALS . . . . . FIH
TIME ZONE BOUNDARIES . . . . . EC, FIH
TRAFFIC SERVICES AIR (ICAO) . . . . . GP (7)
TRANSPONDER PROCEDURES . . . . . GP (6)
TURBOJET ENROUTE DESCENT . . . . . GP (6)
TWO-WAY RADIO FAILURE . . . . . FIH

UIR BOUNDARIES . . . . . EC
UNICOM . . . . . ES
UNITS OF MEASUREMENT . . . . . GP (7), AP/1, 2, 3, 4
UPPER ATS ROUTES FOR NORTH
ATLANTIC TRAFFIC AP/2
USAF Global Command Control System (GCCS) . . . . . FIH
US ARMY NOTAM SYSTEM . . . . . GP (6)
US LANDING RIGHTS AIRPORTS . . . . . FCG, GP (2), ES
USE OF GREEN ANTI-COLLISION LIGHTS BY
USN/USMC AIRCRAFT . . . . . GP (6)

VERTICAL SEPARATION (ICAO) . . . . . GP (7), AP/1, 2, 3, 4
VFR
advisory service availability . . . . . ES (VFR)
condition on top clearance . . . . . GP (6)
terminal radar programs . . . . . GP (6)
two-way radio failure . . . . . FIH
(ICAO) procedures . . . . . GP (7)
VICTOR AIRWAY DEPICTION . . . . . E LA
VIP CODES . . . . . GP (4)
VISUAL APPROACH SLOPE INDICATOR
(VASI) . . . . . GP (6)
VISUAL SIGNALS AIRPORT TRAFFIC CONTROL . . . . . FIH
VISUAL SIGNALS WHEN AIRCRAFT RADIO IS
INOPERATIVE . . . . . FIH
VISA REQUIREMENT, PASSPORT AND . . . . . FCG
VOR DATA . . . . . ES
VOR RECEIVER CHECK POINTS PROCEDURES . . . . . GP (6)
VOR RECEIVER CHECK POINTS . . . . . ES (AK), AP/1, 2, 3, 4
VORTAC DATA . . . . . ES
VOR TEST FACILITY LISTING (VOT) . . . . . ES

WARNING AREAS AP/1A, 3A
WAVE-OFF LIGHTING AT USN/USMC AIRFIELDS . . . . . FIH

WEATHER . . . . . FIH
WORLD TIME ZONE, CHART . . . . . FIH

Chapter 2

EXPLANATION OF TERMS

2-1 EXPLANATION OF TERMS -

a. The following terms and definitions include all those published in the Federal Aviation Administration Pilot/Controller Glossary, plus some selected ICAO and Military Terms.

b. The source from which the definition is taken is shown in parenthesis beside the term in a code form as follows:

(1) NO CODE - There is only one definition for this term in this chapter and it is taken from the Pilot/Controller Glossary (P/CG).

(2) (P/CG) - The definition published beside the term is taken from the Pilot/Controller Glossary located in the FAA Aeronautical Information Manual.

(3) (JCS) - The definition is taken from Joint PUB 1-02 (The DoD Dictionary of Military and Associated Terms) and is different than that in the P/CG.

(4) (NATO) - The definition is taken from NATO AAP6 (NATO Glossary of Terms) and is different than that in the P/CG.

(5) (ICAO) - The definition is taken from the ICAO Document 9569, Definitions and is different than that in the P/CG.

(6) (USA, USN, USAF, NGA or etc.) - The definition has been provided to NGA ST.LOUIS by the agency indicated within the parenthesis. This definition does not appear in the P/CG, JCS, NATO or ICAO documents.

(7) (IFIM) - The definition is taken from the Federal Aviation Administration International Flight Information Manual.

(8) (GPH 204) - The definition is taken from DND Flight Information Publication - GPH 204.

(9) TWO OR MORE CODES - The term is defined the same way in each of the documents indicated.

ABBREVIATED IFR FLIGHT PLANS - An authorization by Air Traffic Control requiring pilots to submit only that information needed for the purpose of Air Traffic Control. 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 Air Traffic Control for separation/control purposes. It is frequently used by aircraft which are airborne, desire an instrument approach, or by aircraft on the ground which desire a climb to VFR on top. (See VFR-on-top).

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 (P/CG) - To terminate a preplanned aircraft maneuver; e.g., an aborted take-off.

ABORT (JCS, NATO) -

(1) Failure to accomplish a mission for any reason other than enemy action. It may occur at any point from initiation of operation to destination.

(2) Discontinue aircraft take-off run or launch.

ACCELERATE-STOP DISTANCE AVAILABLE [ICAO] - The length of the take-off run available plus the length of the stopway if provided.

ACKNOWLEDGE - Let me know that you have received my message.

ACKNOWLEDGE (ICAO) - Let me know that you have received and understand this message.

ACROBATIC FLIGHT (P/CG) - An intentional maneuver involving an abrupt change in an aircraft's attitude, an abnormal attitude, or abnormal acceleration, not necessary for normal flight. (Refer to Federal Air Regulations Part 91)

ACROBATIC FLIGHT (ICAO) - Maneuvers intentionally performed by an aircraft involving an abrupt change in its attitude, an abnormal attitude or abnormal variation in speed.

ADDITIONAL SERVICES - Advisory information provided by Air Traffic Control which includes but is not limited to the following:

(1) Traffic advisories.

(2) Vectors, when requested by the pilot, to assist aircraft receiving traffic advisories to avoid observed traffic.

(3) Altitude deviation information of 300 feet or more from an assigned altitude as observed on a verified (reading correctly) automatic altitude readout (Mode C).

(4) Advisories that traffic is no longer a factor.

(5) Weather and chaff information.

(6) Weather assistance.

(7) Bird activity information.

(8) 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 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. (See Traffic Advisories)

ADMINISTRATOR - The Federal Aviation Administrator or any person to whom he has delegated his authority in the matter concerned.

ADVISE INTENTIONS - Tell me what you plan to do.

2-2 TERMS

ADVISORY - Advice and information provided to assist pilot in the safe conduct of flight and aircraft movement. (See Advisory Service)

ADVISORY AREA (JCS, NATO, ICAO) - A designated area within a Flight Information Region where Air Traffic Advisory Service is available.

ADVISORY FREQUENCY - The appropriate frequency to be used for Airport Advisory Service. (See Airport Advisory Service and UNICOM) (Refer to Advisory Circular No. 90-42)

ADVISORY ROUTE/ADR (ICAO) - A route within a Flight Information Region along which Air Traffic Advisory Service is available.

NOTE: Air Traffic Control service provides a much more complete service than Air Traffic Advisory Service; Advisory Areas and Routes are therefore not established within controlled airspace, but Air Traffic Advisory Service may be provided below and above Control Areas.

ADVISORY SERVICE - Advice and information provided by a facility to assist pilots in the safe conduct of flight and aircraft movement. (See Airport Advisory Service, Traffic Advisories, Safety Alerts, Additional Services, Radar Advisory, Enroute Flight Advisory Service)

AERIAL REFUELING/INFLIGHT REFUELING - A procedure used by the military to transfer fuel from one aircraft to another during flight.

AERODROME (ICAO) - 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.

NOTE: The term "aerodrome" where used in the provisions relating to flight plans and Air Traffic Service messages is intended to cover also sites other than aerodromes which may be used by certain types of aircraft, e.g. helicopters or balloons.

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 navigational aid 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)

AERONAUTICAL CHART (P/CG) - A map used in air navigation containing all or part of the following: Topographic features, hazards and obstructions, navigational aids, navigation routes, designated airspace, and airports.

(1) See GENERAL PLANNING for a description of the Flight Information Publication Programs.

(2) See the National Geospatial-Intelligence Agency Catalog of Maps, Charts and Related Products, Part 1, Aerospace Products, Volume 1, Aeronautical Charts and Flight Information Publications for descriptions of visual navigation charts.

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/AIM - A primary Federal Aviation Administration publication whose purposes is to instruct airmen about operating in the National Airspace System of the United States. It provides basic flight information, Air Traffic Control 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 (ICAO) - A publication issued by or with the authority of a state and containing aeronautical information of a lasting character essential to air navigation.

AFFIRMATIVE - Yes.

AIRBORNE DELAY - Amount of delay to be encountered in airborne holding.

AIR CARRIER DISTRICT OFFICE/ACDO - A Federal Aviation Administration 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 (P/CG) - 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.

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 (P/CG) - 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 90 knots, should use the approach category B minimums when circling to land. The categories are as follows:)

(1) CATEGORY A - Speed less than 91 knots.

(2) CATEGORY B - Speed 91 knots or more but less than 121 knots.

(3) CATEGORY C - Speed 121 knots or more but less than 141 knots.

(4) CATEGORY D - Speed 141 knots or more but less than 166 knots.

(5) CATEGORY E - Speed 166 knots or more. (Refer to Federal Air Regulations Parts 1 and 97)

AIRCRAFT APPROACH CATEGORY DoD (USAF) - The five approach categories (A thru E) are based on 1.3 times the stall speed in the landing configuration. Operational agencies

determine the category/categories of minima required and to be used by their aircraft. For example, if the final speed is 145 knots, category D minima should be used, provided other aircraft characteristics (e.g., restricted downward vision angle) do not dictate use of a higher category of minimums.

APPROACH CATEGORY	SPEED
A	Speed less than 91 knots.
B	Speed 91 knots or more but less than 121 knots.
C	Speed 121 knots or more but less than 141 knots.
D	Speed 141 knots or more but less than 166 knots.
E	Speed 166 knots or more.

NOTE: Procedures containing the word COPTER in the procedure title, i.e., COPTER VOR 190°, are approved under TERPs helicopter criteria for helicopter use only and are restricted to 90 knots or less indicated airspeed.

AIRCRAFT CLASSES (FAA-P/CG) - For the purposes of wake turbulence, separation minima, Air Traffic Control classifies aircraft as heavy, large and small as follows:

(1) HEAVY - Aircraft capable of take-off weights of more than 255,000 pounds whether or not they are operating at this weight during a particular phase of flight.

(2) LARGE - Aircraft of more than 41,000 pounds, maximum certificated take-off weight, up to 255,000 pounds.

(3) SMALL - Aircraft of 41,000 pounds or less, maximum certificated take-off weight.

AIRCRAFT CLASSES (ICAO) - For the purposes of wake turbulence separation minima, Air Traffic Control classifies aircraft as heavy, medium and light as follows:

(1) HEAVY - Aircraft with a maximum certificated take-off weight of 300,000 pounds or more.

(2) MEDIUM - Aircraft with a maximum certificated take-off weight of less than 300,000 pounds but more than l5,500 pounds.

(3) LIGHT - Aircraft with a maximum certificated take-off weight of 15,500 pounds or less.

AIR DEFENSE EMERGENCY - A military emergency condition declared by a designated authority. This condition exists when an attack upon the continental United States, Alaska, Canada, or United States installations in Greenland by hostile aircraft or missiles is considered probable, is imminent, or is taking place.

AIR DEFENSE IDENTIFICATION ZONE/ADIZ - 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.

(1) DOMESTIC AIR DEFENSE IDENTIFICATION ZONE - An ADIZ within the United States along an international boundary of the United States.

(2) COASTAL AIR DEFENSE IDENTIFICATION ZONE - An ADIZ over the coastal waters of the United States.

(3) DISTANT EARLY WARNING IDENTIFICATION ZONE (DEWIZ) - An ADIZ over the coastal waters of the state of Alaska. ADIZ location and operating and flight plan requirements for civil aircraft operations are specified in Federal Air Regulations Part 99.

ADIZ location, and operating and flight plan requirements for civil aircraft operations are specified in Federal Air Regulations Part 99.

AIRFIELD (JCS, NATO) - An area prepared for the accommodation (including any buildings, installations, and equipment) of landing and take-off of aircraft.

AIRMET/WA/AIRMAN'S METEOROLOGICAL INFORMATION - 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. AIRMETs concern weather of less severity than that covered by SIGMETs or Convective SIGMETs. AIRMETs 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 SIGMET, Convective SIGMET, Severe Weather Forecast Alerts, and Center Weather Advisory)

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 take-off of aircraft. (See Navigational Aid)

AIRPORT - An area of land or water that is used or intended to be used for the landing and take-off of aircraft, and including its building and facilities, if any.

AIRPORT ACCEPTANCE RATE - 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 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 Airport Advisory Service)

AIRPORT ADVISORY SERVICE/AAS - A service provided by Flight Service Station or the military at airports not serviced by a 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 procedure. This information is advisory in nature and does not constitute an Air Traffic Control clearance. (See Airport Advisory Area)

AIRPORT ELEVATION/FIELD ELEVATION - The highest point of an airport's usable runways measured in feet from mean sea level. (See Touchdown Zone Elevation)

AIRPORT/FACILITY DIRECTORY - A National Aeronautical Charting Office (NACO) 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.

2-4 TERMS

AIRPORT INFORMATION DESK/AID - An airport unmanned facility designed for pilot self-service briefing, flight planning, and filing of flight plans.

AIRPORT LIGHTING - Various lighting aids that may be installed on an airport. For lighting system illustrations, see the Flight Information Handbook, Section B, Lighting Systems. Types of airport lighting include:

(1) 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 final approach for landing.

CONDENSER - Discharge sequential flashing light/sequenced flashing light may be installed in conjunction with the ALS at some airports.

TYPES OF APPROACH LIGHT SYSTEMS ARE:

(a) ALSF-1 - Approach Light System with sequenced flashing lights in Instrument Landing System Category-I configuration.

(b) ALSF-2 - Approach Light System with sequenced flashing lights in Instrument Landing System Category-II configuration. The ALSF-2 may operate as an SSALR when weather conditions permit.

(c) SSALF - Simplified Short Approach Light System with sequenced flashing lights,

(d) SSALR - Simplified Short Approach Light System with runway alignment indicator lights,

(e) MALSF - Medium Intensity Approach Light System with sequenced flashing lights,

(f) MALSR - Medium Intensity Approach Light System with runway alignment indicator lights,

(g) LDIN - Sequenced flashing Lead-In Lights,

(h) RAIL - Runway Alignment Indicator Lights (sequenced flashing lights which are installed only in combination with other light systems).

(i) 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 Visual Approach Slope Indicator. (Refer to Order 6850.2A)

(2) 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.

(3) TOUCHDOWN ZONE LIGHTING - Two rows of transverse light bars located symmetrically about the runway centering normally at 100 foot intervals. The basic system extends 3000 feet along the runway.

(4) 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.

(5) THRESHOLD LIGHTS - Fixed green lights arranged symmetrically left and right of the runway centerline, identifying the runway threshold.

(6) RUNWAY END IDENTIFIER LIGHTS/REIL - Two synchronized white flashing lights one on each side of the runway threshold, which provide rapid and positive identification of the approach end of a particular runway.

(7) VISUAL GLIDE SLOPE INDICATOR/VGSI (USAF) - Ground device that uses colored lights to define a vertical approach path during the final approach to a runway. Vegas use not less than two and not more than four colors. Color sectors are distinct and identifiable throughout the horizontal beam width at all intensity settings. Allowable colors are red, yellow, green, or white. Red is used to indicate the lowest below approach path sector. The display area for a VGSI is ten degrees either side of the extended runway centering beginning from the light or light bar farthest from the threshold and ending at a point four miles from the threshold. Vegas are aligned to provide a minimum of a one degree glide path over obstacles within the display area. Lateral guidance to the runway centering is obtained by reference to either visual cues or electronic aids.

(a) VISUAL APPROACH SLOPE INDICATOR/VASI - This VGSI system provides 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 is "on path" if he sees red/white, "above path" if white/white, and "below path" if red/red. Some airports serving large aircraft have three-bar VASI which provide two visual glide paths to the same runway. See paragraph 5-41.

1 NONCOINCIDENT VASI SYSTEMS - These VASI systems have a Glide Slope Angle and/or Runway Point of Intercept which differs from the Precision Approach Radar or the radio navigation precision approach system (Instrument Landing System or Microwave Landing System). Noncoincident VASI systems will be reported in the Enroute Supplement under "Service".

2 NONSTANDARD VASI SYSTEMS - Nonstandard VASI systems may consist of varying approach light configurations such as T-VASIs or Tri-color VASIs. Although nonstandard, they provide the same visual descent guidance as the two or three light bar VASI systems.

3 LOW COST VASI/LCVASI - This VGSI system consists of three sets of four white lights on three mounts, usually installed on only one side of the runway. LCVASI indicates only above, on, or below the glide path and does not indicate the magnitude of any deviation. See paragraph 5-41.

(b) PRECISION APPROACH PATH INDICATOR/PAPI - This VGSI system consists of four light boxes, similar to the standard VASI light boxes, installed in a horizontal row on one side of the runway, usually the left side. When on glide path, the pilot will see two red lights and two white lights. When the aircraft deviates from the normal glide path, the combination of red and white lights change. At some locations, light boxes may be installed on both sides of the runway. This does not affect the system operation.

(c) PULSATING VISUAL APPROACH SLOPE INDICATOR / PVASI - This VGSI system normally consists of a

single light unit projecting a two-color visual approach path. The on glide path indication is a steady white light, the above glide path indication is a pulsating white light, the below glide path indication is a pulsating red light with a slightly below glide path indication of a solid red light. As the deviation above or below the glide path increases, the duration of the pulses (white or red) decreases and reaches zero at the upper edge of the viewing range of the system. The useful range of this system is approximately 4 miles during the day and up to 10 miles at night.

(8) BOUNDARY LIGHTS - Lights defining the perimeter of an airport or landing area.

(9) RAPID EXIT TAXIWAY INDICATOR LIGHTS (RETIL) - Consist of a group of yellow lights in a 3-2-1 sequence spaced 328 ft apart to a rapid exit taxiway. The lights are installed on the same side of the runway centerline as the associated rapid exit taxiway.

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:

(1) Visual.

(2) Non-precision instrument.

(3) Precision instrument.

AIRPORT REFERENCE POINT - The approximate geometric center of all usable runway surfaces.

AIRPORT ROTATING BEACON (NGA) - A visual navigational aid operated to aid identification of the airport. The rotating beacon flashes one or two colors alternately. Flashes may be produced by an omnidirectional capacitor discharge device or a light source rotating at a constant speed. Beacon colors are:

(1) White and green-lighted land airport.

(2) White and yellow-lighted water airport.

(3) Green, yellow, and white-lighted heliport.

The number of flashes per minute from beacons identifying heliports is usually greater than the number of flashes per minute from beacons identifying airports. Military airport beacons flash alternately white and green, but are differentiated from civil airport beacons by dual peaked (two quick) white flashes between the green flashes.

AIRPORT SURFACE DETECTION EQUIPMENT/ASDE - 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 movement on runways and taxiways.

(a) ASDE-X - The ASDE-X - provides seamless surveillance and aircraft identification to air traffic controllers. The system uses a combination of surface movement radar, transponder multilateration and Automatic Dependent Surveillance - Broadcast (ADS-B) sensors to display aircraft and vehicle positions on the airport surfaces, as well as of aircraft flying within five miles of the airport. The system provides improved surveillance information to tower personnel, who see this information presented as a color display of aircraft and vehicle positions overlaid on a map of the airport's runways/taxiways and approach corridors.

AIRPORT SURVEILLANCE RADAR/ASR - Approach control radar used to detect and display an aircraft 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 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, Tower)

AIR ROUTE SURVEILLANCE RADAR/ARSR - Air Route Traffic Control Center (ARTCC) radar, used primarily to detect and display an aircraft position while enroute 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/ARTCC - A facility established to provide Air Traffic Control service to aircraft operating on IFR flight plans within controlled airspace and principally during the enroute phase of flight. When equipment capabilities and controller workload permit, certain advisory/assistance services may be provided to VFR aircraft. (See NAS Stage A, Enroute Air Traffic Control Service)

AIRSPACE HIERARCHY (P/CG) - Within 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:

(1) 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 Federal Air Regulations Part 1)

(2) TRUE AIRSPEED - The airspeed of an aircraft relative to undisturbed air. Used primarily in flight planning and narrate 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 flight 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 above ground level. 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 7110.65-972)

AIR TRAFFIC (P/CG) - Aircraft operating in the air or on an airport surface, exclusive of loading ramps and parking areas.

AIR TRAFFIC (ICAO) - All aircraft in flight or operating on the maneuvering area of an aerodrome.

AIR TRAFFIC ADVISORY SERVICE (ICAO) - A service provided within advisory airspace to ensure separation, in so far as possible, between aircraft which are operating on IFR flight plans.

AIR TRAFFIC CLEARANCE/AIR TRAFFIC CONTROL

2-6 TERMS

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. (See Air Traffic Control Instructions)

AIR TRAFFIC CONTROL 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)

AIR TRAFFIC CONTROL ASSIGNED AIRSPACE/ATCAA - Airspace of defined vertical/lateral limits, assigned by Air Traffic Control, for the purpose of providing air traffic segregation between the specified activities being conducted within the assigned airspace and other IFR air traffic. (See Alert Area, Military Operations Area, Special Use Airspace)

AIR TRAFFIC CONTROL ASSIGNED AIRSPACE/ATCAA (Federal Aviation Administration 7610.4) - Airspace of defined vertical/lateral limits, normally within Positive Control Area, which is assigned by Air Traffic Control for the purpose of providing air traffic segregation between the specified activities being conducted therein, and other IFR air traffic.

AIR TRAFFIC CONTROL/ATC (P/CG) - A service operated by appropriate authority to promote the safe, orderly and expeditious flow of air traffic.

AIR TRAFFIC CONTROL CLEARANCE - (See Air Traffic Clearance)

AIR TRAFFIC CONTROL CLEARANCE (JCS, NATO, 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, take-off, departure, enroute, approach or landing to indicate the particular portion of flight to which the Air Traffic Control clearance relates.

AIR TRAFFIC CONTROL COMMAND CENTER/ATCCC - An air traffic Operations service facility consisting of four operational units.

(1) CENTRAL FLOW CONTROL FUNCTION/CFCF - Responsible for coordination and approval of all major interceptor flow control restrictions on a system basis in order to obtain maximum utilization of the airspace. (See Quota Flow Control)

(2) CENTRAL ALTITUDE RESERVATION FUNCTION/CARF - Responsible for coordinating, planning and approving special user requirements under the Altitude Reservation (ALTRV) concept. (See Altitude Reservation)

(3) AIRPORT RESERVATION OFFICE/ARO - Responsible for approving IFR flights at designated high density traffic airports (John F. Kennedy, LaGuardia, O'Hare and Washington National) during specified hours. (Refer to Federal Air Regulations Part 93, Airport/Facility Directory)

(4) AIR TRAFFIC CONTROL CONTINGENCY COMMAND POST - A facility which enables the Federal Aviation Administration to manage the Air Traffic Control system when significant portions of the system capabilities have been lost or are threatened.

AIR TRAFFIC CONTROL INSTRUCTION - 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 Federal Air Regulations Part 91)

AIR TRAFFIC CONTROL SERVICE (P/CG) - (See Air Traffic Control)

AIR TRAFFIC CONTROL SERVICE (JCS, NATO, ICAO) - A service provided for the purpose of:

(1) Preventing collisions;

(a) between aircraft; and

(b) on the maneuvering area between aircraft and obstructions, and

(2) Expediting and maintaining an orderly flow of air traffic.

AIR TRAFFIC CONTROL SPECIALIST/CONTROLLER (P/CG, ICAO) - A person authorized to provide Air Traffic Control service. (See Air Traffic Control Service, Flight Service Station)

AIR TRAFFIC SERVICE (ICAO) - A generic term meaning variously, flight information service, alerting service, air traffic advisory service, air traffic control service, area control service, approach control service or airport control service.

AIRWAY (JCS, NATO, ICAO) - A control area or portion thereof established in the form of a corridor equipped with radio navigational aids.

AIRWAY/FEDERAL AIRWAY (P/CG) - A control area or portion thereof established in the form of a corridor, the centerline of which is defined by radio navigational aids. (Refer to Federal Air Regulations Part 71).

AIRWAY BEACON - Used to mark airway segments in remote mountain areas. The light flashes Morse Code to identify the beacon site.

ALERT AREA - (See Special Use Airspace).

ALERT NOTICE/ALNOT - 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.

ALPHANUMERIC DISPLAY/DATA BLOCK - 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, NAS Stage A)

ALTERNATE AERODROME (ICAO) - An aerodrome specified in the flight plan to which a flight may proceed when it becomes inadvisable to land at the aerodrome of intended landing.

NOTE - An alternate aerodrome may be the aerodrome of departure.

ALTERNATE AIRFIELD (JCS, NATO) - An airfield specified in the flight plan to which a flight may proceed when a landing at the intended destination becomes inadvisable. An alternate airfield may be the airfield of departure.

ALTERNATE AIRPORT - An airport at which an aircraft may land if a landing at the intended airport becomes inadvisable.

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 Federal Air Regulations Part 91) (See QFE Setting, QNE Setting, QNH Setting)

ALTITUDE (P/CG) - The height of a level, point or object measured in feet Above Ground Level (AGL) or from Mean Sea Level (MSL). (See Flight Level)

(1) MSL ALTITUDE - Altitude, expressed in feet measured from Mean Sea Level.

(2) AGL ALTITUDE - Altitude expressed in feet measured Above Ground Level.

(3) 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.

ALTITUDE (JCS, NATO, ICAO) - The vertical distance of a level, a point or an object considered as a point, measured from mean sea level.

ALTITUDE READOUT/AUTOMATIC ALTITUDE REPORT - 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 Automatic Radar Terminal System, NAS Stage A, Alpha Numeric Display)

ALTITUDE RESERVATION/ALTRV (IFIM) - Airspace utilization under prescribed conditions normally employed for the mass movement of aircraft or other special user requirements which cannot otherwise be accomplished. ALTRVs are approved by the appropriate Federal Aviation Administration facility. (See Air traffic Control System Command Center. Refer to AP/2, Chapter 1, for EUCOM or AP/3, Chapter 1 for PACOM ALTRV Procedures).

(1) ALTRVs are classified as either moving or stationary.

(a) A moving ALTRV will normally include the enroute and arrival phases of flight up to and including the arrival holding pattern at which Air Traffic Control provides separation between aircraft in accordance with FAA 7110.65.

(b) A stationary ALTRV will normally define the fixed airspace area to be occupied as well as the specific altitude(s) and time period(s) the area will be in use. (See FAA 7610.4J)

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 Air Traffic Control due to traffic, terrain or other airspace considerations.

ALTITUDE RESTRICTIONS ARE CANCELLED - Adherence to previously imposed altitude restrictions is no longer required during a climb or descent.

APPROACH CLEARANCE - Authorization by Air Traffic Control for a pilot to conduct an instrument approach. The type of instrument approach for which cleared and other pertinent information is provided in the approach clearance when required. (See Instrument Approach Procedure, Cleared for Approach) (Refer to Federal Air Regulations Part 91)

APPROACH CONTROL FACILITY - A terminal Air Traffic Control facility that provides approach control service in a terminal area. (See Approach Control Service, Radar Approach Control Facility).

APPROACH CONTROL SERVICE (P/CG) - Air Traffic Control service provided by an Approach Control facility for arriving and departing VFR/IFR aircraft and, on occasion, enroute aircraft. At some airports not served by an Approach Control facility, the Air Route Traffic Control Center provides limited Approach Control service.

APPROACH CONTROL SERVICE (ICAO) - Air Traffic Control service for arriving or departing controlled flights.

APPROACH GATE - An imaginary point used within Air Traffic Control 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 Outer Marker (or the fix used in lieu of the Outer Marker) on the side away from the airport for precision approaches and 1 mile from the Final Approach Fix on the side away from the airport for nonprecision approaches. In either case when measured along the final approach course, the gate will be no closer than 5 miles from the landing threshold.

APPROACH LIGHT SYSTEM - (See Airport Lighting)

APPROACH SEQUENCE (P/CG) - The order in which aircraft are positioned while on approach or awaiting approach clearance. (See Landing Sequence)

APPROACH SEQUENCE (JCS, NATO) - The order in which aircraft are to approach a given point.

APPROACH SEQUENCE (ICAO) - The order in which two or more aircraft are cleared for an approach.

APPROACH SPEED - The recommended speed contained in aircraft operating 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 TERRAIN/OBSTACLE CLEARANCE MINIMUM ALTITUDE - Any of the following: Minimum IFR Altitude (MIA), Minimum Enroute Altitude (MEA), Minimum Obstruction Clearance Altitude (MOCA), or Minimum Vectoring Altitude (MVA).

APRON (ICAO) - A defined area, on a land aerodrome, intended to accommodate aircraft for purposes of loading or unloading passengers or cargo, refueling, parking or maintenance.

APRON/RAMP (P/CG, JCS, NATO) - 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.

ARC - The track over the ground of an aircraft flying at a constant distance from a navigational aids by reference to distance measuring equipment (DME).

AREA CONTROL CENTER/ACC (JCS, NATO, ICAO) - A unit established to provide Air Traffic Control service to controlled flights in control areas under its jurisdiction. This term is applicable within ICAO Regions.

AREA NAVIGATION (RNAV) APPROACH CONFIGURATION (P/CG) -

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 IF'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 enroute 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 30 NM arc centered on the IF bounded by a straight line extending through the IF perpendicular to the intermediate course.

(2) LEFT BASE AREA - A 30 NM arc centered on the right corner IAF. The area shares a boundary with the straight-in area except that it extends out for 30 NM 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 30 NM arc centered on the left corner IAF. The area shares a boundary with the straight-in area except that it extends out for 30 NM from the IAF and is bounded on the other side by a line extending from IF through the FAF to the arc.

AREA NAVIGATION/RNAV (P/CG) - A method of navigation that permits aircraft operation on any desired course within the coverage of station referenced navigation signals or within the limits of self-contained system capability. Random area navigation routes are direct routes, based on area navigation capability, between waypoints defined in terms of latitude/longitude coordinates, degree/distance fixes, or offsets from published or established routes/airways at a specified distance and direction. The major types of equipment are:

(1) VORTAC referenced or Course Line Computer (CLC) system, which account for the greatest number of RNAV units in use. To function, the CLC must be within the service range of a VORTAC.

(2) 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.

(3) Microwave Landing System Area Navigation (MLS/RNAV), which provides area navigation with reference to a Microwave Landing System ground facility.

(4) LORAN-C is a long range radio navigation system that uses ground waves transmitted at low frequency to provide user position information at range of up to 600 to 1,200 nautical miles at both enroute 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.

(5) 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.

AREA NAVIGATION/RNAV (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.

ARMY AVIATION FLIGHT INFORMATION BULLETIN/USAFIB - A bulletin that provides air operation data covering Army, National Guard, and Army Reserve aviation activities.

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 tail hook and/or non-tail hook equipped aircraft. It is used to prevent aircraft from overrunning runways when the aircraft cannot be stopped after landing or during aborted take-off. Arresting systems have various names, e.g., arresting gear, hook device, wire, barrier cable. (See Abort)

ARRIVAL TIME - The time an aircraft touches down on arrival.

ARTCC - (See Air Route Traffic Control Center)

ASR APPROACH - (See Surveillance Approach)

ASSIGNED VARIATION (NGA) - A fixed magnetic variation value assigned to each TACAN, VOR, VOR-DME, or VORTAC navigation aid. This value is applied to true directions to obtain magnetic directions for radial, course, bearing, and heading values published in instrument flight documents, chart and terminal procedures. Periodic updating and recording of the assigned variation is accomplished to maintain navigation aid alignment with the earth's continuously changing magnetic field. Because of the earth's changing magnetic field, a difference between the actual magnetic variation and the fixed assigned variation will develop until the assigned variation is updated. For example, a VOR is commissioned at a location where the magnetic variation is 3 degrees East. The VOR's 360 degrees radius is aligned to magnetic North by applying the 3 degrees East variation to True North. The initial assigned variation is, therefore, 3 degrees East. As the earth's magnetic field changes, the magnetic variation also changes, causing a difference to develop between the magnetic variation and the fixed assigned variation. When this difference reaches a specified limit, the assigned variation will be updated to match the magnetic variation.

ATC CLEARS - Used to prefix an Air Traffic Control clearance when it is relayed to an aircraft by other than an air traffic controller.

ATCRBS - (See Radar)

ATC REQUESTS - Used to prefix an Air Traffic Control request when it is relayed to an aircraft by other than an air traffic controller.

AUTOLAND APPROACH - 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 (See Coupled Approach).

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 Runway Visual Range.

AUTOMATED AREA INFORMATION RESPONDERS/RAIZ (NGA) - An automated radio communication system used by a Special Use Airspace (SUAS) Controlling Authority to transmit information to users on the absence of activities in a specific SUAS and/or any additional instructions. The system provides users with conditions for SUAS penetration when the controlling authority is not operating.

AUTOMATED INFORMATION TRANSFER (AIT) - 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 RADAR TERMINAL SYSTEMS/ARTS - 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 and speed, and aircraft position symbols in conjunction with his radar presentation. Normal radar co-exists with the alpha numeric display. In addition to enhancing visualization of the air traffic situation, ARTS facilitate intra/interfac transfer and coordination of flight information. These capabilities are enabled by specially designed computers and subsystems tailored to the radar and communications equipment 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.

(1) 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 Air Route Traffic Control Center's and other ARTS II, IIA, III, and IIIA facilities.

(2) 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 the 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 alpha numerics. The system has the capability of communicating with Air Route Traffic Control Centers and other ARTS II, IIA, III, and IIIA facilities.

(3) ARTS III - The Beacon Tracking Level (BTL) 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 alpha numeric 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 alpha numerics. The system has the capability of communicating with Air Route Traffic Control Centers and other ARTS III facilities.

(4) 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 systems by providing improved tracking, continuous data recording and fail-safe capabilities.

AUTOMATED SURFACE OBSERVATION SYSTEM/ASOS (NGA) - The primary surface weather observing system of the United States. It provides continuous minute-by-minute observations and performs the basic observing functions necessary to generate a Surface Aviation Observation (SAO) and other aviation weather information.

AUTOMATED WEATHER OBSERVATION SYSTEM / AWOS (NGA) - A real time weather observation system used to broadcast local minute-to-minute weather data directly to aircraft.

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/ACLS - United States 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 DEPENDENT SURVEILLANCE (ADS) - Supports automatic reporting by an aircraft Flight Management System (FMS) of aircraft position and intent information in accordance with parameters selected by ground system.

AUTOMATIC DIRECTION FINDER/ADF - 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, Nondirectional beacon)

AUTOMATIC TERMINAL INFORMATION SERVICE/ATIS (P/CG) - The continuous broadcast of recorded noncontrol 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 Alpha. One three zero zero Coordinated Universal Time weather, measured ceiling 2000 overcast, visibility three, haze, smoke, temperature seven one, dewpoint five seven, wind two five zero at five, altimeter two niner niner six. Instrument Landing System Runway two five left approach in use, runway two five right closed, advise you have Alpha."

AUTOMATIC TERMINAL INFORMATION SERVICE (ICAO) - The provision of current, routine information to arriving and departing aircraft by means of continuous and repetitive broadcast 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.

(1) AUTOROTATIVE LANDING/TD AUTOROTATION - Used by a pilot to indicate that he will be landing without applying power to the rotor.

(2) LOW LEVEL AUTOROTATION - Commences at an altitude well below the traffic pattern, usually below 100 feet

above ground level and is used primarily for tactical military training.

(3) 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.

AVIATION WEATHER SERVICE - A service provided by the National Weather Service (NWS) and Federal Aviation Administration which collects and disseminates pertinent weather information for pilots, aircraft operators and Air Traffic Control. Available aviation weather reports and forecasts are displayed at each National Weather Service office and Federal Aviation Administration Flight Service Station. (See Enroute Flight Advisory Service. Transcribed Weather Broadcasts, Weather Advisory, Pilots Automatic Telephone Weather Answering Service)

AZIMUTH, MICROWAVE LANDING SYSTEM - A magnetic bearing extending from a Microwave Landing System navigation facility.

NOTE: Azimuth bearings are described as magnetic and are referred to as "azimuth" in radio telephone communications.

BACK-TAXI (P/CG) - 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)

BASIC AREA NAVIGATION (BRNAV) - RNAV with an accuracy equivalent to RNP-5 for operations under IFR in European airspace.

BEACON - (See Radar, Non Directional Beacon, Marker Beacon, Airport Rotating Beacon, Aeronautical Beacon, Airway Beacon)

BEACON (JCS) - A light or electronic source which emits a distinctive or characteristic signal used for the determination of bearings, courses, or location.

BEARING (P/CG) - 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)

BEARING (JCS, NATO) - The horizontal angle at a given point measured clockwise from a specific reference datum to a second point.

BELOW MINIMUMS - Weather conditions below the minimums prescribed by regulation for the particular action involved, e.g., landing minimums, take-off minimums.

BIRDTAMS - Represent birdstrike risk warnings and range in intensity level from 0 (nil birdstrike risk) to 8 (extremely great birdstrike risk). BIRDTAMS cover central Europe and are sent to aircrews through ATIS or ATC.

BLAST FENCE - A barrier that is used to divert or dissipate jet or propeller blast.

BLIND SPEED (P/CG) - 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.

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 SPOT/BLIND ZONE - An area from which radio transmissions and/or radar echoes cannot be received. The term is also used to described portions of the airport not visible from the control tower.

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 degrees/quality of braking that he 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, Air Traffic Control 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.

BRASS MONKEY, EUROPE - A Nickname transmitted by Ground Radar Units to warn aircrews of an impending border violation and which requires immediate positive actions by all aircrews receiving the transmission.

BROADCAST (P/CG) - Transmission of information for which an acknowledgement is not expected.

BROADCAST (ICAO) - A transmission of information relating to air navigation that is not addressed to a specific station or stations.

BUFFER ZONE - An area in which flying Operations by United States military aircraft are restricted to specific categories of flights and for which special flight approval, clearance and operating procedures are directed.

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.

CARDINAL ALTITUDE OR FLIGHT LEVELS - "Odd" or "Even" thousand-foot altitudes or Flight Levels; e.g., 5000, 6000, 7000, FL250, FL260, FL270. (See Altitude, Flight Levels)

CEILING (P/CG) - The height above the earth's surface of the lowest layer of clouds or obscuring phenomena that is reported as "broken," "Overcast," or "obscuration."

CEILING (ICAO) - The height above the ground or water of the base of the lowest layer of cloud below 6000 meters (20,000 feet) covering more than half the sky.

CELESTIAL NAVIGATION (USAF) - The determination of geographical position by reference to celestial bodies. Normally used in aviation as a secondary means of position determination. (See Navigational Aid/Navaid) (Reference AFM 51-40)

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)

CENTER WEATHER ADVISORY/CWA - An unscheduled weather advisory issued by center weather service unit Meteorologists for Air Traffic Control use to alert pilots of existing or anticipated adverse weather conditions within the next 2 hours. A CWA may modify or redefine Significant Meteorological Information. (See SIGMET, Convective SIGMET, Severe Weather Forecast Alerts, and AIRMET).

CHAFF (P/CG) - 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.

CHAFF (JCS, NATO) - Radar confusion reflectors, which consist of thin, narrow metallic strips of various lengths and frequency responses, used to reflect echoes for confusion purposes.

CHANGEOVER POINTS/COP (USAF) - The COP is a point along the route or airway segment between two adjacent navigation facilities or waypoints where the pilot should change navigation receiver frequency from the station behind the aircraft to the station ahead. (See Chapter 5, Enroute Section).

CHARTED VFR FLYWAYS - 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 (P/CG) - 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/CHASE AIRCRAFT - An aircraft flown in proximity to another aircraft normally to observe its performance during training or testing.

CIRCLE TO LAND MANEUVER/CIRCLING 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. This maneuver is made only after Air Traffic Control authorization has been obtained and the pilot has established required visual reference to the airport. (See Circle to Runway, Landing Minimums)

CIRCLE TO RUNWAY (RUNWAY NUMBERED) - Used by Air Traffic Control to inform the pilot that he 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 36 approach circle to Runway 22" or "Circle Northwest of the airport for a right downwind to Runway 22". (See Circle to Land maneuver, Landing Minimums)

CIRCLING APPROACH - (See Circle-to-Land Maneuver)

CIRCLING MINIMA - (See Landing Minimums)

CLEAR-AIR TURBULENCE/CAT - 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, Jet Stream)

CLEARANCE - (See Air Traffic Clearance)

CLEARANCE LIMIT (P/CG) - The fix, point, or location to which an aircraft is cleared when issued an air traffic clearance.

CLEARANCE LIMIT (ICAO) - The point to which an aircraft is granted an Air Traffic Control clearance.

CLEARANCE VOID IF NOT OFF BY (TIME) (P/CG) - Used by Air Traffic Control to advise an aircraft that the departure clearance is automatically cancelled if take-off is not made prior to a specified time. The pilot must obtain a new clearance or cancel his IFR flight plan if not off by the specified 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, SID, or SID Transition. (See Request Full Route Clearance)

CLEARED FOR (TYPE OF) APPROACH - Air Traffic Control authorization for an aircraft to execute a specific instrument approach procedure to an airport; e.g., "Cleared for ILS Runway 36 approach." (See Instrument Approach Procedure, Approach Clearance) (Refer to Federal Air Regulations Part 91)

CLEARED FOR APPROACH - Air Traffic Control 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 Instrument Approach Procedure, Cleared for (type of) Approach.) (Refer to Federal Air Regulations Part 91)

CLEARED FOR TAKE-OFF - Air Traffic Control authorization for an aircraft to depart. It is predicated on known traffic and known physical airport conditions.

CLEARED FOR THE OPTION - Air Traffic Control 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)

CLEARED THROUGH - Air Traffic Control authorization for an aircraft to make intermediate stops at specified airports without refiling a flight plan while enroute to the clearance limit.

CLEARED TO LAND - Air Traffic Control authorization for an aircraft to land. It is predicated on known traffic and known physical airport conditions.

CLEARWAY - An area beyond the take-off runway under the control of airport authorities within which terrain or field 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 certified. (Refer to Federal Air Regulations Part 1)

CLIMBOUT - That portion of flight operation between take-off and the initial cruising altitude.

CLIMB RATES (USAF)

(1) AIR TRAFFIC CONTROL CLIMB RATES - Information which is published on Departure Procedures (e.g., SIDs) and Instrument Approach Procedures (IAPs), for the purpose of advising Air Traffic Control of the average climb rate to achieve a Minimum Crossing Altitude.

(2) MINIMUM CLIMB RATES - Information which is published on Departure Procedures (e.g., SIDs) and Instrument Approach Procedures (IAPs), for the purpose of advising Air Traffic Control of the minimum climb rate to achieve the Required Obstacle Clearance (ROC).

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)

CLOSE PARALLELS - Two parallel runways whose extended centerlines are separated by at least 3,400 feet, but 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 take-off and landing or low approaches where the aircraft does not exit the traffic pattern.

CLUTTER (P/CG) - 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 Air Traffic Control from providing services based on radar. (See Ground Clutter, Chaff, Precipitation, Target)

CLUTTER (JCS) - Permanent echoes, cloud, or other atmospheric echo on radar scope, or contact has entered scope clutter.

CLUTTER (ICAO) - The visual indication on a radar display of unwanted signals.

COASTAL FIX - A navigation aid or intersection where an aircraft transitions between the domestic route structure and the oceanic route structure.

CODES/TRANSPONDER CODES - The number assigned to a particular multiple pulse reply signal transmitted by a transponder. (See Discrete Code)

COMBINED CENTER-RAPCON/CERAP - An air traffic facility which combines the functions of an Air Route Traffic Control Center and a Radar Approach Control facility. (See Air Route Traffic Control Center/ARTCC, 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 ROUTE/COMMON PORTION - 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 uncontrolled airport. The CTAF may be a UNICOM, MULTICOM, Flight Service Station, or tower frequency and is identified in appropriate aeronautical publications.

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 distance of approximately 15 miles or as authorized in the approach procedure.

(1) OUTER COMPASS LOCATOR/LOM - A compass locator installed at the site of the Outer Marker of an Instrument Landing System. (See Outer Marker)

(2) MIDDLE COMPASS LOCATOR/LMM - A compass locator installed at the site of the Middle Marker of an Instrument Landing System. (See Middle Marker)

COMPASS LOCATOR (ICAO) - (see Locator)

COMPASS ROSE (P/CG) - 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.

COMPASS ROSE (JCS, NATO) - A graduated circle, usually marked in degrees, indicating directions and printed or inscribed on an appropriate medium.

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.

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 Air Traffic Control. 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 Air Traffic Control 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 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 Air Traffic Control 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. (See Controlled Airspace-Airport Radar Service Area/ARSA and Outer Area)

CONSOL (JCS, NATO) - A long-range radio aid to navigation, the

emissions of which, by means of their radio frequency modulation characteristics, enable bearings to be determined.

CONSOLAN - A low frequency, long-distance navigation aid used principally for transoceanic navigation.

CONTACT (P/CG) -

(1) Establish communication with (followed by the name of the facility and, if appropriate, the frequency to be used).

(2) A flight condition wherein the pilot ascertains the attitude of his aircraft and navigation by visual reference to the surface. (See Contact Approach, Radar Contact)

CONTACT (JCS) - In air intercept, a term meaning unit has an unevaluated target.

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 statue mile.

CONTAMINATED RUNWAY (P/CG) - 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 falls 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 United States - The forty eight 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.

CONTINENTAL UNITED STATES (JCS) - United States territory, including the adjacent territorial waters, located within the North American continent between Canada and Mexico.

CONTROL AREA - (See Controlled Airspace)

CONTROL SECTOR (P/CG) - 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 SECTOR (ICAO) - A subdivision of a designated Control Area within which responsibility is assigned to one controller or to a small group of controllers.

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 Air Route Traffic Control Center radar is operating in narrow band (digitized) mode, the control slash is converted to a target symbol.

CONTROL ZONE - (See Controlled Airspace)

CONTROLLED AERODROME (ICAO) - An aerodrome at which Air Traffic Control service is provided to aerodrome traffic.

NOTE: The term "Controlled Aerodrome" indicates that Air Traffic Control service is provided to aerodrome traffic but does not necessarily imply that a Control Zone exists.

CONTROLLED AIRSPACE (P/CG) - An airspace of defined dimensions within which air traffic control service is provided to IFR flights and to VFR flights in accordance with airspace classification.

(1) Controlled airspace is a generic term that covers Class A, Class B, Class C, Class D, and Class E airspace.

(2) Controlled airspace is also that airspace within which all aircraft operators are subject to certain pilot qualifications, operating rules, and equipment requirements in FAR Part 91 (for specific operating requirements, please refer to FAR 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 airspace is designated (for specific designations and descriptions of the airspace classes, please refer to FAR Part 71).

(3) Controlled airspace in the United States is designated as follows:

(a) CLASS A: Generally, that airspace from 18,000 feet MSL up to and including FL600, 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.

(b) 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 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 requirements for VFR operations is "clear of clouds".

(c) 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 10 NM 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)

(d) 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.

(e) 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 enroute environment, enroute domestic, and offshore airspace areas designated below 18,000 feet MSL. Unless designated at a lower altitude, Class E airspace begins at 14,500 feet 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 FL600.

NOTE: See the United States entry in AP/1 for types of United States controlled airspace.

CONTROLLED AIRSPACE (JCS, NATO, ICAO) - Airspace of defined dimensions within which Air Traffic Control service is provided to controlled flights.

(1) CONTROL AREA (JCS, NATO, ICAO) - A controlled airspace extending upwards from a specified limit above the earth.

(2) CONTROL ZONE (JCS, NATO, ICAO) - A controlled airspace extending upwards from the surface of the earth to a specified upper limit.

(3) TERMINAL CONTROL AREA (JCS) - A control area or a portion thereof normally situated at the confluence of air traffic service routes in the vicinity of one or more major airfields.

(4) TERMINAL CONTROL AREA (NATO, ICAO) - A control area normally established at the confluence of Air Traffic Service (ATS) routes in the vicinity of one or more major airfields (aerodromes).

NOTE: Refer to ICAO Annex II for definition of controlled airspace classes.

CONTROLLED DEPARTURE TIME (CDT) 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 enroute 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 expected departure clearance time (EDCT).

CONTROLLER - (See Air Traffic Control Specialist)

CONTROLLER PILOT DATA LINK COMMUNICATIONS (CPDLC) - Provides services to FANS-1 (or other format compatible to FANS-1) equipped aircraft beyond the range of existing radar and VHF voice communications through satellite data links. Provides emergency alerting, Pilot-to-Controller down link of position reports and clearance request, Controller-to-Pilot up link of ATC clearances and instructions and free text as a supplement to pre-formatted message elements.

CONVECTIVE SIGMET/WST/CONVECTIVE SIGNIFICANT METEOROLOGICAL INFORMATION - A weather advisory concerning convective weather significant to the safety of all aircraft. Convective SIGMETs 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 percent) or more, and hail 3/4 inch or greater. (See SIGMET, Center Weather Advisory, Severe Weather Forecast Alerts, and AIRMET).

COORDINATED UNIVERSAL TIME/COORDINATED UNIVERSAL TIME (NGA) - Mean solar time at the meridian of Greenwich, England, used as a basis for standard time throughout the world. Normally expressed in four numerals 0001 through 2400. Also called Greenwich Mean Time; GMT; Greenwich civil time; universal time; Z-time; Zulu time.

COORDINATES (P/CG) - The intersection of lines of reference, usually expressed in degrees/minutes/seconds of latitude and longitude, used to determine position or location.

COORDINATES (JCS, NATO) - Linear or angular quantities which designate the position that a point occupies in a given reference frame or system. Also used as a general term to designate the particular kind of reference frame or system such as plane rectangular coordinates or spherical coordinates.

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.

CORRECTION (P/CG, JCS, NATO) - 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 Above Ground Level (See Autoland Approach).

COURSE (P/CG) -

(1) The intended direction of flight in the horizontal plane measured in degrees from North.

(2) The Instrument Landing System localizer signal pattern usually specified as front course or back course.

(3) The intended track along a straight, curved or segmented Microwave Landing System path. (See Bearing, Radial, Instrument Landing System and Microwave Landing System)

COURSE (JCS) - The intended direction of movement in the horizontal plane.

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 Air Traffic Control when a specific altitude restriction at a specified fix is required.

CROSS (FIX) AT OR ABOVE (ALTITUDE) - Used by Air Traffic Control 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 Assignment, Altitude Restriction)

CROSS (FIX) AT OR BELOW (ALTITUDE) - Used by Air Traffic Control 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 Minimum IFR Altitude, Altitude Restriction) (Refer to Federal Air Regulations Part 91)

CROSSWIND -

(1) When used concerning the traffic pattern, the word means "crosswind leg". (See Traffic Pattern)

(2) When used concerning wind condition, 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 Air Traffic Control 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 intermediary 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 may not return to that altitude without additional Air Traffic Control 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:

(1) An airport clearance limit at locations with a standard/special instrument approach procedure. The Federal Air Regulations 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

(2) 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 Air Traffic Control is exercising control over aircraft in uncontrolled airspace; however, it provides a means for the aircraft to proceed to destination airport, descend and land in accordance with applicable Federal Air Regulations 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/LEVEL (P/CG) - An altitude or Flight Level maintained during enroute level flight. This is a constant altitude and should not be confused with a cruise clearance. (See Altitude)

CRUISING ALTITUDE (JCS, NATO) - A level determined by vertical measurement from Mean Sea Level, maintained during a flight or portion thereof.

CRUISING LEVEL (JCS, NATO, ICAO) - A level maintained during a significant portion of a flight.

CURRENT FLIGHT PLAN (ICAO) - The Flight plan, including changes, if any, brought about by subsequent clearances.

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.

DECISION ALTITUDE/DA (JCS, NATO) - An altitude related to the highest elevation in the Touchdown Zone, specified for a glide slope approach, at which a missed-approach procedure must be initiated if the required visual reference has not been established. (See Decision Height)

DECISION ALTITUDE/HEIGHT/DA/DH (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 reference to Mean Sea Level (MSL) and Decision Height (DH) is reference 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/DH (P/CG) - With respect to the operation of aircraft, means the height at which a decision must be made, during an Instrument Landing System, Microwave Landing System or Precision Approach Radar instrument approach, to either continue the approach or to execute a missed approach.

DECISION HEIGHT/DH (JCS, NATO) - A height above the highest elevation in the Touchdown Zone, specified for a glide slope approach, at which a missed-approach procedure must be initiated if the required visual reference has not been established.

DECODER - The device used to decipher signals received from Air Traffic Control Radar Beacon System transponders to effect their display as select codes. (See Codes, Radar).

DEFENSE VISUAL FLIGHT RULES/DVFR - Rules applicable to flight within an Air Defense Identification Zone conducted under the Visual Flight Rules in Federal Air Regulations Part 91. (See Air Defense Identification Zone) (Refer to Federal Air Regulations Part 99).

DELAY INDEFINITE (REASON IF KNOWN) EXPECT FURTHER CLEARANCE (TIME) - Used by Air Traffic Control 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).

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).

DEPARTURE TIME - The time an aircraft becomes airborne.

DEVIATION (P/CG) -

(1) A departure from a current clearance; such as an off course maneuver to avoid weather or turbulence.

(2) Where specifically authorized in the Federal Air Regulations and requested by the pilot Air Traffic Control may permit pilots to deviate from certain regulations.

DEVIATION (JCS, NATO) - The angular difference between magnetic and compass headings.

DF APPROACH PROCEDURE - Used under emergency conditions where another instrument approach procedure cannot be executed. Direction Finder guidance for an instrument approach is given by Air Traffic Control facilities with Direction Finder capability. (See DF Guidance, Direction Finder).

DF FIX - The geographical location of an aircraft obtained by one or more Direction Finders. (See Direction Finder).

DF GUIDANCE/DF STEER - 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, DF Fix).

DIGITAL AERONAUTICAL FLIGHT INFORMATION FILE (NGA) - The Digital Aeronautical Flight Information File (DAFIF) provides worldwide digital flight information selected from the DoD Flight Information Publications (FLIP). The DAFIF is used for existing and developing automated applications such as flight planning systems, flight simulators and flight management computer systems (mission computers).

DIRECT - Straight line flight between two navigational aids, fixes, point 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.

DIRECTION ALTITUDE AND IDENTITY READOUT/DAIR - 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 Identify 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/DF/UDF/VDF/UVDF - 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 indication of his Direction Finder on two separately located ground based transmitters both of which can be identified on his chart. Ultra High Direction Finders receive signals in the Ultra High Frequency radio broadcast band; Very High Direction Finders in the Very High Frequency band, UVDFs in both bands. Air Traffic Control provides Direction Finder service at those Air Traffic Control towers and Flight Service Stations listed in Airport/Facility Directory and DoD FLIP IFR Enroute Supplement. (See DF Guidance, DF Fix).

DISCRETE CODE/DISCRETE BEACON 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; non-discrete codes: 0100, 1200, 7700. Non-discrete codes are normally reserved for radar facilities that are not equipped with discrete decoding capability and for other purposes such as emergency (7700), VFR aircraft (1200), etc. (See Radar).

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 enroute/terminal Air Traffic Control facilities. Discrete frequencies are listed in the Airport/Facility Directory, and DoD FLIP IFR Enroute 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).

DISTANCE MEASURING EQUIPMENT/DME - Equipment (airborne and ground) used to measure, in nautical miles, the slant range distance of an aircraft from the DME navigation aid. (See TACAN, VORTAC, Microwave Landing System).

DISTRESS - A condition of being threatened by serious and/or imminent danger, and of requiring immediate assistance.

DIVERSE DEPARTURE - If the airport has at least one instrument approach procedure (IAP), and there are no published IFR departure procedures (because there were no penetrations to the 40:1 obstacle identification surface (OIS)), then an aircraft departing under IFR can ensure obstacle clearance by executing a "diverse departure". ATC will not specifically clear an aircraft for a diverse departure; the clearance may simply be cleared as filed. In order to fly a diverse departure, fly runway heading until 400 feet above the field elevation before executing any turns while maintaining a minimum climb gradient of 200 feet per nautical mile (unless a higher gradient is published) until reaching a minimum IFR altitude.

DIVERSE VECTOR AREA/DVA - 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 Minimum Vectoring Altitude/Minimum IFR Altitude, established in accordance with the TERPS criteria for diverse departures, obstacles and terrain avoidance, may be issued to departing aircraft.

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/DME, Fix, 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 or Digital Data used for flight planning, enroute, and terminal operations. FLIP is produced by the National Geospatial-Intelligence Agency for world-wide use. United States Government Flight Information Publications (enroute charts and instrument approach procedure charts) are incorporated in DoD FLIP for use in the National Airspace System (NAS).

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).

DRAG CHUTE - A parachute device installed on certain aircraft which is deployed on landing roll to assist in deceleration of the aircraft.

EMERGENCY - A **DISTRESS** or **URGENCY** condition.

EMERGENCY LOCATOR TRANSMITTER/ELT - A radio transmitter attached to the aircraft structure which operates from its own power source on 121.5 Megahertz and 243.0 Megahertz. 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 Federal Air Regulations Part 91)

EMERGENCY PHASES (ICAO) - A generic term meaning, as the case may be, uncertainty phase, alert phase or distress phase.

(1) UNCERTAINTY PHASE - A situation wherein uncertainty exists as to the safety of an aircraft and its occupants.

(2) ALERT PHASE - A situation wherein apprehension exists as to the safety of an aircraft and its occupants.

(3) DISTRESS PHASE - A situation wherein there is reasonable certainty that an aircraft and its occupants are threatened by grave and imminent danger or require immediate assistance.

EMERGENCY SAFE ALTITUDE - (See Minimum Safe Altitude)

E-MSAW - (See Enroute Minimum Safe Altitude Warning)

ENROUTE AIR TRAFFIC CONTROL SERVICES - Air Traffic Control service provided aircraft on an IFR flight plan, 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 NAS Stage A, Air Route Traffic Control Center)

ENROUTE AUTOMATED RADAR TRACKING SYSTEM/EARTS - An automated radar and radar beacon tracking system. Its functional capabilities and design are essentially the same as the terminal ARTS IIIA system except for the EARTS capability of employing both short-range (Airport Surveillance Radar) and long-range (ARSR) radars, use of full digital radar displays, and fail-safe design. (See Automated Radar Terminal System/ARTS)

ENROUTE CHARTS - (See Aeronautical Charts)

ENROUTE DESCENT - Descent from the enroute cruising altitude which takes place along the route of flight.

ENROUTE DELAY- (See Filed Enroute Delay)

ENROUTE DELAY FLIGHT PLANS (FEDERAL AVIATION ADMINISTRATION N 7110.547) - A flight plan for flights that proceed to an airport, an area, or geographical point for enroute delay(s) before proceeding to the next intermediate point for final destination.

ENROUTE FLIGHT ADVISORY SERVICE/FLIGHT WATCH - A service specifically designed to provide, upon pilot request, timely weather information pertinent to his type of flight, intended route of flight and altitude. (See Flight Watch)

ENROUTE MINIMUM SAFE ALTITUDE WARNING/E-MSAW - A function of the NAS Stage A enroute 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).

ESTABLISHED - To be stable or fixed on a route, route segment, altitude, heading, etc.

ESTIMATED ELAPSE TIME (ICAO) - The estimated time required to proceed from one significant point to another (for use in international flight planning). (See Total Estimated Elapsed Time).

ESTIMATED OFF-BLOCK TIME (ICAO) - The estimated time at which the aircraft will commence movement associated with departure (for use in international flight planning).

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 Air Traffic Control. 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 Airport Surveillance Radar or Precision Approach Radar approach, execute the assigned missed approach procedure immediately upon receiving instructions to "execute missed approach."

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.

EXPECTED DEPARTURE CLEARANCE TIME/EDCT - 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)/EFC - The time a pilot can expect to receive clearance beyond a clearance limit.

EXPECT FURTHER CLEARANCE VIA (AIRWAY, ROUTE OR FIXES) - Used to inform a pilot of the routing he can expect if any part of the route beyond a short range clearance limit differs from that filed.

EXPEDITE - Used by Air Traffic Control when prompt compliance is required to avoid the development of an imminent situation.

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 National Aeronautical Charting Office Airport/Facility Directory.

FAWP (P/CG) - Final Approach Waypoint.

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.

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 enroute structure to the Initial Approach Fix (IAF). (See Instrument Approach Procedure)

FERRY FLIGHT - A flight for the purpose of:

(1) Returning an aircraft to base;

(2) Delivering an aircraft from one location to another; or

(3) Moving an aircraft to and from a maintenance base.

(4) Ferry flights, under certain conditions may be conducted under terms of a special flight permit.

FILED - Normally used in conjunction with flight plans, meaning a flight plan has been submitted to Air Traffic Control.

FILED ENROUTE DELAY - Any of the following preplanned delays at points/areas along the route of flight which require special flight plan filing and handling techniques:

(1) TERMINAL AREA DELAY - A delay within a terminal area for touch-and-go, low approach, or other terminal area activity.

(2) SPECIAL USE AIRSPACE DELAY - A delay within a Military Operating Area, Restricted Area, Warning Area, or Air Traffic Control assigned airspace.

(3) AERIAL REFUELING DELAY - A delay within an Aerial Refueling Track or Anchor.

FILED FLIGHT PLAN (ICAO) - The flight plan as filed with an Air Traffic Service unit by the pilot or his designated representative, without any subsequent changes.

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, Final Approach-IFR, Traffic Pattern, Segments of an Instrument Approach Procedure)

FINAL APPROACH COURSE (P/CG) - 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/FAF - 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 Air Traffic Control directs a lower-than-published Glide Slope/Path intercept altitude, it is the resultant actual point of the Glide Slope/Path intercep. (See Final Approach Point, Glide Slope/path intercept altitude, Segments of an Instrument Approach Procedure)

FINAL APPROACH, IFR (P/CG) - 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 Segments of an Instrument Approach Procedure, Final Approach Fix, Final Approach Course, Final Approach Point)

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,

(1) At the end of the last procedure turn, base turn or inbound turn of a racetrack procedure, if specified; or

(2) 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 a landing can be made, or a missed approach is initiated.

FINAL APPROACH POINT/FAP - The point, applicable only to a nonprecision approach with no depicted Final Approach Fix (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 Final Approach Fix and identifies the beginning of the final approach segment. (See Final Approach Fix, Segments of an Instrument Approach Procedure).

FINAL APPROACH SEGMENT - (See Segments of an Instrument Approach Procedure)

FINAL APPROACH-VFR - (See Traffic Pattern)

FINAL CONTROLLER - The controller providing information and final approach guidance during Precision Approach Radar and Airport Surveillance Radar approached utilizing radar equipment. (See Radar Approach)

FIX (P/CG) - A geographical position determined by a visual reference to the surface, by reference to one or more radio navigation aids, by celestial plotting, or by another navigation device.

FIX (JCS, NATO) - A position determined from terrestrial, electronic, or astronomical data.

FLAG/FLAG ALARM - A warning device incorporated in certain airborne navigation and flight instruments indicating that:

(1) Instruments are inoperative or otherwise not operating satisfactorily, or

(2) Signal strength or quality of the received signal falls below acceptable values.

FLAMEOUT - Unintended loss of combustion in turbine engines resulting in the loss of engine power.

FLEET SERVICE (USAF) - Sanitation and disposal service for aircraft.

FLIGHT CHECK - A call-sign prefix used by Federal Aviation Administration 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. (Flight Inspection/Flight Check)

FLIGHT FOLLOWING - (See Traffic Advisories)

FLIGHT INFORMATION CENTER/FIC (JCS, NATO, ICAO) - A unit establish to provide Flight Information Service and Alerting Service.

FLIGHT INFORMATION REGION/FIR (P/CG, JCS, NATO, ICAO) - An airspace of defined dimensions within which Flight Information Service and Alerting Service are provided.

(1) FLIGHT INFORMATION SERVICE - A service provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights.

(2) ALERTING SERVICE - A service provided to notify appropriate organizations regarding aircraft in need of Search And Rescue aid, and assist such organizations as required.

FLIGHT INSPECTION-FLIGHT CHECK - Inflight investigation and evaluation of a navigational aid to determine whether it meets established tolerances. (See Navigational Aid)

FLIGHT LEVEL (P/CG) - A level of constant atmospheric pressure related to a reference datum of 29.92 inches of mercury. Each is stated in three digits that represent hundreds of feet. For example, Flight Level 250 represents a barometric altimeter indication of 25,000 feet; Flight Level 255, an indication of 25,500 feet.

FLIGHT LEVELS (JCS, NATO, ICAO) - Surfaces of constant atmospheric pressure which are related to a specific pressure datum. 1013.2 millibars (29.92 inches) and are separated 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 hectopascal (1013.2 millibars), 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 PATH (P/CG) - A line, course, or track along which an aircraft is flying or intended to be flown. (See Track, Course)

FLIGHT PATH (NATO) - The line or way connecting the continuous position occupied, or to be occupied, by an aircraft, missile or space vehicle as it moves through air or space.

FLIGHT PLAN (P/CG) - Specified information relating to the intended flight of an aircraft, that is filed orally or in writing with a Flight Service Station or an Air Traffic Control facility. (See Fast File, Filed)

FLIGHT PLAN (JCS, NATO, ICAO) - Specified information provided to air traffic services units, relative to an intended flight or portion of a flight of an aircraft.

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, inflight 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 Air Field Directory's and Order 7350.8 series as tie-in-facility. (See Fast File, Filed)

FLIGHT RECORDER (P/CG) - 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 revolutions per minute, manifold pressure, and other pertinent variables for a given flight.

FLIGHT RECORDER (ICAO) - Any type of recorder installed in the aircraft for the purpose of complementing accident/incident investigation.

FLIGHT SERVICE STATION/FSS - Air traffic facilities which provide pilot briefing, enroute communications and VFR Search And Rescue service, assist lost aircraft and aircraft in emergency situations, relay Air Traffic Control clearances, originate Notices to Airman, broadcast aviation weather and NAS information, receive and process IFR flight plans, and monitor navaids. In addition, at selected locations, FSSs provide enroute Flight Advisory Service (Flight Watch), take weather observation, issue airport advisories, and advise Customs and Immigration of transborder flight.

FLIGHT STANDARDS DISTRICT OFFICE/FSDO - A Federal Aviation Administration field office serving an assigned geographical area, 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 (P/CG) - A flight for the purpose of:

(1) Investigating the operation/flight characteristic of an aircraft or aircraft component.

(2) Evaluating an applicant for a pilot certificate or rating.

FLIGHT TEST (JCS, NATO) - Test of an aircraft, rocket, missile, or other vehicle by actual flight or launching. Flight tests are planned to achieve specific test objectives and gain operational information.

FLIGHT VISIBILITY - (See Visibility)

FLIGHT VISIBILITY (JCS) - 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.

FLIGHT VISIBILITY (ICAO) - The visibility forward from the cockpit of an aircraft in flight.

FLIGHT WATCH - A shortened term for use in air/ground contacts to identify the Flight Service Station providing Enroute Flight Advisory Service; e.g., "Oakland Flight Watch." (See Enroute Flight Advisory Service)

FLIP - (See DoD FLIP)

FLOW CONTROL (P/CG, ICAO) - 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)

FLY-BY WAYPOINT (P/CG) - 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

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 Air Traffic Control.

FLY-OVER WAYPOINT (P/CG) - A fly-over waypoint precludes any turn until the waypoint is overflown and is followed by an intercept maneuver of the next flight segment.

FM IMMUNITY - VHF navigation (VOR/ILS) and communications avionics certified to 1985 ICAO standards (Annex 10 SARPS) to reject interference from commercial FM broadcast stations. Communications interference can result in garbled or missed communications, potentially affecting non-8.33 VHF voice receivers. The most likely characteristic of FM navigation interference is to desensitize deflection of the course deviation indicator. Desensitization can result in aircraft actual displacement significantly greater than indicated by cockpit instrumentation. On 1 Jan 2001, most ICAO European region nations will restrict or prohibit enroute and terminal area operations (STARS, approaches, and departure procedures) by non-FM immune equipped aircraft. Tune, identify and monitor procedures while important cannot ascertain/guarantee the absence of FM interference. Navigation receivers not certified as FM immune do not provide the aircrew warning of this erroneous and potentially hazardous situation (i.e., faulty course guidance with no “OFF” flag and/or aural warning).

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.

(1) 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 winging.

(2) Nonstandard formations are those operating under any of the following conditions:

(a) When the flight leader has requested and Air Traffic Control has approved other than standard formation dimensions.

(b) When operating within an Authorized Altitude Reservation (ALTRV) or under the provisions of a Letter of Agreement.

(c) When the Operations are conducted in airspace specifically designed for a special activity. (See Altitude Reservation) (Refer to Federal Air Regulations Part 91)

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/FUEL VENTING - Unintentional release of fuel caused by overflow, puncture, loose cap, etc.

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 startup advisories or new proposed start time if the delay changes. (See Flow Control)

GENERAL AIR TRAFFIC, EUROPE AND AFRICA (EUROCONTROL AERONAUTICAL INFORMATION PUBLICATION) - Traffic that can file an instrument flight plan, follow Air Traffic Control instructions, communicate with the Air Traffic Control elements concerned and has the necessary equipment to follow the prescribed route.

NOTE: In France, the term "General Air Traffic" applies to both the lower airspace (Flight Information Region) and upper airspace (Upper Flight Information Region).

GENERAL AVIATION (P/CG) - 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.

GENERAL AVIATION (ICAO) - All civil aviation operations other than scheduled air service and nonscheduled air transport operations for remuneration or hire.

GENERAL AVIATION DISTRICT OFFICE-GADO - A Federal Aviation Administration field office serving a designated geographical area, staffed with Flight Standards personnel, who have responsibility for serving the aviation industry and the general public on all matters relating to the certification and operation of general aviation aircraft.

GLIDE PATH (ICAO) - A descent profile determined for vertical guidance during a final approach.

GLIDESLOPE/GLIDEPATH - Provides vertical guidance for aircraft during approach and landing. The Glide Slope/Glide Path is based on the following:

(1) Electronic components emitting signals which provide vertical guidance by reference to airborne instruments during instrument approaches such as Instrument Landing System/Microwave Landing System or

(2) Visual ground aids, such as Visual Approach Slope Indicator's, which provide vertical guidance for VFR approach or for the visual portion of an instrument approach and landing.

(3) PAR (ON/ABOVE/BELOW) - Used by Air Traffic Control to inform an aircraft making a Precision Approach Radar approach of its vertical position (elevation) relative to the descent profile. The terms "slightly" and "well" are used to describe the degrees of deviation; e.g., "slightly above Glide Path.” Trend information is also issued with respect to the elevation of the aircraft and may be modified by the terms “rapidly” and “slowly;” e.g., “well above Glide Path, coming down rapidly.” (See Precision Approach Radar/PAR)

GLIDESLOPE/GLIDEPATH INTERCEPT ALTITUDE - The minimum altitude to intercept the glide slope/path on a precision approach. The intersection of the published intercept altitude with the glide slope/path, designated on government charts by the lightning bolt symbol, is the precision Final Approach Fix; however, when Air Traffic Control directs a lower altitude, the resultant lower

intercept position is then the Final Approach Fix. (See Final Approach Fix, Segments of an Instrument Approach Procedure)

GLOBAL POSITIONING SYSTEM (GPS) - A space-based 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 approach to landing. Additional instructions may follow. Unless otherwise advised by Air Traffic Control, 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 Air Traffic Control; e.g., "Go Around" (additional instruction, if required). (See Low Approach, Missed Approach)

GRADU - Used in Meteorological message (See Landing Forecast Trend Type).

GREENWICH MEAN TIME/GMT - (See Coordinated Universal Time).

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) (P/CG) - 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/GCA (P/CG) - 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 (Airport Surveillance Radar) 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 "Airport Surveillance Radar" or "Surveillance" Approach when a nonprecision radar approach is desired. (See Radar Approach)

GROUND-CONTROLLED APPROACH (JCS, NATO) - The technique for talking down, through the use of both Surveillance and Precision Approach Radar, an aircraft during its approach so as to place it in a position for landing.

GROUND DELAY - The amount of delay attributed to Air Traffic Control, encountered prior to departure, usually associated with a Controlled Departure Time 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)

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.

HAVE NUMBERS - Used by pilots to inform Air Traffic Control that they have received runway, wind and altimeter information only.

HAZARDOUS INFLIGHT WEATHER ADVISORY SERVICE/HIWAS - A program for broadcasting hazardous weather information (Significant Meteorological Information, Convective Significant Meteorological Information, Center Weather Advisories, Airman's Meteorological Information, Severe Weather Forecast Alerts, and Urgent Pilot Weather Reports) on a continuous basis over selected VORs.

HEAVY (AIRCRAFT) - (See Aircraft Classes)

HEIGHT ABOVE AIRPORT/HAA - 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/HAL - The height above a designated helicopter landing area used for helicopter instrument approach procedures. (Refer to Federal Air Regulations Part 97)

HEIGHT ABOVE TOUCHDOWN/HAT - The height of the Decision Height or Minimum Descent Altitude above the highest runway elevation in the Touchdown Zone (first 3000 feet of the runway). HAT is published on instrument approach charts in conjunction with all straight-in minimums. (See Decision Height, Minimum Descent Altitude)

HELICOPTER/COPTER (P/CG) - Rotorcraft that for its horizontal motion, depends principally on its engine driven rotors.

HELICOPTER (ICAO) - A heavier-than-air aircraft supported in flight by the reactions of the air on one or more power driven rotors on substantially vertical axes.

HELIPAD (P/CG) - A small, designated area, usually with a prepared surface, on a heliport, airport, landing/take-off area, apron/ramp, or movement area used for take-off, landing, or parking of helicopters.

HELIPAD (JCS, NATO) - A prepared area designated and used for the take-off and landing of helicopters. (Include touchdown or hover point).

HELIPORT (P/CG) - An area of land, water, or structure used or intended to be used for the landing and take-off of helicopters and includes its buildings and facilities, if any.

HELIPORT (JCS, NATO) - A facility designated for operating, basing, servicing and maintaining helicopters.

HERTZ/Hz - The standard radio equivalent of frequency in cycles per second of an electromagnetic wave. Kilohertz (kHz) is frequency of one thousand cycles per second. Megahertz (MHz) is a frequency of one million cycles per second.

HIGH FREQUENCY COMMUNICATION/HF COMMUNICATION - High radio frequency (HF) between 3 and 30 Megahertz used for air-to-ground voice communication in overseas Operations.

HIGH FREQUENCY/HF - The frequency band between 3 and 30 Megahertz. (See High Frequency Communication)

HIGH-LEVEL AIR ROUTE, CANADA (CANADIAN FLIP GPH 204) - In high-level airspace, a prescribed track between specified radio aids to navigation, along which Air Traffic Control service is not provided.

HIGH-LEVEL AIRWAY, CANADA (CANADIAN FLIP GPH 204) - In controlled high level airspace, a prescribed track between specified radio aids to navigation, along which Air Traffic Control service is provided.

HIGH SPEED TAXIWAY/EXIT/TURNOFF - 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 reference to a long radius exit or turnoff taxiway. The high speed taxiway is designed to expedite aircraft turning off the runway after landing, thus reducing runway occupancy time.

HIWAS BROADCAST AREA (P/CG) - 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 (P/CG) - An area defined as a 150 NM radius of a HIWAS outlet, expanded as necessary to provide coverage.

HOLD FOR RELEASE - Used by Air Traffic Control 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 a departure clearance is not valid until a release time or additional instructions have been received.

HOLD/HOLDING 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)

HOLDING FIX (P/CG) - A specified fix identifiable to a pilot by navigational aids or visual reference to the ground used as a reference point in establishing and maintaining the position of an aircraft while holding. (See Fix, Hold, Visual Holding)

HOLDING POINT (JCS, NATO, 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.

HOLDING POSITION (ICAO) - Runway-holding position. A designated position intended to protect a runway, an obstacle limitation surface, or an ILS/MLS critical/sensitive area at which taxiing aircraft and vehicles shall stop and hold, unless otherwise authorized by the aerodrome control tower.
Example: TAXI TO HOLDING POSITION [(number)] [RUNWAY (number)] VIA (specific route to be followed) [TIME (time)] [HOLD SHORT OF RUNWAY (number)]; CAUTION: DO NOT TAXI INTO POSITION AND HOLD ONTO A RUNWAY.

HOLD-SHORT POINT (P/CG) - 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.

HOLD-SHORT POSITION MARKING (P/CG) - The painted runway marking located at the hold-short point on all LAHSO runways.

HOLD-SHORT POSITION LIGHTS (P/CG) - Flashing in-pavement white lights located at specified hold-short points.

HOLD-SHORT POSITION SIGNS (P/CG) - Red and white holding position signs located alongside the hold-short point.

HOMING (P/CG) - Flight toward a navigational aids, without correcting for wind, by adjusting the aircraft heading to maintain a relative bearing of zero degrees. (See Bearing)

HOMING (JCS, NATO) - The technique whereby a mobile station directs itself, or is directed, toward a source of primary or reflected energy or to a specified point.

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/Vertical Take-off Landing aircraft requires a stabilized hover to conduct a performance/power check prior to hover taxi, air taxi, or take-off. Altitude of the hover will vary based on the purpose of the check.

HOVER TAXI - Used to describe a helicopter/Vertical Take-off Landing aircraft movement conducted above the surface and in ground effect at airspeeds less than approximately 20 knots. The actual height will vary, and some helicopters may require hover taxi above 25 feet above ground level to reduce ground effect turbulence or provide clearance for cargo slingloads. (See Air taxi, Hover Check)

HOW DO YOU HEAR ME? - A question relating to the quality of the transmission or to determine how well the transmission is being received.

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.

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 FEASIBLE, REDUCE SPEED TO (SPEED) - (See Speed Adjustment)

IF NO TRANSMISSION RECEIVED FOR (TIME) - Used by Air Traffic Control in radar approaches to prefix procedures which should be followed by the pilot in event of lost communications. (See Lost Communications)

IFR AIRCRAFT/IFR FLIGHT - 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

Condition)

IFR DEPARTURE PROCEDURE - (see IFR Take-off Minimums and Departure Procedures)

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 Mean Sea Level at airspeeds in excess of 250 knots indicated airspeed.

IFR TAKEOFF MINIMUMS AND DEPARTURE PROCEDURES - Federal Air Regulations, Part 91, prescribes standard take-off rules for certain civil users. At some airports, obstructions or other factors require the establishment of nonstandard take-off minimums, departure procedures, or both, to assist pilots in avoiding obstacles during climb to the Minimum Enroute Altitude. These airports are listed in National Ocean Service/Department of Defense Instrument Approach Charts (IAPs) under a section entitled "IFR Takeoff Minimums and Departure Procedures." The National Ocean Service/Department of Defense Instrument Approach Procedure chart legend illustrates the symbol used to alert the pilot to nonstandard take-off minimums and departure procedures. When departing IFR from such airports, or from any airport where there are no departure procedures, Standard Instrument Departures, or Air Traffic Control facilities available, pilots should advise Air Traffic Control of any departure limitations. Controllers may query a pilot to determine acceptable departure directions, turns, or heading after take-off. Pilots should be familiar with the departure procedures and must assure that their aircraft can meet or exceed any specified climb gradients.

ILS CATEGORIES -

(1) Instrument Landing System CATEGORY I - An Instrument Landing System 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 1800 feet.

(2) Instrument Landing System CATEGORY II - An Instrument Landing System 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 1200 feet.

(3) Instrument Landing System CATEGORY III.

(a) IIIA - An Instrument Landing System 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 Instrument Landing System 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 Instrument Landing System approach procedure which provides for approach without a Decision Height minimum and without Runway Visual Range minimum.

ILS PRM APPROACH (P/CG) - 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.

IMMEDIATELY - Used by Air Traffic Control when such action is required to avoid an imminent situation.

INCREASE SPEED TO (SPEED) - (See Speed Adjustment)

INDIVIDUAL FLIGHT PLAN FROM THIS POINT/IFPFP (USAF) - The point at which the aircraft flying the route will proceed on an individual flight plan to the destination.

INFORMATION REQUEST/INREQ - A request originated by a Flight Service Station for information concerning an overdue Visual Flight Rules aircraft.

INITIAL APPROACH FIX/IAF - The fix(s) depicted on Instrument Approach Procedure charts that identifies the beginning of the initial approach segments(s). (See Fix, Segments of an Instrument Approach Procedure)

INITIAL APPROACH SEGMENT - (See Segments of an Instrument Approach Procedure)

INNER MARKER/IM/INNER MARKER BEACON - A marker beacon used with an Instrument Landing System (Category II) precision approach located between the Middle Marker and the end of the Instrument Landing System runway, transmitting a radiation pattern keyed at six dots per second and indicating to the pilot, both aurally and visually, that he is at the designated Decision Height (DH), normally 100 feet above the Touchdown Zone Elevation, on the Instrument Landing System Category II approach. It also marks progress during a Category III approach. (See Instrument Landing System)

INSTRUMENT APPROACH PROCEDURE/IAP/INSTRUMENT APPROACH (P/CG) - 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 Federal Air Regulations Part 91)

(1) United States civil standard Instrument Approach Procedures are approved by the Federal Aviation Administration as prescribed under Federal Air Regulations, Part 97, and are available for public use.

(2) United States military Standard Instrument Approach Procedures are approved and published by the Department of Defense.

(3) Special Instrument Approach Procedures are approved by the Federal Aviation Administration for individual operators, but are not published in Federal Air Regulations, Part 97, for public use.

INSTRUMENT APPROACH PROCEDURE (JCS, NATO) - 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 or the Missed Approach Procedure is initiated.

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 enroute obstacle clearance criteria apply.

INSTRUMENT DEPARTURE PROCEDURE (DP) (P/CG) - 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 enroute structure.

INSTRUMENT FLIGHT RULES/IFR (P/CG) - Rules governing the procedures for conducting instrument flight. Also a term used by pilots and controllers to indicate type of flight plan. (See Visual Flight Rules, Instrument Meteorological Conditions, Visual Meteorological Conditions)

INSTRUMENT FLIGHT RULES (ICAO) - A set of rules governing the conduct of flight under Instrument Meteorological Conditions.

INSTRUMENT LANDING SYSTEM/ILS (P/CG) - A precision instrument approach system which normally consists of the following electronic components and visual aids.

(1) LOCALIZER (See Localizes)

(2) GLIDE SLOPE (See Glide Slope)

(3) OUTER MARKER (See Outer Marker)

(4) MIDDLE MARKER (See Middle Marker)

(5) APPROACH LIGHTS (See Airport Lighting)

(Refer to Federal Air Regulations Part 91)

INSTRUMENT LANDING SYSTEM (JCS, NATO) - A system of radio navigation intended to assist aircraft in landing which provides lateral and vertical guidance, including indications of distance from the optimum point of landing.

INSTRUMENT METEOROLOGICAL CONDITIONS-IMC (P/CG, ICAO) - Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling less than the minima specified for Visual Meteorological Conditions. (See Visual Meteorological Conditions, Instrument Flight Rules, Visual Flight Rules)

INSTRUMENT RUNWAY (P/CG) - A runway equipped with electronic and visual navigation aids for which a precision or non precision approach procedure having straight-in landing minimums has been approved.

INSTRUMENT RUNWAY (ICAO) - One of the following types of runways intended for the operation of aircraft using Instrument Approach Procedures:

(1) NON-PRECISION APPROACH RUNWAY - An instrument runway served by visual aids and a non-visual aid providing at least directional guidance adequate for a straight-in approach.

(2) PRECISION APPROACH RUNWAY, CATEGORY I - An instrument runway served by Instrument Landing Systems and visual aids intended for Operations down to 60 meters (200 feet) Decision Height and down to a Runway Visual Range of the order of 800 meters (2625 feet).

(3) PRECISION APPROACH RUNWAY, CATEGORY II - An instrument runway served by Instrument Landing System and visual aids intended for Operations down to 30 meters (100 feet) Decision Height and down to a Runway Visual Range of the order of 400 meters (1312 feet).

(4) PRECISION APPROACH RUNWAY, CATEGORY III - An instrument runway served by Instrument Landing Systems to and along the surface of the runway and:

(a) Intended for Operations down to a Runway Visual Range of the order of 200 meters (656 feet) (no Decision Height being applicable) using visual aids during the final phase of landing;

(b) Intended for Operations down to a Runway Visual Range of the order of 50 meters (164 feet) (no Decision Height being applicable) using visual aids for taxiing;

(c) Intended for Operations without reliance on visual reference for landing or taxiing.

NOTE - See Annex 10, Volume I, Part I Chapter 3, for related Instrument Landing System specifications.

NOTE - Visual aids need not necessarily be matched to the scale of non-visual aids provided. The criterion for the selection of visual aids is the conditions in which Operations are intended to be conducted.

INTER - Used in Meteorological messages (See Landing Forecast Trend Type).

INTERMEDIATE APPROACH SEGMENT - (See Segments of an Instrument Approach Procedure)

INTERMEDIATE FIX/IF - 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)

INTERNATIONAL AIRPORT (P/CG) - Relating to international flight, it means:

(1) An airport of entry which has been designated by the Secretary of Treasury or Commissioner of Customs as an international airport for customs service.

(2) A landing rights airport at which specific permission to land must be obtained from customs authorities in advance of contemplated use.

(3) Airports designated under the Convention on International Civil Aviation as an airport for use by international commercial air transport and/or international general aviation.

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.

INTERNATIONAL FLIGHT INFORMATION MANUAL/IFIM - A Federal Aviation Administration publication designed primarily as a pilot's preflight planning guide for flight into foreign airspace and for flights returning to the United States 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)

INTERSECTING RUNWAYS - Two or more runways which cross or meet within their length. (See Intersection)

INTERSECTION -

(1) A point defined by a combination of courses, radials or bearings of two or more navigational aids.

(2) Used to describe the point where two runways, a runway and a taxiway, or two taxiways cross or meet.

INTERSECTION DEPARTURE/INTERSECTION TAKEOFF - A take-off or proposed take-off on a runway from an intersection. (See Intersection)

I SAY AGAIN - The message will be repeated.

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 mean sea level up to and include Flight Level 450. The routes are referred to as "J" routes with numbering to identify the designated route; e.g., J105. (See Route) (Refer to Federal Air Regulations Part 71)

JET STREAM (P/CG) - A migrating stream of high-speed winds present at high altitudes.

JET STREAM (JCS, NATO) - A narrow band of high velocity wind in the upper troposphere or in the stratosphere.

JETTISONING OF EXTERNAL STORES - Airborne release of external stores; e.g., tiptanks, ordinances. (See Fuel Dumping) (Refer to Federal Air Regulations Part 91)

JETTISON (JCS) - Deliberate release of an aircraft store from an aircraft to effect aircraft safety or prepare for air combat.

JOINT USE RESTRICTED AREA - (See Restricted Area)

KNOWN TRAFFIC - With respect to Air Traffic Control clearances, means aircraft whose altitude, position and intentions are known to Air Traffic Control.

LAHSO (P/CG) - 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 flight path.

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.

LANDING AREA (JCS, NATO) -

(1) That part of the objective area within which are conducted the landing Operations of an amphibious force. It includes the beach, the approaches to the beach, the transport areas, the fire support areas, the air occupied by close supporting aircraft, and the land included in the advance inland to the initial objective.

(2) AIRBORNE - The general area used for landing troops and material either by airdrop or air landing. This area includes one or more drop zones or landing strips.

(3) Any specially prepared or selected surface of land, water, or deck designated or used for take-off and landing of aircraft.

LANDING AREA (ICAO) - The part of the movement area intended for the landing or take-off run of aircraft.

LANDING DIRECTION INDICATOR (P/CG) - A device which visually indicates the direction in which landing and take-off should be made. (See Tetrahedron)

LANDING DISTANCE AVAILABLE [ICAO] - The length of runway which is declared available and suitable for the ground run of an aeroplane landing.

LANDING FORECAST (TREND TYPE) (ICAO) - A concise statement, appended to a routine or selected special report, indicating what significant change (expressed as a trend) from the conditions described in the report are likely to occur during the validity period of the forecast. One of the change indicators listed below will be used to identify the beginning of the trend forecast, and will be inserted into the message immediately after the report, except when the term "NOSIG" is used.

(1) GRADU - Used if the change is expected to take place at a fairly constant rate throughout the forecast period, or during a specified part thereof.

(2) RAPID - Used instead of GRADU when the change is expected to take place during a period lasting less than half an hour.

(3) TEMPO - Used if the change is expected to last for a period of less than one hour and take place infrequently enough for a prevailing condition to remain those of the report.

(4) INTER - Used if the change is expected to occur frequently for short periods of time, fluctuating almost constantly between those in the report or those in the preceding part of the forecast, and those in the forecast itself.

(5) TEND - Used if none of the above terms apply. It should not be used if some other indicator has already appeared in the preceding part.

LANDING MINIMUMS/IFR 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 Federal Air Regulations Part 91, with respect to the Minimum Descent Altitude (MDA) or Decision Height (DH) prescribed in the Instrument Approach Procedures as follows:

(1) STRAIGHT-IN LANDING MINIMUMS - A statement of Minimum Descent Altitude and visibility, or Decision Height and visibility, required for straight-in landing on a specified runway; or

(2) CIRCLING MINIMUMS - A statement of Minimum Descent Altitude and visibility required for the circle-to-land maneuver.

Descent below the established Minimum Descent Altitude or

Decision Height 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 Straight-in Landing, Circle-to-Land Maneuver, Decision Height, Minimum Descent Altitude, Visibility, Instrument Approach Procedure) (Refer to Federal Air Regulations 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)

LANDING/TAKEOFF 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 take-off of aircraft whether or not facilities are provided for the shelter, servicing, or for receiving or discharging passengers or cargo. (See Landing Area)

LAST ASSIGNED ALTITUDE - The last altitude/Flight Level assigned by Air Traffic Control and acknowledged by the pilot. (See Maintain) (Refer to Federal Air Regulations Part 91)

LATERAL SEPARATION (P/CG) - The lateral spacing of aircraft at the same altitude by requiring operation on different routes or in different geographical locations. (See Separation)

LATERAL SEPARATION (ICAO) - Separation between aircraft expressed in terms of distance or angular displacement between tracks.

LIGHTED AIRPORT - An airport where runway and obstruction lighting is available. (See Airport Lighting)

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 communications is not available. The light gun is used for controlling traffic operating in the vicinity of the airport and on the airport movement area.

LINE UP [AND WAIT] (ICAO) - Clearance to enter runway and await take-off clearance.
(Source: Doc 4444-ICAO Air Traffic Management)
Example: LINE UP [AND WAIT]; LINE UP RUNWAY (number); LINE UP. BE READY FOR IMMEDIATE DEPARTURE; or..... conditional clearances LINE UP. Response: (condition) LINING UP

LOCAL AIRPORT ADVISORY (LAA) (P/CG) - 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.

LOCALIZER (P/CG) - The component of an Instrument Landing System which provides course guidance to the runway. (See Instrument Landing System)

LOCALIZER (JCS, NATO) - A directional radio beacon which provides to an aircraft an indication of its lateral position relative to a predetermined final approach course. (See Instrument Landing System)

LOCALIZER COURSE (INSTRUMENT LANDING SYSTEM) (ICAO) - The locus of points, in any given horizontal plane, at which the DDM (difference in depth of modulation) is zero.

LOCALIZER (ICAO) - PANS-OPS abbreviates the localizer facility as LLZ. The accuracy of the signal generated by the LLZ is the same as a LOC. PANS-OPS requires the LLZ final approach track alignment to remain within 5° of the runway centerline. If the alignment exceeds 5°, PANS-OPS allows an increase of the final approach track to 15° for categories C, D, and E. For aircraft categories A and B, the maximum angle formed by the final approach track and the runway centerline is 30°.

NOTE - Prior to flying a LDA or LLZ, compare the final approach course with the runway heading. The airport sketch should provide a visual indication of the angle formed between the final approach track and the runway centerline.

LOCALIZER TYPE DIRECTIONAL AID/LDA - A navigation aid, used for nonprecision instrument approaches with utility and accuracy comparable to a localizer but which is not a part of a complete Instrument Landing System and is not aligned with the runway.

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.

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) - A Low Medium/Frequency Non-directional Radio Beacon 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 kilometers (10 and 25 nautical miles).

LONGITUDINAL SEPARATION (P/CG) - The longitudinal spacing of aircraft at the same altitude by a minimum distance expressed in units of time or miles. (See Separation)

LONGITUDINAL SEPARATION (ICAO) - Separation between aircraft expressed in units of time or distance along track.

LORAN/LONG RANGE NAVIGATION (P/CG) - 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 kilohertz frequency band. LORAN C and D operate in the 100-110 kilohertz frequency band.

LORAN (JCS, NATO) - A long range radio navigation position fixing system using the time difference of reception of pulse type transmissions from two or more fixed stations. (This term is derived from the words "long range electronic navigation".)

LOST COMMUNICATION/TWO-WAY RADIO COMMUNICATION FAILURE - Loss of the ability to communicate by radio. Aircraft are sometimes incorrectly referenced to as NORDO (No Radio). Standard pilot procedures are specified in Federal Air Regulations 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 Instrument Flight Rules weather conditions during the approach. (Refer to Federal Air Regulations Part 91)

LOW ALTITUDE AIRWAY STRUCTURE/FEDERAL AIRWAYS - The network of airways serving aircraft operations up to but not

include 18,000 feet mean sea level. (See Airway)

LOW ALTITUDE ALERT, CHECK YOUR ALTITUDE IMMEDIATELY - (See Safety Alert)

LOW ALTITUDE ALERT SYSTEM/LAAS - An automated function of the TPX-42 that alerts the controller when a Mode C transponder-equipped aircraft on an Instrument Flight Rules flight plan is below a predetermined Minimum Safe Altitude. If requested by the pilot, LAAS monitoring is also available to Visual Flight Rules Mode C transponder-equipped aircraft.

LOW APPROACH - An approach over an airport or runway following an instrument approach or a Visual Flight Rules approach including the go - around maneuver where the pilot intentionally does not make contact with the runway.

LOW FREQUENCY/LF - The frequency band between 30 and 300 kilohertz.

LOW-LEVEL WIND SHEAR ALERT SYSTEM/LLWAS (AIM) - A system which detects the presence of low-level wind shear by continuously comparing the winds measured by sensors around the periphery of an airport with the wind measured at the center field location. An excessive difference between the sensors indicates a wind shear is probable. When this condition exists, the tower will provide aircraft with an advisory of the situation. Example-Delta one twenty four center field wind two seven zero at one zero. South boundary wind one four zero at three zero.

NOTE - Sensors are not all associated with specific runways, and descriptions of the remote sites are based on an eight point compass system. Airports equipped with this system will be shown in the Enroute Supplement under Remarks.

MACH NUMBER (P/CG) - The ratio of True Airspeed to the speed of sound, e.g., MACH .82, MACH 1.6. (See Airspeed)

MACH NUMBER (JCS, NATO) - The ratio of the velocity of a body to that of sound in the surrounding medium.

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 enroute 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.

MAGNETIC VARIATION - The angular difference between true North and magnetic North.

MAINTAIN -

(1) 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 5000".

(2) Concerning other Air Traffic Control instructions, the term is used in its literal sense, e.g., maintain Visual Flight Rules.

MAKE SHORT APPROACH - Used by Air Traffic Control to inform a pilot to alter his 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.

MANDATORY TRAFFIC ADVISORY FREQUENCY/MTAF (NGA) - A mandatory frequency designed for the purpose of carrying out airport advisory practices while operating to or from an aerodrome when the control tower is closed, uncontrolled airport, or within a designated area. The MTAF may be a UNICOM, MULTICOM, Flight Service Station or tower frequency. The MTAF is used when within 15 nautical miles and below 5000 feet above ground level unless otherwise noted.

MARKER BEACON - An electronic navigation facility transmitting a 75 Megahertz 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 is passing over the facility. (See Outer Marker, Middle Marker, Inner Marker)

MAXIMUM AUTHORIZED ALTITUDE/MAA - 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 a Minimum Enroute Altitude is designated in Federal Air Regulations Part 95, at which adequate reception of navigation aid signals is assured.

MAYDAY (P/CG) - The international radiotelephony distress signal. When repeated three times, it indicates imminent and grave danger and that immediate assistance is requested. (See PAN-PAN)

MAYDAY (JCS) - Distress call.

MEACONING (JCS, NATO) - A system of receiving radio beacon signals and rebroadcasting them on the same frequency to confuse navigation. The meaconing stations cause inaccurate bearings to be obtained by aircraft or ground stations.

METEOROLOGICAL IMPACT STATEMENT/MIS - 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 (Air Route Traffic Control Center) area.

METERING - A method of time regulating arrival traffic flow into a terminal area so as not to exceed a predetermined terminal acceptance rate.

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.

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.

MICROWAVE LANDING SYSTEM/MLS - A precision instrument approach system operating in the microwave spectrum which normally consist of the follow components:

(1) Azimuth Station.

(2) Elevation Station.

(3) Precision Distance Measuring Equipment (See Microwave Landing System Categories).

MIDDLE COMPASS LOCATOR - (See Compass Locator)

MIDDLE MARKER/MM - A marker beacon that defines a point along the glide slope of an Instrument Landing System normally located at or near the point of Decision Height (Instrument Landing System 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 Hertz tone, which is received aurally and visually by compatible airborne equipment. (See Marker Beacon, Instrument Landing System)

MID RVR - (See Visibility)

MIJI - Meaconing, Intrusion, Jamming, and Interference.

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/MARSA - A condition whereby the military services involved assume responsibility for separation between participating military aircraft in the Air Traffic Control system. It is used only for required Instrument Flight Rules operations which are specified in letters of agreement or other appropriate Federal Aviation Administration or military documents.

MILITARY OPERATIONS AREA/MOA - (See Special Use Airspace)

MILITARY TRAINING ROUTES/MTR - Airspace of defined vertical and lateral dimensions established for the conduct of military flight training at airspeeds in excess of 250 knots indicated airspeed. (See Instrument Flight Rules (IR) and Visual Flight Rules (VR) Military Training Routes)

MINIMUM CROSSING ALTITUDE/MCA - The lowest altitude at certain fixes at which an aircraft must cross when proceeding in the direction of a higher Minimum Enroute Instrument Flight Rules Altitude (MEA). (See Minimum Enroute IFR Altitude)

MINIMUM DESCENT ALTITUDE/MDA (P/CG) - The lowest altitude, expressed in feet above mean sea level, to which descent is authorized on final approach or during circle-to-land maneuver in execution of a standard instrument approach procedure where no electronic glide slope is provided. (See Nonprecision Approach Procedure)

MINIMUM DESCENT ALTITUDE (JCS, NATO) - The lowest altitude to which descent shall be authorized in procedures not using a glide slope, until the required visual reference has been established.

MINIMUM ENROUTE IFR ALTITUDE/MEA - The lowest published altitude between radio fixes which assures acceptable navigational signal coverage and meets obstacle clearance requirements between those fixes. The Minimum Enroute Altitude 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 Federal Air Regulations Parts 91 and 95)

MINIMUM FLIGHT ALTITUDE/MFA (NGA) - A Minimum Flight Altitude is normally the lower vertical limit of an ATS route. FLIP Enroute Charts that require the depiction of vertical limits along an ATS route segment will not be required to show any additional MFA value (unless a host nation publishes an MFA higher than the lower vertical limit). Charts requiring the depiction of the MFA value only, will publish the lower limits of the ATS route (or the host country MFA) as the MFA. If a host country does not publish or provide NGA with an ATS route vertical limit or MFA, then NGA will compute and publish a MFA assuring 3000' terrain clearance within 5 NM of the ATS route centerline.

NOTE: The NGA MFA value will be preceded by a pound number sign (#) to indicate NGA derived MFA.

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.

MINIMUM HOLDING ALTITUDE/MHA - The lowest altitude prescribed for a holding pattern which assures navigational signal coverage, communications, and meets obstacle clearance requirements.

MINIMUM IFR ALTITUDES/MIA - Minimum altitude for Instrument Flight Rules operations as prescribed in Federal Air Regulations Part 91. These altitudes are published on aeronautical charts and prescribed in Federal Air Regulations Part 95, for airways and routes, and in Federal Air Regulations Part 97, for standard Instrument Approach Procedures. If no applicable minimum altitude is prescribed in Federal Air Regulations Parts 95 or 97, the following minimum IFR altitude applies:

(1) In mountainous areas, 2000 feet above the highest obstacle within a horizontal distance of 4 nautical miles from the course to be flown; or

(2) Other than mountainous areas, 1000 feet above the highest obstacle within a horizontal distance of 4 nautical miles from the course to be flown; or

(3) As otherwise authorized by the Administrator or assigned by Air Traffic Control. (See Minimum Narrate IFR Altitude, Minimum Obstruction Clearance Altitude, Minimum Crossing Altitude, Minimum Safe Altitude, Minimum Vectoring Altitude) (Refer to Federal Air Regulations Part 91)

(SPEC/Pilot-Controller Glossary & FAR 91.177)

MINIMUM NAVIGATION PERFORMANCE SPECIFICATIONS AIRSPACE (IFIM) - A concept adopted by ICAO with the objective of ensuring safe separation of aircraft and maximum benefit from required navigation equipment.

MINIMUM OBSTRUCTION CLEARANCE ALTITUDE/MOCA (P.CG, JCS) - 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 navigation signal coverage only within 25 statue miles (22 nautical miles) of a VOR. (Refer to Federal Air Regulations Part 91 and 95)

MINIMUM RECEPTION ALTITUDE/MRA (P/CG) - The lowest altitude at which an intersection can be determined. (Refer to Federal Air Regulations Part 95)

MINIMUM RECEPTION ALTITUDE (JCS) - The lowest altitude required to receive adequate signals to determine specific VHF omnirange/tactical air navigation fixes.

MINIMUM SAFE ALTITUDE/MSA (P/CG) -

(1) The minimum altitude specified in Federal Air Regulations Part 91, for various aircraft operations.

(2) Altitudes depicted on approach charts which provide at least 1000 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 Altitude or Emergency Safe Altitude and are established as follows:

(a) 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.

(b) EMERGENCY SAFE ALTITUDES - Altitudes depicted on approach charts which provide at least 1,000 feet of obstacle clearance in non-mountainous areas and 2,000 feet of obstacle clearance in designated mountainous areas within a 100-mile radius of the navigational 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 (JCS, NATO) - The altitude below which it is hazardous to fly, owing to presence of high ground or other obstacles.

MINIMUM SAFE ALTITUDE WARNING (MSAW) - A function of the Automated Radar Terminal Systems 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.

MINIMUM SECTOR ALTITUDES (P/CG) - (See Minimum Safe Altitude/MSA (P/CG)).

MINIMUM SECTOR ALTITUDE (ICAO) - The lowest altitude which may be used under emergency conditions which will provide a minimum clearance of 300 meters (1000 feet) above all obstacles located in an area contained within a sector of a circle of 25 nautical miles radius centered on a radio aid to navigation.

MINIMUM VECTORING ALTITUDE/MVA - The lowest mean sea level 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 Instrument Flight Rules obstacle clearance criteria. It may be lower than the published Minimum Enroute Altitude along an airway or J-route segment. It may be utilized for radar vectoring only upon the controllers' 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.

MINIMUMS/MINIMA - Weather condition requirements established for a particular operation or type of operation; e.g., Instrument Flight Rules take-off or landing, alternate airport for Instrument Flight Rules flight plans, Visual Flight Rules flight. (See Landing minimum, Instrument Flight Rules Take-off minimums, Visual Flight Rules conditions, Instrument Flight Rules conditions) (Refer to Federal Air Regulations Part 91)

MINUTES-IN-TRAIL - A specified interval between aircraft expressed in time. This method would more likely be utilized regardless of altitude.

MISSED APPROACH (P/CG) -

(1) 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.

(2) A term used by the pilot to inform Air Traffic Control that he is executing the missed approach.

(3) At locations where Air Traffic Control radar service is provided the pilot should conform to radar vectors, when provided by Air Traffic Control, in lieu of the published missed approach procedure. (See Missed Approach Point)

MISSED APPROACH POINT/MAP - 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, Segments of an Instrument Approach Procedure)

MISSED APPROACH PROCEDURE (JCS, NATO) - The procedure to be followed if, after an instrument approach, a landing is not effected, and occurring normally:

(1) When the aircraft has descended to the Decision Height and has not established visual contact, or

(2) When directed by Air Traffic Control to pull up or to go around again.

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)

MLS - (See Microwave Landing System)

Microwave Landing System Categories -

(1) MLS CATEGORY I - A Microwave Landing System 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.

(2) MLS CATEGORY II - Undefined until data gathering/analysis completion.

(3) MLS CATEGORY III - Undefined until data gathering/analysis completion.

MODE (P/CG) - 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 report) are used in Air Traffic Control. (See Transponder, Interrogator, Radar)

MODE (IDENT FRIEND OR FOE) (JCS) - The number or letter referring to the specific pulse spacing of the signals transmitted by an interrogator.

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 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 Instrument Flight Rules or Visual Flight Rules aircraft) and an untracked target (unknown Instrument Flight Rules or Visual Flight Rules aircraft) that require 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.

MOVEMENT AREA (P/CG) - The runways, taxiways, and other areas of an airport/heliport which are utilized for taxiing/hover taxiing, air taxiing, take-off, and landing of aircraft, exclusive of loading ramps and parking areas. At those airport/heliports with a tower, specific approval for entry onto the movement area must be obtained from Air Traffic Control.

MOVEMENT AREA (ICAO) - That part of an airport to be used for the take-off, landing and taxiing of aircraft, consisting of the maneuvering area and the apron(s).

MOVING TARGET INDICATOR/MTI (P/CG) - An electronic device which will permit radar scope presentation only from targets which are in motion. A partial remedy for ground clutter.

MOVING TARGET INDICATOR (JCS, NATO) - A radar presentation which shows only targets which are in motion. Signals from stationary targets are subtracted out of the return signal by the output of a suitable memory circuit.

MSAW - (See Minimum Safe Altitude Warning)

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 (Federal Air Regulations 87.277).

NAS STAGE A - The enroute Air Traffic Control system's radar, computers and computer programs, controller plan view displays (PVDs/Radar Scopes), input/output devices, and the related communications equipment which are integrated to form the heart of the automated Instrument Flight Rules 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 enroute Instrument Flight Rules aircraft.

NATIONAL AIRSPACE SYSTEM/NAS - The common network of United States 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/NBCAP AIRSPACE - Airspace over United States territory located within the North American continent between Canada and Mexico, including adjacent territorial waters outward to abut boundaries of oceanic control areas (CTA)/Flight Information Regions (FIR). (See Flight Information Region)

NATIONAL FLIGHT DATA CENTER/NFDC - A facility in Washington, D.C., established by Federal Aviation Administration 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/NFDD - A daily (except weekends and federal holidays) publication of flight information appropriate to aeronautical charts, aeronautical publications, Notices to Airmen or other media serving the purpose of providing operational flight data essential to safe and efficient aircraft Operations.

NATIONAL 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.

NAVIGATIONAL AIDS CLASSES - VOR, VORTAC, and TACAN aids are classed according to their operational use. The three classes of navigational aids are:

T - Terminal
L - Low altitude
HA - High altitude

The normal service range for T, L, and HA class aids is found in the Enroute Supplement. 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.

NAVIGABLE AIRSPACE - Airspace at and above the minimum flight altitudes prescribed in the Federal Air Regulations including airspace needed for safe take-off and landing. (Refer to Federal Air Regulations Part 91)

NAVIGATIONAL AID/NAVAID - 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, Celestial Navigation)

NDB - (See Nondirectional Beacon)

NEGATIVE (P/CG) - "No" or "Permission not granted" or "That is not correct."

NEGATIVE (JCS) - As used in air intercept, means cancel, or no.

NEGATIVE CONTACT - Used by pilots to inform Air Traffic Control that:

(1) 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.

(2) They were unable to contact Air Traffic Control on a particular frequency.

NIGHT (P/CG) - 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.

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/VECTOR - A radar approach/vector provided in case of a malfunctioning gyrocompass 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.

NON-APPROACH CONTROL TOWER - Authorizes aircraft to land or take-off at the airport controlled by the tower, or to transit the airport traffic area. The primary function of a non-approach control tower is the sequencing of aircraft in the traffic pattern and on the landing area. Non-approach 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.

NON-COMPOSITE SEPARATION - Separation in accordance with minima other than the composite separation minimum specified for the area concerned.

NON-DIRECTIONAL BEACON/RADIO BEACON/NDB - A Low/Medium Frequency or Ultra High Frequency radio beacon transmitting non-directional signals whereby the pilot of an aircraft equipped with Direction Finding equipment can determine his 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 Compass Locator, Automatic Direction Finder)

NON-FREE FLYING AREA (DIA) - An area normally delineated by an international boundary or the territorial water adjacent thereto wherein penetration by United States military aircraft is likely to result in their being fired upon without warning.

NON-PRECISION APPROACH PROCEDURE/NONPRECISION APPROACH - A standard instrument approach procedure in which no electronic glide slope is provided; e.g., VOR, TACAN, NDB, LOC, ASR, LDA, or SDF approach.

NON-RADAR - Precedes other terms and generally means without the use of radar, such as:

(1) NON-RADAR ROUTE - A flight path or route over which the pilot is performing his own navigation. The pilot may be receiving radar separation, radar monitoring or other Air Traffic Control services while on a non-radar route. (See Radar Route)

(2) NON-RADAR 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 Air Traffic Control. Examples of non-radar approach are VOR, NDB, TACAN, and Instrument Landing System/Microwave Landing System approach. (See Final Approach - IFR, Final Approach Course, Radar Approach, Instrument Approach Procedure)

(3) NON-RADAR 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)

(4) NON-RADAR 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, Radar Service)

(5) NON-RADAR APPROACH CONTROL - An Air Traffic Control facility providing approach control service without the use of radar. (See Approach Control, Approach Control Service)

NON-RADAR SEPARATION (ICAO) - The separation used when aircraft position information is derived from sources other than radar.

NORDO - Non-radio equipped aircraft. Not to be used to designate aircraft which have radio failure.

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:

(1) COMMON ROUTE/PORTION - That segment of a North American route between the inland navigation facility and the coastal fix.

(2) NON-COMMON ROUTE/PORTION - That segment of a North American route between the inland navigation facility and a designated North American terminal.

(3) INLAND NAVIGATION FACILITY - A navigation aid on a North American route at which the common route and/or the non-common route begins or ends.

(4) COASTAL FIX - A navigation aid or intersection where an aircraft transitions between the domestic route structure and the oceanic route structure.

NORTH AMERICAN ROUTE PROGRAM (NRP) - The North American Route Program is a joint Federal Aviation Administration (FAA) and NAV CANADA program. The objective of the NRP is to harmonize and adopt common procedures, to the extent possible, applicable to random route flight operations at and above Flight Level 290 (FL290) within the conterminous United States and Canada. The procedures are published in FAA Advisory Circular 90-91H. Advisory Circulars are available through the FAA website at http://www.faa.gov. Any question on NRP procedures and altitudes should be forwarded to the ATC System Command Center, (ATCSCC) Herndon, VA at C703-904-4417.

NOTICES TO AIRMEN PUBLICATION/NTAP - A Federal Aviation Administration publication issued every 28 days, designed primarily for the pilot, which contains current Notice to Airman 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 - NOTAM)

NOTICE TO AIRMEN/NOTAM (P/CG) - 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.

(1) NOTAM(D) - A NOTAM given (in addition to local dissemination) distant dissemination beyond the area of responsibility of the Flight Service Station. These NOTAMs will be stored and available until cancelled.

(2) NOTAM(L) - A NOTAM given local dissemination by voice and other means, such as, teleautograph, and telephone, to satisfy local user requirements.

(3) FDC NOTAM - A NOTAM regulatory in nature, transmitted by USNOF and given system wide dissemination.

NOTICE TO AIRMEN/NOTAM (JCS, NATO, 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.

Class I Distribution. Distribution by means of telecommunication.

Class II Distribution. Distribution by means other than telecommunications.

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.

NUMEROUS TARGETS VICINITY (LOCATION) - A traffic advisory issued by Air Traffic Control to advise pilots that targets on the radar scope are too numerous to issue individually. (See Traffic Advisories)

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 Operations.

OBSTACLE FREE ZONE (P/CG) - The OFZ is a three dimensional volume of airspace which protects for the transition of aircraft 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 FAA Order 7110.65, paragraph 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 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) feet for precision instrument runways.

(b) 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 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 50 of (horizontal) to 1 (vertical) from beginning.

c. Inner-transitional OFZ. The inner transitional surface OFZ is 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.

OBSTRUCTION (P/CG) - Any object/obstacle exceeding the obstruction standards specified by Federal Air Regulations Part 77, Subpart C.

OBSTRUCTION (NATO) - Any object that rises far enough above the surrounding surface or above a specified height to create a hazard to aircraft in flight.

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 (P/CG) - 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 - (P-CG) - An automated digital 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 FAA Order 7110.82 Monitoring of Navigational Performance In Oceanic Areas.

OCEANIC PUBLISHED ROUTE (P/CG) - A route established in international air-space 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 (P/CG) - An ATS route established for the purpose of transitioning aircraft to/from an organized track system.

OFF COURSE (P/CG) - 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 OBSTRUCTION CLEARANCE ALTITUDE/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.

OFF-ROUTE TERRAIN CLEARANCE ALTITUDE/ORTCA - An off-route altitude which provides terrain clearance with a 3,000 foot buffer from terrain. This altitude may not provide signal coverage from ground-based navigational aids, air traffic control radar, or communications coverage.

OFF-ROUTE VECTOR - A vector by Air Traffic Control which takes an aircraft off a previously assigned route. Altitude assigned by Air

Traffic Control during such vectors provide require obstacle clearance.

OFFSET PARALLEL RUNWAYS - Staggered runways having centerlines which are parallel.

OFFSHORE CONTROL AREA (P/CG) - That portion of airspace between the U.S. 12-mile limit and the oceanic CTA/FIR boundary within which air traffic control is exercised. These areas are established to permit the application of domestic procedures in provision of air traffic control services. Offshore control area is generally synonymous with Federal Aviation Regulations, FAR Part 71, Subpart E, "Control Areas and Control Area Extensions."

ON COURSE -

(1) Used to indicate that an aircraft is established on the route centerline.

(2) Used by Air Traffic Control to advise a pilot making a radar approach that his 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.

OPERATIONAL AIR TRAFFIC -

(1) EUROPE AND AFRICA - Traffic that cannot comply with the provisions of General Air Traffic. Reason for non-compliance may be insufficient communications equipment or nature of the mission to be flown. In certain countries, Operational Air Traffic will be under control of Military Area Control Center or Radar while in other areas both General and Operational Air Traffic are controlled by a single civil control or advisory unit. Consult Department of Defense Flight Information Publication, AREA PLANNING (AP2), for applicability in the area concerned.

(2) NORTHERN EUROPE (GM, U.K., BENELUX) - In the sophisticated radar environment of Northern Europe, Operational Air Traffic service is routinely provided for military aircraft by the military branch of the dual civil/military Air Traffic Control system. See Department of Defense Flight Information Publication, AREA PLANNING (AP2), Flight Plan, Europe Regional Procedures for details.

OPPOSITE DIRECTION AIRCRAFT (P/CG) - 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)

ORGANIZED TRACK SYSTEM - A moveable system of oceanic tracks that traverses the North Atlantic between Europe and North America the physical position of which is determined twice daily taking the best advantage of the winds aloft.

OUT - The conversation is ended and no response is expected.

OUTER AREA (associated with Class C airspace) (P/CG) - 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 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.

OUTER COMPASS LOCATOR - (See Compass Locator)

OUTER FIX - A general term used within Air Traffic Control 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 MARKER/OM - A marker beacon at or near the glide slope intercept altitude of an Instrument Landing System approach. It is keyed to transmit two dashes per second on a 400 Hertz tone which is received aurally and visually by compatible airborne equipment. The Outer Marker is normally located four to seven miles from the runway threshold on the extended centerline of the runway. (See Marker Beacon, Instrument Landing System)

OVER - My transmission is ended; I expect a response.

OVERHEAD APPROACH/360 OVERHEAD - A series of predetermined maneuvers prescribed for Visual Flight Rules arrival of military aircraft (often in formation) for entry into the Visual Flight Rules traffic pattern and to proceed to a landing. The pattern usually specifies the following:

(1) The radio contact required of the pilot.

(2) The speed to be maintained.

(3) An initial approach 3 to 5 miles in length.

(4) An elliptical pattern consisting of two 180 degree turns.

(5) A break point at which the first 180 degree turn is started.

(6) The direction of turns.

(7) Altitude (at least 500 feet above the conventional pattern).

(8) 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.

OVERRUN - An area beyond the take-off runway no less wide than the runway and centered upon the extended centerline of the runway, able to support the airplane during an aborted take-off, without causing structural damage to the airplane, and designated by the airport authorities for use in decelerating the airplane during an aborted take-off. (STOPWAY term used for civil airports.)

PAN-PAN (P/CG) - The international radio-telephony urgency signal. When repeated three times indicates uncertainty or alert, followed by nature of urgency. (See MAYDAY)

PAN (JCS) - In air intercept, a code meaning the calling station has a very urgent message to transmit concerning the safety of a ship, aircraft, or other vehicle, or of some person on board or within sight.

PARALLEL INSTRUMENT LANDING SYSTEM/MICROWAVE LANDING SYSTEM 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, Simultaneous Instrument Landing System/Microwave Landing System 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).

PENETRATION (JCS) - That portion of a published High Altitude Terminal Instrument Approach Procedure which prescribes a descent path from the Fix on which the procedure is based to a Fix or altitude from which an approach to the airport is made.

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 (PR) - 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 nautical miles and altitude range of 1,500 feet to 10,000 feet above ground level.

PILOT BRIEFING/PRE-FLIGHT PILOT BRIEFING - A service provided by the Flight Service Stations to assist pilots in flight planning. Briefing items may include weather information, NOTAMS, military activities, flow control information and other items as requested.

PILOT IN COMMAND (P/CG, ICAO) - The pilot responsible for the operation and safety of an aircraft during flight time. (Refer to Federal Air Regulations Part 91)

PILOTS AUTO TELEPHONE WEATHER ANSWERING SERVICE/PATWAS - A continuous telephone recording containing current and forecast weather information for pilots. (See Flight Service Station)

PILOT'S DISCRETION - When used in conjunction with altitude assignments, means that Air Traffic Control has offered the pilot the option of starting climb or descent whenever he wishes and conducting the climb or descent at any rate he wishes. He may temporarily level off at any intermediary altitude. However, once he has vacated an altitude he may not return to that altitude.

PILOT WEATHER REPORT/PIREP - A report of Meteorological phenomena encountered by aircraft in flight.

POSITION AND HOLD - Used by Air Traffic Control to inform a pilot to taxi onto the departure runway in take-off position and hold. It is not authorization for take-off. It is used when take-off clearance cannot immediately be issued because of traffic or other reasons. (See Hold, Cleared For Take-off)

POSITION REPORT/PROGRESS REPORT - A report over a known location as transmitted by an aircraft to Air Traffic Control.

POSITION SYMBOL - A computer generated indication shown on a radar display to indicate the mode of tracking.

POSITIVE CONTROL (P/CG) - The separation of all air traffic within designated airspace, by Air Traffic Control. (See Positive Control Area)

POSITIVE CONTROL (JCS, NATO) - A method of airspace control that relies on positive identification, tracking, and direction of aircraft within an airspace, conducted with electronic means by an agency having the authority and responsibility therein.

POSITIVE CONTROL AREA/PCA - (See Controlled Airspace)

PRACTICE INSTRUMENT APPROACH - An instrument approach procedure conducted by a VFR or IFR aircraft for the purpose of pilot training or proficiency demonstration.

PRECIPITATION - Any or all forms of water particles (rain, sleet, hail, or snow), that fall from the atmosphere and reach the surface.

PRECISION APPROACH PROCEDURE/PRECISION APPROACH - A standard instrument approach procedure in which an electronic glide slope/glide path is provided; e.g., ILS/MLS and PAR. (See Instrument Landing System, Microwave Landing System, Precision Approach Radar)

PRECISION APPROACH RADAR/PAR (P/CG) - Radar equipment in some Air Traffic Control facilities operated by the Federal Aviation Administration, and/or the military service 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 non-radar 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 glide path (elevation), and the distance (range) from the touchdown point on the runway as displayed on the radar scope. (See Glide Path) The abbreviation "PAR" is also used to denote preferential arrival routes in ARTCC computers. (See Preferential Routes)

PRECISION APPROACH RADAR/PAR (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.

PREFERENTIAL ROUTES - Preferential routes, (PDRs, PARs, and PDARs) are adapted in ARTCC computers to accomplish inter/intra-facility 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:

(1) PREFERENTIAL DEPARTURE ROUTE/PDR - A specific departure route from an airport or terminal area to an enroute point where there is no further need for flow control. It may be included in a Standard Instrument Departure (SID) or a Preferred IFR Route.

(2) PREFERENTIAL ARRIVAL ROUTE/PAR - A specific arrival route from an appropriate enroute point to an airport or terminal area. It may be included in a Standard Terminal Arrival Route (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.

(3) PREFERENTIAL DEPARTURE AND ARRIVAL ROUTE/PDAR - A route between two terminals which are within or immediately adjacent to one ARTCC's area. PDARS are not synonymous with Preferred IFR Routes but may be listed as such as they do accomplish essentially the same purpose. (See Preferred IFR Routes, NAS Stage A)

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. If a flight is planned to or from an area having such routes but the departure or arrival point is not listed, 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 SIDs and STARs and may be defined by airways, jet routes, direct routes between navigational aids, waypoints, navigational aid radials/DME, or any combinations thereof. (See Standard Instrument Departure, Standard Terminal Arrival, Preferential Routes, Center Area)

PREVAILING VISIBILITY - (See Visibility)

PROCEDURE TURN (JCS, NATO) - An aircraft maneuver in which a turn is made away from a designated track followed by a turn in the opposite direction, both turns being executed at a constant rate so as to permit the aircraft to intercept and proceed along the reciprocal of the designated track.

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/PT (P/CG) - 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, the point at which the turn may be commenced, and the type and rate of turn, are left to the discretion of the pilot.

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 Air Traffic Control as a position report for separation purposes. (See Final Approach Course, Procedure Turn, 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 mean sea level) from cruising altitude/level to interception of a glide slope or to a minimum altitude specified for the initial or intermediate approach segment of a non-precision instrument approach. The profile descent normally terminates at the approach gate or where the glide slope or other appropriate minimum altitude is intercepted.

PROGRAMMABLE INDICATOR DATA PROCESSOR/PIDP - The PIDP is a modification to the AN/TPX-42 interrogator systems currently installed in fixed Radar Approach Control'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 identifications, 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 Air Route Traffic Control Centers.

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 (P/CG) - (See Special Use Airspace).

PROHIBITED AREA (JCS) - A specified area within the land areas of a state or territorial waters adjacent thereto over which the flight of aircraft is prohibited. May also refer to land or sea areas to which access is prohibited.

PROHIBITED AREA (NATO, 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/PBCT - 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.

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.

QFE SETTING (ICAO) - A pressure type altimeter with a QFE Setting indicates altitude above the aerodrome providing the setting (Absolute Altitude). (See Altimeter Setting)

QNE SETTING (ICAO) - The QNE Setting is the Standard Altimeter Setting of 29.92 inches. It shows the altitude above the Standard Datum Plane (Pressure Altitude). (See Altimeter Setting)

QNH SETTING (ICAO) - A pressure type altimeter with a QNH Setting indicates altitude above mean sea level (true altitude). (See Altimeter Setting)

QUADRANT - A quarter part of a circle, centered on a navigational aid, oriented clockwise from magnetic North as follows: Northeast quadrant 000-089, Southeast quadrant 090-179, Southwest quadrant 180-269, Northwest quadrant 270-359. (See Altimeter Setting)

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/QFLOW - A flow control procedure by which the Central Flow Control Function (CFCF) restricts traffic to the Air Route Traffic Center area having an impacted airport thereby avoiding sector/area saturation. (See Air Traffic Control Systems Command Center)

RADAR/RADIO DETECTION AND RANGING (P/CG) - 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.

(1) 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.

(2) 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 Transponder, Interrogator)

RADAR (ICAO) - A radio detection device which provides information on range, azimuth and/or elevation of objects.

(1) PRIMARY RADAR - A radar system which uses reflected radio signals.

(2) SECONDARY RADAR - A radar system wherein a radio signal transmitted from a radar station initiates the transmission of a radio signal from another station.

RADAR (JCS) - A radio detection device which provides information on range, azimuth and/or elevation of objects.

RADAR ADVISORY (P/CG, JCS) - The provision of advice and information based on radar observations. (See Advisory Service)

RADAR APPROACH (P/CG) - An instrument approach procedure which utilizes Precision Approach Radar (PAR) or Airport Surveillance Radar (ASR). (See PAR Approach, Surveillance Approach, Airport Surveillance Radar, Precision Approach Radar, Instrument Approach Procedure)

RADAR APPROACH (ICAO) - An approach, executed by an aircraft, under the direction of a radar controller.

RADAR APPROACH CONTROL FACILITY - A terminal Air Traffic Control facility that uses radar and non-radar capabilities to provide Approach Control service to aircraft arriving, departing, or transiting airspace controlled by the facility (see Approach Control Service). Provides radar Air Traffic Control service 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 Control Approach (GCA); i.e., Airport Surveillance Radar and Precision Approach Radar approaches. A radar Approach Control facility may be operated by Federal Aviation Administration, US Air Force, US Army, US Navy, US Marine Corps, or jointly by Federal Aviation Administration 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:

Army Radar Approach Control/ARAC (Army)
Radar ATC
Facility/RATCF (Navy/Federal Aviation Administration)
Radar Approach Control/RAPCON (Air Force/Federal Aviation Administration)
Terminal Radar Approach Control/TRACON
(Federal Aviation Administration)
Tower/Airport Traffic Control Tower/ATCT (Federal Aviation Administration)
(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 Non-radar Arrival)

RADAR BEACON - (See Radar)

RADAR BEACON (JCS) - A receiver/transmitter combination which sends out a coded signal when triggered by the proper type of pulse, enabling determination of range and bearing information by the interrogating station or aircraft.

RADAR CLUTTER (ICAO) - (See Clutter)

RADAR CONTACT (P/CG) -

(1) Used by Air Traffic Control 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 automatically discontinues reporting over Compulsory Reporting Points. (See Radar Flight Following Radar Contact Lost, Radar Service, Radar Service Terminated).

(2) A term used to inform the controller that the aircraft is identified and approval is granted for the aircraft to enter the receiving controller's airspace.

RADAR CONTACT (ICAO) - The situation which exists when the radar blip of a particular aircraft is seen and identified on a radar display.

RADAR CONTACT LOST - Used by Air Traffic Control 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, Radar Contact)

RADAR ENVIRONMENT - An area in which radar service may be provided. (See Radar Contact, Radar Service, Additional Services, 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, Radar Service)

RADAR IDENTIFICATION (P/CG) - The process of ascertaining that an observed radar target is the radar return from a particular aircraft. (See Radar Contact, Radar Service)

RADAR IDENTIFICATION (ICAO) - The process of correlating a

particular radar blip 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, Radar Contact Lost)

RADAR MONITORING - (See Radar Service)

RADAR MONITORING (ICAO) - The use of radar for the purpose of providing aircraft with information and advice relative to significant deviations from nominal flight path.

RADAR NAVIGATIONAL GUIDANCE - (See Radar Service)

RADAR POINT OUT/POINT OUT - Used between controllers to indicate radar handoff action where the initiating controller plans to retain communications with an aircraft penetrating the other controller's airspace and additional coordination is required.

RADAR REQUIRED - A term displayed on charts and approach plates and included in Flight Data Center NOTAMs 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 navigational aid. The pilot can expect to be provided radar navigational guidance while transiting segments labeled with this term. (See Radar Route and Radar Service)

RADAR ROUTE - A flight path or route over which an aircraft is vectored. Navigational guidance and altitude assignments are provided by Air Traffic Control. (See Flight Path, Route)

RADAR SEPARATION - (See Radar Service)

RADAR SERVICE (P/CG) - 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.

(1) RADAR SEPARATION - Radar spacing of aircraft in accordance with established minima.

(2) RADAR NAVIGATION GUIDANCE - Vectoring aircraft to provide course guidance.

(3) 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 Instrument Landing System/Microwave Landing System approaches, it includes advice and instructions whenever an aircraft nears or exceeds the prescribed PAR safety limit or simultaneous Instrument Landing System/Microwave Landing System no transgression zone. (See Additional Service, Traffic Advisories)

RADAR SEPARATION (ICAO) - The separation used when aircraft position information is derived from radar sources.

RADAR SERVICE (ICAO) - Term used to indicate a service provided directly by means of radar.

RADAR SERVICE TERMINATED - Used by Air Traffic Control to inform a pilot that he 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:

(1) An aircraft cancels its IFR flight plan, except within a Terminal Control Area, Terminal Radar Service Area, Airport Radar Service Area or where Stage II service is provided.

(2) An aircraft conducting an instrument, visual, or contact approach has landed or has been instructed to change to advisory frequency.

(3) An arriving VFR aircraft, receiving radar service to a tower-controlled airport within a Terminal Control Area, Terminal Radar Service Area, Airport Radar Service Area, or where Stage II service is provided, has landed; or to all other airports, is instructed to change to tower or advisory frequency.

(4) 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. (See Vector)

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 six (6) levels of radar weather echo intensity. The levels are sometimes expressed during communications as "VIP LEVEL" 1 through 6 (derived from the component of the weather radar that produces the information-Video Integrator and Processor). The following list gives the "VIP levels" in relation to precip intensity within a thunderstorm:

LEVEL 1. Weak

LEVEL 2. Moderate

LEVEL 3. Strong

LEVEL 4. Very strong

LEVEL 5. Intense

LEVEL 6. Extreme

RADIAL (P/CG) - A magnetic bearing extending from a VOR/VORTAC/TACAN navigation facility.

RADIAL (JCS) - A magnetic bearing extending from a Very High Frequency Omnirange/Tactical Air Navigation station.

RADIO -

(1) A device used for communication.

(2) Used to refer to a Flight Service Station, e.g., “Seattle Radio” is used to call Seattle Flight Service Station.

RADIO ALTIMETER/RADAR 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 (P/CG) - (See Non-Directional Beacon)

RADIO BEACON (JCS, NATO) - A radio transmitter which emits a distinctive or characteristic signal used for the determination of bearings, courses, or location.

RADIO MAGNETIC INDICATOR/RMI (P/CG) - An aircraft navigational instrument coupled with a gyro compass or similar compass that indicates the direction of a selected navigational aid and indicates bearing with respect to the heading of the aircraft.

RADIO MAGNETIC INDICATOR (JCS, NATO) - An instrument which displays aircraft heading and bearing to selected radio navigation aids.

RAMP - (See Apron)

RAPID - Used in Meteorological messages (See Landing Forecast Trend type).

RAPID EXIT TAXIWAY INDICATOR LIGHTS - (See Airport Lighting)

READBACK (P/CG) - Repeat my message back to me.

READBACK (ICAO) - A procedure whereby the receiving station repeats a received message or an appropriate part thereof back to the transmitting station so as to obtain confirmation of correct reception.

RECEIVING CONTROLLER/FACILITY - A controller/facility receiving control of an aircraft from another controller/facility.

RECEIVING UNIT/CONTROLLER (ICAO) - Air Traffic Services unit/Air Traffic Controller to which a message is sent.

REDUCE SPEED TO (SPEED) - (See Speed Adjustment)

RELEASE TIME (P/CG) - A departure time restriction issued to a pilot by Air Traffic Control when necessary to separate a departing aircraft from other traffic.

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 COMMUNICATION AIR/GROUND FACILITY/RCAG - An unmanned Very High Frequency/Ultra High Frequency transmitter/receiver facility which is used to expand Air Route Traffic Center air/ground communications coverage and to facilitate direct contact between pilots and controllers. RCAG facilities are sometimes not equipped with emergency frequencies 121.5 megahertz and 243.0 megahertz.

REMOTE COMMUNICATION OUTLET/RCO AND REMOTE TRANSMITTER/RECEIVER/RTR - An unmanned communications facility remotely controlled by air traffic personnel, RCO's serve Flight Service Station's. RTR's serve terminal Air Traffic Control facilities. An RCO or RTR may be Ultra High Frequency or Very High Frequency 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 enroute 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/RTR - (See Remote Communications Outlet)

REPORT - Used to instruct pilots to advise Air Traffic Control of a specified information, e.g., "Report passing Hamilton VOR."

REPORTING POINT (P/CG) - A geographical location in relation to which the position of an aircraft is reported. (See Compulsory Reporting Point)

REPORTING POINT (ICAO) - A specified geographical location in relation to which the position of an aircraft can be reported.

REQUEST FULL ROUTE CLEARANCE/FRC - Used by pilots to request that the entire route of flight be read verbatim in an Air Traffic Control clearance. Such request should be made to preclude receiving an Air Traffic Control clearance based on the originally 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) derived from ICAO Doc. 9613 - RNP is a statement of the navigation performance accuracy necessary for operation within a defined airspace. Note: additional requirements, beyond accuracy, apply to each RNP type.

RESCUE COORDINATION CENTER/RCC (P/CG) - A Search And Rescue (SAR) facility equipped and manned to coordinate and control SAR Operations in an area designated by the SAR plan. The US Coast Guard and the US Air Force have responsibility for the operation of RCCs.

RESCUE COORDINATION CENTER (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.

RESCUE COORDINATION CENTER (JCS) - A primary Search And Rescue facility suitably staffed by supervisory personnel and equipped for coordinating and controlling Search And Rescue Operations. It may be operated jointly or unilaterally.

RESTRICTED AREA (P/CG) - (See Special Use Airspace)

RESTRICTED AREA (JCS) -

(1) An area (land, sea, or air) in which there are special restrictive measures employed to prevent or minimize interference between friendly forces.

(2) An area under military jurisdiction in which special security measures are employed to prevent unauthorized entry.

RESTRICTED AREA (NATO) - An airspace of defined dimensions above the land areas or territorial waters of the state within which the flight of aircraft is restricted in accordance with certain specified conditions. May also refer to land or sea areas to which access is restricted.

RESTRICTED AREA (ICAO) - 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.

RESTRICTED AREAS (Air) (JCS) - Designated areas established by

appropriate authority over which flight of aircraft is restricted. They are shown on aeronautical charts and published in Notices To Airmen, and publications of aids to air navigation.

RESUME NORMAL SPEED (P/CG) - 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 FAR 91.117.

RESUME OWN NAVIGATION - Used by Air Traffic Control to advise a pilot to resume his 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, Radar Service Terminated)

RNAV - (See Area Navigation)

RNAV APPROACH - An instrument approach procedure which relies on aircraft area navigation equipment for navigational guidance. (See Instrument Approach Procedure, Area Navigation)

RNP Airspace RTCA SC-181/EUROCAE WG-13 - A generic term referring to airspace, routes, or legs where minimum navigation performance requirements (RNP) exist, and aircraft must meet or exceed that performance to fly in that airspace.

RNP-(x) RNAV RTCA SC-181/EUROCAE WG-13 - A designator used to indicate the minimum navigation system requirements needed to operate in an area, on a route, or on a procedure (e.g., RNP-1 RNAV, RNP-4 RNAV).

RNP Type based on ICAO Doc. 9613 - RNP accuracy standards require an aircraft to remain within a specific number of nautical miles (NM) of its cleared position for 95% of the duration of the flight. This designator invokes all of the navigation performance requirements associated with the applicable RNP number, which is a containment value, (e.g., RNP-1, RNP-4, RNP-5, RNP-12.6, RNP-20).

ROAD RECONNAISSANCE (RC) - 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 nautical miles to 30 nautical miles and altitude range of 500 feet to 10,000 feet above ground level.

ROGER - I have received all of your last transmission. It should not be used to answer a question requiring a yes or no answer. (See Affirmative, Negative)

ROLLOUT RVR - (See Visibility)

ROUTE (P/CG) - A defined path, consisting of one or more courses in a horizontal plane, which aircraft traverse over the surface of the earth. (See Jet Route, Airway, Published Route, Unpublished Route)

ROUTE (JCS, NATO) - The prescribed course to be traveled from a specific point of origin to a specific destination.

ROUTE DESCRIPTION (ICAO) - The unambiguous delineation of a route in terms of an ordered sequence of Air Traffic Service route designators and/or significant points.

ROUTE SEGMENT (P/CG) - Used in Air Traffic Control, a part of a route that can be defined by two navigational fixes, two navigational aids, or a fix and a navigational aid. (See Route, Fix)

ROUTE SEGMENT (ICAO) - A portion of a route to be flown, as defined by two consecutive significant points specified in a flight plan.

RUNWAY (P/CG) - A defined rectangular area, on a land airport prepared for the landing and take-off 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 25, runway 01. (See Parallel Runways)

RUNWAY (JCS, NATO, ICAO) - A defined rectangular area, on a land aerodrome prepared for the landing and take-off run of aircraft along its length.

RUNWAY CENTERLINE LIGHTING - (See Airport Lighting)

RUNWAY CONDITION READING/RCR - 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 point on a runway. Runway gradient is depicted on Government Aerodrome Sketches when total runway gradient exceeds 0.3 percent.

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 take-off or landing. When multiple runways are used, they are all considered active runways.

RUNWAY LIGHTS - (See Airport Lighting)

RUNWAY MARKINGS - (See Airport Marking Aids)

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 Standard Terminal Arrival (STAR). Runway profile descents provide routing, and may depict crossing altitudes, speed restrictions, and headings to be flown from the enroute 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.

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 Federal Aviation Administration 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.

(1) Formal runway use program. An approved noise abatement program which is defined and acknowledged in a

Letter of Understanding between Flight Standards, 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 Federal Air Regulations Section 91.129.

(2) 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/RVR (P/CG) - (See Visibility)

RUNWAY VISUAL RANGE/RVR (ICAO) - (See Visibility)

RUNWAY VISUAL RANGE (JCS, NATO) - The maximum distance in the direction of take-off or landing at which the runway, or specified lights or markers delineating it, can be seen from a position above a specified point on its centerline at a height corresponding to the average eye level of pilots at touchdown.

RVSM Airspace (FAA AC 91-RVSM) - Any airspace or route between FL290 and FL410 inclusive where aircraft are separated vertically by 1000 ft (300 m).

SAFETY ALERT - A safety alert issued by Air Traffic Control to aircraft under their control if Air Traffic Control 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 is taking action to correct the situation or has the other aircraft in sight.

(1) TERRAIN/OBSTRUCTION ALERT - A safety alert issued by Air Traffic Control to aircraft under their control if Air Traffic Control 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”.

(2) AIRCRAFT CONFLICT ALERT - A safety alert issued by Air Traffic Control to aircraft under their control if Air Traffic Control 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, Air Traffic Control will offer the pilot an alternate course of action when feasible, e.g., “Traffic alert, advise you turn right heading zero nine zero or climb to eight thousand immediately”.

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 Air Traffic Control's control. Once the advisory is issued, it is solely the pilot's prerogative to determine what course of action, if any, he 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 (P/CG) - 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.

d. 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 Air Traffic Control 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 Air Traffic Control to request an aircraft heading. The pilot should state the actual heading of the aircraft.

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 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)

SEARCH AND RESCUE/SAR (P/CG) - 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 US Coast Guard is responsible for coordination of Search And Rescue for the Maritime Region and the US 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, Rescue Coord Center)

SEARCH AND RESCUE (JCS, NATO) - The use of aircraft, surface craft, submarines, specialized rescue teams and equipment to search for and rescue personnel in distress on land or at sea.

SEE AND AVOID - A visual procedure wherein pilots of aircraft flying in Visual Meteorological Conditions (VMC), regardless of type of flight plan, are charged with the responsibility to observe the presence of other aircraft and to maneuver their aircraft as required to avoid the other aircraft. Right-of-way rules are contained in Federal Air Regulations, Part 91. (See Instrument Flight Rules, Visual Flight Rules, Visual Meteorological Conditions, Instrument Meteorological Conditions)

SEGMENTED CIRCLE - A system of visual indicators designed to provide traffic pattern information at airports without operating control towers.

SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE (P/CG) - An instrument approach procedure may have as many as four separate segments depending on how the approach procedure is structured.

(1) INITIAL APPROACH - The segments 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.

(2) INTERMEDIATE APPROACH - The segment between the intermediate fix or point and the Final Approach Fix.

(3) FINAL APPROACH - The segment between the Final Approach Fix or point and the runway, airport or missed approach point.

(4) MISSED APPROACH - The segment between the Missed Approach Point, or point of arrival at Decision Height, and the missed approach fix at the prescribed altitude. (Refer to Federal Air Regulations Part 97)

SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE (JCS, NATO) -

(1) INITIAL APPROACH - That part of an instrument approach procedure consisting of the first approach to the first navigational facility associated with the procedure, or to a predetermined fix.

(2) INTERMEDIATE APPROACH - That part of an instrument approach procedure from the first arrival at the navigation facility or predetermined fix, to the beginning of the final approach.

(3) FINAL APPROACH - That part of an instrument approach procedure from the time the aircraft has:

(a) Completed the last procedure turn or base turn where one is specified, or

(b) crossed a specified fix, or

(c) intercepted the last track specified for the procedures; until it has crossed a point in the vicinity of an aerodrome from which:

(1) A landing can be made; or

(2) A missed approach procedure is initiated.

(4) MISSED APPROACH PROCEDURE - The procedure to be followed if, after an instrument approach, a landing is not effected and occurring normally:

(a) When the aircraft has descended to the Decision Height/altitude and has not established visual contact, or

(b) when directed by Air Traffic Control to pull up or to go around again.

SEGMENTS OF AN INSTRUMENT APPROACH PROCEDURE (ICAO) -

(1) INITIAL APPROACH SEGMENT - 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.

(2) INTERMEDIATE APPROACH SEGMENT - 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.

(3) FINAL APPROACH SEGMENT - That segment of an instrument approach procedure in which alignment and descent for landing are accomplished.

(4) MISSED APPROACH PROCEDURE - The procedure to be followed if the approach cannot be continued.

SELECTIVE CALLING SYSTEM/SELCAL (ICAO) - A system which permits selective calling of individual aircraft over radio telephone channels linking a ground station with the aircraft.

SEPARATION (P/CG) - In Air Traffic Control, the spacing of aircraft to achieve their safe and orderly movement in flight and while landing and take-off. (See Separation Minima)

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)

SEVERE WEATHER AVOIDANCE PLAN/SWAP - An approved plan to minimize the affect of severe weather on traffic flows in impacted terminal and/or Air Route Traffic Center areas. SWAP is normally implemented to provide the least disruption to the Air Traffic Control system when flight through portions of airspace is difficult or impossible due to severe weather.

SEVERE WEATHER FORECAST ALERTS/SWFA - 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 SIGMET, Convective SIGMET, CWA, and AIRMET)

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/STOL 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 Take-Off and Landing Aircraft)

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 1200 feet to either side of the runway to which the instrument approach was conducted.

SIGMET/WS/SIGNIFICANT METEOROLOGICAL INFORMATION (P/CG) - 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 Convective SIGMET, Center Weather Advisory, Severe Weather Forecast Alerts, and AIRMET).

SIGMET INFORMATION (ICAO) - Information issued by a Meteorological watch office concerning the occurrence of specified enroute weather phenomena which may affect the safety of aircraft operations.

SIGNIFICANT POINT (P/CG) - A point, whether a named intersection, a NAVAID, a fix derived from 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/SDF - A navigational aid used for nonprecision instrument approaches. The final approach course is similar to that of an Instrument Landing System 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.

SIMULATED FLAMEOUT/SFO - A practice approach by a jet

aircraft (normally military) at idle thrust to a runway. The approach may start at a relatively high altitude over a runway (high key) and may continue on a relatively high and wide downwind leg with a high rate of descent and a continuous turn to final. It terminates in a landing or low approach. The purpose of this approach is to simulate a flameout. (See Flameout)

SIMULTANEOUS ILS/MLS APPROACHES - An approach system permitting simultaneous Instrument Landing System/Microwave Landing System approaches to airports having parallel runways separated by at least 4,300 feet between centerlines. Integral parts of a total system are Instrument Landing System/Microwave Landing System, radar, communications, Air Traffic Control procedures, and appropriate airborne equipment. (See Parallel Runways)

SIMULTANEOUS OPERATIONS ON INTERSECTING RUNWAYS - Operations which include simultaneous take-off and landings/simultaneous landings when a landing aircraft is able and is instructed by the controller to hold short of the intersecting runway or designated hold short point. Pilots are expected to promptly inform the controller if the hold short clearance cannot be accepted.

SINGLE DIRECTION ROUTES - Preferred IFR routes which are sometimes depicted on high altitude enroute charts and which are normally flown in one direction only. (See Preferred IFR Route)

SINGLE FREQUENCY APPROACH/SFA - A service provided under a Letter of Agreement to military single-piloted turbojet aircraft which permits use of a single Ultra High 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 enroute descent are required to change frequency when control is transferred from the Air Route Traffic 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 Air Traffic Control when determining the appropriate Air Traffic Service to be applied. (See Single Frequency Approach)

SLASH - A radar beacon reply displayed as an elongated target.

SLOW TAXI - To taxi a float plane at low power or low Revolutions Per Minute.

SPEAK SLOWER - Used in verbal communications as a request to reduce speech rate.

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 (P/CG) - 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:

(1) 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 Air Regulations and pilots of participating aircraft as well as pilots transiting the area are equally responsible for collision avoidance.

(2) 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.

(3) 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.

(4) PROHIBITED AREA - Designated airspace within which the flight of aircraft is prohibited. (Refer to Enroute Charts)

(5) RESTRICTED AREA - Airspace designated under Federal Air Regulations, 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 Air Traffic Control facility when it is not being utilized by the using agency. Restricted areas are depicted on enroute charts. Where joint use is authorized, the name of the Air Traffic Control control facility is also shown. (Refer to Federal Air Regulations, Part 73)

(6) WARNING AREA - Airspace which may contain hazards to nonparticipating aircraft in international airspace.

SPECIAL AIRCREW AND AIRCRAFT AUTHORIZATION REQUIRED (SAAAR) - Indicates additional aircrew training, appropriate aircraft equipment, and operational approval required to fly specified instrument procedures.

SPECIAL VFR CONDITIONS - Weather conditions in a Control Zone which are less than basic VFR and in which some aircraft are permitted flight under Visual Flight Rules. (See Special VFR Operations) (Refer to Federal Air Regulations Part 91)

SPECIAL VFR FLIGHT (ICAO) - A controlled VFR flight authorized by Air Traffic Control to operate within a Control Zone under Meteorological conditions below the Visual Meteorological Conditions.

SPECIAL VFR OPERATIONS - Aircraft operating in accordance with clearances within Control Zones in weather conditions less than the basic VFR weather minima. Such operations must be requested by the pilot and approved by Air Traffic Control. (See Special VFR Conditions)

SPEED - (See Airspeed, Groundspeed)

SPEED ADJUSTMENT - An Air Traffic Control 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 specified speed.

Examples of speed adjustments are:

(1) “Increase/reduce speed to mach point (number)”.

(2) “Increase/reduce speed to (speed in knots)”, or “Increase/reduce speed (number of knots) knots”.

NOTE: See General Planning, paragraph 5-28 b.

SPEED BRAKES/DIVE BRAKES - Moveable aerodynamic devices on aircraft that reduce airspeed during descent and landing.

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)

STANAGS - NATO STANDARDIZATION AGREEMENTS - Represent agreements among participating NATO countries outlining common operational procedures.

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." If a delay is lengthy, the caller should re-establish contact.

STAND BY (P/CG) - 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.

STANDARD INSTRUMENT APPROACH PROCEDURE - (See Instrument Approach Procedure)

STANDARD INSTRUMENT DEPARTURE/SID - A preplanned Instrument Flight Rule (IFR) Air Traffic Control departure procedure printed for pilot use in graphic and/or textual form. SIDs provide transition from the terminal to the appropriate enroute structure. (See IFR Take-off Minima and Departure Procedure)

STANDARD RATE TURN - A turn of three degrees per second.

STANDARD TERMINAL ARRIVAL/STAR - A preplanned Instrument Flight Rule (IFR) Air Traffic Control arrival procedure published for pilot use in graphic and/or textual form. STARs provide transition from the enroute structure to an outer fix or an Instrument Approach Fix/arrival waypoint in the terminal area.

STATE AIRCRAFT (P/CG) - 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 of commercial purposes.

STATIONARY RESERVATIONS - Altitude reservations which encompass activities in a fixed area. Stationary reservations may include activities such as special test of weapons systems or equipment, certain US 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 Revolutions Per Minute.

STEP TURN - A maneuver used to put a float plane in a planing configuration prior to entering an active sea lane for take-off. The step turn maneuver should only be used upon pilot request.

STEREO ROUTE - A routinely used route of flight established by users and Air Route Traffic Control Centers identified by a coded name, e.g., ALPHA 2. These routes minimize flight plan handling and communications.

STOP ALTITUDE SQUAWK - Used by Air Traffic Control 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, Transponder)

STOP AND GO - A procedure wherein an aircraft will land, make a complete stop on the runway, and then commence a take-off from that point. (See Low Approach, Option Approach)

STOP OVER 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 Air Traffic Control to tell the pilot to turn specified functions of the aircraft transponder off. (See Stop Altitude Squawk, Transponder)

STOP STREAM/BURST/BUZZER - Used by Air Traffic Control to request a pilot to suspend electronic countermeasure activity. (See Jamming)

STOPWAY - An area beyond the take-off runway designated by the airport authorities as able to support an airplane during an aborted take-off. (Refer to Federal Air Regulations, Part 1)

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 Straight-in Landing, Landing Minimums, Straight-in Approach-VFR)

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 degrees of the final approach course following completion of an instrument approach. (See Straight-in Approach-IFR)

STRAIGHT-IN LANDING MINIMUMS/STRAIGHT-IN MINIMUMS - (See Landing Minimums)

SUBSTITUTE ROUTE - A route assigned to pilots when any part of an airway or route is unusable because of navigational aid status. These routes consist of:

(1) Substitute routes which are shown on United States Government Charts.

(2) Routes defined by Air Traffic Control as specific navigational aid radials or courses.

(3) Routes defined by Air Traffic Control as direct to or between navigational aids.

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/SHF - The frequency band between 3 and 30 gigahertz (gHz). The elevation and azimuth stations of the Microwave Landing System operate from 5031 megahertz to 5091 megahertz in this spectrum.

SURFACE AREA (P/CG) - 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.

SURVEILLANCE APPROACH (P/CG) - 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. (See PAR Approach)

SURVEILLANCE APPROACH (JCS) - An instrument approach conducted in accordance with directions issued by a controller referring to the surveillance radar display.

SYSTEM STRATEGIC NAVIGATION/SN - 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 nautical miles and altitude range of 1,000 feet to 6,000 feet above ground level with some route segments that permit terrain following.

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.

TACAN/TACTICAL AIR NAVIGATION (P/CG) - 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)

TACAN (JCS, NATO) - An ultra-high frequency electronic air navigation system which provides a continuous indication of bearing and distance (slant range) to the TACAN station, common components being used in distance and bearing determination. The term is derived from tactical air navigation.

TAILWIND (P/CG) - 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.

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.

TAKE-OFF SAFETY SPEED - A referenced airspeed obtained after liftoff at which the required one-engine-inoperative climb performance can be achieved. (Refer to Federal Air Regulations, Part 91)

TARGET (P/CG) - The indication shown on a radar display resulting from a primary radar return or a radar beacon reply. (See Target Symbol, Radar)

TARGET (ICAO) - In radar:

(1) Generally, any discrete object which reflects or retransmits energy back to the radar equipment;

(2) 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:

(1) Between the edges of two primary targets or the edges of the ASR-9 primary target symbol.

(2) Between the end of the beacon control slash and the edge of a primary target.

(3) Between the ends of two beacon control slashes.

MANDATORY TRAFFIC ADVISORIES AND SAFETY ALERTS SHALL BE ISSUED WHEN THIS PROCEDURE IS USED.

Note: 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 (Federal Air Regulations Part 135.100-Note). Also, it describes the surface movement of helicopters equipped with wheels. (See Air Taxi, Hover Taxi) (Refer to 7110.65-972)

TAXI PATTERNS - Patterns established to illustrate the desired flow of ground traffic for the different runways or airport areas available for use.

TELEPHONE INFORMATION BRIEFING SERVICE/TIBS - A continuous telephone recording of Meteorological and / or aeronautical information. (refer to Airman's Information Manual)

TEMPO - Used in Meteorological messages (See Landing Forecast Trend type).

TEMPORARY RESERVED AIRSPACE/TRA (NGA) - An airspace of defined dimensions within which certain military flying activities dangerous to the flight of civil aircraft may exist at specified times. These published areas may for operational and/or safety reasons be extended laterally as well as vertically by NOTAM.

TEMPORARY SEGREGATED AIRSPACE/TSAs (NGA) - TSAs are airspace of defined dimensions, within which activities require the reservation of airspace for the exclusive use of specific users during a determined period of time. TSAs permit activities requiring temporary reservation to be allocated on the day before operations. This allows the Airspace Management Cell (AMC) to make available, if required, Conditional Routes (CDRs) outside the planned hours of associated TSAs. All airspace reservations (TSAs) and restrictions (Danger/Restricted Areas, MTAs, AARAs etc.) that are managed and allocated the day before operations by the AMC, are identified as "AMC Manageable Areas" in the relevant AIP. Any remaining Danger and Restricted areas that are not suitable for AMC management remain unaltered.

TEND - Used in Meteorological messages (See Landing Forecast Trend type).

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, special IFR aircraft and on occasion, enroute aircraft. (See Approach Control, Tower)

TERMINAL CONTROL AREA - (See Controlled Airspace)

TERMINAL CONTROL AREA (JCS, NATO, ICAO) - A control area normally established at the confluence of Air Traffic Service routes in the vicinity of one or more major airfields.

TERMINAL RADAR SERVICE AREA/TRSA - 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. TRSAs are depicted on VFR aeronautical charts. Pilot participation is urged but is not mandatory.

TERMINAL-VERY HIGH FREQUENCY OMNIDIRECTIONAL RANGE STATION [TVOR] - A Very High Frequency terminal omnirange station located on or near an airport and used as an approach aid. (See Navigational Aids) (See VOR)

TERRAIN FOLLOWING/TF - The flight of a military aircraft maintaining a constant above ground level 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)

THAT IS CORRECT - The understanding you have is right.

THRESHOLD - The beginning of that portion of the runway usable for landing. (See Airport Lighting, Displaced Threshold)

THRESHOLD CROSSING HEIGHT/TCH - The theoretical height above the runway threshold at which the aircraft's glide slope antenna would be if the aircraft maintains the trajectory established by the mean Instrument Landing System glide slope or Microwave Landing System glide path. (See Glideslope/Glidepath, Threshold).

THRESHOLD LIGHTS - (See Airport Lighting)

THUNDERSTORM INTENSITY LEVELS - (See Radar Weather Echo Intensity Levels)

TIME GROUP - Four digits representing the hour and minutes from the 24 hour clock. Time group without time zone indicators are understood to be Coordinated Universal Time (UTC); e.g., "0205". The term "Zulu" is used when Air Traffic Control procedures require a reference to Coordinated Universal Time. A time zone designator is used to indicate local time, e.g., "0205M". The end and beginning of the day are shown by "2400" and "0000", respectively.

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/TOTAL EET (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 (for use in international flight planning). (See Estimated Elapsed Time).

TOUCH AND GO/TOUCH AND GO LANDING - An operation by an aircraft that lands and departs on a runway without stopping or exiting the runway.

TOUCHDOWN (P/CG) -

(1) The point at which an aircraft first makes contact with the landing surface.

(2) Concerning a precision radar approach (PAR), it is the point where the glide path intercepts the landing surface.

TOUCH-DOWN (JCS, NATO) -The contact, or moment of contact, of an aircraft or spacecraft with the landing surface.

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 (P/CG) -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.

TOUCH DOWN ZONE (NATO) -

(1) FOR FIXED WING AIRCRAFT - The first 3,000 feet or 1,000 meters of runway beginning at the threshold.

(2) FOR ROTARY WINGS AND VECTORED THRUST AIRCRAFT - That portion of the helicopter landing area or runway used for landing.

TOUCHDOWN ZONE (ICAO) - The portion of a runway, beyond the threshold, where it is intended landing aircraft first contact the runway.

TOUCHDOWN ZONE ELEVATION/TDZE -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/AIRPORT TRAFFIC CONTROL TOWER/ATCT - A terminal facility that uses air/ground radio communications, visual signaling, and other devices to provide Air Traffic Control services to aircraft operating in the vicinity of an airport or on the movement area. Authorizes aircraft to land or take-off at the airport controlled by the tower or to transit the airport traffic area regardless of flight plan or weather conditions (IFR or VFR). A tower may also provide approach control service (radar or nonradar). (See Airport Traffic Area, Airport Traffic Control Service, Approach Control/Approach Control Facility, Approach Control Service, Movement Area, Tower Enroute Control Service/Tower to Tower)

TOWER ENROUTE CONTROL SERVICE/TOWER TO TOWER - The control of IFR enroute 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.

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 Automatic Radar Terminal Systems, Transponder)

TRACK (P/CG) - The actual flight path of an aircraft over the surface of the earth. (See Course, Route, Flight Path)

TRACK (JCS, NATO, 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 -

(1) 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 (a) in response to a handoff or point out, (b) in anticipation of a handoff or point out, or (c) in conjunction with a request for control of an aircraft.

(2) A term used by Air Traffic Control to refer to one or more aircraft.

TRAFFIC ALERT - (Identification), traffic alert, advise you turn left/right (specific heading if appropriate), and/or climb/descend (specific altitude if appropriate) immediately. (See Safety Alert)

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 attention. Such advisories may be based on:

(1) Visual observation,

(2) Observation of radar identified and non identified aircraft targets on an Air Traffic Control radar display, or,

(3) Verbal reports from pilots or other facilities.

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." 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 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 should not assume that all traffic will be issued. "(Identification), traffic alert, advise you turn left/right (specific heading if appropriate), and/or climb/descend (specific altitude if appropriate) immediately." (See Safety Alert)

TRAFFIC ALERT AND COLLISION AVOIDANCE SYSTEM/TCAS - An airborne collision avoidance system based on radar beacon signals which operates independently 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 (P/CG) - (See Traffic Advisories)

TRAFFIC INFORMATION (RADAR) (JCS) - Information issued to alert an aircraft to any radar targets observed on the radar display which may be in such proximity to its position or intended route of flight to warrant its attention.

TRAFFIC IN SIGHT - Used by pilots to inform a controller that previously issued traffic is in sight. (See Negative Contact, Traffic Advisories)

TRAFFIC MANAGEMENT PROGRAM ALERT/TMPA - 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 Airman publication or a special traffic management program advisory message for program details. The contraction TMPA is used in NOTAM text.

TRAFFIC NO FACTOR - Indicates that the traffic described in a previously issued traffic advisory is no 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.

(1) UPWIND LEG - A flight path parallel to the landing runway in the direction of landing.

(2) CROSSWIND LEG - A flight path at right angles to the landing runway off its upwind end.

(3) 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.

(4) 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.

(5) 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 Taxi Patterns, Straight-In Approach VFR) (Refer to Federal Air Regulations Part 91)

TRANSCRIBED WEATHER BROADCAST/TWEB - A continuous recording of meteorological and aeronautical information that is broadcast on L/MF and VOR facilities for pilots.

TRANSFER OF CONTROL (P/CG) - That action whereby the responsibility for the separation of an aircraft is transferred from one controller to another.

TRANSFER OF CONTROL (ICAO) - Transfer of responsibility for providing air traffic control service.

TRANSFERRING CONTROLLER/FACILITY (P/CG) - A controller/facility transferring control of an aircraft to another controller/facility.

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.

TRANSITION -

(1) The general term that describes the change from one phase of flight or flight condition to another, e.g., transition from enroute flight to the approach or transition from instrument flight to visual flight.

(2) A published procedure (SID Transition) used to connect the basic Standard Instrument Departure to one of several enroute airways/jet routes, or a published procedure (STAR Transition) used to connect one of several enroute

airways/jet routes to the basic Standard Terminal Arrival Route. (Refer to SID/STAR Charts)

TRANSITION ALTITUDE (NATO, ICAO) - The altitude in the vicinity of an aerodrome at or below which the vertical position of an aircraft is controlled by reference to altitudes.

TRANSITION AREA - (See Controlled Airspace)

TRANSITION LAYER (JCS, NATO, ICAO) - The airspace between the Transition Altitude and the Transition Level.

TRANSITION LEVEL (JCS, NATO, ICAO) - The lowest Flight Level available for use above the Transition Altitude.

TRANSITION POINT (P/CG) - 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.

TRANSITIONAL AIRSPACE (P-CG) - That portion of controlled airspace wherein aircraft change from one phase of flight or flight condition to another.

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/BLIND TRANSMISSION - A transmission from one station to another station in circumstances where two-way communication cannot be established, but where it is believed that the called station may be able to receive the transmission.

TRANSPONDER (P/CG) - 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)

TRANSPONDER (JCS, NATO, ICAO) - A receiver/transmitter which will generate a reply signal upon proper interrogation; the interrogation and reply being on different frequencies.

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.

TVOR/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 VOR, Navigational Aid)

TWO WAY RADIO COMMUNICATIONS FAILURE - (See Lost Communications)

ULTRAHIGH FREQUENCY/UHF - The frequency band between 300 and 3,000 megahertz. The bank of radio frequencies used for military air/ground voice communications. In some instances this may go as low as 225 megahertz and still be referred to as UHF.

ULTRALIGHT VEHICLE - An aeronautical vehicle operated for sport or recreational purposes which does not require Federal Aviation Administration 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 Air Traffic Control. (See Federal Air Regulations 103)

UNABLE - Indicates inability to comply with a specific instruction, request, or clearance.

UNCONTROLLED AIRSPACE - Uncontrolled airspace is that portion of the airspace that has not been designated as Continental Control Area, Control Area, Control Zone, Terminal Control Area, or Transition Area and within which Air Traffic Control has neither the authority nor the responsibility for exercising control over air traffic. (See Controlled Airspace)

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 Federal Air Regulations Part 91)

UNICOM - A non-government communications facility which may provide airport advisory information at certain airports. Locations and frequencies of UNICOMs are shown on aeronautical charts and publications.

UNPUBLISHED ROUTE - A route for which no minimum altitude is published or charted for pilot use. It may include a direct route between navigational aids, a radial, a radar vector, or a final approach course beyond the segments of an instrument approach procedure. (See Route, Published Route)

UPPER CONTROL AREA/UTA (ICAO) - Controlled Airspace within an Upper Flight Information Region.

UPPER INFORMATION REGION/UIR (ICAO) - An airspace of defined dimensions above Flight Information Region(s) within which Flight Information Service and Alerting Service are provided for aircraft operating at high altitudes.

UPWIND LEG - (See Traffic Pattern)

URGENCY (P/CG) - A condition of being concerned about safety and of requiring timely but not immediate assistance; a potential distress condition.

URGENCY (ICAO) - A condition concerning the safety of an aircraft or other vehicle, or of a person on board or in sight, but which does not require immediate assistance.

UNITED STATES AIRPORT OF ENTRY - Aircraft may land at these airports without prior permission to land from United States Customs. However, at least 1 hour advanced notice of arrival must be furnished to Customs. This may be included in the flight plan if filed in Canada or Mexico and if destined to an airport where flight notification service (ADCUS) is available.

UNITED STATES LANDING RIGHTS AIRPORTS (United States Aeronautical Information Publication) - Those airports listed in the Foreign Clearance Guide - North and South America, at which any aircraft may land with Prior Permission Required from United States Customs Service. In addition, advance notice of arrival must be furnished to Customs at least one hour in advance (or as specified in the Foreign Clearance Guide). Since some United States Customs Offices have limited staffs, the maximum number of passengers per individual flight which can be effectively processed at certain locations are as stated in the Foreign Clearance Guide. Note: Selected Landing Rights Airports are identified in the United States IFR Enroute Supplement.

V2 - Takeoff safety speed. (Refer to Federal Air Regulations, Part 91)

VECTOR (P/CG, JCS) - A heading issued to an aircraft to provide navigational guidance by radar.

VECTOR (JCS) - In air intercept, close air support and air interdiction usage, alter heading to magnetic heading indicated. Heading ordered must be in three digits; e.g., "vector" zero six zero (for homing, use "steer").

VERIFY - Request confirmation of information; e.g., "verify assigned altitude."

VERIFY SPECIFIC DIRECTION OF TAKE-OFF (OR TURNS AFTER TAKE-OFF) - Used by Air Traffic Control to ascertain an aircraft's direction of take-off and/or direction of turn after take-off. 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 a Flight Service Station, dispatcher, or by other means. (See IFR Take-off Minimums and Departure Procedures)

VERTICAL SEPARATION (P/CG) - Separation established by assignment of different altitudes or Flight Levels. (See Separation)

VERTICAL SEPARATION (JCS, NATO) - A specified vertical distance measured in terms of space between aircraft in flight at different altitudes or Flight Levels.

VERTICAL SEPARATION (ICAO) - Separation between aircraft expressed in units of vertical distance.

VERTICAL TAKEOFF AND LANDING AIRCRAFT/VTOL aircraft - Aircraft capable of vertical climbs and/or descents and of using very short runways or small areas for take-off and landings. These aircraft include, but are not limited to, helicopters. (See Short Take-off and Landing Aircraft)

VERY HIGH FREQUENCY/VHF - The frequency band between 30 and 300 megahertz. Portions of this band, 108 to 118 megahertz, are used for certain navigational aids; 118 to 136 megahertz are used for civil air/ground voice communications. Other frequencies in this band are used for purposes not related to Air Traffic Control.

VERY LOW FREQUENCY/VLF - The frequency band between 3 and 30 kilohertz.

VFR AIRCRAFT/VFR FLIGHT - 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 VFR. The term may be used as an Air Traffic Control clearance/instruction only when:

(1) An IFR aircraft requests a climb/descent in VFR conditions.

(2) The clearance will result in noise abatement benefits where part of the IFR departure route does not conform to a Federal Aviation Administration approved noise abatement route or altitude.

(3) A pilot has requested a practice instrument approach and is not on an IFR flight plan.

(4) All pilots receiving this authorization must comply with the VFR visibility and distance from cloud criteria in Federal Air Regulations Part 91. Use of the term does not relieve controllers of their responsibility to separate aircraft in Terminal Control Areas/Terminal Radar Service Areas as required by Federal Aviation Administration Handbook 7110.65. When used as an Air Traffic Control clearance/instruction, the term may be abbreviated "VFR," e.g., "Maintain VFR," "Climb/descend VFR," etc.

VFR ON TOP - Air Traffic Control authorization for an IFR aircraft to operate in VFR conditions at any appropriate VFR altitude (as specified in Federal Air Regulations and as restricted by Air Traffic Control). A pilot receiving this authorization must comply with the VFR visibility, distance from cloud criteria, and the minimum IFR altitudes specified in Federal Air Regulations Part 91. The use of this term does not relieve controllers of their responsibility to separate aircraft in Terminal Control Areas/Terminal Radar Service Areas as required by Federal Aviation Administration Handbook 7110.65.

VFR MILITARY TRAINING ROUTES/VR - Routes used by the Department of Defense and associated Reserve and Air Guard units for the purpose of conducting low-altitude navigation and tactical training under VFR below 10,000 feet mean sea level at airspeeds in excess of 250 knots indicated airspeed.

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 forecasted weather conditions are at or below Visual Flight Rules minimums. It does not abrogate the pilot's authority to make his own decision.

VFR TOWER/NON-APPROACH CONTROL TOWER - (See Tower/Airport Traffic Control Tower)

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, navigational aids and fixes, reporting points, airways/route centerlines, boundaries, handoff points, special use tracks, obstructions, prominent geographic features, map alignment indicators, range accuracy marks, minimum vectoring altitudes.

VISIBILITY (P/CG) - 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 statue miles, hundreds of feet or meters. (Refer to Federal Air Regulations Part 91)

(1) 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.

(2) GROUND VISIBILITY - Prevailing horizontal visibility near the earth's surface as reported by the United States National Weather Service or an accredited observer.

(3) PREVAILING VISIBILITY - The greatest horizontal visibility equaled or exceeded throughout at least half the horizon circle which need not necessarily be continuous.

(4) 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 statue miles or fractions of statue mile) for the runway. RVV is used in lieu of prevailing visibility in determining minimums for a particular runway.

(5) 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 Runway Visibility Value and/or prevailing visibility in determining minimums for a particular runway.

(a) TOUCHDOWN RVR - The RVR visibility readout values obtained from RVR equipment serving the runway Touchdown Zone.

(b) MID RVR - The RVR readout values obtained from RVR equipment located mid-field of the runway.

(c) ROLLOUT RVR - The RVR readout values obtained from RVR equipment located nearest the rollout end of the runway.

VISIBILITY (ICAO) -

(1) FLIGHT VISIBILITY - The visibility forward from the cockpit of an aircraft in flight.

(2) GROUND VISIBILITY - The visibility at an aerodrome, as reported by an accredited observer.

(3) RUNWAY VISUAL RANGE/RVR - The maximum distance in the direction of take-off or landing at which the runway or the specified lights or markers delineating it can be seen from a position above a specified point on its centering at a height corresponding to the average eye-level of pilots at touchdown.

VISUAL APPROACH (P/CG) - 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.

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/VDP - A defined point on the final approach course of a non-precision straight-in approach procedure from which normal descent from the Minimum Descent Altitude 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/VFR - 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, Instrument Meteorological Condition)

VISUAL HOLDING - The holding of aircraft at selected, prominent, geographical fixes which can be easily recognized from the air. (See Hold, Holding Fixes)

VISUAL METEOROLOGICAL CONDITIONS/VMC - Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling equal to or better than specified minima. (See Instrument Meteorological Conditions, Visual Flight Rules, Instrument Flight Rules)

VISUAL SEPARATION - A means employed by Air Traffic Control to separate aircraft in terminal areas. There are two ways to effect this separation:

(1) The tower controller sees the aircraft involved and issues instructions, as necessary, to ensure that the aircraft avoid each other.

(2) A pilot sees the other aircraft involved and upon instructions from the controller provides his own separation by maneuvering his 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 Federal Air Regulations Part 91)

VORTAC/VHF OMNIDIRECTIONAL RANGE/TACTICAL AIR NAVIGATION - A navigation aid providing VOR azimuth, TACAN azimuth, and TACAN distance measuring equipment (DME) at one site. (See VOR, Distance Measuring Equipment, TACAN, Navigational Aids)

VORTICES/WING TIP 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 high pressure is created beneath it and an 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 Wake Turbulence, Aircraft Classes)

VOR/VHF omnidirectional range station - 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 Air Traffic Control or Flight Service Stations for transmitting instructions/information to pilots. (See Navigational Aids)

VOT/VOR TEST SIGNAL - 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. (Refer to Federal Air Regulations Part 91)

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 Jet Blast, Aircraft Classes)

WARNING AREA - (See Special Use Airspace).

WAYPOINT - A predetermined geographical position used for route/instrument approach definition, or progress reporting purposes, that is defined relative to a VORTAC station or in terms of latitude/longitude coordinates. (NGA assigned Waypoint names are strictly for electronic identification in the Digital Aeronautical Flight Information File (DAFIF). Neither FAA nor ATC use these Waypoints for flight planning or clearance requests.)

WEATHER ADVISORY/INFLIGHT WEATHER ADVISORY - (See SIGMET, AIRMET)

WEATHER ADVISORY/WS/WST/WA/CWA - 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 National Weather Service.

WHEN ABLE - When used in conjunction with Air Traffic Control 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.

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.

WORDS TWICE -

(1) As a request: "Communication is difficult. Please say every phrase twice."

(2) As information: "Since communications are difficult, every phrase in this message will be spoken twice."

Chapter 3

FLIP PROGRAM

3-1 GENERAL - This chapter describes the DoD FLIP program, individual FLIP products and related publications.

a. DoD FLIPs are published with effective dates which coincide with a schedule established by the internationally accepted Aeronautical Information Regulation and Control (AIRAC) system. Under this arrangement, which is associated with the Notice to Airmen (NOTAM) system, changes announced in advance are effective on a 28 day basis. Note that in the following individual product descriptions of DoD FLIPs, the common AIRAC 4 week cycle (or increments thereof) is followed.

b. DoD FLIP product groups are aligned with the three flight phases - Planning, Enroute and Terminal, therefore no single publication contains all of the information which may be required by aircrews. Planning documents and charts, enroute charts and supplements, terminal procedures, and also NOTAM files must be consulted prior to flight. International flight planners must also refer to the Foreign Clearance Guide.

c. The following DoD FLIP products can be downloaded from https://www.geointel.nga.mil DAFIF, Planning Documents, Flight Information Handbook, and Terminal Instrument Procedures. Downloaded products from the NGA web site should be cross checked against Traditional Paper FLIP. Aircrews have a responsibility to report deviations IAW paragraph 3-8. Not every Terminal IAP produced by NGA is available at the NGA web site.

3-2 PLANNING PUBLICATIONS - The FLIP Planning has been designed primarily for desk use and not for carrying in the aircraft. Authorization has been granted, however, for its use aboard aircraft in instances where major commands have stated a requirement for its use on specific missions, or for its use by all or some aircrews under their jurisdiction in areas where the publication may not be readily available at Base Operations offices.

a. A complete FLIP Planning for the entire area of coverage is comprised of sections as listed below. An area of coverage chart is on the back cover of all planning documents.

(1) GENERAL PLANNING (GP) - Published every 32 weeks with Planning Change Notices (PCNs) issued at the 16 week mid-point of the GP book cycle, and Urgent Change Notices (UCNs) issued as required. This section contains general information on all Flight Information Publications, terms, explanation of the divisions of United States Airspace, Flight Plans and Codes, common worldwide pilot procedures, ICAO procedures, Operations and Firings over the High Seas and Aviation Weather Codes.

(2) AREA PLANNING (AP/1, 2, 3 and 4) - AP/1, 2 and 3 are published every 24 weeks with Planning Change Notices (PCNs) at the 8 and 16 week intervals. AP/4 is published every 48 weeks with PCNs at the 16 and 32 week intervals. Urgent Change Notices (UCNs) are published as required. These documents contain planning and procedure information for a specific region or geographic area.

(3) AREA PLANNING (AP/1A, 2A, 3A and 4A) (SPECIAL USE AIRSPACE) - Published every 8 weeks, digitally only. Urgent Change Notices (UCNs) are published as required. These documents contain all Prohibited, Restricted, Danger, Warning and Alert Areas listed by country. Military Operations and known Parachute Jumping Areas are also listed.

(4) AREA PLANNING (AP/1B) (MILITARY TRAINING ROUTES, NORTH AND SOUTH AMERICA) - Published every 8 weeks. It contains information relative to military routes, including IFR Military Training Routes (IR), VFR Military Training Routes (VR), Slow Speed Low Altitude Training Routes (SR), Refueling Tracks/Anchors/VFR Helicopter Refueling Tracks (AR), and avoidance locations. Charts (7 charts on 4 sheets) containing graphic depictions of the IR, VR and SR route systems throughout the United States and Alaska are also included.

3-3 FLIGHT INFORMATION HANDBOOK -

This handbook contains aeronautical information required by DoD aircrews in flight, but which is not subject to frequent change. Sections include information on Emergency Procedures, FLIP and NOTAM Abbreviation/Codes, National and International Flight Data and Procedures, Meteorological Information, Conversion Tables, and Standard Time Signals. The handbook is designed for worldwide use in conjunction with DoD FLIP Enroute Supplements. Publication cycle is every 32 weeks.

3-4 ENROUTE AND TERMINAL PUBLICATIONS - These publications are designed to provide radio navigation, departure, airway structure, letdown, approach and landing information for use during the in-flight phase of IFR Operations. A brief description is given below of each publication listed under its specific area of the world. The publications are updated by Notices to Airmen (NOTAMs), Enroute Change Notices (ECNs) or Terminal Change Notices (TCNs) on an issue basis as indicated below, or by Urgent Change Notices (UCNs) as required.

a. UNITED STATES

(1) ENROUTE LOW ALTITUDE CHARTS - These charts portray the airway system and related data required for IFR Operations at altitudes below 18,000 feet Mean Sea Level. Thirty-six variable scale charts are printed on eighteen sheets, L-1 through L-36, covering the entire United States. Publication cycle is every 8 weeks.

(2) AREA CHARTS - These charts portray the airway system and related data required for IFR Operations in selected terminal areas at altitudes below 18,000 feet Mean Sea Level. Twelve variable scale charts are printed on one sheet. Publication cycle is every 8 weeks. See the new IAP Chart Format and RNAV chart minima at the end of this chapter.

(3) ENROUTE HIGH ALTITUDE CHARTS - These charts portray the airway system and related data required for IFR operations at altitudes at and above 18,000 feet Mean Sea Level. Twelve charts are printed on six sheets. Charts 1-11 cover the entire United States, with Chart 12 duplicating data shown on H-9, H-10, and H-11 for those who frequently plan flights North and South along the East Coast within the area of coverage. Publication cycle is every 8 weeks.

(4) ENROUTE IFR SUPPLEMENT - This supplement contains an alphabetical IFR Airport/Facility Directory, Special

Notices and Procedures required to support the Enroute and Area Charts. Publication cycle is every 8 weeks.

(5) ENROUTE VFR SUPPLEMENT - This supplement contains an alphabetical listing of selected VFR airports with sketches. Publication cycle is every 24 weeks. An Enroute Change Notice (ECN) is published at the 12 week mid-point and contains revisions, additions, and deletions to the last issue.

(6) TERMINAL HIGH and LOW ALTITUDE - Twenty-five bound booklets (twenty-two low altitude and three high-altitude) contain Instrument Approach Procedures, Airport Diagrams, Standard Instrument Departures and Radar Instrument Approach Minimums. The set contains all DoD terminal instrument procedures and civil terminal instrument procedures requested by the military. Crosshatching displayed along the entire top and bottom borders denotes High Altitude Procedures; crosshatching displayed along the upper left half of the top border and the lower right half of the bottom border denotes High and Low Altitude Procedures. Publication cycle is every 8 weeks. A High Low Terminal Change Notice is published at the 4 week mid-point and contains revisions, additions, and deletions to the last complete issue.

(7) STANDARD TERMINAL ARRIVALS - A single booklet contains all Standard Terminal Arrivals. Publication cycle is every 8 weeks.

b. ALASKA

(1) ENROUTE LOW ALTITUDE - These charts portray the airway system and related data required for IFR Operations at altitudes below 18,000 feet Mean Sea Level. Four charts are printed on two sheets. Blow-ups are provided for the Vancouver, Juneau, Anchorage, Prudhoe Bay and Fairbanks areas. Publication is every 8 weeks.

(2) ENROUTE HIGH ALTITUDE - This chart portrays the airway system and related data required for IFR Operations at altitudes at and above 18,000 feet Mean Sea Level. Two charts are printed on one sheet. This chart serves to facilitate transition of high altitude flights between Continental United States and Alaska. Publication cycle is every 8 weeks.

(3) AREA ARRIVAL CHARTS DEPICTING TERRAIN DATA - These charts portray terrain data for Adak, Anchorage, and Fairbanks. Publication cycle is every 8 weeks.

(4) SUPPLEMENT - This supplement contains an alphabetical Airport/Facility Directory, Airport Sketches, Special Notices and Procedures required to support the enroute charts. Publication cycle is every 8 weeks.

(5) TERMINAL - This terminal publication consists of all civil and military (High and Low Altitude) Instrument Approach Procedures, Standard Terminal Arrivals (STARs), Standard Instrument Departures, Radar Instrument Approach Minimums, and Airport Diagrams. Publication cycle is every 8 weeks.

c. CANADA AND NORTH ATLANTIC (Canada Low/High Enroute Charts are authorized for use by DoD aircrews.)

(1) ENROUTE LOW ALTITUDE CHARTS - These charts (Department of National Defense FLIP GPH 206), portray the airway system and related data required for IFR Operations at altitudes up to but not including 18,000 feet Above Sea Level within Canadian Domestic Airspace and that airspace over international waters and foreign territory in which Canada accepts responsibility for the provision of air traffic control services. Ten variable scale charts are printed on five sheets. Supporting charts A-1 and A-2 contain blowups of terminal areas. Publication cycle is every 8 weeks.

A-1 - Azores, Calgary, Edmonton, Iceland, Regina, Saskatoon, Vancouver/Victoria and Winnipeg.

A-2 - Bermuda, Gander, Halifax, Keflavik/Iceland, Moncton, Montreal, Ottawa, Quebec, Thunder Bay, Toronto and Windsor.

(2) ENROUTE HIGH ALTITUDE CHARTS - These charts, (Department of National Defense FLIP GPH 207), portray the airway system and related data required for IFR Operations at altitudes from 18,000 feet Above Sea Level and above within Canadian Domestic Airspace and that airspace over international waters and foreign territory in which Canada accepts responsibility for the provision of air traffic control services. Four variable scale charts are printed on two sheets. Publication is every 8 weeks.

(3) FLIGHT SUPPLEMENT - Two flight supplements that contain an alphabetical Airport/Facility Directory, Airport Sketches, Planning Information, Radio Navigation and Communications Information, and Special Notices and Procedures are required to support the Enroute Charts. This information is available in a joint Canadian civil/military format, (Department of National Defense FLIP GPH 205), that contains information on land and some water aerodromes that are open to the public; are used by more than one aircraft and have a telephone available to the users of the aerodrome. The Canadian military publishes a Canadian Forces Flight Supplement, (DND Flight Information Publication GPH 205 (S)), that contains information on Canadian aerodromes that are: Military; 4000 feet or greater and hard surface and have an instrument approach procedure; north of 60° N having an instrument approach procedure regardless of surface length. Publication cycle for both supplements is every 8 weeks.

(4) TERMINAL HIGH AND LOW ALTITUDE - This booklet contains Standard Terminal Arrivals (STARs), Instrument Approach Procedures with Airport Sketches, Airport Diagrams, Standard Instrument Departures (SIDs), Radar Instrument Approach Minimums, Instrument Take-off minimums and departure procedures. Crosshatching displayed along the entire top and bottom borders of approach and departure charts denotes High Altitude Procedures. Crosshatching displayed along the upper left half of the top border and the lower right half of the bottom border of approach or departure charts denotes High and Low Altitude Procedures. Low altitude approach or departure charts will not display crosshatching. Publication cycle is every 24 weeks. A Terminal Change Notice (TCN) is published at the 8 week point and a cumulative TCN is published at the 16 week point containing additions and deletions to the last complete issue.

d. CARIBBEAN AND SOUTH AMERICA

(1) ENROUTE LOW ALTITUDE CHARTS - These charts portray the airways system and related data required for IFR Operations at Flight Levels as designated in the area for this route structure. Seventeen variable scale charts are printed on nine sheets. Insets for Charleston-Bermuda and Ascension, Fernando de Noronha and Galapagos Islands are included. There is no chart L-4 in this series. Area chart A-3 is also printed on the back of chart L-3 to satisfy civil users requirements. The publication cycle for all enroute charts is 8 weeks

(2) TERMINAL and INSET CHARTS - These charts portray the airway system and related data required for IFR Operations in selected terminal and uncharted (inset) areas.

Eleven variable scale charts are printed on charts A-1, A-2 and A-3. Publication cycle is every 8 weeks.

A-1 - Buenos Aires, Santiago, Lima, Rio de Janeiro, Guatemala City and Antigua Island/Ascension Island Inset.

A-2 - Miami - Nassau Inset, Bogota, Mexico City, Panama, and Central America - Pacific Ocean Inset.

A-3 - Dominican Republic - Puerto Rico.

(3) ENROUTE HIGH ALTITUDE CHARTS - These charts portray the airway system and related data required for IFR Operations at Flight Levels as designated in the area for this route structure. Six charts are printed on three sheets. Insets are provided for the Northwest Mexico, Galapagos, Mexico City and the South Atlantic areas. Publication cycle is every 8 weeks.

(4) ENROUTE SUPPLEMENT - The supplement contains an alphabetical Airport/Facility Directory, Airport Sketches, Special Notices, and Procedures required to support the Enroute and Area Charts. Publication cycle is every 16 weeks. A scheduled Enroute Change Notice (ECN) is published at the 8 week midpoint and contains revisions, additions and deletions affecting the 16 week supplement.

(5) TERMINAL HIGH AND LOW ALTITUDE - Two bound booklets contain Instrument Approach Procedures with Airport Sketches, Airport Diagrams, Standard Instrument Departures, and Radar Instrument Approach Minimums. Crosshatching displayed along the entire top and bottom borders of Approach or Departure charts denotes High Altitude Procedures. Crosshatching displayed along the upper left half of the top border and the lower right half of the bottom border of Approach or Departure charts denotes High and Low Altitude Procedures. Low Altitude Approach or Departure charts will not display crosshatching. Publication cycle is every 16 weeks. A scheduled Terminal Change Notice (TCN) is published at the 8 week mid-point.

e. EUROPE, NORTH AFRICA AND MIDDLE EAST

(1) ENROUTE LOW ALTITUDE CHARTS - These charts portray the airway system and related data required for IFR Operations and Flight Levels as designated in the area for this route structure. Twenty-two variable charts are printed on eleven sheets. Chart 1 includes insets for the Azores, Jan Mayen and Iceland, as well as a small scale blow-up of the Iceland Area. Supporting charts A-1, A-2, A-3 and A-4. Publication cycle is every 4 weeks.

A-1 - Iraq Area and North Atlantic Inset.

A-2 - Athinai, Manchester, Tel Aviv, and Artic Polar Inset.

A-3 - Persian Gulf Inset.

A-4 - Kuwait, Bahrain and Oman Insets.

(2) ENROUTE HIGH ALTITUDE CHARTS - These charts portray the airway system and related data required for IFR Operations at Flight Levels as designated in the area for this route structure. Fifteen variable scale charts are printed on eight sheets. Insets for the Azores, Iceland and Jan Mayen areas are shown on Chart 1. Charts 5, 6 and 7 are blow-ups of Central Europe. Publication cycle is every four weeks.

(3) ENROUTE SUPPLEMENT - The supplement contains an alphabetical Airport/Facility Directory, Airport Sketches, Special Notices and Procedures required to support the Enroute and Area Charts. Publication cycle is every 4 weeks.

(4) TERMINAL HIGH AND LOW ALTITUDE - Seven bound booklets contain Instrument Approach Procedures, Airport Diagrams, Standard Instrument Departures, Radar Instrument Minimums and Standard Terminal Arrivals (STARs). Volumes are divided geographically. Crosshatching displayed along the entire top and bottom borders of Approach and Departure Charts denotes High Altitude Procedures. Crosshatching displayed along the upper left half of the top border and the lower right half of the bottom border of Approach and Departure Charts denotes High and Low Altitude Procedures. Low Altitude Approach and Departure Charts will not display crosshatching. Publication cycle is every 8 weeks. A Terminal Change Notice (TCN) is published at the 4 week midpoint. It contains revisions, additions and deletions to the last complete issue.

(5) VFR ARRIVAL/DEPARTURE ROUTES EUROPE - A bound booklet designed to satisfy DoD requirements for established VFR Arrival and Departure Routings. Publication cycle is every 16 weeks.

f. AFRICA

(1) ENROUTE CHARTS - Four variable scale charts, printed on two sheets, portray the airways system and related data required for IFR Operations at all altitudes. Island insets include Ascension and Cape Verde. A blow-up of the Johannesburg area is included. Publication cycle is every 16 weeks. An Enroute Change Notice/Terminal Change Notice (ECN/TCN) is published at the 8 week mid-point.

(2) ENROUTE SUPPLEMENT/TERMINAL (HIGH/LOW) - This book contains an alphabetical Airport/Facility Directory, Special Notices and Procedures required to support the Enroute Charts. Also, contained in the book are Instrument Approach Procedures, Standard Terminal Arrivals, Standard Instrument Departures, Airport Diagrams and Radar Instrument Approach Minimums. Crosshatching displayed along the entire top and bottom borders of Approach or Departure Charts denotes High Altitude Procedures. Crosshatching displayed along the upper left half of the top border and the lower right half of the bottom border of Approach or Departure Charts denotes High and Low Altitude Procedures. Low Altitude Approach or Departure Charts will not display crosshatching. Publication cycle is every 16 weeks. An Enroute Change Notice/Terminal Change Notice (ECN/TCN) is published at the 8 week mid-point and contains revisions, additions, and deletions to the last complete issue of the Enroute Charts and Supplement/Terminal (High/Low) publication.

g. PACIFIC, AUSTRALASIA AND ANTARCTICA

(1) ENROUTE CHARTS - These charts portray the airway system and related data required for IFR operations at Flight Levels as designated in the area for this route structure. Twenty variable scale charts, printed on ten sheets provide information required for flight in this area. Also included are the India/Burma Inset and blow-ups for New Caledonia, Isla De Pascua, Guam, Honolulu, McMurdo, Nadi and Pago Pago. Chart 1 represents a large scale depiction of the Pacific route system. Charts 19 represents a Special Operations Chart of Antarctica. Supporting charts A-1 and A-2 contain blow-ups of 15 terminal areas. Publication cycle is every 8 weeks.

A-1 - Bangkok, Delhi, Hong Kong, Karachi, Seoul/Osan, Singapore and Tokyo.

A-2 - Auckland, Brisbane, Darwin, Manila, Melbourne, Perth and Sydney.

(2) ENROUTE SUPPLEMENT - This supplement contains Airport/Facility Directory, Special Notices and Procedures required to support the Enroute and Area Charts. Publication is every 16 weeks, (and a Enroute Change Notice (ECN) as above).

(3) TERMINAL HIGH AND LOW ALTITUDE - Three bound booklets contain Instrument Approach Procedures, Airport Diagrams, Standard Instrument Departures, Radar Instrument Approach Minimums and Standard Terminal Arrivals (STARs) for Hawaii. Volumes are divided geographically. Crosshatching displayed along the entire top and bottom borders of Approach or Departure Charts denotes High Altitude Procedures. Crosshatching displayed along the upper left half of the top border and the lower right half of the bottom border of Approach or Departure Charts denotes High and Low Altitude Procedures. Low Altitude Approach or Departure Charts will not display crosshatching. Publication cycle is every 24 weeks. A Terminal Change Notice (TCN) is published at the 8 week point and a cumulative TCN at the 16 week point and contains revisions, additions and deletions to the last complete issue.

(4) VFR ARRIVAL/DEPARTURE ROUTES KOREA - A bound booklet designed to satisfy DoD requirements for established VFR arrival and departure routings. Publication cycle is every 16 weeks.

h. EASTERN EUROPE AND ASIA

(1) ENROUTE CHARTS - Twenty six variable scale charts, printed on 13 sheets, portray the airway system and related data for IFR operations at all altitudes. Publication cycle is every 8 weeks.

(2) ENROUTE SUPPLEMENT/TERMINAL (HIGH/LOW) - This book contains an alphabetical Airport/Facility, Special Notices and Procedures required to support the Enroute Charts. Also contained in the book are Instrument Approach Procedures, Standard Terminal Arrivals, Standard Instrument Departures, Airport Diagrams and Radar Instrument Approach Minimums. Crosshatching displayed along the entire top and bottom borders of Approach or Departure Charts denotes High and Low Altitude Procedures. Low Altitude Approach or Departure Charts will not display crosshatching. Publication cycle is every 16 weeks. An Enroute Change Notice/Terminal Change Notice (ECN/TCN) is published at the 8 week mid-point and contains revisions, additions, and deletions to the last complete issue of the Enroute Charts and Supplement/Terminal (High/Low) publication.

FLIP PRODUCTS BY GEOGRAPHIC AREA

	WORLD WIDE	UNITED STATES	PACIFIC - AUSTRALASIA - ANTARCTICA	CANADA AND NORTH ATLANTIC	CARIBBEAN AND SOUTH AMERICA	ALASKA	EUROPE, NORTH AFRICA AND MIDDLE EAST	EASTERN EUROPE AND ASIA	AFRICA
GENERAL PLANNING (GP)	X								
AREA PLANNING AP/1 AP/2 AP/3 AP/4		AP/1	AP/3	AP/1	AP/1	AP/1	AP/2	AP/4	AP/2
AREA PLANNING (SPECIAL USE AIRSPACE) AP/1A AP/2A AP/3A AP/4A		AP/1A	AP/3A	AP/1A	AP/1A	AP/1A	AP/2A	AP/4A	AP/2A
AREA PLANNING (MIL TRAINING ROUTES) AP/1B		X		X	X	X			
FLIP ENROUTE CHARTS LOW ALTITUDE		X		X	X	X	X		
FLIP ENROUTE CHARTS HIGH ALTITUDE		X		X	X	X	X		
FLIP ENROUTE CHARTS LOW/HIGH ALTITUDE			X					X	X
FLIP AREA CHARTS PLANNING	X								
FLIP AREA CHARTS		X	X	X	X		X		
FLIP AREA ARRIVAL CHARTS DEPICTING TERRAIN DATA						X			
FLIGHT INFORMATION HANDBOOK	X								
FLIP VFR SUPPLEMENT		X							
FLIP ENROUTE IFR SUPPLEMENT		X							
FLIP ENROUTE SUPPLEMENT			X	X	X	X	X		
FLIP COMBINED ENROUTE SUPPLEMENT/TERMINAL LOW/HIGH ALTITUDE								X	X
FLIP TERMINAL LOW ALTITUDE		X							
FLIP TERMINAL HIGH ALTITUDE		X							
FLIP TERMINAL LOW/HIGH ALTITUDE			X	X	X	X	X		
STANDARD INSTRUMENT DEPARTURES		X	X	X	X	X	X	*X	*X
AIRPORT DIAGRAMS		X	X	X	X	X	X	*X	*X
VFR ARRIVAL/ DEPARTURE ROUTES			(KOREA) X				(EUROPE) X		

* Included in Combined Enroute Supplement/Terminal Approach publications.

3-5 FOREIGN CLEARANCE GUIDE - The DoD Foreign Clearance Guide (FCG) is the official publication for disseminating DoD worldwide foreign clearance requirements and information on personnel travel; aircraft movements to, from and between foreign areas. The FCG is composed of a General Information Booklet, four Regional Booklets, and a Classified Supplement. The primary method of dissemination of the FCG is via the internet at www.fcg.pentagon.mil on the NIPRNet (.mil/.gov domain restricted), and www.fcg.pentaton.smil.mil on the SIPRNet. However the FCG is also published in hard copy. The publication schedule is as follows:

a. General Information Booklet - Issued annually.

b. Four Regional Booklets - One Regional Booklet published per month (Each regional Booklet is published on a four month cycle).

c. Classified Supplement - Issued annually.

d. Interim Change Notices are published on the FCG website as required and dispatched via message to selected addressees.

3-6 NGA CATALOG OF MAPS, CHARTS AND RELATED PRODUCTS, PART 1, VOLUME I -

This catalog is a loose leaf publication, which provides a complete listing of NGA aeronautical charts, DoD Flight Information Publications, and miscellaneous items available to DoD users. It includes indices of available items together with descriptive information for each item and requisitioning procedures, as well as publications produced by other agencies which are available for DoD usage (such as ICAO documents). The Defense Logistics Agency produces a softcopy version of this catalog on CD-ROM every 30 days; it replaces all hard copy or paper catalogs and can be ordered at http://www.dscr.dla.mil/PC9/. The NGA Catalog is also available on CD ROM. NRM: CATCDLIMDIS. NSN: 7644-01-478-4783.

3-7 DIGITAL AERONAUTICAL FLIGHT INFORMATION FILE (DAFIF) - The DAFIF provides worldwide digital flight information selected from the DoD Flight Information Publications (FLIP). The DAFIF is used for existing and developing automated applications such as flight planning systems, flight simulators and flight management computer systems (mission computers).

a. The following digital flight information is contained in the DAFIF:

(1) Airports

(2) Runways

(3) Arresting Systems

(4) Navigational Aids

(5) Airways

(6) Airway Intersections, Reporting Points

(7) Special Use Airspace

(8) Controlled Airspace Boundaries

(9) Air Refueling Routes

(10) Military Training Routes

(11) Terminal Procedures (Standard Instrument Departures, Standard Terminal Arrivals and Instrument Approach Procedures)

(12) Preferred Routes

(13) Parachute Jump Areas

b. The following Flight Information Publications are contained on the DAFIF CD/ROM in portable document format (.pdf):

(1) Enroute Supplements

(2) Planning Documents

(3) Flight Information Handbook

c. The output media is CD/ROM updated every 28 days. The following standard outputs are available:

(1) Full file high and low altitude data

(2) Navigational aids only

(3) Transaction high and low (changes to previous full-file)

3-8 CAUTION - Digital Data Integrity and DoD Pilot Procedures. While the DoD migrates towards Digital Instrument Approaches, digital display of Traditional Paper FLIP, MFD/FMS integration of instrument approach procedures (IAPs) and Laptop/Portable Display of FLIP products, there are concerns that aircrew should know and consider.

The ongoing digital migration effort is emerging technology; as a result, digital products can have errors that are not immediately identified (much like traditional paper FLIP). Thus users, i.e. a pilot flying an approach with digital database driven FMS could be first to discover an error. Presently there is not a defined process in place to notify the TERPsters and/or NGA of the error.

DoD operators should continue to use Traditional Paper FLIP and refer to it as the standard for comparison. If your aircraft or unit allows DAFIF derived IAPs for mission planning or simulator use, always crosscheck the DAFIF IAPs against paper FLIP to ensure accuracy. To report errors follow the instructions in Chapter 11, para 11-2 and 11-3. Send an email to the appropriate agency, NGA, AFFSA, NAVFIG or USAASA. Anyone can submit quality inputs to NGA at quality@nga.mil.

When using non DoD digital databases, notify the appropriate producer to report errors.

3-9 NEW IAP CHART FORMAT AND RNAV CHART MINIMA -

a. New IAP Chart Format. A new format for instrument approach procedure (IAP) charts has been developed by the United States Government. This new IAP format was found to be easier to read and resulted in reduced “head-down” time by pilots referring to the chart during approach. The implementation plan calls for the conversion to be done airport by airport. This will result in both old and new formats being mixed, but with all IAP charts for any particular airport in a common format. Eventually, all IAP charts will be in the new format.

b. Pilot Briefing Information. The pilot briefing information format consists of three horizontal rows of boxed, procedure-specific information along the top edge of the chart. Altitudes, frequencies, course and elevation values (except HATs and HAAs) are charted in bold type.

(1) The top row contains the primary procedure navigation information, final approach course, landing distance available, touchdown zone and airport elevations.

(2) The middle row contains procedure notes and limitations, icons indicating if nonstandard alternate and/or take-off minimums apply, approach lighting symbology, and the full text description of the missed approach procedure.

(3) The bottom row contains air-to-ground communication facilities and frequencies in the order in which they are used during an approach. Tower frequency box is bolded.

c. Missed Approach Icons. In addition to the full text description of the missed approach procedure contained in the notes section of the middle-briefing strip, the initial (up to four) steps are also charted as boxed icons in the chart profile view. These icons provide simple-to-interpret instructions, such as direction of the initial turn, next heading and/or course, next altitude, etc.

d. RNAV Chart Minima. RNAV instrument approach procedure charts will now incorporate all types of approaches using Area Navigation systems, both ground-based and satellite-based. New RNAV approach charts will be in the new IAP format explained above.

e. Terrain. The US Government has started to add terrain depiction on IAP charts for pilot situational awareness in shades of brown. Terrain will be added on an as revised basis to the planview portion of all IAPs that meet one of the following criteria:

(1) Terrain within a 6.0 NM radius of the Airport Reference Point (ARP) rises to at least 2000 feet above the airport elevation.

(2) Terrain within the planview “to scale” area exceeds 4000 feet above the airport elevation.

f. Pilots should review the Aeronautical Information Manual, Chapter 5, for a complete discussion of the new format, Terminal Arrival Area (TAA), and RNAV minimums. It is available online at http://www1.faa.gov/atpubs/AIM/index.htm.

New IAP Chart Format example:

NOTE - This chart has been modified to depict new concepts and may not reflect actual approach minima.

RED WING, MINNESOTA

AL-6662 (FAA)

WAAS CH 46500 W-09	APP CRS 091°	Rwy ldg 5010 TDZE 778 Apt Elev 780

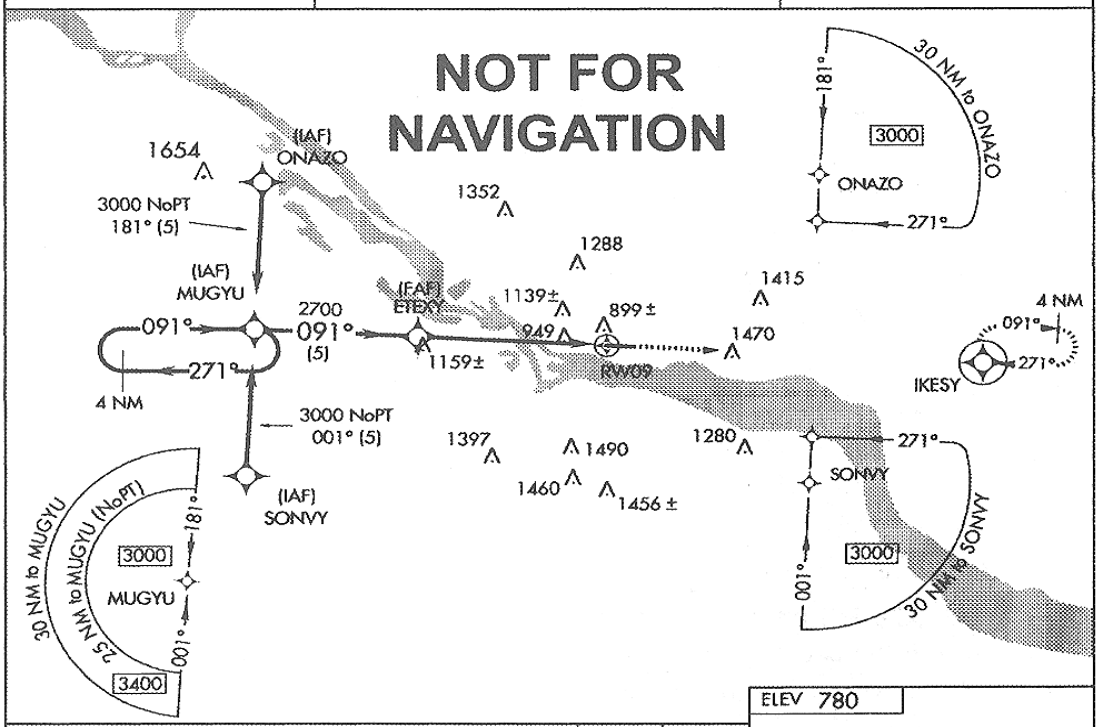
RNAV (GPS) RWY 9
RED WING REGIONAL (RGK)

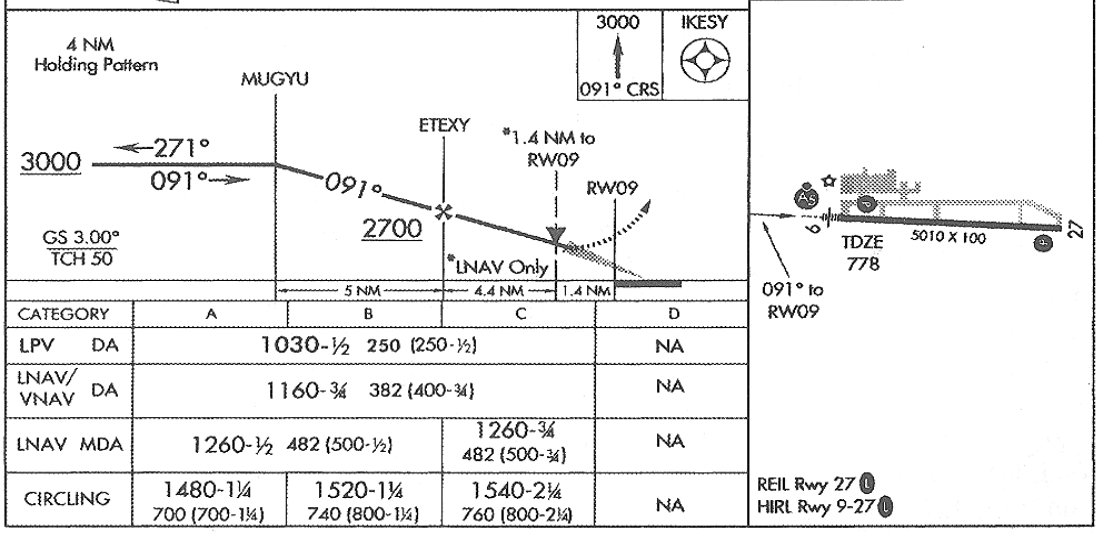
Baro VNAV NA below -16°C (4°F).
NA GPS or RNP 0.3 required. DME/DME RNP 0.3 NA.

MALSR

MISSED APPROACH: Climb to 3000 via course 091° to IKESY WP and hold.

AWOS 3	MINNEAPOLIS APP CON	UNICOM
119.25	121.2 357.4	123.05 (CTAF)





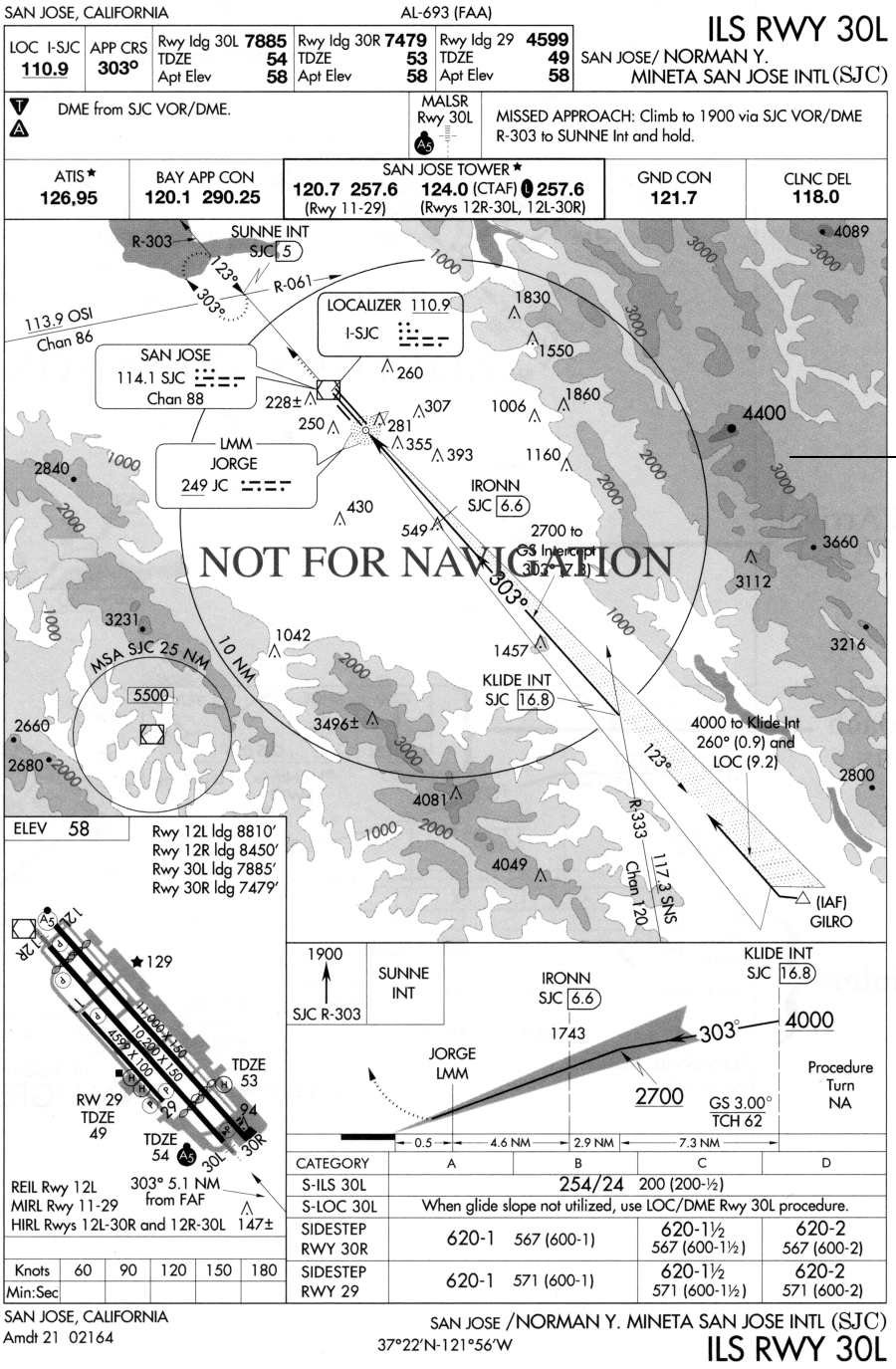
CATEGORY	A	B	C	D
LPV DA	1030-½ 250 (250-½)			NA
LNAV/VNAV DA	1160-¾ 382 (400-¾)			NA
LNAV MDA	1260-½ 482 (500-½)		1260-¾ 482 (500-¾)	NA
CIRCLING	1480-1¼ 700 (700-1¼)	1520-1¼ 740 (800-1¼)	1540-2¼ 760 (800-2¼)	NA

RED WING, MINNESOTA
Orig-A 02136

44°35'N-92°29'W

RED WING REGIONAL (RGK)
RNAV (GPS) RWY 9

Terrain example:



Terrain brown

INTENTIONALLY
LEFT
BLANK

Chapter 4

FLIGHT PLANS

4-1 USE OF FLIGHT PLANS - The purpose of an IFR flight plan is to communicate the pilot's desires to Air Traffic Control. A VFR flight plan enables search and rescue agencies to identify an overdue aircraft and know where to look for it. All information shown on the following sample Flight Plans is not required for each flight. Refer to appropriate service directives for specific instructions on contents and the filing of Flight Plans. For special circumstances or unusual cases use "Plain Language" remarks if necessary to relay pilot needs or desires. The following list indicates the various types of Flight Plans and their areas of application.

a. DD FORM 175 (MILITARY FLIGHT PLAN) - Use this form for flights within the conterminous United States; Honolulu, Alaskan, and San Juan Domestic Control Areas; and for flights from the conterminous United States to Canada. See AP/3 for special procedures to file in Hawaiian Domestic Airspace.

Note: Flights from Canada to the conterminous United States shall be filed in accordance with the host country's flight plan form.

b. DD FORM 1801 (DoD INTERNATIONAL FLIGHT PLAN) - Use this form for flights in all other areas including those flights originating within the conterminous United States and Canada destined non-stop to points beyond these areas, or transiting the Pacific Flight Information Regions and destined to or from Flight Information Regions beyond the Pacific Region.

Note: For flights between the conterminous United States/Canada and Alaska, use DD Form 1801. For flights that originate within the Continental United States, and are flown over international waters, or which penetrate a coastal Air Defense Identification Zone or foreign Flight Information Region, use DD Form 1801. (See appropriate FLIP Area Planning document for applicable Supplementary Procedures).

c. ICAO FLIGHT PLAN - This form may be used when the DD 1801 is not available. Follow the DD 1801 instructions when filling out the ICAO Flight Plan with the following exceptions:

(1) The pilot in command will sign in the "Signature Block" within Item 19 of the ICAO Flight Plan. Signature not required for electronically generated/transmitted flight plans.

(2) The section of the DD 1801 below Item 19 is not included in the ICAO Flight Plan. Signature not required for electronically generated/transmitted flight plans.

d. FEDERAL AVIATION ADMINISTRATION FORM 7233-1 OR 7233-3 (FLIGHT PLAN) - Either one of these forms may be used in lieu of DD 175 when departing United States Installations not having a Military Base Operations facility.

e. FEDERAL AVIATION ADMINISTRATION FORM 7233-4 (INTERNATIONAL FLIGHT PLAN) - This form may be used in lieu of DD Form 1801 when departing United States Installations not having a Military Base Operations facility.

4-2 DD FORM 175 MILITARY FLIGHT PLAN - Pilots operating on Military Training Routes (MTRs) should refer to AP/1B for additional entries for the DD 175. Airport location identifiers entered on the DD 175 will consist of 3 characters. In the Pacific and Alaska Enroute Supplement books, a 3 letter and a 4 letter identifier may exist for the same airport. Use the 3 letter identifier on the DD Form 175. 4 letter identifiers are used on International Flight Plans.

a. NATIONAL ROUTE PROGRAM PROCEDURES

(1) Pilots of aircraft equipped with operational area navigation equipment may file for flights under the NRP.

(2) File a standard DD 175 with NRP preceded by a clear weather symbol in the remarks section of the flight plan "O NRP".

(3) Flight should be planned and flown via published preferred IFR routes, SIDs or published airways (if available) for the first 200 NM of the flight from departure point.

(4) Arrival should be planned via STARS, published preferred IFR routes or published airways (if available) for the final 200 NM of the route flown.

(5) Aircrews should ensure that their route of flight will avoid active restricted areas by at least 3 NM, unless permission has been obtained from the using agency to operate in that airspace, and the appropriate ATC facility has been notified.

(6) Flights through Canadian airspace should be planned on published IFR routes if mission permits.

(7) Enroute points shall be filed in terms of NAVAIDS and/or fixed in the Fix-Radial-Distance format (e.g. LIB 135060 Liberal VORTAC, 135 Rad, 60 DME), or Jet Routes.

(8) The route of flight on the flight plan contains at least one waypoint or NAVAID (HI VORTAC/TACAN) within the first 200 NM of each ARTCC that the direct route segment traverses.

(9) Aircraft that file North American Routes (NAR) westbound to any destination within the CONUS must file over one of the following points before entering the NRP system: SSM, TAFFY, EBONY, ALLEX, BRADD, TOPPS, or TUSKY.

(10) Fly all NRP direct route segments using Great Circle Navigation.

(11) Contact the nearest FSS for any route restrictions or area phase-ins.

(12) Check AP/1 for route pair restrictions (until final phase-in).

NOTE: Procedures taken from FAA Advisory Circular 90-91 and FAA Notice N7110.128.

SAMPLE - MILITARY FLIGHT PLANS

NOTE: The following pages contain sample Military Flight Plans. Entries on the sample DD Form 175 are examples of a variety of entries which may be made in each information block. Each entry is independent of, and not necessarily related to, any other entry on the sample Military Flight Plan.

SAMPLE - IFR POINT TO POINT

AUTHORITY: 10 USC 8012 and EO 9397.
PRINCIPAL PURPOSE: To aid in accurate identification of personnel participating in the filed flight.

PRIVACY ACT STATEMENT
ROUTINE USES: To provide data required to process flight plans with appropriate air traffic service authorities. A file is retained by the agency processing the flight plan.
DISCLOSURE: Voluntary; however, failure to provide the SSN could result in denial of flight plan processing.

DATE (1)	AIRCRAFT CALL SIGN (2)	AIRCRAFT DESG AND TD CODE (3)
1 AUG 86	R39213	UH-1/U

BASE OPERATIONS USE

	TYPE FLT PLAN	TRUE AIRSPEED	POINT OF DEPARTURE	PROPOSED DEPARTURE TIME (Z)	ALTITUDE	ROUTE OF FLIGHT	TO	ETE
	(4) I	(5) 96	(6) OZR	(7) 1015	(8) 50	(9)d RRS V241 EUF V323 MGM (9)f	(10) MGM	(11) 1+00

REMARKS
(12)c MGM-S
(9)b RRS-REQUEST RADAR DEPARTURE

RANK AND HONOR CODE (13)
R50 REAL OZR TO MGM

FUEL ON BD	ALTN AIRFIELD	ETE TO ALTN	NOTAMS	WEATHER	WT AND BALANCE (19)	AIRCRAFT SERIAL NUMBER, UNIT, AND HOME STATION (20)
2+20 (14)	LSF (15)	0+50 (16)	✓ (17)	LS (18)	OZR2JUNE86	73-39213/ 170TH AVN CO/OZR

SIGNATURE OF APPROVAL AUTHORITY (21)	CREW/PASSENGER LIST (22)	ACTUAL DEP TIME (Z) (23)	*BASE OPERATIONS USE*
	✓ ATTACHED / SEE PSGR MANIFEST		

DUTY (24)	(25) NAME AND INITIALS	(26) RANK	(27) SSN	(28) ORGANIZATION AND LOCATION
PILOT IN COMMAND	REDD, J.R.	CW4	281-35-8697	170TH AVN CO/OZR
CP	WHITE, D.J.	CPT	133-84-5060	170TH AVN CO/OZR
CE	BLUE, R.L.	SGT	455-64-6898	214TH AVN CO/OZR
TO	BLACK, S.J.	LTC	346-80-1121	470TH MI BN/DAA

DD Form 175, MAY 86 *Previous editions are obsolete* MILITARY FLIGHT PLAN

SAMPLE - STOPOVER WITH HOLDING DELAY

	(4) I	(5) 96	(6) OZR	(7) 1015	(8) 40	(9)c CLIOS 1. BANDI / D 0+10 (9)i(4) V7 MGM	MGM	1+20
	I	97	MGM	1200	50	MGM V20 TGE V159 OLF (2+20 OZR 0+30) (9)h(2)	EUF	1+00

REMARKS
(12)c MGM-S

RANK AND HONOR CODE

FUEL ON BD	ALTN AIRFIELD	ETE TO ALTN	NOTAMS	WEATHER	WT AND BALANCE	AIRCRAFT SERIAL NUMBER, UNIT, AND HOME STATION (20)
2+20 (14)	LSF (15)	0+50 (16)	✓ (17)	LS (18)	OZR 2 JUNE 86	73-39213/ 170TH AVN CO/OZR

SIGNATURE OF APPROVAL AUTHORITY	CREW/PASSENGER LIST	ACTUAL DEP TIME (Z)	*BASE OPERATIONS USE*
	✓ ATTACHED / SEE PSGR MANIFEST		

DUTY	NAME AND INITIALS	RANK	SSN	ORGANIZATION AND LOCATION
PILOT IN COMMAND	THOMAS, O.L.	CW2	395-82-7754	170TH AVN CO/OZR
CP	SMITH, K.C.	1LT	295-99-1207	170TH AVN CO/OZR

DD Form 175, MAY 86 *Previous editions are obsolete* MILITARY FLIGHT PLAN

NOTE: Completed forms can be computer generated, typed, or handwritten.

SAMPLE - TERMINAL AREA DELAY FOR PRACTICE APPROACHES

AUTHORITY: 10 USC 8012 and EO 9397 PRINCIPAL PURPOSE: To aid in accurate identification of personnel participating in the filed flight. *PRIVACY ACT STATEMENT* ROUTINE USES: To provide data required to process flight plans with appropriate air traffic service authorities. A file is retained by the agency processing the flight plan. DISCLOSURES: Voluntary; however, failure to provide the SSN could result in denial of flight plan processing.	DATE (1) 1 AUG 91	AIRCRAFT CALL SIGN (2) R39213	AIRCRAFT DESG AND TD CODE (3) UH-1/U

BASE OPERATIONS USE

	TYPE FLT PLAN	TRUE AIRSPEED	POINT OF DEPARTURE	PROPOSED DEPARTURE TIME (Z)	ALTITUDE	ROUTE OF FLIGHT	TO	ETE
	I	97	LSF	1015	40	(9)i EUF V159 PZD V578 IFM VAD		1+30
						(9)i(1) Ⓡ D 0+30 VAD LSF		
	I	98	VAD	1215	40	IFM V578 PZD V321 LUMPP	LSF	1+02

SAMPLE - COMPOSITE/STOPOVER

AUTHORITY: 10 USC 8012 and EO 9397 PRINCIPAL PURPOSE: To aid in accurate identification of personnel participating in the filed flight. *PRIVACY ACT STATEMENT* ROUTINE USES: To provide data required to process flight plans with appropriate air traffic service authorities. A file is retained by the agency processing the flight plan. DISCLOSURES: Voluntary; however, failure to provide the SSN could result in denial of flight plan processing.	DATE (1) 1 AUG 86	AIRCRAFT CALL SIGN (2) BUZZ 07	AIRCRAFT DESG AND TD CODE (3) H/C-5/R

BASE OPERATIONS USE

	TYPE FLT PLAN	TRUE AIRSPEED	POINT OF DEPARTURE	PROPOSED DEPARTURE TIME (Z)	ALTITUDE	ROUTE OF FLIGHT	TO	ETE
	(4) I	(5) 325	(6) SKF	(7) 1100	(8) 150	(9)b (9)g EMBOW V163 CRP V20 PSX PSX047017		(11)c 0+40
	(9)a V					(9)d V R 1 5 1		(11)c 0+25
	I	330	PSX 242008	1205	160	PSX V407 GLAND V558 AUS (9)f BSM344017	(10) BSM	0+30
	I	400	BSM	1500	200	(9)c (9)d (9)h(2) JCT 5. ABI SPS HYU (5+30)	LTS	(11)b 0+55
	I	300	LTS	1800	90	(9)f(2) SPS. BOIDS9 (4+30)	FWH	0+30

SAMPLE - AERIAL REFUELING DELAY, ANCHOR

	I	425	FWH	1930	260	(9)i(3)b MQP J23 EDNAS JCT 315022 AUS 291061/D0+30		
						AR611 AUS 302044 AUS J21 SAT SKF		
						(9)h(2)a (9)h(2)b (3+30 [6+00] RND 0+10)		
							SKF	0+45

REMARKS (12)c
BSM-S FWH-PPR 0723

RANK AND HONOR CODE (13)
S50 ELDO FWH TO SKF

FUEL ON BD	ALTN AIRFIELD	ETE TO ALTN	NOTAMS	WEATHER	WT AND BALANCE	AIRCRAFT SERIAL NUMBER, UNIT, AND HOME STATION
7+30 (14)	(15)	(16)	✓ (17)	KTM (18)	ATTACHED (19)b	60012/ 433 MAW/SKF (20)

SIGNATURE OF APPROVAL AUITHORITY (21)	CREW/PASSENGER LIST (22) ATTACHED ✓ SEE PSGR MANIFEST	ACTUAL DEP TIME (Z) (23)	*BASE OPERATIONS USE*

(24) DUTY	(25) NAME AND INITIALS	(26) RANK	(27) SSN	(28) ORGANIZATION AND LOCATION
PILOT IN COMMAND	BLACK, G.N	CDR	460 11 0723	VA 192/NLC (USN)
CP	WHITE, I.R.	MAJ	258 88 7399	20 MAS/CHS (USAF)
N	DARK, A.M.	CPT	257 68 7600	20 MAS/CHS (USAF)
TO	GRAY, T.K.	CW3	422 58 2458	71 ASLT HELCO/XYZ (USA)

NOTE: Completed forms can be computer generated, typed, handwritten.

SAMPLE - STOPOVER AERIAL REFUELING DELAY, TRACK

PRIVACY ACT STATEMENT			DATE (1)	AIRCRAFT CALL SIGN (2)	AIRCRAFT DESG AND TD CODE (3)
AUTHORITY: 10 USC 8012 and EO 9397 PRINCIPAL PURPOSE: To aid in accurate identification of personnel participating in the filed flight.	ROUTINE USES: To provide data required to process flight plans with appropriate air traffic service authorities. A file is retained by the agency processing the flight plan. DISCLOSURES: Voluntary; however, failure to provide the SSN could result in denial of flight plan processing.		1 AUG 86	TURK 15	H/K35R/Q

BASE OPERATIONS USE

	TYPE FLT PLAN	TRUE AIRSPEED	POINT OF DEPARTURE	PROPOSED DEPARTURE TIME (Z)	ALTITUDE	ROUTE OF FLIGHT	TO	ETE
	(4) I	(5) 430	(6) FWH	(7) 1400	(8) 260	(9)b MQP J23 BATIK J58 SPS 282078/ (9)i (3)a		
						D 0+20 AR013 TCC 202038 TXO LBB 300058 (9)i (2)		(11)b 1+15

SAMPLE - HEAVY DESIGNATION

PRIVACY ACT STATEMENT			DATE (1)	AIRCRAFT CALL SIGN (2)	AIRCRAFT DESG AND TD CODE (3)
AUTHORITY: 10 USC 8012 and EO 9397 PRINCIPAL PURPOSE: To aid in accurate identification of personnel participating in the filed flight.	ROUTINE USES: To provide data required to process flight plans with appropriate air traffic service authorities. A file is retained by the agency processing the flight plan. DISCLOSURES: Voluntary; however, failure to provide the SSN could result in denial of flight plan processing.		12 JAN 05	CARGO 34	H/C17/R

BASE OPERATIONS USE

	TYPE FLT PLAN	TRUE AIRSPEED	POINT OF DEPARTURE	PROPOSED DEPARTURE TIME (Z)	ALTITUDE	ROUTE OF FLIGHT	TO	ETE

SAMPLE - SPECIAL USE AIRSPACE DELAY

						(9)i (2) Ⓡ D 0+15 REESR 1 REE		
	I	250	LBB 300035	1530	130	(9)f LBB	REE	0+08

SAMPLE - HOLDING DELAY

	I	400	REE	1700	210	(9)i (4) DUMPS/D0+10 (9)d J17 J86 AUS BSM205014 (9)i BSM		0+55

SAMPLE - ALTRV FLIGHT PLAN

	I	420	CEF	1210	(9)k (1)b1 260B280	ALB		0+11
						(9)k (1)b2 ALB/D4+39 PGS		
	I	425	PGS	1700	280	HEC CIVET PDZ	SBD	0+27

REMARKS

(12)e ALTRV: (ALTRV name) JOINED AT ALB/MARSA

RANK AND HONOR CODE

NOTE: Completed forms can be computer generated, typed, or handwritten.

SAMPLE - TERMINAL DELAY

						SAT V17 CWK BSM		0 + 40
						(9)i (1) Ⓡ D 0+15 BSM RND		
	I	280	BSM	1810	60	MARCS V68 SAT RND 346006	RND	0+15

REMARKS (12)a REFUELING FL250B290 (9)b REQUEST RADAR DEPARTURE (12)c RND-S,R

RANK AND HONOR CODE (13) A5N RUSSELL FWH TO RND

FUEL ON BD (14)	ALTN AIRFIELD (15)	ETE TO ALTN (16)	NOTAMS (17)	WEATHER (18)	WT AND BALANCE (19)c	AIRCRAFT SERIAL NUMBER, UNIT, AND HOME STATION (20)
9+00	DYS	0+20	✓	KTM	7AREFS/1AUG86	00327/ 7BMW/FWH

SIGNATURE OF APPROVAL AUTHORITY (21)	CREW/PASSENGER LIST (22)	ACTUAL DEP TIME (Z) (23)	BASE OPERATIONS USE
	✓ ATTACHED / SEE PSGR MANIFEST		

DUTY (24)	(25) NAME AND INITIALS	(26) RANK	(27) SSN	(28) ORGANIZATION AND LOCATION
PILOT IN COMMAND	MARSH, R.W.	COL	523 54 3569	7 AREFS/FWH
CP	BOG, E.L.	CPT	015 44 7053	"
N	MIRE, K.C.	LT	045 32 7885	"
BO	SWAMP, I.S.	SGT	301 48 9644	"

DD Form 175, MAY 86 *Previous editions are obsolete.* MILITARY FLIGHT PLAN

SAMPLE - RNAV FLIGHT PLAN

AUTHORITY: 10 USC 8012 and EO 9397
PRINCIPAL PURPOSE: To aid in accurate identification of personnel participating in the filed flight.

PRIVACY ACT STATEMENT
ROUTINE USES: To provide data required to process flight plans with appropriate air traffic service authorities. A file is retained by the agency processing the flight plan.
DISCLOSURES: Voluntary; however, failure to provide the SSN could result in denial of flight plan processing.

DATE (1)	AIRCRAFT CALL SIGN (2)	AIRCRAFT DESG AND TD CODE (3) (9)k(1)(a)
1 AUG 86	EMO 01	C141/R

BASE OPERATIONS USE

	TYPE FLT PLAN	TRUE AIRSPEED	POINT OF DEPARTURE	PROPOSED DEPARTURE TIME (Z)	ALTITUDE	ROUTE OF FLIGHT	TO	ETE
	(4) I	(5) 440	(6) CHS	(7) 1200	(8) 350	(9) I (2) CHS ATL GRW TXK TXO EED PDZ	(10) SBD	(11) 4+55

SAMPLE - COORDINATE RNAV FLIGHT PLAN

	I	440	CHS	1200	(9)k (2) (a) 390	(9) I (2) (b) CHS 3355/11732 PDZ	SBD	4+50

REMARKS (12)b HAZARDOUS CARGO (12)d MISSION CODE 6R44

RANK AND HONOR CODE (13)

FUEL ON BD (14)	ALTN AIRFIELD (15)	ETE TO ALTN (16)	NOTAMS (17)	WEATHER (18)	WT AND BALANCE (19)	AIRCRAFT SERIAL NUMBER, UNIT, AND HOME STATION (20)
8+00			✓	KTM	ATTACHED	40069/437AMW/CHS

SIGNATURE OF APPROVAL AUITHORITY (21)	CREW/PASSENGER LIST (22)	ACTUAL DEP TIME (Z) (23)	BASE OPERATIONS USE
	✓ ATTACHED / SEE PSGR MANIFEST		

(24) DUTY	(25) NAME AND INITIALS	(26) RANK	(27) SSN	(28) ORGANIZATION AND LOCATION
PILOT IN COMMAND	SMITH, D.G.	LT.COL	463 02 5257	20 MAS/CHS

DD Form 175, MAY 86 *Previous editions are obsolete.* MILITARY FLIGHT PLAN

NOTE: Completed forms can be computer generated, typed, or handwritten.

4-6 DD FORM 175

Item (1) DATE - Enter date of flight in local time.

Item (2) AIRCRAFT CALL SIGN - This entry is limited to 7 characters. Enter one of the following:

a. Use the applicable code from the list below followed by the last 5 digits of the aircraft tail/bureau number (except for S - use last 5 digits of the aircraft tail number or assigned call sign, and SPAR - use 2 digits assigned by MAJCOM.)

A	- Air Force
VV	- Navy
R	- Army
VM	- Marine Corps
G	- Air or Army National Guard
C	- Coast Guard
CPF	- US Air Force Aux, Civil Air Patrol (Maxwell AFB, AL)
RCH	- AMC
S	- Special Air Missions (89 AW)
SPAR	- Other Special Air Missions
E	- EVAC
F	- Flight check
FLC	- FINFO Flight Inspection Aircraft (Oklahoma City, OK)
AIO	- AIR CHIEF (Chief of Staff USAF)

b. USAF aircraft tactical call signs will be entered as spoken; i.e., "SLIP 13". Exception: USAF E-3A tactical call sign "SENTRY" will be entered as "SNTRY" on flight plan/aircraft movement messages.

c. UNITED STATES NAVY/UNITED STATES MARINE CORPS Fleet and Training Command aircraft shall have the option of utilizing approved aircraft tactical call signs or a radio call sign consisting of service code from item (2)a, above with assigned letter(s) or number(s) from tail marking and not less than 2 nor more than 3 numbers; i.e., VVAB101 or VV2C40. If a tactical call sign is used, it will be entered as spoken; i.e., "BANDIT 1". Tactical call signs shall not exceed 7 characters/numbers and shall be a pronounceable word.

d. Special United States Army call signs must be approved by Director, USAASA and will be entered as spoken with the last digits of the aircraft tail number or an assigned call sign number to complete 7 or fewer alphanumeric characters.

e. To identify aircraft piloted by solo USAF/USN undergraduate student pilots, the aircraft identification in the flight plan shall include the letter "Z" as a suffix. Do not use this suffix, however, in ground-to-air communication.

(FAAO 7110.65/AFFSA FIL 03-97)

Item (3) AIRCRAFT DESIGNATION AND TD CODES

a. AIRCRAFT DESIGNATION - Enter the military designation of the aircraft. In formation flights of the same type aircraft, enter the number of aircraft in the flight and the designation (e.g., 4/F4 or 6/UH1). In formation flights of mixed type aircraft, enter the lead aircraft and identify the other type aircraft in the REMARKS (e.g., for an F15 and an F16 in formation, the DESIGNATION block entry is "2/F15/P" ("P" is the TD code) and the REMARKS would contain the entry "#2 aircraft is an F16/P").

b. When the allowable gross weight of the aircraft is more than 255,000 pounds, enter the symbol "H/" as a prefix to the aircraft designation (e.g., "H/B52 or "H/C5"). If a formation flight is planned, enter the number and type of aircraft (e.g., "2H/B52").

c. TD code/suffix-Select the code from the following graph below which denotes the transponder/Navigational Aid capability of the aircraft.

Suffix	Aircraft Equipment Capability
	NO DME
/X	No transponder
/T	Transponder with no Mode C
/U	Transponder with Mode C
	DME
/D	No transponder
/B	Transponder with no Mode C
/A	Transponder with Mode C
	TACAN ONLY
/M	No transponder
/N	Transponder with no Mode C
/P	Transponder with Mode C
	AREA NAVIGATION (RNAV)
/Y	LORAN,VOR/DME, or INS with no transponder
/C	LORAN,VOR/DME, or INS, transponder with no Mode C
/I	LORAN,VOR/DME, or INS, transponder with Mode C
	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	Flight Management System (FMS) with DME/DME and IRU position updating.
/F	FMS with DME/DME position updating.
/G	Global Navigation Satellite System (GNSS), including GPS or WAAS, with enroute and terminal capability.
/R	Required Navigational Performance (RNP). The aircraft meets the RNP type prescribed for the route segment(s), route(s) and/or area concerned.
	REDUCED VERTICAL SEPARATION MINIMUM (RVSM) Prior to conducting RVSM operations within the U.S., the Operator must obtain authorization from the FAA or from the Responsible authority, as appropriate.
/J	/E with RVSM (effective 1 Sep 2005)
/K	/F with RVSM (effective 1 Sep 2005)
/L	/G with RVSM (effective 1 Sep 2005)
/Q	/R with RVSM
/W	RVSM

(1) Use of the suffix which denotes the maximum transponder or navigational capability of the aircraft. Aircraft with RNAV equipment should use the appropriate RNAV suffix even if RNAV routing has not been requested.

(2) Area navigation equipment may be a single compute or a combination of computer and TACAN/VOR which can:

(a) Display random coursed, based on coordinate or radial/distance, from a point of origin to a clearance limit.

(b) Provide the pilot with a continuously updated aircraft position with reference to the selected course.

(c) Allow adherence to the existing federal airway/jet route structure.

(3) Aircraft with RNAV Capability. For flight in RVSM airspace, aircraft with RNAV capability, but not Advanced RNAV capability will file "/W". Filing "/W" will not preclude such aircraft from filing and flying direct routes in enroute airspace.

(4) If the operator or aircraft has not been authorized to conduct RVSM operations. "/W", "/J", "/K", "/L", or "/Q" will not be filed.

d. Aircraft Category Information:

TYPE ENGINE ABBREVIATIONS

P	piston
T	turboprop
J	jet

CLIMB AND DESCENT RATES

Climb and descent rates based on average en route climb/descent profiles at median weight between maximum gross takeoff and landing weights.

SRS

SRS means "same runway separation;" categorization criteria is specified in 7110.65 para 3-9-6, Same Runway Separation.

MANUFACTURES

Listed under the primary manufacturer are other aircraft manufacturers who make versions of some of the aircraft in that group.

AIRCRAFT WEIGHT CLASSES

a. Heavy. Aircraft capable of takeoff weights of more than 255,00 pounds whether or not they are operating at this weight during 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

STAGE 3 AIRCRAFT DESIGNATORS

Stage 3 aircraft designators such as B72Q, B73Q, DC8Q, DC9Q may only be used within the U.S. These designators will not be recognized in Canadian airspace or any other airspace outside the U.S. These special Stage 3 aircraft designators will be eliminated in the near future. Operators using the Stage 3 designators should begin using the appropriate aircraft type designator within U.S. airspace as soon as practical.

NOTE-

*Denotes single-piloted military turbojet aircraft or aircraft to receive the same procedural handling as a single-piloted military turbojet aircraft.

***Denotes amphibian aircraft.

+Denotes aircraft weighing between 12,500 lbs. and 41,000 lbs. For Class B Airspace rules, these aircraft are "large, turbine-engine powered aircraft."

Model	Type Designator	Description	Performance Information		
		Number & Type Engines/Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
BEECH AIRCRAFT COMPANY (USA) (Also CCF, COLEMILL, DINFIA, EXCALIBUR, FUJI, HAMILTON, JETCRAFTERS, RAYTHEON, SWEARINGEN, VOLPAR)					
1900 (C-12J)	B190	2T/S+	2,400	2.400	III
B300 Super King Air 350	B350	2T/S+	3,000	3,000	III
100 King Air (U-21F Ute)	BE10	ST/S	2,250	2,250	II
17 Stagger Wing (UC-43 Traveler, YC-43 Traveler)	BE17	1P/S	1,375	1,375	I
Twin Beech 18/Super H18	BE18	2P/S	1,400	1,000	II
18 (turbine)	B18T	2T/S	2,000	2,000	II
19 Musketeer Sport, Sport	BE19	1P/S	680	680	I
200, 1300 Super King Air, Commuter (C-12A to F, C-12L/R, UC-12, RC-12, Tp101, Huron)	BE20	2T/S	2,450	2,500	III
23 Musketeer, Sundowner	BE23	1P/S	740	800	I

Model	Type Designator	Description	Performance Information		
		Number & Type Engines/Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
24 Musketeer Super, Sierra	BE24	1P/S	1,000	1,000	I
300 Super King Air	BE30	2T/S+	3,000	3,000	III
33 Debonair, Bonanza (E-24	BE33	1P/S	1,000	1,000	I
35 Bonanza	BE35	1P/S	1,200	1,200	I
36 Bonanza (piston)	BE36	1P/S	1,100	1,100	I
36 Bonanza (turbine)	B36T	1/T/S			I
400 Beechjet, Hawker 400 (T-1 Jayhawk T-400)	BE40	2J/S+	3,300	2,200	III
50 Twin Bonanza (U-8D/E/G, RU-8 Seminole)	BE50	2P/S	1,600	1,600	II
55 Baron (T-42 Cochise, C-55, E-20	BE55	2P/S	1,700	1,700	II
56 Turbo Baron	BE56	2P/S			II
58 Baron	BE58	2P/S	1,730	1,730	II
60 Duke	BE60	2P/S	1,600	1,600	II
65 Queen Air (U-8F Seminole)	BE65	2P/S	1,300	1,300	II
70 Queen Air	BE70	2P/S	1,500	1,500	II
76 Duchess	BE76	2P/S	1,500	1,500	II
77 Skipper	BE77	1P/S	750	750	I
80 Queen Air (Zamir)	BE80	2P/S	1,275	1,275	II
88 Queen Air	BE88	2P/S			II
95 Travel Air	BE95	2P/S	1,250	1,250	II
99 Airliner	BE99	2T/S	1,750	1,750	II
90, A90 to E90 King Air (T-44 V-C6)	BE9L	2T/S	2,000	2,000	II
F90 King Air	BE9T	2T/S	2,600	2,600	II
2000 Starship	STAR	2T/S+	2,650	2,650	III
Premier 1, 390	PRM1	2J/S+	3,000	3,000	III
T34A/B, E-17 Mentor (45)	T34P	1P/S	1,150	1,150	I
T-34C Turbo Mentor	T34T	1T/S	1,100	1,100	I
T-6A Texan II	TEX2*	1T/S			I
U-21A/G, EU-21, JU-21, RU-21, Ute (A90-1 to 4)	U21	2T/S	2,000	2,000	II
QU-22 (1074/1079	U22	1P/S			I
BOEING COMPANY (USA) (Also GRUMMAN, IAI, LOCKHEED-BOEING, MCDONNELL DOUGLAS, NORTHROP-GRUMMAN, ROHR					
B-52 Stratofortress	B52	8J/H	3,000	3,000	III
707-100, (C-137B)	B701	4J/H	3,500	3,500	III
707-300, (C-18, C-137C, E-8J-Stars, EC-18, EC-137, KC-137, T-17)	B703	4J/H	3,500	3,500	III

Model	Type Designator	Description	Performance Information		
		Number & Type Engines/Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
717-200	B721	2J/L			III
720	B720	4J/L	3,000	3,000	III
727-100 (C-22)	B721	3J/L	4,500	4,500	III
727-200	B722	3J/L	4,500	4,500	III
727-100RE Super 27	R721	3J/L	4,300	4,300	III
727-200RE Super 27	R722	3J/L	4,300	4,300	III
727 Stage 3 (-100 or -200)	B72Q	3J/L	4,500	4,500	III
737-100	B731	2J/L	3,000	3,000	III
737-200 (Surveiller, CT-43, VC-96)	B732	2J/L	3,000	3,000	III
B737 Stage 3	B73Q	2J/L	3,000	3,000	III
737-300	B733	2J/L	5,500	3,500	III
737-400	B734	2J/L	6,500	3,500	III
737-500	B735	2J/L	5,500	3,500	III
737-600	B736	2J/L	4,000	4,000	III
737-700, BBJ, C-40	B737	2J/L	4,000	4,000	III
737-800, BBJ2	B738	2J/L	4,000	4,000	III
737-900	B739	2J/L	4,000	4,000	III
747-100	B741	4J/H	3,000	3,000	III
747-200 (E-4, V-C 25)	B742	4J/H	3,000	3,000	III
747-300	B743	4J/H	3,000	3,000	III
747-400 (Domestic, no winglets)	B74D	4J/H	3,000	3,000	III
747 -400 (International, winglets)	B744	4J/H	3,000	3,000	III
747SR	B74R	4J/H	3,000	3,000	III
747SP	B74S	4J/H	3,000	3,000	III
757-200 (C-32)	B752	2J/L	3,500	2,500	III
757-300	B753	2J/H	3,500	2,500	III
767-200	B762	2J/H	3,500	3,500	III
767-300	B763	2J/H	3,500	3,500	III
767-400	B764	2J/H	3,500	3,500	III
777-200	B772	2J/H	2,500	2,500	III
777-300	B773	2J/H	2,500	2,500	III
747SCA Shuttle Carrier	BSCA	4J/H			III
C-135B/C/E/K Stratolifter (EC-135, NKC-135, OC-135, TC-135, WC-135)	C-135	4J/H	2,000	2,000	III
C-17 Globemaster 3	C17	4J/H			III
C-97 Stratofreighter	C97	4P/L	2,500	3,000	III
KC-135A Stratotanker (J57 engines)	K35A	4J/H	2,500	3,000	III
KC 135D/E Stratotanker (TF33 engines)	K35E	4J/H	5,000	3,000	III

Model	Type Designator	Description	Performance Information		
		Number & Type Engines/Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
KC135R/T, C-135FR, Stratotanker (CFM56 engines)	K35R	4J/H	5,000	3,000	III
KE-3	KE3	4J/H	3,500	3,500	III
RC-135	R135	4J/H	3,000	3,000	III
E-3A (TF33), E-B/C, JE-3 Sentry	E3TF	4J/H	3,500	4,000	III
E-3A (CFM56), E-3D/F, Sentry	E3CF	4J/H			III
E6 Mercury	E6	4J/H	3,500	3,500	III
E-767	E767	2J/H	2,500	2,500	III
75 Kaydet (PT-13, PT-17, PT-18, PT-27, N2S)	ST75	1P/S	840	840	I
BRITISH AEROSPACE (BAe)(UK) (Also AIL, AVRO, BAC, BUCURESTI,DE HAVILLAND, HANDLEY-PAGE, HAWKER-SIDDELEY, JETSTREAM, KANPUR, MCDONNELL-DOUGLAS, RAYTHEON, SCOTTISH-AVIATION, VOLPAR)					
BAe 748 Andover C-91	A748	2T/L	2,500	2,000	III
ATP Advance Turboprop (ATP)	ATP	2T/L	3,000	3,000	III
BAC-111 One-Eleven	BA11	2J/L	2,400	2,400	III
BAC-167 Strikemaster	JPR0	1J/S			III
BAe HS 125 Series 1/2/3/400/600	H25A	2J/S+	2,500	2,000	III
BAe-125-700/800 (C-29, U-125	H25B	2J/S+	3,000	4,000	III
BAe-125-1000	H25C	2J/S+	3,000	4,000	III
BAe-146-100 Statesman	B461	4J/L	3,500	3,500	III
BAe-146-200 Quiet Trader, Statesman	B462	4J/L	3,500	3,500	III
BAe-146-300	B463	4J/L			III
BAe-3100 Jetstream 31 (T.Mk.3)	JS31	2T/S+	2,200	2,200	III
BAe-3200 Jetstream Super 31	JS32	2T/S+	2,600	2,600	III
BAe-4100 Jetstream 41	JS41	2T/S+	2,200		III
Harrier, Sea Harrier	HAR*	1J/L	5,000	8,000	III
Hawk, T-45 Goshawk, CT-155 Hawk	HAWK	1J/S+			III
Jetstream 1	JS1	2T/S+	2,200	2,200	III
Jetstream 3	JS3	2T/S+	2,200	2,300	III
Jetstream 200	JS20	2T/S+	2,200	2,200	III
Nimrod	N1M	4J/L			III
RJ-70	RJ70	4J/L			III
RJ-85	RJ85	4J/L			III
RJ-100	RJ1H	4J/L			III
Tornado	TOR	2J/L			III

Model	Type Designator	Description	Performance Information		
		Number & Type Engines/Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
CANADAIR BOMBARDIER LTD. (Canada)					
CL-41 Tutor (CT-114)	CL41	1J/S			III
CL-44 Forty Four	CL44	4T/L			III
CL-44-O Guppy	CL4G				III
CL-66, CV-580 (CC-109 Cosmopolitan)	CVLT	2T/L	1,500	1,500	III
CL-600/Challenger 699/601/604 (CC-144, CE-144	CL60	2J/L	2,250	3,000	III
CL-600 Regional Jet CRJ-100, RJ-100	CRJ1	2J/L			III
CL-600, Regional Jet CRJ-200, RJ-200	CRJ2	2J/L			III
CL-600 Regional Jet CRJ-700	CRJ7	2J/L			III
CL-600 Regional Jet CRJ-900	CRJ9	2J/L			III
T-33, CT-133 Silver Star (CL-30	T33	1J/L	2,000	2,000	III
CESSNA AIRCRAFT COMPANY (USA) (Also AVIONES-COLOMBIA, COLEMILL, DINFIA, ECTOR, FMA, FUJI, REIMS, RILEY, SUMMIT, WREN)					
A-37 Dragonfly (318D/E, OA-37	A37*	2J/S	3,370	3,000	III
120	C120	1P/S	640	640	I
140	C140	1P/S	640	640	I
150, A150, Commuter, Aerobat	C150	1P/S	670	1,000	I
152, A152, Aerobat	C152	1P/S	750	1,000	I
170	C170	1P/S	690	1,000	I
172, P172, R172, Skyhawk, Hawk XP, Cutlass (T-41, Mescalero)	C172	1P/S	650	1,000	I
172RG, Cutlass RG	C72R	1P/S	650	1,000	I
175, Skyhawk	C175	1P/S	850	1,000	I
177, Cardinal	C177	1P/S	850	1,000	I
177, Cardinal RG	C77R	1P/S	850	1,000	I
180, Skywagon 180 (U-17C)	C180	1P/S	1,130	1,130	I
182, Skylane	C182	1P/S	890	1,000	I
R182, TR182 (Turbo) Skylane RG	C82R	1P/S	890	1,000	I
185, A185 Skywagon, Skywagon 185, AgCarryall (U-17A/B)	C185	1P/S	1,000	1,000	I
188, A188,T188 AgWagon, AgPickup AgTruck, AgHusky	C188	1P/S	1,000	1,000	I

Model	Type Designator	Description	Performance Information		
		Number & Type Engines/Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
190	C190	1P/S	1,090	1,090	I
195 (LC-126)	C195	1P/S	1,200	1,200	I
205	C205	1P/S	965	1,000	I
206, P206m T206m TP206, U206, TU206, (Turbo) Super Skywagon (Turbo) Super Skyland, (Turbo) Skywagon 206, (Turbo) Stationair, Turbo Stationair 6	C206	1P/S	975	1,000	I
206 (turbine)	C06T	1T/S			I
207 (Turbo) Skywagon 207, (Turbo Stationair) 7/8	C207	1P/S	810	1,000	I
207 (turbine)	C207T	1P/S			I
208 Caravan 1, (Super) Cargomaster, Grand Caravan (C-98, U27)	C208	1T/S	1,400	1,400	I
210, T210, (Turbo) Centurion	C210	1P/S	900	1,000	I
P210 Pressurized Centurion	P210	1P/S	1,000	1,000	I
P210 (turbine)	C07T	1T/S			I
T303 Crusader	C303	2P/S	3,500	3,500	II
310, T310 (U-3, L-27)	C310	2P/S	2,800	2,000	II
320 (Executive) Skynight	C320	2P/S	2,900	2,000	II
335	C335	2P/S	2,200	2,000	II
336 Skymaster	C336	2P/S	1,340	1,340	II
337, M337, MC337, T337B/C/D/E/F/H	C337	2P/S	1,250	1,500	II
(Turbo) Super Skymaster (O-2)					
T337G, P337 Pressurized Skymaster	P337	2P/S	1,250	1,500	II
340	C340	2P/S	2,900	2,000	II
401, 402, Utililiner, Businessliner	C402	2P/S	2,500	2,000	II
402 (turbine)	C02T	2T/S			II
404 Titan	C404	2P/S	2,600	2,000	II
404 (turbine)	C04T	2T/S			II
F406 Caravan 2, Vigilant	F406	2T/S	1,850		II
411	C411	2P/S	2,800	2,000	II
414, Chancellor 414	C414	2P/S	2,300	2,000	II
414 (turbine)	C14T	2T/S			II
421, Golden Eagle, Executive Commuter	C421	2P/S			II
421 (turbine	C21T	2T/S			II
425, Corsair, Conquest 1	C425	2T/S	3,500	2,500	II

Model	Type Designator	Description	Performance Information		
		Number & Type Engines/Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
441 Conquest, Conquest 2	C441	2T/S	4,200	3,000	II
5000 Citation, Citation 1	C500	2J/S	3,100	3,500	III
501 Citation 1SP	C501	2J/S	4,300	3,300	III
525 Citationjet Citation CJ1	C525	2J/S	3,000		III
525A Citation CJ2	C25A	2J/S	3,870		III
525B Citation CJ3	C25B	2J/S+			III
526 Citationjet	C526	2J/S	3,000		III
550,S550,552 Citation 2/S2/Bravo (T-47, U-20)	C550	2J/S+	5,300	3,000	III
551 Citation 2SP	C551	2J/S	5,300	3,000	III
560 Citation 5/5 Ultra/5Ultra Encore (UC-35, OT-47, TR-20)	C560	2J/S+	6,000	3,500	III
650 Citation 3/6/7	C650	2J/S+	3,900	4,000	III
680 Citation Sovereign	C680	2J/S+			III
750 Citation 10	C750	2J/S+	3,500	3,500	III
AW	CAW	1P/S			I
O-1, TO-1, OE, L-19 TL-19 Bird Dog (305,321)	O1	1P/S	1,150	1,150	I
T37 (318A/B/C)	T37*	2J/S	3,000	3,000	III
T-50 Bobcat (AT-8. AT-17, UC-78, Crane)	T50	2P/S			II
DC-6	CDC6	1P/S			I
C-34/37/38/145/165 Airmaster	CMAS	1P/S			I
DEHAVILLAND (Canada/UK) (Also AIRTECH, HAWKER-SIDDELEY, OGMA, RILEY, SCENIC)					
DH-106 Comet	COMT	4J/L	2,900	2,000	III
DHC-1	DHC1	1P/S	900	1,000	I
DHC-2 Mk1 Beaver (U-6, L-20)	DHC2	1P/S	840	1,000	I
DHC-2 Mk3 Turbo Beaver	DH2T	1T/S	1,220	1,000	I
DHC-3 Otter (U-1, NU-1, UC)	DHC3	1P/S	750	1,000	I
DHC-3 Turbo Otter	DH3T	1T/S			I
DHC-4 Caribou (C-7, CV-2)	DHC4	2P/S+	1,350	1,000	III
DHC-5 (C-8, CV-7, CC-115, C-115)	DHC5	2T/L	2,000	1,500	III
DHC-6 Twin Otter (UV-18, CC-138)	DHC6	2T/S	1,600	1,800	II
DHC-7 Dash 7 (O-5, EO-5)	DHC7	4T/L	4,000	4,000	III

Model	Type Designator	Description	Performance Information		
		Number & Type Engines/Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
DHC8 - 100 Dash 8 (E-9, CT-142, CC-142)	DH8A	2T/L	1,500	1,500	III
DHC8 - 200 Dash 8	DH8B	2T/L	1,500	1,500	III
DHC8 - 300 Dash 8	DH8C	2T/L	1,500	1,500	III
DHC - 400 Dash 8	DH8D	2T/L	2,500	2,500	III
DH-104 Dove, Sea Devon	DOVE	2P/S	1,420	1,420	II
DH-114 Heron	HERN	4P/S+	1,075	1,075	III
FAIRCHILD INDUSTRIES (USA) Also CONAIR, FAIRCHILD-HILLER, FLEET, FOKKER, KAISER, PILATUS, SWEARINGEN)					
A-10, OA-10 Thunderbolt 2	A10*	2J/L	6,000	5,000	III
C-119, R4Q Flying Box Car (F-78)	C119	2P/L	750	750	III
C-123 Provider	C123	2P/L	890	1,000	III
F-27, FH-227	F27	2T/L	3,000	3,000	III
M-62 (PT-19/23/26, T-19 Cornell)	FA62	1P/S	650	650	I
Pilatus/Peacemaker/Porter	PC6P	1P/S	580	600	I
PC-6 Heli-Porter	PC6T	1T/S	580	600	I
Merlin 2	SW2	2T/S	2,350	2,500	II
SA-226TB, SA-227TT Merlin 3, Fairchild 300	SW3	2T/S+	2,350	2,500	III
SA-226AC, SA-227AC/AT Metro Merlin 4, Expediter	SW4	2T/S+	2,400	2,500	III
GATES LEARJET CORP. (USA) (Also LEAR JET, LEARJET, SHIN MEIWA)					
23	LJ23	2J/S	4,500	4,000	III
24	LJ24	2J/S+	4,500	4,000	III
25	LJ25	2J/S+	4,500	4,000	III
28,29	LJ28	2J/S+	4,500	4,000	III
31	LJ31	2J/S+	4,500	4,000	III
35, 36 (C-21, RC-35, RC-36, U-36)	LJ35	2J/S+	4,500	4,000	III
40	LJ40	2J/S+			III
55	LJ55	2J/S+	5,000	4,000	III
60	LJ60	2J/S+	5,000	4,000	III
GENERAL DYNAMICS CORP. (USA) (Also BOEING CANADA, CANADAIR, CANADIAN VICKERS, CONSOLIDATED, CONVAIR, FOKKER, GRUMMAN, KELOWNA, LOCKHEED, LOCKHEED MARTIN, MITSUBISHI, SABCA, SAMSUNG, TUSAS)					
Canso/Catalina***	CAT	2P/S+	600	600	III
Convair 600	CV99	4J/L	2,500	2,500	III
Convair 240/340/440, Liner, HC-131	CVLP	2P/L	1,000	800	III

Model	Type Designator	Description	Performance Information		
		Number & Type Engines/Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
Convair 540/580/600/640	CVLT	2T/L	1,500	1,500	III
F-111, EF-111, (RF-111Aardvark, Raven	F111*	2J/L	5,000	5,000	III
F-16 A/B/C/D/N, NF-16, TF-16 Fighting Falcon, Netz, Barak, Brakeet	F16*	1J/L	8,000	5,000	III
F-16XL Fighting Falcon	F16X*	1J/L			III
Valiant	VALI	1P/S	600	750	I
GRUMMAN AEROSPACE CORP. (USA) (Also AERO MOD, AMERICAN GENERAL, GRUMMAN AMERICAN, GULFSTREAM AMERICAN MID-CONTINENT, NORTHROP GRUMMAN, SERV-AERO)					
A-6, EA-6, KA-6 Intruder, Power (G-128)	A6*	2J/L	7,500	5,000	III
AA1 Trainer, Tr2, T-Cat, Lynx	AA1	1P/S	850	1,250	I
AA-5, Traveler, Cheetah Tiger	AA5	1P/S	660	1,000	I
C-1, TF Trader (G-96)	G96	2P/S+			III
C-2 Greyhound	C2	2T/L	1,000	2,200	III
E-2, TE-2, Hawkeye, Daya	E2	2T/L	2,690	3,000	III
F-3F (G-11/32), Replica	F3F	1P/S			I
F-6F Hellcat (G-50)	HCAT	1P/S+			III
F-7F Tigercat (G-51)	TCAT	2P/S+			III
F-9F Panther (G-79)	F9F	1JS+			III
F-14 Tomcat	F14*	2J/L	6,000	4,000	III
G-164 Ag-Cat, Super Ag-Cat	G164	1P/S	1,500	1,500	I
G164 Turbo Ag-Cat	G64T	1T/S	1,500	1,500	I
G-21 A/38/39 Goose (JRF)***	G21	2P/S	1,000	1,000	III
G-44 Widgeon (J4F)***	G44	2P/S	1,000	1,500	III
G-73 Mallard***	G73	2P/S+	1,600	1,600	III
G73T Turbo Mallard***	G73T	2T/S			III
G-1159, G-1159B, Gulfstream 2/2B/2SP (C-20J, VC-111)	GLF2	2J/L	5,000	4,000	III
GA-7 Cougar	GA7	2P/S	1,600	1,500	II
HU-16, SA-16, UF Albatross G-64/111)***	U16	2P/S+	1,500	1,500	III
OV-1, RV-1, AO-1 Mohawk (G-134)	V1	2T/S+	2,100	1,300	III
S-2, S2F, P-16 Tracker (G-89)	S2P	2P/S+			III

Model	Type Designator	Description	Performance Information		
		Number & Type Engines/Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
S-2 Turbo Tracker	S2T	2T/S+			III
X-29 (712)	X29	1J/S+			III
GULFSTREAM AEROSPACE CORP, (USA) Also GRUMMAN, GRUMMAN AMERICAN, GULFSTREAM, GULFSTREAM AMERICAN, IAI)					
690 Jetprop Commander 840/900	AC90	2T/S	2,500	2,500	II
695 Jetprop Commander 980/1000	AC95	2T/S	2,500	2,500	II
AA-1 T-Cat, Lynx	AA1	1P/S	850	1,250	I
AA-5 Traveler, Cheetah, Tiger	AA5	1P/S	660	1,000	I
GA-7 Cougar	GA7	2P/S	1,600	1,500	II
GAC 159-C, Gulfstream 1	G159	2T/S+	2,000	2,000	III
G-1159, G-1159B/T Gulfstream 2/2B/2SP/2TT	GLF2	2J/L	5,000	4,000	III
G-1159A Gulfstream 3/SRA-1, SMA-3 (C20A/B/C/D/E)	GLF3	2J/L	5,000	4,000	III
G-1159C Gulfstream 300/4/4SP/400/SRA-4 (C-20F/G/H, S102, Tp102, U-4)	GLF4	2J/L	5,000	4,000	III
G-1159D Gulfstream 5/500/550 (C-37)	GLF5	2J/L	5,000	4,000	III
HELIO AIRCRAFT COMPANY (USA)					
H-391/392/395/250/295/700/800, HT-295 Courier, Strato-Courier, Super Courier (U-10)	COUR	1P/S	850	1,000	I
HST-550 Stallion (AU-24)	STLN	1T/S	2,200	2,200	I
H-500 Twin Courier (U-5)	TCOU	2P/S	1,250	1,500	II
IAI (Israel) (Also ISRAEL AIRCRAFT INDUSTRIES, ASTRA, GULFSTREAM)					
101 avara, 102, 201, 202	ARVA	2T/S+	1,300	1,000	III
1123 Westwind	WW23	2J/S+	4,000	3,500	III
1124 Westwind	WW24	2J/S+	4,000	3,500	III
1125 Gulfstream 100, (C-38)	ASTR	2J/S+	4,000	3,500	III
1126 Gulfstream 200	GALX	2J/S+			III
Gulfstream 150	G150	2J/S+			III

Model	Type Designator	Description	Performance Information		
		Number & Type Engines/Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
ILYUSHIN (Russia)					
A-50, Be-976	A50	4J/H			III
Il-14	IL14	2P/S+			III
Il-18/20/22/24, Bizon, Zebra	IL18	4T/L			III
Il-28	IL28	2J/L			III
Il-38	IL38	4J/L			III
Il-62	IL62	4J/H	3,500	2,500	III
IL-76/78/82, Gajaraj	IL76	4J/H	3,000	2,500	III
Il-86/87	IL86	4J/H			III
Il-96	IL96	4J/H			III
Il-103	I103	1P/S			I
Il-114	I114	2T/L			III
LOCKHEED CORP. (USA) (Also AERITALIA, CANADAIR, FIAT, FOKKER, HOWARD, LEAR, LOCKHEED-BOEING, LOCKHEED-MARTIN, MBB, MESSERSCHMITT, MITSUBISHI, PACAERO, ROCKWELL, SABCA)					
B-34, PV Venture, Harpoon (L-15/137/237)	L37	2P/S+			III
C-5 Galaxy (L-500)	C5	4J/H	2,500	2,000	III
C-130A/B/E/F/H, CC-130, DC-130, EC-130/E/G/H/Q, HC-130, JC-130, KC-130B/F/H/R/T, LC-130,MC-130,NC-130,RC-130, TC-130,VC-130, WC-130E/H,T-10, TK-10, TL-10,Tp84 Hercules,Spectre, Aya,Karnaf, Sapeer (L-100/182/282/382)	C130	4T/L	1,500	1,500	III
C-141 Starlifter (L-300)	C141	4J/H	3,500	3,000	III
L-049/749/1049 Constellation, Super	CONI	4P/L	1,700	1,700	III
Constellation, Starliner (C-121, RC-121, EC-121, VC-121, WV, R7V, Warning Star)					
F-22 Raptor (L-645)	F22*	2J/L			III
F-104, RF-104, TF-104 Starfighter (L583/683)	F104*	1J/L	5,000	4,000	III
F-117 Nighthawk	F117	2J/L			III
L-1011 Tri-Star (all series)	L101	3J/H	3,500	3,000	III
L-18 Lodestar (C-56/57/59/60, R50, XR50)	L18	2P/L	1,800	2,000	III

Model	Type Designator	Description		Performance Information		
		Number & Type Engines/Weight Class		Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
L-188 Electra	L188	4T/L		1,850	2,000	III
L-1329 Jetstar 6/8	L29A	4J/L		4,000	3,500	III
L-1329-5 Jetstar 2/731	L29B	4J/L		4,000	3,000	III
P-2D to H, SP-2, P2V Neptune (L-426/726/826)	P2	2P/L				III
P-3, AP-3, EP-3, NP-3,RP-3, TP-3, UP-3, VP-3, WP-3, CP-140 Orion, Aurora, Arcturus (L-85/285/685/785)	P3	4T/L		1,850	2,000	III
P-38, F-5 Lighting (L-222/322/422)	P38	2P/S+				III
S-3, ES-3, US-3 Viking (L-394)	S3	2J/L		2,000	2,000	III
SR-71 Blackbird	SR71	2J/L				III
-33, AT-33, NT-33, RT-33 Shooting Star, T-Bird (L-580)	T33*	2J/L		2,000	2,000	III
U-2, ER-2	U2*	1J/S+		6,000	6,000	III
MAULE AIRCRAFT CORP. (USA) (Also SAASA)						
5M-4 Bee Dee, Jetasen, Rocket, Astro Rocket, Strata Rocket	M4	1P/S		1,000	1,000	I
M-5, Strata Rocket, Lunar Rocket, Patroller	M5	1P/S		1,000	1,000	I
M-6 Super-Rocket	M6	1P/S		1,500	1,000	I
M-7-235/260, MT-7-235/260, MX7-160/180/235, MXT-7-160/180 Super Rocket, Star Rocket, Comet, Star Craft, Orion, Sportplane	M7	1P/S		825		I
M-7-420, MT-7-240, MX-7-420, MXT-7-420 Star Craft	M7T	1T/S		4,500		I
M-8	M8	1P/S				I
MCDONNELL-DOUGLAS CORP (USA) (Also ASTA, BOEING, DOUGLAS, GAF, LISUNOV, MITSUBISHI, ON MARK, SHANGHAI, VALMET)						
Skywarrior	A3*	2J/L		5,000	6,000	III
A-4, OA-4, TA-4 Skyhawk	A4*	1J/S+		5,000	5,000	III
Invader	B26	2P/L		1,000	1,000	III
YC-15	C15	4J/L				III
C-17 Globemaster 3	C17	4J/H				III

Model	Type Designator	Description	Performance Information		
		Number & Type Engines/Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
DC-10 (KC-10 Extender, KDC-10, MD-10)	DC10	3J/H	2,400	2,000	III
Skytrain (C-47, C-53, C-117 A/B/C, R4D 1 to 7)	DC3	2P/S+	1,200	1,200	III
Super DC-3 (C-117D, R4D 8)	DC3S	2P/S+	1,330	1,330	III
Skymaster	DC4	4P/L	2,300	2.300	III
DC-6/B Liftmaster	DC6	4P/L	1,000	1,000	III
DC-7/B/C Seven Seas	DC7	4P/L	1,250	1,250	III
DC-8-50, Jet Trader	DC85	4J/H	4,000	4,000	III
DC-8-60	DC86	4J/H	4,000	4,000	III
DC-8-70	DC87	4J/H	5,000	4,000	II
DC-8 Stage 3 (US Only)	DC8Q	4J/H	4,000	4,000	III
DC-9 Stage 3 (US Only)	DC9Q	2J/L	3,000	3,000	III
DC-9-10	DC91	2J/L	3,000	3,000	III
DC-9-20	DC92	2J/L	3,000	3,000	III
DC-9-30 (C-9, VC-9, Nightingale, Skytrain 2)	DC93	2J/L	3,000	3,000	III
DC-9-40	DC94	2J/L	3,000	3,000	III
DC-9-50	DC95	2J/L	3,000	3,000	III
F-15 Eagle, Baz, Akef, Ra'am	F15*	2J/L	8,000	5,000	III
FA-18, CF-18, CF-188, EF-18, C-15, CE15, AF-18, ATF-18 Hornet, Super Hornet	F18*	2J/L	8,000	6,000	III
F-4, RF-4, QF-4 Phantom 2/2000, Kurnass	F4*	2J/L	8,000	6,000	III
MD-11	MD11	3J/H			III
MD-81	MD81	2J/L	3,500	3,000	III
MD-82	MD82	2J/L	3,500	3,000	III
MD-83	MD83	2J/L	3,500	3,000	III
MD-87	MD87	2J/L	3,500	3,000	III
MD-88	MD88	2J/L	3,500	3,000	III
MD-90	MD90	2J/L			III
MITSUBISHI AIRCRAFT INTERNATIONAL INC. (USA/Japan) (Also BEECH, RAYTHEON)					
A6M Zero	ZERO	1P/S			I
F-1	F1	2J/S+			III
F-2	F2	1J/L	8,000	5,000	III
F-86 Sabre	F86	1J/L	4,000	4,000	III
MU-2, Marquise, Solitaire (LR-1)	MU2	2T/S	3,500	3,000	II
MU-300 Diamond	MU30	2J/S+	3,500	4,000	III

Model	Type Designator	Description	Performance Information		
		Number & Type Engines/Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
T-2	MT2	2J/S+			III
NORTHERN AVIATION (USA-see Bellanca) NORTHROP CORP. (USA) (Also CANADAIR, CASA, AIDC, F+W EMMEN, KOREAN AIR, NORTHROP GRUMMAN)					
B-2 Spirit	B2	4J/H			III
C-125 Raider	C125	3P/L			III
E-2 Hawkeye	E2	2T/L	2,690	3,000	III
F-5, RF-5 Freedom Fighter, Tiger 2, Tigereye (N-156C/F)	F5*	2J/S+	8,000	5,000	III
P-61 Black Widow	P61	2P/S+			III
T-38, AT-38 Talon (N-156T)	T38*	2J/S+	8,000	5,000	III
PILATUS FLUGZEUGWERKE AG (Switzerland) (Also FAIRCHILD, FAIRCHILD-HILLER)					
P-2	PP2	1P/S			I
P-3	PP3	IP/S			I
PC-6 Porter	PC6P	1P/S	600	600	I
PC-6A/B/C Turbo Porter (UV-20 Chiricahua)	PC6T	1T/S	1,250	1,500	I
PC-7 Turbo Trainer (AT-92, Astra)	PC7	1T/S	2,800		I
PC9, Hudurnik	PC9	1T/S			I
PC-12, Eagle	PC12	1T/S	1,900		I
ROCKWELL INTERNATIONAL CORP. (USA) (Also AERO COMMANDER, CANADAIR, CCF, COMMANDER, COMMONWEALTH, GULFSTREA, HAMILTON, MITSUBISHI, NOORDUYN, NORTH AMERICAN PACAERO, NORTH AMERICAN ROCKWELL, PACIFIC AIRMOTIVE, ROCKWELL, RYANM SUD, TUSCO)					
100 Commander 100	VO10	1P/S	850	850	I
112,114 Commander 112/114, Alpine Commander, Gran Turismo Commander	AC11	1P/S	1,000	1,200	I
200 Commander 200	M200	1P/S	1,400	1,000	I
500 Shrike Commander	AC50	2P/S	1,340	1,500	II
Commander 520	AC52	2P/S	1,340	1,500	II
560 Commander 560	AC56	2P/S	1,400	1,500	II
680F, 680FP, Commander 680/680FP	AC68	2P/S	1,375	1,375	II
680FL, Grand Commander, Commander 685	AC6L	2P/S	1,250	1,250	II
720 Alti-Cruiser	AC72	2P/S	1,300	1,300	II

Model	Type Designator	Description	Performance Information		
		Number & Type Engines/Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
680T, 680V Turbo Commander	AC80	2T/S	2,000	1,500	II
690 Turbo Commander 690, Jetprop Commander 840	AC90	2T/S	2,500	2,500	II
695 Jetprop Commander 980/1000	AC95	2P/S	2,500	2,500	II
700, 710 Commander 700/710	RC70	2P/S			II
AC-130 Spectre	C130	4T/L	1,500	1,500	III
B-1 Lancer	B1*	4J/H	3,000	5,000	III
FR-06 Fanranger, Ranger 2000	R2TH	1J/S			III
Mitchel	B25	2P/L	980	980	III
Sabre	F86*	1J/L	4,000	4,000	III
Jet Commander 1121	JCOM	2J/S+	5,000	4,500	III
Lark 100 Commander	LARK	1P/S	700	1,000	I
Navion NA 145/154	NAVI	1P/S	750	600	I
Mustang	P51	1P/S	2,500	2,500	III
NA-265 Sabre 40/60/65	SBR1	2J/S+	4,000	3,500	III
NA-265 Sabre 75/80	SBR2	2J/S+			III
OV-10 Bronco	V10	2T/S	2,000	2,500	II
S-2 Thrush Commander	SS2P	1P/S			I
Super Sabre F-100	SSAB	1J/L	4,000	4,000	III
T-2 Buckeye	T2*	2J/L	5,700	6,000	III
Trojan, Nomair, Nomad	T28	1P/S	2,500	2,500	III
Texan Harvard	T6	1P/S	800	800	I
Darter 100	VO10	1P/S	850	850	I
X-31	X31	1J/S+			III
SAAB (Sweden/USA) (Also SAAB-FAIRCHILD					
29 (J29)	SB29	1J/S			III
32 Lansen (J32)	SB32	1J/S+			III
35 Draken (J35, Sk35, F-35, RF-35, TF-35)	SB35	1J/S+			III
37 Viggen (AJ37, AJS37, JA37, SP37, SH37, Sk37)	SB37	1J/S+			III
39 Gripen (JAS39)	SB39	1J/S+			III
91 Safir (Sk50)	SB91	1J/S			III
105 (Sk60)	SB05	2J/S			III
340	SF34	2T/S+	2,000	2,000	III
2000	SB20	2T/L			III
MFI-15/17 Safari, Supporter (T-17)	MF17	1P/S			I

Model	Type Designator	Description	Performance Information		
		Number & Type Engines/Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
SHORT BROTHERS LTD. (UK)					
330,Sherpa (C-23), SD3-30	SH33	2T/S+	1,380	1,380	III
360, SD3-60	SH36	2T/S+	1,400	1,400	III
SC-5 Belfast	BELF	4T/L			III
SC7 Skyvan, Skyliner	SC7	2T/S	1,500	1,500	II
AEROSPATIALE (France) (Also ATLAS, CASA, CHANGHE, EUROCOPTER, HELIBRAS, HELIBRAS, HINDUSTAN, IAR, ICA, NURTANIO, NUSANTARA, REPUBLIC, SINGAPORE, SUD, WESTLAND)					
Lama SA-315	LAMA	1T/S	1,000	1,000	I
Alouette 2	ALO2	1T/S	1,280	1,280	I
Alouette 3	ALO3	1T/S	1,500	1,500	I
Dauphine SA-360/361	S360	1T/S	1,400	1,500	I
Dauphine 2 SA-365C	S65C	2T/S	1,800	1,00	I
Ecurevil/AStar AS-350/550	AS50	1T/S	1,000	1,000	I
Gazelle SA-341/342	GAZL	1T/S	1,620	1,620	I
Puma SA-330	PUMA	2T/L	1,250	1,500	I
(CH-33, HT-19)					
Super Puma AS 332/532, SA-330	AS32	2T/L	1,250	1,500	I
Super Frelon SA-321/Z-8	FREL	3T/L	1,200	1,500	I
Twin Star AS-355/555	AS55	2T/S	1,350	1,300	I
AUGUSTA (Constuzioni Aeronautiche Giovanni Agusta SpA) (Italy) (Also BELL, NUSANTARA, SABCA)					
Model 147J-3B-1 Ranger	B47J	1P/S	500	500	I
Model A 109/A/A-II	A109	2T/S	1,620	1,500	I
Model 212 ASW, Griffon	B12	2T/S	1,420	1,420	I
BELL/BOEING					
Osprey	V22	2P/L			II

(5) Helicopters/Rotocrafts:

(a) MANUFACTURERS

Listed under the primary manufacturer are other aircraft manufacturers who also make versions of some of the aircraft in that group.

(b) TYPE ENGINE ABBREVIATIONS:

P-Piston
T-Jet/Turboprop
J-Jet

(c) CLIMB AND DESCENT RATES

Climb and descent rates based on average enroute climb/descent profiles at median weight between maximum gross takeoff and landing weights.

(d) AIRCRAFT WEIGHT CLASSES

1 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.

2 Large. Aircraft of more than 41,000 pounds, maximum certificated takeoff weight, up to 255,000 pounds.

3 Small. Aircraft of 41,000 pounds or less maximum certificated takeoff weight.

(e) SRS

SRS means "same runway separation;" categorization criteria is specified in FAA order 7110.65 para 3-9-6 SAME RUNWAY SEPARATION.

Model	Type Designator	Description	Performance Information		
		Number & Type Engines/Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
BELL HELICOPTER TEXTRON (USA) Also AGUSTA, AIDC, COMMONWEALTH, DORNIER, FUGI, GLOBAL, KAWASAKI, NUSANTARA, TROOPER, UNC, WESTLAND)					
Biglifter, Bell 204, 205, 214A/B, AB-204	UH1	1T/S	1,500	1,500	I
Cobra	HUCO	1T/S	1,375	1,375	I
Jet Ranger/Long Ranger/ Sea Ranger/ Kiowa/ Model 206, Combat Scout	B06	1T/S	1.,200	1,000	I
Huey/Iroquois/ Model 205 A-1	UH1	1T/S	1,500	1,500	I
Ranger Model 47J	B47J	1P/S	1,000	1,000	I
Sioux/Model 47G, OH-13	B47G	1P/S	1,000	1,000	I
Twin Huey, Model 212, Model 214B/B1	B12	2T/S	1,420	1,420	I
Model 412, Griffon					
Model 214ST, Super Transport	BSTP	2T/S	1,420	1,420	I
Model 222, 230, 430	B222	2T/S	1,500	1,000	I
BOEING VERTOL COMPANY (USA) (Also BOEING HELICOPTERS, KAWASAKI, MERIDIONALI, VERTOL)					
Chinook, Model 234	H47	2T/L	1,500	1,500	I
Sea Knight ,107 CH-113, Labradoe	H46	2T/S+	2,130	2,130	I
MCDONNELL-DOUGLAS HELICOPTERS (includes Hughes Helicopters) (USA) Also AGUSTA, BREDANARDI, KAWASAKI, KOREAN AIR, NARDI, RACA, SCHWEIZER)					
Model 77/ Apache, Pethen, Longbow Apache	H64	2T/S+	1,500	1,500	I
Model 269, 200, 280, 300	H269	1P/S	1,000	1,000	I
Skynight, TH-55 Osage					
Model 300/C	H269	1P/S	1,200	1,200	I
Model 500C, 369, 530F, Defender, Black Tiger, Night Fox, Lifter	H500	1T/S	1,500	1,500	I
Osage	H269	1P/S	1,000	1,000	I
Pawnee, Model 369, Model 500D/MD/MG	H500	1T/S	1,500	1,500	I

Model	Type Designator	Description	Performance Information		
		Number & Type Engines/Weight Class	Climb Rate (fpm)	Descent Rate (fpm)	SRS Cat.
SIKORSKY AIRCRAFT (USA) (Also AGUSTA, ASTA, HAWKER DE HAVILAND, KOREAN AIR, MITSUBISHI, TUSAS, UNITED CANADA, VAT, WESTLAND)					
Blackhawk S-70, WS-70, Seahawk, Pavehawk, Rescuehawk, Thunderhawk, Jayhawk, Oceanhawk, Deserthawk, Yanshuf, LAMPS MK3, Blackhawk	H60	2T/S+	2,000	2,000	I
Chickasaw	S55P	1P/S	800	1,000	I
S-55, H-19, HO4S, HRS					
Choctaw/ Seashore/ Seaboat S-58, CH-34	S58P	1P/L	1,120	1,120	I
Model S-51	S51	1P/L	1,000	1,000	I
Model S-52, Hummingbird	S52	1P/L	950	1,000	I
Model S-62	S62	1T/S	1,020	1,000	I
Model S-76, Spirit, Eagle	S76	2T/S	1,300	1,300	I
S-61R (CH-3, HH-3, Pelican)	S61R	2T/L	1,500	1,500	I
S-61A/B/D/L/N Sea King, Commando, CH-124	S61	2T/L	1,500	1,500	I
Sea Stallion S-65, Yasur	H53	2T/L	1,500	1,500	I
Skycrane S-64E/F, Tarhe S-64	S64	2T/L	1,300	1,300	I

Item (4) TYPE FLIGHT PLAN - Enter "I" (IFR) or "V" (VFR) as appropriate for that segment. Do not combine IFR and VFR route segments on the same line. Enter "D" (DVFR) for VFR flights conducted in accordance with Air Defense Identification Zone procedures in the appropriate Enroute Supplement.

Item (5) TRUE AIRSPEED - Enter TAS to be maintained at initial cruising altitude/Flight Level. This entry is not required for VFR local flights.

Item (6) POINT OF DEPARTURE - Enter the location identifier of the departure airport or the point (Navigational Aid or fix) where IFR will begin. If there is no location identifier, enter the installation name.

Item (7) PROPOSED DEPARTURE TIME (Z) - Enter the proposed departure time in Coordinated Universal Time (UTC); allow sufficient time for Base Operations to process the flight plan. For activation of an airborne segment (e.g., after an enroute delay), enter the proposed time for beginning that segment.

NOTE: A flight plan proposal will “time out” of the ATC system if not activated or updated by the pilot within two hours of the proposed departure time. When departing non-military airports, the pilot must ensure that the actual departure time is passed to the tie-in Flight Service Station serving the departure airport. This can be done by pilot request through the tower or by the pilot direct to the tie-in Flight Service Station. If the take-off time is not passed to the tie-in Flight Service Station, the aircraft will arrive unannounced at the destination.

Item (8) ALTITUDE

a. For IFR flight, enter the initial cruising altitude/Flight Level in hundreds of feet (e.g., enter 6000 feet as "60", 15,000 feet as "150", FL300 as "300", etc.). For VFR flight, enter the initial cruising altitude in hundreds of feet (e.g., enter 8500 feet as "85"). For IFR/VFR-on-top, enter "OTP" and an altitude if so desired (e.g., "OTP" or "OTP 125").

b. If a subsequent enroute altitude change(s) is planned, enter the requested altitude/Flight Level and location of the change in the REMARKS.

c. If an altitude block is desired, enter the lower altitude of the requested block, the letter "B", and the top of the block (e.g., 240B270).

Item (9) ROUTE OF FLIGHT

a. For composite flight plans, do not combine IFR and VFR route segments on the same line.

b. If a radar departure or VFR climb is desired, enter this request in the REMARKS. The first point in the route of flight should be the planned Navigational Aid or fix for entering the enroute structure; ie. VOR, TACAN, TACAN/DME fix, named intersection, etc.

c. If a Standard Instrument Departure is used, enter the SID coded identifier (if none is available, enter the SID name and number), following by either the SID termination point, or the transition fix (e.g., JUNCTION-FIVE DEPARTURE, enter "JCT5.JCT", or JUNCTION-FIVE with ABILENE TRANSITION, enter "JCT5.ABI")

d. Clearly define the route of flight by using Navigational Aid identifiers or fix radial distance, airway/jet route designation, named intersection and RNAV waypoint. The absence of airway identifiers between fixes/Navigational Aids indicates direct flight. To transition from one airway to another enter the designations of the two airways, separated either by a space (e.g., YKM V4 V187 TCM), or by the fix where the airways intersect (e.g., V33 FAGED V286).

NOTE: Military Training Routes are filed as part of the Route Of Flight in accordance with the procedures outlined in AP/1B.

NOTE: 2-letter NDB identifiers may be filed if they define an airway segment, otherwise do not file 2-letter identifiers.

e. For VFR flight plans the last fix entered is the point from which the final leg is begun to the destination.

f. For IFR flight plans the last fix entered is either:

(1) The identifier of the nearest appropriate Initial Approach Fix, Navigational Aid, first point of intended landing, or published fix which most clearly establishes the route of flight to the destination or

(2) The coded identifier of a Standard Terminal Arrival (STAR), e.g. "BOIDS9," placed after the transition fix.

g. For a composite flight plan the last entry in the ROUTE OF FLIGHT is the fix/facility at which the transition is made. Comply with paragraph e. above if the final leg to destination is VFR, and comply with paragraph f. above if the final leg to destination is IFR.

h. STOPOVER FLIGHT PLANS

(1) Each leg after the initial leg of a stopover flight plan is entered as described in ITEMS (4) through (11).

(2) In parenthesis following the last entry of successive legs, enter the hours of fuel on board (e.g., (3+30)).

(a) If inflight refueling is planned, enter an additional time group in brackets following the fuel on board to show additional flight time possible after refueling (e.g., 3+30 [2+30]).

(b) If an alternate is required, enter the airport identifier and the ETE to the alternate in parenthesis with the fuel on board entry (e.g., 3+30 [2+30] SKF 0+30).

i. ENROUTE DELAYS

(1) TERMINAL AREA DELAY - Enter the delay location airport identifier as the last item in the route of flight. Do not make an entry in the TO block; enter the time required to fly the segment in the ETE block. Explain the delay as a remark on the next line in the ROUTE OF FLIGHT block; do not make entries in any other blocks on this line. Precede the delay remark with a circled "R" to indicate that the information to following should be transmitted as a remark. Enter a "D" and the length of the delay, the delay location airport identifier, and the airport of the final destination (e.g., (R) D 0+15 BSM RND). Complete ITEMS (4) through (11) for the subsequent leg of flight.

(2) SPECIAL USE AIRSPACE DELAY - Special use airspace delays will normally be filed in accordance with procedures outlined in letters of agreement with local Air Traffic Control facilities. In the absence of a letter of agreement, determine an entry point for the airspace and enter that Navigational Aid/fix as the last item in the ROUTE OF FLIGHT. Do not make an entry in the TO block; enter the time required to fly the segment in the ETE block. Explain the delay as a remark on the next line in the ROUTE OF FLIGHT block; do not make entries in any other blocks on this line. Precede the delay remark with a circled "R" to indicate that the information should be transmitted as a remark. Enter a "D" and the length of the delay, the delay location, and the identifier of the final destination (e.g., (R) D 1+00 R5105 REE or (R) D 0+15 REESE 1 REE, etc.). Determine an exit point and enter that Navigational Aid/fix in POINT OF DEPARTURE for the subsequent ROUTE OF FLIGHT on the next line. Complete ITEMS (4) through (11) for the subsequent leg of flight.

(3) AERIAL REFUELING DELAY

(a) TRACK - The aerial refueling track delay is normally applicable to the tanker only and is presented as one continuous flight on the flight plan form. The delay is indicated immediately following the aerial refueling control point (ARCP) in the route of flight segment (e.g., SPS 282078/D 0+20 AR013 TCC 202038). This entry depicts a 20 minute delay at the ARCP. No additional remarks pertaining to the delay are required. The receiver does not file a delay if normal refueling procedures are to be used.

(b) ANCHOR - Aerial refueling in an anchor is prepared in the same manner as the aerial refueling track, except the delay is indicated immediately following the anchor point and both the tanker and receiver file a delay.

(4) HOLDING DELAY - Flight plans will normally be presented as one continuous flight. A holding delay will be shown immediately after the holding fix (e.g., DUMPS/D 0+10 J17). No remarks are necessary.

j. For inflight refueling (delay not applicable), receivers enter the ARIP and tankers enter the ARCP (ARIP if conducting an enroute rendezvous at the IP) using the Navigational Aid identifier and radial/DME (if required), the track area and number, and the exit point. This information is inserted in the route of flight at the point to which it applies (e.g., SPS 282078 AR013 TCC 202038).

Note: For stopover flight plans, additional flight time resulting from inflight refueling should be entered as in paragraph h(2)(a) above.

k. ALTITUDE RESERVATION (ALTRV) PROCEDURES

(1) Flight plans that include an ALTRV in Continental United States airspace are processed to the Air Route Traffic Control Center by the Central Altitude Reservation Facility (CARF).

(a) If the ALTRV starts at the originating base and the aircraft is on an ALTRV immediately after departure, use the following procedures:

1 The pilot submits an IFR flight plan (IFRFP) for routing and/or information not included in ALTRV.

2 If ALTRV exit point occurs prior to arrival holding pattern or pilot desires to end ALTRV, file IFRFP from ALTRV exit point or file in accordance with Air Force Regulation 60-16 (Army/Navy equivalent).

3 When contacting Clearance Delivery, state "Call Sign, request priority handling for (ALTRV name)."

(b) If the ALTRV is initiated or begins enroute, use the following procedures:

1 The altitude may be determined from the ALTRV approval message.

2 The pilot submits an IFR flight plan as usual and specifies the fix where the ALTRV begins, followed by the amount of time required to fly from the ALTRV Entry Point to the ALTRV Exit Point, followed by the exit point and remainder of the route. (See SAMPLE - ALTRV flight plan)

3 The ALTRV duration or delay time may be determined from the ALTRV approval message.

4 When contacting Air Traffic Control, state: "(Call Sign), request clearance into (ALTRV name)."

(c) Regardless of where ALTRV is joined, contact Air Traffic Control at least 10 minutes prior to ALTRV Exit Point to secure an IFRFP clearance.

l. AREA NAVIGATION (RNAV) PROCEDURES

(1) Pilots of aircraft equipped with operational area navigation equipment may file for random RNAV route throughout the national airspace system, where radar monitoring by Air Traffic Control is available, in accordance with the following procedures:

(a) File the appropriate RNAV capability suffix TD CODE (ITEM (3)(c)) on the flight plan.

(b) When practical, begin and end random RNAV portion over appropriate arrival and departure fixes (SIDs/STARs) and file route structure transitions to and from the random route portion of flight. The last fix entered in the route of flight is in accordance with ITEM (9)f above.

(c) Define the random route by waypoints. Identify each waypoint when below FL390 using radial/distance fixed based on Navigational Aids.

(d) File a minimum of one route description waypoint for each Air Route Traffic Control Center through whose area a random route will be flown. These waypoints must be located within 200 Nautical Miles of the preceding Air Route Traffic Control Center boundary.

(e) Avoid prohibited and restricted airspace by 3 Nautical Miles unless permission has been obtained to operate in that airspace, and Air Traffic Control is advised.

(f) File an additional route description waypoint for each turnpoint in the route.

(2) Random RNAV routes may be filed with latitude/longitude coordinate navigation capability, independent of VOR/TACAN references when at or above FL390 using the following procedures:

(a) Comply with ITEM (9) l. (1) (a), (b), and (e) above.

(b) Define the route of flight after the departure fix, including each intermediate fix (turnpoint) and the arrival fix for the destination airfield in terms of latitude/longitude coordinates plotted to the nearest minute. The arrival fix must be identified by both latitude/longitude coordinates and fix identifier (i.e., 2933/09839 SKF).

(3) Limitations to the use of random RNAV routes:

(a) Fly all routes/route segments in Great Circle tracks.

(b) Contact Air Traffic Control for inflight requests for RNAV clearances or amendments.

m. National Route Program Procedures

(1) Pilots of aircraft equipped with operational area navigation equipment may file for flights under the National Route Program (NRP).

(2) File a standard DD 175 with NRP preceded by a clear weather symbol in the remarks section of the flight plan "O NRP".

(3) Flight should be planned and flown via published preferred IFR routes, SIDS, or published airways (if available) for the first 200 NM of the flight from departure point.

(4) Arrival should be planned via STARS, published preferred IFR routes, or published airways (if available) for the final 200 NM of the route flown.

(5) Aircrews should ensure that their route of flight will avoid active restricted areas by at least 3 NM, unless permission has been obtained from the using agency to operate in that airspace, and the appropriate ATC facility has been notified.

(6) Enroute points shall be filed in terms of NAVAIDs and/or fixed in the Fix-Radial-Distance (e.g. LIB135060 Liberal VORTAC, 135 Radial, 60 DME), or Jet Routes.

(7) The route of flight on the flight plan contains at least one waypoint or NAVAID (HI VORTAC/TACAN) within the first 200 NM of each ARTCC that the direct route segment traverses.

(8) Aircraft that file North American Routes (NAR) westbound to any destination within the CONUS must file over one of the following points before entering the NRP system: SSM, TAFFY, EBONY, ALLEX, BRADD, TOPPS, or TUSKY.

(9) Fly all NRP direct route segments using Great Circle Navigation.

(10) Contact the nearest FSS for any route restrictions or area phase-ins.

(11) Check FAA Advisory Circular 90-91 and FAA Notice N7110.128 for rules, phase in schedule, and route pair restrictions. Effective 14 Sep 95, AP/1 will also contain the phase in schedule and route pair restrictions (until final phase-in).

n. Enter "Local" if the flight is to be conducted VFR within the designated local flying area and expected to terminate at the base of departure or an installation under the operational control of the base of departure.

Item (10) TO - Enter location identifier of full stop or final destination airport (as appropriate) opposite the last line entry in the ROUTE OF FLIGHT. If there is no location identifier enter the installation name.

Item (11) ESTIMATED TIME ENROUTE

a. VFR FLIGHT PLAN - The time from take-off to a position over the destination airport, including known or preplanned enroute delays (practice airwork approaches, landings, etc.).

b. IFR FLIGHT PLAN - The time from take-off or departure from a Terminal or Special Use Airspace enroute delay location to the last fix shown in the ROUTE OF FLIGHT exclusive of planned enroute delays.

NOTE: For Tanker Aircrews. When planning a delay at the ARCP of a published or random air refueling track, include the planned delay at the ARCP in the ETE block of the flight plan. When planning to refuel in an anchor air refueling pattern, include the planned delay in the anchor air refueling pattern in the ETE block of the flight plan.

NOTE: For Army Aircrews. The ETE for IFR flight plans is the elapsed time until over the first point of intended landing.

c. COMPOSITE FLIGHT PLAN - For each IFR segment, use time planned to fly the segment exclusive of enroute delays; for each VFR segment, use time planned to fly the segment including known delays (practice airwork, landing, etc.).

Item (12) REMARKS - Enter information essential to safe and efficient control of air traffic. Service codes and other pertinent information should also be included in this section.

a. Enter requested refueling levels (e.g., Refueling FL240B270).

b. Enter "Hazardous cargo", "Inert devices", or both (as appropriate).

c. SERVICE CODES

PPR (number) - PPR number, if applicable.

S - Service required.

R - Aircraft will remain over night.

d. Enter in plain English any other pertinent information deemed necessary to be transmitted to the destination.

NOTE: For stopover flight plans, identify the destination to which the information applies (e.g., BSM-S RND-PPR 0723 S R Mission Code 6R44).

e. Specify the ALTRV name and where the ALTRV is joined followed by /MARSA.

Item (13) RANK/HONOR CODE - See paragraph 4-3 (FLIGHT PLAN VIP CODES), this chapter. For stopover flight plans, enter pick-up and drop-off points of VIP (e.g., R50 BLV to LRF).

Item (14) FUEL ON BOARD - Enter total time that an aircraft can stay aloft while flying the planned profile with the fuel available at initial take-off using procedures recommended in the appropriate flight manual/NATOPS. Additional time groups will be entered in brackets to show the amount of additional flight time possible when inflight refueling is planned.

Item (15) ALTERNATE AIRFIELD - Alternate airports will be selected on the basis of criteria contained in appropriate service directives. If IFR on a stopover flight plan, the alternate listed is for the first point of intended landing. Alternates required for subsequent stops will be included in the ROUTE OF FLIGHT section of the flight plan. Use the location identifier to indicate alternate airports. If there is no location identifier, enter the installation name.

Item (16) ETE TO ALTERNATE - Enter the time required to fly from original destination to the alternate airport, based on flight at the last cruising altitude.

Items (17) and **(18)** NOTAMS/WEATHER - Included as a pre-flight reminder and may be used as directed locally.

NOTE: Check the date/time group at the top of the hourly update and summary section. If the valid time has expired, check with Base Operations personnel for updated NOTAM information.

Item (19) WEIGHT AND BALANCE - The pilot shall either file a DD Form 365-4 with the flight plan or certify on the flight plan that the loading for the proposed flight does not exceed the loading limits. When making this certification, the pilot may cite a previously filed DD Form 365-4 for the particular aircraft. When required, the DD Form 365-4 will be filed with the military Base Operations office when flights originate from bases having such offices, or with the Airport Manager (or other responsible person) when flights originate from established flying areas without a military Base Operations office.

NOTE: Electronic computer data sheets (or other suitable form) may be used when information therein is identical to that required on the DD Form 365-4. Enter one of the following:

a. N/A - When the aircraft flight manual does not require completion of DD Form 365-4 for each mission.

b. ATTACHED - If the DD Form 365-4 is attached.

c. (Filed at)_____/(date)_____, when citing a previously filed DD Form 365-4 for a normal loading.

d. (Filed with)_____/when impracticable to file a DD Form 365-4 with the flight plan.

Item (20) AIRCRAFT SERIAL NUMBER/UNIT/HOME STATION

a. Enter aircraft serial number as follows:

(1) USAF, USCG - Enter aircraft tail number.

(2) USA - Enter aircraft serial number.

(3) USN - Enter aircraft bureau number.

(4) Formation flights - Enter only lead aircraft's number.

b. Enter the aircraft unit of assignment.

c. Enter the location identifier of home station (e.g., 50251/60 MAW/SUU).

Item (21) SIGNATURE OF APPROVAL AUTHORITY - To be signed by the appropriate approval authority.

Item (22) CREW, PASSENGER LIST

a. If the list of crew members will not fit in the given blocks, the crew list may be continued on the back of the DD Form 175 original copy, or attached on a separate piece of paper. The attachment may be a copy of crew orders, or any piece of paper with the appropriate information on it. When a crew list is attached, check the appropriate box.

b. If a passenger manifest is used, check the appropriate box. A single manifest for stopover flights may be filed at the departure point, provided it clearly shows crew/passenger changes for subsequent stops.

c. If the crew or passenger list is not filed with the flight, indicate the location of the crew or passenger list in the space provided beside the crew/passenger entry on the flight plan.

Item (23) ACTUAL DEPARTURE TIME (Z) - For Base Operations use.

Item (24) DUTY - Enter the symbol for the duty to be performed by each crew member listed, as prescribed by appropriate service directives. For formation flights, identify the crew duty symbol and position of the aircraft in formation (e.g., IP/1, P/2, etc.).

Item (25) NAME AND INITIALS

a. The name of the pilot in command must appear in the first block of the crew list on the DD Form 175.

b. Names of all crew members except the pilot in command may be listed separately and attached to the flight plan (i.e., a copy of crew orders or other crew list).

c. If there are more crew members than blocks, the list may be continued on the back of the original copy of the DD Form 175.

Item (26) RANK - Enter the appropriate military rank or suitable civilian classification (e.g., CDR, 2LT, CW3, SGT, DAC, etc.).

Item (27) SSN - Enter individual social security number. (Optional)

Item (28) ORGANIZATION AND LOCATION

a. Enter individual organization/location identifier. If there is no identifier, enter installation name.

b. For formation flights enter the aircraft tail number (United States Air Force, United States Coast Guard), serial number (United States Army), or bureau number (United States Navy) applicable to that particular crew member or passenger.

c. If the crew is composed of members from different military services, identify the branch in parenthesis.

4-3 FLIGHT PLAN VIP CODES -

a. Pilot VIP notification procedures. It is the responsibility of each aircraft commander transporting VIPs to insure that flight plans reflect high rank on board. A follow-up report is made approximately 15 to 30 minutes prior to arrival at destination base (United States Air Force and Navy installations only). Follow-up action is essential to preclude any embarrassment to the VIP, the station Commander, or the aircraft Commander. When available, Pilot to Dispatcher or Command Post radio should be used.

b. Use the service category designator letter, plus the number code and the honors code letter, to indicate branch of service, highest rank/grade aboard and honors desired (for national and international flights). The name of the highest VIP may be included immediately following the code at the VIP's discretion. (Item 13)

Designator Letter	Service Category
A	Air Force
R	Army
C	Coast Guard
M	Marine Corps
V	Navy
S	Civilian
F	Foreign Civilian or Military

Code Number to use to indicate the following VIP's

1 - The President of the United States
- Heads of State of Foreign Countries and Reigning Royalty

2 - The Vice President of the United States
- Governor of a State in his own State
- Speaker of the House of Representative
- Chief Justice of the United States
- Former Presidents of the United States
- The Secretary of State
- Secretary General of the United Nations
- Ambassadors of Foreign Powers
- Widows of Former Presidents
- Associate Justices of the Supreme Court
- The Cabinet:
  - Secretary of the Treasury
  - Secretary of Defense
  - The Attorney General
  - Secretary of the Interior
  - Secretary of Agriculture
  - Secretary of Commerce
  - Secretary of Labor
  - Secretary of Health and Welfare
  - Secretary of Homeland Security
  - Secretary of Housing and Urban Development
  - Secretary of Transportation
  - Secretary of Energy
  - Secretary of Education
  - Secretary of Veterans Affairs
- United States Representative to the United Nations
- Director, Office of Management and Budget
- Chairman, Council of Economic Advisors

- United States Trade Representative
- United States Senators (By Seniority of Senate Service or Alphabetical when Seniority Is Equal)
- Governors of States When Not in Their Own States (By State Entry into the Union)
- Former Vice Presidents of the United States
- Members of the House of Representatives of the United States (By Seniority of House Service or Alphabetical when Seniority Is Equal)
- Governor of Puerto Rico
- Counselor and Assistants to the President and the Presidential Press Secretary
- Charges d'Affaires of Foreign Powers
- Former Secretaries of State
- The Deputy Secretaries and Under Secretaries (Deputy Secretary Equivalent of the Executive Departments)
- Administrator, Agency for International Development
- Director, United States Arms Control and Disarmament Agency
- United States Ambassador at Large
- Secretary of the Army
- Secretary of the Navy
- Secretary of the Air Force
- Directory Office of Science and Technology Policy
- Chairman, Board of Governors of the Federal Reserve System
- Chairman, Council on Environmental Quality
- Chairman, Joint Chiefs of Staff
- Vice Chairman of the Joint Chiefs of Staff
- Retired Chairman, Joint Chiefs of Staff
- Chiefs of Staff, Chief of Naval Operations and Commandant of the Marine Corps (By Date of Appointment)
- Commandant, United States Coast Guard
- Retired Service Chiefs and Commandants
- General of the Army and Admiral of the Fleet
- Secretary General, Organization of American States
- Representatives to the Organization of American States
- Chairman, Nuclear Regulatory Commission
- Director, Central Intelligence Agency
- Director, International Communications Agency
- Administrator, National Aeronautics and Space Administration
- Administrator, Federal Aviation Administration
- Administrator, General Services Administration
- Director, Office of Personnel Management
- Under Secretary of Defense for Policy
- Under Secretary of Defense for Research and Engineering
- Director of ACTION
- Director, Office of Community Services Administration
- Administrator, Environmental Protection Agency
- Under Secretary of Defense for Acquisition (precedes service secretaries on acquisition matters)
- Comptroller and Chief Financial Officer
- Under Secretary of Defense for Personnel and Readiness
- Chiefs of Services
- Commanders-in-Chief of Unified and Specified Commands of the four-star grade
- Retired Vice Chairman of the Joint Chiefs of Staff, Retired Chiefs of Services, and Retired Commanders-in-Chief of Unified and Specified Commands of the four-star grade
- Principle Deputy Under Secretary of Defense for Acquisition

3
- Special Assistants to the President
- Governors of Guam and the Virgin Islands
- Assistant Secretaries of the Executive Departments, Assistant Secretaries of Defense, General Counsel of the Department of Defense, and Advisor to the Secretary and Deputy Secretary of Defense for NATO Affairs (By Date of Appointment)
- The Chief of Protocol
- Deputy Administrator for NASA, Deputy Director for CIA, and Deputy Director, Arms Control and Disarmament
- Comptroller General of the United States
- Deputy Assistants to the President
- Judges, Military Court of Appeals
- Members of the Council of Economic Advisors
- Active or Designate U.S. Ambassadors and Ministers (Career Rank When in the United States)
- Mayor of the District of Columbia
- Commissioners of the Trust Territories
- Under Secretary of the Army
- Under Secretary of the Navy
- Under Secretary of the Air Force
- Vice Chiefs of Staff, Vice Chief of Naval Operations, and Assistant Commandant of the United States Marine Corps (By Date of Appointment)
- Generals and Admirals (4-Star Rank)
- Retired Generals and Admirals (4-Star)
- Assistant Secretaries of the Army, the Navy, and the Air Force (By Date of Appointment within each Service)
- The Special Assistant to the Secretary and Deputy Secretary of Defense
- Assistant to the Secretary of Defense
- Commanders-in-Chief of Unified and Specified Commands of Three-Star Grade (By Date of Appointment)
- Principal Deputy Under Secretary of Defense for Policy
- Director of Defense Research and Engineering
- Assistant Secretaries of Defense, DoD General Counsel, DoD Inspector General, and Director of Operational Test and Evaluation
- Vice Chiefs of Services
- Assistant Secretaries and General Counsels of the Army, Navy, and Air Force
- Director, Administration and Management

4
- General Counsels of the Army, Navy and Air Force
- Deputy Under Secretaries of Defense (By Date of Appointment)
- Lieutenant Generals and Vice Admirals (3-Star Rank)
- Retired Lieutenant Generals and Vice Admirals (3-Star Rank)
- Principal Deputy Assistant Secretaries of Defense (By Date of Appointment) and Deputy General Counsel of the Department of Defense
- Former United States Ambassadors and Ministers to Foreign Countries
- Deputy United States Trade Representative
- Civilian Aides to the Secretary of the Army
- Heads of Independent Agencies, Director of the FBI, and Mayors
- Treasurer of the United States - Commissioner, Internal Revenue Service
- Deputy Assistant Secretaries of the Executive Departments and Assistant General Counsels of the Department of Defense (By Date of Appointment)
- Deputy Under Secretaries of the Army, the Navy, and the Air Force (By Date of Appointment within each Service)
- Deputy Chief of Protocol
- Counselors of Foreign Powers
- Civilians Assigned to SES, and Scientific-Technical Positions (Equivalent to Others Listed in Code 4) (See Note 2)
- Directors of Defense Agencies
- Members of Secretary of Defense Boards

- Administrative Assistants of the Army, Navy, and Air Force
- Deputy Under Secretaries of Defense (non statutory), Deputy Directors of Defense Research and Engineering, Principal Deputy Assistant Secretaries of Defense, DoD Principal Deputy General Counsel, DoD Deputy Inspector General, DoD Principal Deputy Comptroller, Director of Net Assessment, Director of Defense Procurement, Director Small and Disadvantaged Business Utilization, and Director Programs Analysis and Evaluation
- Deputy Assistant Secretaries of Defense, DoD Deputy General Counsels, Defense Advisors United States Mission NATO, Secretary of Defense Representatives to international negotiations, Deputy Comptrollers, and Assistant Inspectors General
- Senior Enlisted Advisors of the Armed Services (Master Chief Petty Officers of the Navy and Coast Guard, Sergeant Majors of the Army and Marines, and the Chief Master Sergeant of the Air Force).

5 - Major Generals and Rear Admirals of the upper half (2-star)
- Civilians Assigned to SES and Scientific-Technical. Positions (Equivalent to Others Listed in Code 5) (See Note 2)
- Deputy Assistant Secretaries and Deputy General Counsels of the Army, Navy, and Air Force - OSD Historian

6 - Brigadier Generals and Rear Admirals of the lower half (1-star)
- The Assistant Chiefs of Protocol
- The Secretary of the Senate
- Civilians Assigned to SES and Scientific-Technical. Positions (Equivalent to Others Listed in Code 6) (See Note 2)
- Assistant Deputy Under Secretaries and Principal Directors

7 - Captains USN or USCG; Colonels United States Air Force, USA, or USMC; or Comparable Rank Officers of Friendly Nations
- Counselors in Charge of Consulates of Foreign Powers
- GS/GM-15 (Civilians)

NOTE:

(1) This Listing is an Unofficial Order of Precedence.

(2) Questions regarding United States Air Force SES civilian VIP code assignment should refer to AFDPS Washington, DC 20330-1040. Questions regarding United States Army SES civilian VIP code assignment should be referred to DACS-DSP, Washington, DC, 20310. Questions regarding OSD SES civilian VIP code assignment should be referred to OSD Protocol, Washington, DC, 20301. Questions regarding United States Navy SES civilians VIP code assignment should be referred to OCPM-07, Arlington, VA 22203-1998.

(3) United States Air Force personnel refer to AFRs 900-3 and 900-6 for guidance on the display of insignia (Star Plates, Flags, etc.) for flag rank officers and civilian officials. United States Army personnel refer to AR 840-10 for guidance on the display of insignia (Star Plates, Flags, etc.).

Honor Code Letters

H - Accord honors under Air Force Regulation 900-6, Army Regulation 600-25, or Navy Regulations (Chapter 21) as appropriate.

N - Accord no honors; request informal visit with the commander.

O - Request nothing.

For example:

V5H means: VIP, Rear Admiral (upper), accord honors.

R5O means: VIP, Army Major General, request nothing.

S5N means: United States VIP Civilian, SES, Code S or equivalent, accord no honors; request informal visit with the Commander.

4-4 DD FORM 1801-DoD INTERNATIONAL FLIGHT PLAN -

a. General

(1) NOTE: For procedures applicable to flights over or destined to foreign territory, refer to the following:

United States Air Force: Foreign Clearance Guide (FCG)

United States Army: Foreign Clearance Guide and Applicable service directives

United States Navy: Current OPNAVINST 3710.2

United States Coast Guard: Current COMDTINST M3710.1 and Foreign Clearance Guide (FCG)

(2) Pilots will complete the form in duplicate or as required locally. Only items 7 through 19 need to be completed. The numbers of the flight plan items correspond to the information groups used in the standard ICAO Air Traffic Service messages. Refer to Military Department Directives and FLIP, Area Planning (AP 1, 2, 3 or 4) for possible Military Department Regional or National differences.

(3) Base Operations personnel will complete the first three lines of the flight plan, retaining the original copy and giving the pilot a copy.

(4) STOPOVER FLIGHTS - Authority to conduct stopover flights in an overseas area or foreign Air Defense Identification Zone depends on concurrence of the agency exercising control over the airspace. There are no provisions under ICAO rules to include stopover flight information in the International Flight Plans as can be done on the DD 175. Under ICAO rules, each leg (take-off through landing) must be filed on a separate Flight Plan. It is possible, however, for a pilot to submit Flight Plans for the second and subsequent legs at the initial departure airport. These additional Flight Plans will then be dispatched to the airport where the intermediate stops will be made. ICAO rules require the pilot or his representative to advise Air Traffic Service if departure will be delayed in excess of 30 minutes for IFR flights or one hour for VFR flights. If Air Traffic Service does not receive a departure or delay notice during this time frame, the Flight Plan may be cancelled. Stopover flights may be included in DD Form 1801 provided written agreements that define procedures for handling flight movement messages and identification of those agencies responsible for Flight Following/Search And Rescue have been established with the agency exercising control over the airspace.

(5) ICAO LOCATION IDENTIFIERS - Use those listed in Enroute Supplements or ICAO Document 7910.

(6) Date/Time groups will always be entered as UTC.

b. BASE OPERATIONS - Complete the following portions of the Flight Plan.

PRIORITY INDICATOR - Enter one of the following codes to denote the priority of the messages (refer to ICAO Annex 10, Vol II, Chapter 4, for more details).

SS

DD

FF

GG

JJ & KK

LL

ADDRESSEE INDICATOR(S) - Identify each organization/agency to whom the Flight Plan is to be addressed by an 8 character addressee indicator as follows:

(1) The first four letters shall be the ICAO four letter identifier. Use only those listed in ICAO DOC 7910 (Location Indicators). Some ICAO 8 character addressees for Mexico and Canada are listed in Federal Aviation Administration Order 7350.8 series.

(2) The next four letters (fifth through eighth) shall be the four letter designator listed in ICAO Document 8585 identifying the Aeronautical Authority, Service, or Aircraft Operating Agency.

(3) If no designator has been assigned, affix:

(a) YXYX - When addressee is a military service.

(b) ZZZX - When addressee is an aircraft in flight.

(c) YYYX - For all other cases.

(4) Use one of the following four-letter designators when addressing Air Traffic Service messages, i.e., Flight Plan messages, Amendment messages, and Flight Plan cancellation messages, to Air Traffic Service units:

(a) ZOZX - For an Oceanic Air Traffic Control Center.

(b) ZPZX - For an Air Traffic Services Reporting Office.

(c) ZQZX - For a computer facility at Area Control Center/Air Route Traffic Control Center or if message is relevant to an IFR flight.

(d) ZRZX - For Area Control Center/Air Route Traffic Control Center when message is relevant to a VFR flight.

(e) ZTZX - For an airport control tower.

(5) Consult local directives for any special addressing required by the aircrew.

FILING DATE/TIME - Enter six-digit Date/Time group to indicate UCT filing time of flight plan. The first two digits will show date of month. The last four digits will show the time. Example: 211145.

ORIGINATOR INDICATOR - Enter eight-letter sequence similar to ADDRESSEE INDICATOR identifying the place of origin and the organization/agency originating the message.

SPECIFIC IDENTIFICATION OF ADDRESSEE(S) AND/OR ORIGINATOR - When the four-letter designator YXYZ, ZZZX, or YYYX is indicated in the ADDRESSEE and/or ORIGINATOR INDICATORS, enter the following information:

(a) The name of the organization or the identity of the aircraft.

(b) The order of such entries shall be the same as the order of the ADDRESSEE and/or ORIGINATOR INDICATORS.

(c) Where there is more than one such entry, add the word "STOP" after the last entry.

(d) When entry includes both addressee indicator and originator indicator, enter the word "FROM" the originator indicator.

1 PILOTS: Complete following items in Flight Plan.

PRIORITY ≪ ≡ FF →

ADDRESSEE(S)

FILING TIME

ORIGINATOR

SPECIFIC IDENTIFICATION OF ADDRESSEE(S) AND /OR ORIGINATOR

3. MESSAGE TYPE ≪ ≡ (FPL

7. AIRCRAFT IDENTIFICATION — S P A R 3 7

8. FLIGHT RULES — I

TYPE OF FLIGHT M ≪ ≡

9. NUMBER —

TYPE OF AIRCRAFT G L F 5

WAKE TURBULENCE CAT. / M

10. EQUIPMENT — SXRWY / S ≪ ≡

13. DEPARTURE AERODROME — K N G U

TIME 1 3 4 5 ≪ ≡

15. CRUISING SPEED — N 0 4 6 5

LEVEL F 4 1 0

ROUTE → DCT SWL J174 HTO J55 PQI J564 CL J549 YNA DCT REDBY DCT

CARPE / M080F410 DCT 54N050W 55N040W 55N030W 55N020W / N0465F410 DCT DOGAL / M080F410 UN533

BURAK / N0465F410 UN535 SHA UG1 DVR W71 VABIK W70 KOK

≪ ≡

16. DESTINATION AERODROME — E B B R

TOTAL EET HR/MIN 0 7 4 6

ALTN AERODROME → E B C V

2ND ALTN AERODROME → E T A R ≪ ≡

18. OTHER INFORMATION

— EET / ZBW 0037 CZQM 0141 CZUL 0153 CZQX 0227 CZQX 0242 CZQX 0300 50W 0319 40W 0405 EGGX 0449

20W 0532 EISN 0556 BURAK 0611 EGTT 0640 EBUR 0718

REG / 10037 SEL / ABYZ OPR / DOD

STS / PROTECTED STS / STATE

RVR / 370 DOF / 030309

RMK / MDCN EI USA01 EB CD2 014 03 AGCS EQUIPPED PASS DEP ARR TO ETARYXYX EHXXUSAF

) ≪ ≡

NOT FOR TRANSMISSION

19. SUPPLEMENTARY INFORMATION

ENDURANCE — FUEL/ 0909 → PERSONS ON BOARD POB/ 15 → EMERGENCY AND SURVIVAL EQUIPMENT RDO/ 121.5 → 243 → 500 → 8364 ≪ ≡

TYPE OF EQUIPMENT: POLAR → DESERT → MARITIME → JUNGLE → GLOBAL → LIFE JACKETS: JACKETS → LIGHT → FLUORESCEIN → RADIO FREQUENCY: 282.8 ≪ ≡

DINGHIES → COLOR → NUMBER → TOTAL CAPACITY → OTHER EQUIPMENT

DINGHIES → COVER YELLOW 2 / 26 → RMK/ FLARES & ELT) ≪ ≡

REMARKS

WX BRIEFED BY MM

AIRCRAFT SERIAL NUMBERS AND TYPE OF AIRCRAFT IN FLIGHT

CREW LIST ☐ ATTACHED ☒ LOCATED AT: KMCF / 310 AS/SOC

PASSENGER MANIFEST ☐ ATTACHED ☒ LOCATED AT: KMCF / 6 AMW/CPO

NAME OF PILOT IN COMMAND: GIDDINS

SIGNATURE OF APPROVING AUTHORITY

AIRCRAFT HOME STATION OR ORGANIZATION: KMCF

DD Form 1801, MAY 87 (EG) *Previous editions is obsolete* DOD INTERNATIONAL FLIGHT PLAN

Designed using Perform Pro, WHS/DIOR, Aug 94

ICAO FLIGHT PLAN

PRIORITY
Priorite
<<≡ FF →

ADDRESSES(S)

<<≡

FILING TIME

ORIGINATOR

<<≡

SPECIFIC IDENTIFICATION OF ADDRESSEE(S) AND/OR ORIGINATOR

3 MESSAGE TYPE
<<≡ (FPL

7 AIRCRAFT IDENTIFICATION
— S P A R 4 4

8 FLIGHT RULES
— I

TYPE OF FLIGHT
M <<≡

9 NUMBER
—

TYPE OF AIRCRAFT
G L F 5

WAKE TURBELENCE CAT.
/ M

10 EQUIPMENT
— S GIRWY / S <<≡

13 DEPARTURE AERODROME
E T A R

TIME
0 2 3 0 <<≡

15 CRUISING SPEED
— N 0 4 6 5

LEVEL
F 2 4 0

ROUTE
→ TOLEY1 NKR Z12 SUSLUS/N0406F370 UL984
KOROP/N0455F370 UL984 NM UA277 RABEN/N0455F370 UA277 BAROR UB246
NL UL981 SOBLO/K0841S1130 B143 VEKAT/NO455F370 UB143 BADIR UR315
ADEKI UN644 RODDAR/K04 843S1130 N644 BABUM B143 POGON A477 UTSB
A107 YU DCT <<≡

16 DESTINATION AERODROME
— U T S K

TOTAL EET
HR. MIN
0 6 0 7

ALTN AERODROME
→ U T T T

2ND ALTN AERODROME
→ <<≡

18 OTHER INFORMATION
— EET/UKLV0129 UKBV0153 UKOV0211 UKFV0228 URRV0258 UGGG0321
UBBB0400 UTAK0428 UTAA0455 UTAV0518 UTSD0532 REG/10037 SEL/ABYZ
OPR/DOD STS/STATE STS/ATFMEXEMPTAPPROVED STS/PROTECTED
RMK/MDCN ED T2 LK 3M EP LP UK US1 UR 015 UG 99C UB 643 UT 48) <<≡

SUPPLEMENTARY INFORMATION (NOT TO BE TRANSMITTED IN FPL MESSAGES)

19 ENDURANCE
HR.MIN
— E / 0 9 2 8

PERSONS ON BOARD
→ P / 0 1 5

EMERGENCY RADIO
→ R / UHF U VHF X ELT E

SURVIVAL
EQUIPMENT
→ S / POLAR X DESERT X MARITIME M JUNGLE X

JACKETS
→ J / LIGHT L FLUORES F UHF U VHF X

DINGHIES
→ D / NUMBER 0 2 → CAPACITY 0 2 6 → COVER C → COLOUR YELLOW <<≡

AIRCRAFT COLOUR AND MARKINGS
A / BLUE WHITE

REMARKS
→ N / WX BRIEFED BY MM / PASS ATD TO EHXXUSAF <<≡

PILOT-IN-COMMAND
C/ KARIN) <<≡

FILED BY
MACDALE

SPACE RESERVED FOR ADDITIONAL REQUIREMENTS

Please provide a telephone number so our operators can contact you if needed
001-065-309-0310

CA48/RAF2919

VER.1.5.2

Item 7

AIRCRAFT IDENTIFICATION - Use the approved tactical call sign or the applicable code below, followed by the last five digits of the aircraft tail/bureau number except:

S - Use the last five digits of the aircraft tail number or assigned call sign.

SPAR - Use two digits assigned by MAJCOM.

Codes:	A - Air Force	E - EVAC
	VV - Navy	RCH - AMC (See NOTE)
	R - Army	S - Special Air Missions (89 AW)
	VM - Marine Corps	SPAR - Other Special Air Missions
	G - Air or Army National Guard	AIO - AIR CHIEF (Chief of Staff USAF)
	C - Coast Guard	

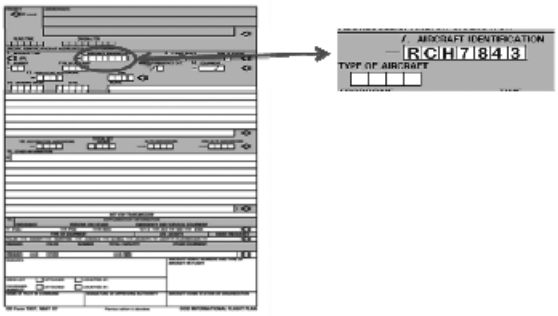
Formation flights will only use the radio call of the leader's aircraft

NOTE: When required to use the diplomatically cleared mission number as the call sign, AMC aircraft may file the mission number, e.g., RCH2W or the tail number.

Mode S - Flight Plans and Transponders

Aircrew MUST ensure that the tail-number-assigned 24-bit code (entered in as an 8-digit octal) match ***exactly*** to the ***default*** code for that particular aircraft. Use of DYNAMIC codes is an alternative, but only in accordance with Service specific guidance. **NO TWO AIRCRAFT MUST EVER BE AIRBORNE WITH THE SAME CODE. Erroneous or duplicate codes compromise the safety and efficiency of air traffic control.**

It is imperative also that the callsign entered in the flight plan (7-characters) match EXACTLY to the Flight Identification entered into the Mode S transponder interface:



NOTE: What is entered at Item 7 must match exactly what is entered in the Mode S Aircraft Identification (also known as Flight ID) input device in the cockpit. If it does not, then the aircraft will not be correlated with its stored flight plan and delays will ensue. There must be no spaces between the designator letters and flight number, nor any zeros preceding the flight number. If filed call sign or identification entered into field 7 of the flight plan is less than 7 characters, then place spaces at the end of the Flight ID entered in the cockpit.

- - - -

Item 8

FLIGHT RULES - Identify the type of Flight Plan by one of the following letters:

I - If IFR	Y - If IFR then VFR
V - If VFR	Z - If VFR then IFR

If Y or Z is entered, specify in Item 15 where the Change of Flight Rules is planned.

- - - -

F - ADF
G - (GNSS)
H - HF RTF
O - VOR
P - Not allocated
Q - Not allocated
X - When prescribed by ATS
Y - When prescribed by ATS
Z - Other equipment carried (See NOTE 4)

NOTE 1 - Standard equipment is considered to be VHF RTF, ADF, VOR and ILS unless another combination is prescribed by the appropriate ATS authority. If an aircraft has the required equipment for the route to be flown yet lacks an item of "considered" Standard Equipment, and insufficient space is available for all equipment codes, include a Remark in Item 18 to indicate missing equipment. Example: "RMK/No ADF"

NOTE 2 - 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 3 - Inclusion of letter "R" indicates that an aircraft meets the RNP type prescribed for the route segment(s), route(s), and/or area concerned.

NOTE 4: If the letter "Z" is used, specify in Item 18 the other equipment carried, preceded by COM/ and/or NAV/ as appropriate. If aircraft is not FM immune, include: NAV/NON-FM IMMUNE VOR/ILS.

- - - -

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).

- - - -

a. The coded designator (2 to 5 characters) assigned to the point, e.g., VH, GEO, WHITE.

b. Coordinate values in degrees and minutes - use 11 characters.
Describe:latitude in 4 figures followed by a "N" or "S"
longitude in 5 figures followed by a "E" or "W"

For even degrees of latitude and longitude use 7 characters.
Describe:latitude in 2 figures followed by a "N" or "S"
longitude in 3 figures followed by a "E" or "W".

Use zeros when necessary to make up the 7 characters (55N060W) or 11 characters (4620N07805W).

c. Bearing and Distance - Enter the:
Identification of the Navigational Aid (2 or 3 characters)
Bearings in 3 figures
Distance in 3 figures

Use zeros when necessary to make up 3 figures for bearing and distance, e.g., DUB090040.

- - - -

For VFR flights, it is the estimated time required from take-off to arrive over the destination airport. 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.

- - - -

RMK/ Any other plain language remarks when required by the appropriate Air Traffic Service authority or deemed necessary. This field indicates "free text" and should be entered as the last entry in item 18.

NOTE: When applicable, the following entries should also be used.

(1) Diplomatic Clearances should be filed as "MDCN" followed by the list of diplomatic clearance numbers. These numbers should be formatted as the first two letters of the ICAO Location Identifier of the FIR/UIR being entered, followed by a space, followed by the diplomatic clearance number. (Note-For filing purposes omit any dashes (-), colons(:), and semi-colons (;), and slashes(/) within the diplomatic clearance number and replace with a space. EXAMPLE: MDCN LG XXXX LI XXXX LS XXXX would list diplomatic clearances for Greece, Italy, and Switzerland.

(2) For required call sign changes file - EXAMPLE: RMK/ Change call-sign to XXX at position XXXX MDCN LG XXXX XXX LI XXXX LS X XXX XXX).

(3) Pass DEP ARR to XXXXZPZX. (Replace "XXXX" with ICAO Identifier of aircraft home station.)

(4) Hazardous Cargo Enter "Hazardous Cargo", "Inert Devices" or both (as appropriate).

(5) Include approved altitude reservations (ALTRV) in this item by stating "Approved ALTRV along route from (start point ALTRV) until (end point ALTRV)."

(6) Flight Plan VIP codes for military bases only. See paragraph 4-3 (FLIGHT PLAN VIP CODES).

Item 19

SUPPLEMENTARY INFORMATION - Enter or strike out as follows:

FUEL/ - Enter "Total Amount" on board in 4 figures expressed in hours and minutes.

POB/ - Enter "Total Number" of passengers and crew.

RADio - Cross out any "Portable Radio Frequencies" not carried as survival equipment.

TYPE OF EQUIPMENT-Cross out "Any Equipment" not carried.

LIFE JACKETS-Cross out "Jackets, Light Flourescein" (sea marker dye), if life jackets are not carried. Cross out "Light" or "Flourescein" if jackets are not so equipped.

RADIO FREQUENCY-Enter "Transmitting/Receiving Frequencies" of any life jacket/Raft carried.

DINGHIES-Cross out if not carried. Cross out "Cover" if dinghies not covered. Identify "Color and Number" if dinghies carried and indicate total "Capacity", in persons carried, of all dinghies.

OTHER EQUIPMENT-Indicate after "REMarks/" any other "Survival Equipment" carried and any other remarks regarding Emergency and Survival Equipment.

- - - -

NAME OF PILOT IN COMMAND-INSTRUMENT RATING - Enter last name of pilot in command.
United States Army, United States Air Force and CIVIL - No other entry is required.
United States Navy - Enter Standard or Special.

- - - -

Form Approved OMB No. 2120-0026

U.S. Department of Transportation Federal Aviation Administration FLIGHT PLAN	(FAA USE ONLY) ☐ PILOT ☐ VNR ☐ STOPOVER	TIME STARTED	SPECIALIST INITIALS

1. TYPE	2. AIRCRAFT IDENTIFICATION	3. AIRCRAFT TYPE/ SPECIAL EQUIPMENT	4. TRUE AIRSPEED	5. DEPARTURE POINT	6. DEPARTURE TIME		7. CRUISING ALTITUDE
					PROPOSED (Z)	ACTUAL (Z)	
VFR							
IFR							
DVFR			KTS				

8. ROUTE OF FLIGHT

9. DESTINATION (Name of airport and city)	10. EST. TIME ENROUTE		11. REMARKS
	HOURS	MINUTES	

12. FUEL ON BOARD		13. ALTERNATE AIRPORT (S)	14. PILOT"S NAME, ADDRESS & TELEPHONE NUMBER & AIRCRAFT HOME BASE	15. NUMBER ABOARD
HOURS	MINUTES		17. DESTINATION CONTACT/TELEPHONE (OPTIONAL)	

16. COLOR OF AIRCRAFT	CIVIL AIRCRAFT PILOTS. FAR Part 91 requires you to file an IFR flight plan to operate under instrument flight rules in controlled airspace. 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). Filing of a VFR flight plan is recommended as a good operating practice. See also Part 99 for requirements concerning DVFR flight plans.

FAA Form 7233-1 (8-82)

CLOSE VFR FLIGHT PLAN WITH _____ FSS ON ARRIVAL

MILITARY STOPOVER (FAA USE ONLY)

TYPE ☐ IFR ☐ VFR	AIRCRAFT IDENTIFICATION	AIRCRAFT TYPE/SPECIAL EQUIPMENT	REMARKS
DEPARTURE POINT	DESTINATION	ETA	

TAS	DEP. PT	ETD	ALTITUDE	ROUTE OF FLIGHT	DESTINATION	ETE	REMARKS
KTS							
KTS							
KTS							
KTS							

REMARKS	INITIALS

FAA Form 7233-1 (8-82)

U.S. Department of Transportation
Federal Aviation Administration

International Flight Plan

Form Approved OMB No. 2120-0026

PRIORITY
Priorite
<<≡ FF →

ADDRESSES(S)

<<≡

FILING TIME

ORIGINATOR

<<≡

SPECIFIC IDENTIFICATION OF ADDRESSEE(S) AND/OR ORIGINATOR

3 MESSAGE TYPE
<<≡ (FPL

7 AIRCRAFT IDENTIFICATION
— SPAR65

8 FLIGHT RULES
— I

TYPE OF FLIGHT
M <<≡

9 NUMBER
—

TYPE OF AIRCRAFT
GLF5

WAKE TURBELENCE CAT.
/ M

10 EQUIPMENT
— SGHIUTRWY / S <<≡

13 DEPARTURE AERODROME
KIAD

TIME
1830 <<≡

15 CRUISING SPEED
— N0464

LEVEL
F390

ROUTE
→ DCT BUFFR J518 DJB J60 HCT J128
FQF J80 OAK DCT BEBOP/M080 F400 R464
BITTA/N0460 F400 MAGGI3

<<≡

16 DESTINATION
— PHNL

TOTAL EET
HR. MIN
1031

ALTN AERODROME
→ PHTO

2ND ALTN AERODROME
→ <<≡

18 OTHER INFORMATION
— EET/KZOB 0014 KZAU0101 KZMP0157 KZD0235 KZLC0354
KZOA0443 KZAK0551 PHZH0937 REG/10076 SEL/VCBE
OPR/DOD RMK/PHIK PPR 015001JS RON WITH FUEL ON ARRIVAL
RMK/REQ PARKING SPOT DV1) <<≡

SUPPLEMENTARY INFORMATION (NOT TO BE TRANSMITTED IN FPL MESSAGES)

19
HR. MIN
— E / 1215

PERSONS ON BOARD
→ P / 010

EMERGENCY RADIO
UHF VHF ELT
→ R / U V E

SURVIVAL EQUIPMENT
→ S / ~~P~~ ~~D~~ M ~~J~~

JACKETS
→ J / L F U ~~V~~

DINGHIES
NUMBER CAPACITY COVER COLOUR
→ D / 02 → 026 → C → YELLOW <<≡

AIRCRAFT COLOUR AND MARKINGS
A / BLUE WHITE

REMARKS
→ N / FLARES UHF EMER FREQ 282.8 <<≡

PILOT-IN-COMMAND
C/ WOLFEE) <<≡

FILED BY
ALICATOM

ACCEPTED BY

ADDITIONAL INFORMATION

FAA FORM 7233-4 (7-93)

Pre-Flight Pilot Checklist

Aircraft Identification				Time of Briefing			
Weather (Destination) (Alternate)		Present	Remarks	**Report Weather Conditions Aloft**			
		Forecast		Report immediately weather conditions encountered---particularly cloud tops, upper cloud layers, thunderstorms, ice, turbulance, winds and temperature			
Weather (En Route)		Present		Position	Altitude	Time	Weather Conditions
		Forecast					
		Pireps					
Winds Aloft		Best Crzg. Alt.					
Nav. Aid. & Comm. Status		Destination					
		En Route					
Airport Conditions		Destination					
		Alternate					
ADIZ		Airspace Restrictions					

Civil Aircraft Pilots

FAR Part 91 states that each person operating 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 1-1 9 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).

International briefing information may not be current or complete. Data should be secured, at the first opportunity, from the country in whose airspace the flight will be conducted.

Paperwork Reduction Act Statement: Flight Plan Information is collected for the protection and identification of aircraft and property and persons on the ground. Air Traffic uses the information to provide control services and search and rescue services. An individual respondent would require about 2.5 minutes to provide the information. FAR Part 91 requires an Instrument Flight Rules (IFR) flight plan to operate under IFR in controlled airspace. Filing a Visual Flight Rules flight plan is recommended but not mandatory. It is FAA policy to make factual information available to persons properly and directly concerned except information held confidential for good cause, i.e., pilot's address/telephone number. All flight plan data is destroyed when 15 days old except for data retained due to an accident/incident investigation. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control number associated with this collection is 2120-0026.

Chapter 5

AIRCRAFT CODES

5-1 CODES FOR AIRCRAFT IDENTIFICATION -

Identify military aircraft as follows:

TYPE OR FUNCTION OF FLIGHT	CALL SIGN PREFIX	WRITTEN PREFIX	IDENT SUFFIX
UNITED STATES AIR FORCE			
EXECUTIVE FLIGHTS			
US President	AIR FORCE	A	Digit 1
US Vice President	AIR FORCE	A	Digit 2
First Family Aboard Any Air-craft-used when determined by US Secret Service or by White House Staff	EXECUTIVE ONE FOXTROT	EXEC 1F	EXEC 1F
OPERATIONAL FLIGHTS			
Tactical	AFKAI-1 Word	AFKAI-1 Word	2 digit 01-99
Non-Tactical Courier Base Flight Administrative	AFKAI-1 Word	AFKAI-1 Word	2 digit 01-99
MILITARY AIRLIFT FLIGHTS			
AMC Scheduled	REACH	RCH	Last 4 digits of tail number or mission number (if required)
Tactical Airlift Special Air Missions 89 AW	AFKAI-1 Word	AFKAI-1 Word	2 digit 01-99
Aircraft under scheduling control of AF/CV	USSAM	S	5 digit tail number or assigned call sign
Aircraft transporting Heads of State of foreign countries and Reigning Royalty	USSAM ZERO ONE	S01	S01
Other Special Air Mission Diplomatic Attache MAAG, etc.	SPAR	SPAR	2 digit 01-99
CONUS C-9 Aeromedical Airlift	EVAC	E	Mission number
Other Aeromedical Airlift	EVAC	E	Last 5 digits of tail number
HELICOPTERS			
Air Force Helicopter	COPTER	A	Authorized Voice Call Sign
AIR RESCUE SERVICE			
Engaged in SAR Mission			
Fixed Wing Aircraft	AIR FORCE RESCUE		Last 5 digits of tail number
Helicopter	AIR FORCE RESCUE		Last 5 digits of tail number
Not engaged in SAR Mission Fixed Wing Aircraft	KING		Assigned 2 digit suffix
Heavy Lift Helicopters	JOLLY		Assigned 2 digit suffix
Local Base Rescue Craft	PEDRO or SAVE as appropriate		Assigned 2 digit suffix

5-2 CODES FOR AIRCRAFT IDENTIFICATION

TYPE OR FUNCTION OF FLIGHT	CALL SIGN PREFIX	WRITTEN PREFIX	IDENT SUFFIX
AIR NATIONAL GUARD			
Tactical	AFKAI-1 Word	AFKAI-1 Word	2 digit 01-99
Non-Tactical	AFKAI-1 Word	AFKAI-1 Word	2 digit 01-99
AIR FORCE RESERVE			
Tactical	AFKAI-1 Word	AFKAI-1 Word	2 digit 01-99
Non-Tactical	AFKAI-1 Word	AFKAI-1 Word	2 digit 01-99
FOREIGN OVERFLIGHTS			
Foreign Clearance	(As authorized or required by the Foreign Clearance Guide (FCG) and/or classified supplement)		
UNITED STATES ARMY			
Non-Tactical using Special (AFKI-1) Call Signs authorized by USAASA	AFKAI-1 Word	AFKAI-1 Word	Appropriate 1 or 2 digit suffix
Army Parachute Team	GOLDEN KNIGHTS	GKA	Appropriate 1 digit suffix
Non-Tactical	ARMY	R	Last 5 digits of aircraft tail number
Helicopter	ARMY COPTER	R	Last 5 digits of aircraft tail number
Special Hospital and Air Evacuation	ARMY MED EVAC	E	Last 5 digits of aircraft tail number
Helicopters carrying President or Vice President of US	ARMY	RR	Digit 1 or 2 respectively
Operational Support Airlift Command (OSACOM)	PAT	PAT	
Appro-transportation			appropriate 2 or 3 digit identification number
Army National Guard Fixed Wing	ARMY GUARD	G	Last 5 digits of aircraft tail number
Army National Guard Helicopter	GUARD COPTER	G	Last 5 digits of aircraft tail number
UNITED STATES COAST GUARD			
Non-Tactical	COAST GUARD	C	Last 4 digits of aircraft serial or bureau number
Helicopter	COAST GUARD COPTER	C	Last 4 digits of aircraft serial or bureau number
All aircraft engaged in SAR mission	COAST GUARD RESCUE	C	Last 4 digits of aircraft serial or bureau number
UNITED STATES MARINE CORPS			
Helicopters carrying President or Vice President of US	MARINE	VM	Digits 1 or 2 respectively

TYPE OR FUNCTION OF FLIGHT	CALL SIGN PREFIX	WRITTEN PREFIX	IDENT SUFFIX
HMX-1 Helicopters Providing direct Presidential or Vice Presidential Helicopter support or accompanying Marine One or two	NIGHTHAWK	NHAWK	Digits 1-20 As appropriate
First family aboard any aircraft-used when determined by US Secret Service or White House Staff.	EXECUTIVE ONE FOXTROT	EXEC 1F	EXEC 1F
Helicopters transporting Heads of State or Foreign Countries and Reigning Royalty	STATE	STATE	Digits 1-5 As appropriate
Marine Corps fleet and training command aircraft	MARINE	VM	Either 2 letters followed by 2 or 3 digits; or a digit and a letter followed by 2 or 3 digits
Special Hospital and air evacuation	MARINE AIR EVAC	E	Last 5 digits of aircraft serial or bureau number
Helicopter	MARINE COPTER	VM	Last 5 digits of aircraft serial or bureau number
All other	MARINE	VM	Last 5 digits of aircraft serial or bureau number

TYPE OR FUNCTION OF FLIGHT	CALL SIGN PREFIX	WRITTEN PREFIX	IDENT SUFFIX
UNITED STATES NAVY			
Aircraft carrying the President or Vice President of the United States.	NAVY	VV	Digits 1 or 2 Respectively
First Family aboard any aircraft-used when determined by US Secret Service or by White House Staff.	EXECUTIVE	EXEC 1F	EXEC 1F
Navy Fleet and training command aircraft	NAVY	VV	Either 2 letters followed by 2 or 3 digits or, a digit and a letter followed by 2 or 3 digits
Special hospital and air evacuation	NAVY AIR EVAC	E	Last five digits of aircraft serial or bureau number
Helicopter	NAVY COPTER	VV	Last five digits of aircraft serial or bureau number
All other	NAVY	VV	Last five digits of aircraft serial or bureau number

INTENTIONALLY
LEFT
BLANK

Chapter 6

PILOT PROCEDURES

NATIONAL PROCEDURES

6-1 GENERAL INFORMATION/FIR/UIR COVERAGE

a. PURPOSE - This chapter outlines standard Pilot Procedures while operating under both Federal Aviation Administration and ICAO control. Deviations to these procedures brought about by theater or individual country requirements can be found in the applicable DoD FLIP, Area Planning (AP 1, 2, 3 and 4). Those items requiring a ready reference while in flight will be found in the applicable Enroute Supplement, Flight Information Handbook, e.g., Radar Beacon Procedures, Position Reporting Procedures, Emergency Procedures, etc.

6-2 AIRSPACE STRUCTURE

a. PROCEDURES IN A CLASS D AIRSPACE - UNITED STATES - Class D Airspace is generally that airspace from the surface to 2500 feet (above airport elevation, charted in Mean Sea Level), that lies above an airport that has an operating Control Tower. It does not have specific lateral dimensions, but rather is individually tailored and will normally encompass published Instrument Approach Procedures.

(1) SPEED - Unless otherwise authorized or required by Air Traffic Control, no person may operate an aircraft at or below 2500 feet above the surface within 4 nautical miles of the primary airport of a Class D airspace at an Indicated Air Speed of more than 200 Knots.

(2) COMMUNICATIONS - Pilots of arrival or through flight aircraft must establish and maintain two-way radio communications with the appropriate Air Traffic Control facility prior to entering this airspace. Air Traffic Control must utilize your callsign before you are considered to have established two-way radio communication.

6-3 MINIMUM NAVIGATION & COMMUNICATIONS EQUIPMENT

a. CHANGEOVER POINTS/COP - The COP is located midway between the navigation facility for straight route segments, or at the intersection of radials or courses forming a dog leg in the case of dog leg route segments. When the COP is not located at the midway point, aeronautical charts will depict the COP location and give the mileage to the radio aids. (See Chapter 2 for definition of COP).

b. AIR GROUND COMMUNICATIONS (FAA) - Air Route Traffic Control Centers (ARTCC) are equipped to conduct direct communication with IFR traffic on Very High Frequency and Ultra High Frequency frequencies. IFR operations are expedited through the use of direct communication; however, to reduce frequency congestion, pilots are requested to use these frequencies strictly for communications pertinent to the control of IFR aircraft. Flight plan filing, Enroute weather, etc., should be requested through Flight Service Stations, or appropriate military facilities. Most ARTCC areas are subdivided into two or more sectors with an individual controller assigned to handle traffic in his specific sector or sectors. A discrete frequency is assigned each sector for direct pilot/controller communication and normally this will be the initial frequency assigned aircraft. Special use frequencies will be used for controlling aircraft above FL600. The backup frequency will be the high altitude sector discrete frequency. Additionally, aircraft are required to monitor 243.0 Megahertz (Guard) for emergency purposes.

c. TRANSPONDER PROCEDURES

NOTE: For specific transponder procedures and settings, refer to the appropriate Radar Beacon System or IFF/SIF procedures in the Flight Information Handbook.

(1) Pilots of aircraft equipped with a transponder with operable Mode 3/A and/or Mode C will "squawk" the appropriate mode(s) and code(s) during all phases of flight, unless directed by Air Traffic Control to Squawk Standby or Stop Squawk. The only exceptions are Special Operations within assigned airspace as approved by Air Traffic Control, e.g, NORAD Faker aircraft which have been granted a waiver to Federal Air Regulations 91.97 and operate their transponders in the standby position. Military flights operating on a mode other than Mode 3 will adjust transponders to reply on the Mode 3 code specified in the Flight Information Handbook and the mode assigned by the military simultaneously.

(a) Transponders will be operating in "standby" while taxiing for take-off and either "off" or "standby" as required after landing. Departing pilots should turn transponders to "on" as late as practicable before take-off, and landing pilots should turn transponders to either "off" or "standby" as soon as practicable after landing. Unless otherwise requested by Air Traffic Control, transponders shall be operating at all times, VFR or IFR, while airborne.

(b) Basic Mark X (IFF) equipment will not be operated except in emergency or when requested by Air Traffic Control.

(c) When more than one aircraft operate as a standard formation, only the flight leader will set his transponder for normal squawk. Wingmen will squawk standby. Upon breakaway into elements or individual flights the element leader or individual pilot is then required to set his transponder as directed in the Flight Information Handbook.

(d) Loss of Radar tracking capability. In the event Radar tracking is not possible above FL600 due to loss of the air or ground Radar system, the pilot shall be advised and control will be based on the route filed and position reports estimates as necessary. Where insufficient time or lateral separation will occur on converging courses, the pilots shall be advised. Vertical

separation shall be provided if pilots volunteer altitude information and request altitude separation. Otherwise, pilots shall be advised, "unable to provide separation from (aircraft Identification) (direction of flight)". It is understood that the Military Assumes Responsibility for Separation of Aircraft (MARSA) in these instances.

(2) United States and ICAO Air Traffic Control facilities recognize the Mode 3, Code 7500 as meaning that the aircraft is being "Hijacked / forced to a new destination". Use Code 7500 to indicate a hijacking threat when under Air Traffic Control Radar control. When the situation precludes Code 7500 replies, the spoken words indicating such squawk will receive similar Air Traffic Control interpretation and action. Air traffic controllers will acknowledge and confirm receipt by asking the pilot if the code is intentionally being used. If the pilot replies in the affirmative, or does not reply, the controller shall not ask further questions but will flight follow, respond to pilot's requests, and notify appropriate authorities.

6-4 AIR TRAFFIC AT A CONTROLLED AERODROME

a. SIMULTANEOUS OPERATIONS ON INTERSECTING RUNWAYS

(1) Despite the many new and lengthened runways which have been added to the nation's airports in recent years, limited runway availability remains a major contributing factor to operational delays. Many high density airports have gained operational experience with intersecting runways which clearly indicates that simultaneous operations are safe and feasible. Tower controllers may authorize simultaneous landings or a simultaneous landing and take-off on intersecting runways when the following conditions are met:

(a) The runways are dry and the controller has received no reports that braking action is less than good.

(b) A simultaneous take-off and landing operation may be conducted only in VFR conditions.

(c) Instructions are issued to restrict one aircraft from entering the intersecting runway being used by another aircraft.

(d) Traffic information issued is acknowledged by pilots of both aircraft.

(e) The measured distance from runway threshold to intersection is issued if the pilot requests it.

(f) The conditions specified in 3, 4, and 5 are met at or before issuance of the landing clearance.

(g) The distance from landing threshold to the intersection is adequate for the category of aircraft being held short. Controllers are provided a general table of aircraft category/minimum runway length requirements as a guide. Operators of Short Take-Off and Landing aircraft would identify their aircraft as such on initial contact with the tower, unless a Letter of Agreement concerning this fact is in effect. Whenever a hold short clearance is received, it is incumbent upon the pilot to determine his/her ability to hold short of an intersection after landing when instructed to do so. Additionally, pilots should include the words "hold short of (Point)" in the acknowledgement of such clearances.

(h) There is no tailwind for the landing aircraft restricted to hold short of the intersection.

(2) The safety and operation of an aircraft remains the responsibility of the pilot. If for any reason; e.g.; difficulty in discerning location of and intersection at night, inability to hold short of an intersection, wind factors, etc., a pilot elects to use the full length of the runway, a different runway or desires to obtain the distance from the landing threshold to the intersection, the pilot is expected to promptly inform Air Traffic Control accordingly.

VISUAL FLIGHT RULES

6-5 MAXIMUM AIRSPEEDS

a. AIRCRAFT SPEED BELOW 10,000 FEET Mean Sea Level - (Exemption to Federal Air Regulations 91.117 issued to DoD, May 18, 1978) - Operations below 10,000 feet Mean Sea Level at an Indicated Air Speed in excess of 250 knots, in noncompliance with Federal Air Regulations 91.117(a), are authorized for military aircraft, include Reserve and Air National Guard components, only under the following conditions:

(1) Within restricted areas.

(2) Within military operations areas.

(3) When operating within large scale exer or on short term special mission. Coord will be effected to insure awareness on the part of the nonparticipating flying public.

(4) When operating on DoD/Federal Aviation Administration mutually developed and published IFR routes. The military necessity for each route and for the extent of use of each route is to be reviewed and approved by the appropriate military headquarters.

(5) When operating on DoD developed and published VFR routes. Such routes shall be established for specific mission and used only by designated units when the provisions of the above will not accommodate the required national defense mission as determined by appropriate military headquarters. Routes are to be developed and published in accordance with DoD/Federal Aviation Administration mutually developed criteria.

(6) In the event provisions of the above cannot be complied with, the appropriate military headquarters may authorize flight Operations within defined airspace in noncompliance with Federal Air Regulations 91.117 as it considers necessary to accomplish the national defense mission. This provision is intended to accommodate speed requirements on an interim basis within a defined area for which an area/route proposal has been coordinated and concurred in by appropriate military/Federal Aviation Administration regional authority but not yet published.

(7) If the airspeed required or recommended in the airplane flight manual to maintain safe maneuverability is greater than the maximum speed described in Federal Air Regulations 91.117, the aircraft may be operated at that speed. Where the required or recommended speed is given as range, the lower part of the speed range should be used consistent with good operating practice. This provision is primarily to accommodate climbs/descents and terminal area Operations. (See AFI 11-202 Vol 3 or OPNAV Instruction 3710.7 (series), as applicable).

b. AFTERBURNER CLIMBS - Pilots of turbojet aircraft equipped with afterburner engines should advise Air Traffic Control prior to take-off if they intend to use afterburner during their climb to the Enroute Altitude. Anytime while enroute, a pilot elects to use afterburner to climb to a newly assigned altitude he should so advise the Air Traffic Control controller.

INSTRUMENT FLIGHT RULES

6-6 RVSM RULES

a. REDUCED VERTICAL SEPARATION MINIMUM (RVSM) (AFFSA/XOP, FAA 91-RVSM)

(1) RVSM is a program intended to safely increase airspace capacity and provide economic benefits by reducing vertical separation from 2000' to 1000' between suitably equipped aircraft. This program is supported by the United States and other ICAO members. Introduction of RVSM began on 27 March 1997 in North Atlantic Track Minimum Navigation Performance Specifications (NAT MNPS) airspace. RVSM airspace is exclusive airspace unless accommodation procedures have been adopted. See Area Planning guidance for regional specific information on accommodations of non-RVSM equipped aircraft.

(2) RVSM operations require specific approval and equipment. All operators must maintain the specified operating standards and be aware of the inherent obligation of this requirement.

(3) Non-equipped aircraft may be allowed climbs and descents through the RVSM block, traffic permitting. Flights should climb/descend continuously through the RVSM levels without stopping at any intermediate level and should "Report leaving" current level and "Report reaching" cleared level.

(4) RVSM Equipment Requirements

(a) Two independent altitude measurement systems. Each system should be composed of the following: cross coupled static source/system provided with ice protection; equipment for measuring static pressure and displaying pressure altitude to aircrew; equipment for digitally coding displayed pressure altitude for automatic altitude reporting purposes; static source error correction (SSEC) if needed to meet requirements; and reference signals for automatic control and alerting at selected altitude.

(b) One Secondary Surveillance Radar (SSR) altitude reporting transponder. If only one is fitted, it should have the capability to operate from either altitude measurement system.

(c) One altitude alert/warning system to signal crew if actual altitude deviates from selected altitude by a nominal value not greater than 300 feet (for aircraft certified after 1 Jan 1997, allowable deviation is 200 feet).

(d) One automatic altitude-keeping device (flight director/autopilot system meeting RVSM tolerances of 65 feet).

(e) Should any required equipment fail prior to entering RVSM airspace, the pilot shall request a new clearance so as to avoid flight in this airspace.

(5) Flight Planning. During flight planning, the flight crew and dispatchers, if applicable shall pay particular attention to conditions which may affect operation in RVSM airspace. These include, but may not be limited to:

(a) Verifying the aircraft is approved for RVSM operations.

(b) Annotating the flight plan to be filed with the Air Traffic Service Provider to show that the aircraft is approved for RVSM operations, or accounting for any aircraft operating restrictions related to RVSM airworthiness approval. Aircraft equipment (TD Code) suffixes for RVSM operations may be found in General Planning chapter 4.

(c) Reported and forecast weather conditions on the route of flight.

(d) Minimum equipment requirements pertaining to height-keeping systems.

(6) Preflight procedures at the aircraft for each flight.

(a) Review maintenance logs and forms to ascertain the condition of equipment required for flight in the RVSM airspace.

(b) During the external inspection of aircraft, pay attention to the condition of static sources and the condition of the fuselage skin in the vicinity of each static source and any other component that affects altimetry system accuracy (this check may be accomplished by a qualified and authorized person other than the pilot, e.g., a flight engineer or maintenance personnel).

(c) Before takeoff, the aircraft altimeters should be set to the local altimeter (QNH) setting and should display a known elevation, (e.g., field elevation) within the limits specified in aircraft operating manuals. The difference between the known elevation and the elevation displayed on the altimeters should not exceed 75 ft. The two primary altimeters should also agree within limits specified by the aircraft flight manual.

(d) Before take-off, equipment required for flight in RVSM airspace shall be operational, and indications of malfunctions should be resolved.

(7) Prior to RVSM airspace entry, the following equipment shall be operating normally:

(a) Two primary altitude measurement systems.

(b) One automatic altitude-control system.

(c) One altitude-alerting device.

(d) Should any of the required equipment fail prior to the aircraft entering RVSM airspace, the pilot should request a new clearance so as to avoid flight in this airspace.

NOTE: Operating Transponder. The operator should ascertain the requirement for an operational transponder in each RVSM area where operations are intended. The operator should also ascertain the transponder requirements for transition areas adjacent to RVSM airspace.

(8) In-flight Procedures

(a) Flight crews should comply with aircraft operating restrictions (if required for the specific aircraft group) related to RVSM airworthiness approval.

(b) Emphasis should be placed on promptly setting the sub-scale on all primary and standby altimeters to 29.92 in. Hg/1013.2 (hPa) when passing the transition altitude and rechecking for proper altimeter setting when reaching the initial cleared flight level (CFL).

(c) In level cruise it is essential that the aircraft is flown at the CFL. This requires that particular care is taken to ensure that ATC clearances are fully understood and followed. Except in contingency or emergency situations, the aircraft should not intentionally depart from CFL without a positive clearance from ATC.

(d) During cleared transition between levels, the aircraft should not be allowed to overshoot or undershoot the cleared flight level by more than 150 ft (45m). When changing flight levels within RVSM airspace, vertical speeds should be limited to 1000 fpm or less. This can reduce the likelihood of TCAS Resolution Advisories (RAs) occurring and should help to ensure the aircraft does not undershoot or overshoot the CFL by more than 150 ft.

NOTE: It is recommended that the level off be accomplished using the altitude capture feature of the automatic altitude control system, if installed.

(e) An automatic altitude-control system shall be operative and engaged during level cruise, except when circumstances such as the need to retrim the aircraft or turbulence require disengagement. In any event, adherence to cruise altitude should be done by reference to one of the two primary altimeters.

(f) The altitude-alerting system shall be operational.

(g) At intervals of approximately one hour, cross-checks between the primary altimeters and the stand-by altimeter should be made. A minimum of two primary altimeters should agree within 200 ft (60m) or a lesser value if specified in the aircraft operating manual. (Failure to meet this condition will require that the altimetry system be reported as defective and notified to ATC). The difference between the primary and standby altimeters should be noted for uses in contingency situations.

1 The normal pilot scan of cockpit instruments should suffice for altimeter crosschecking on most flights.

2 At least the initial altimeter cross-check should be recorded. On Class II navigation legs this should be in the vicinity of the point where Class II navigation is begun (e.g., on coast out). The readings of the primary and standby altimeters should be recorded and available for use in contingency situations. (Class II navigation is defined in FAA Order 8400.10).

NOTE: Future systems may make use of altimeter comparators in lieu of cross-checks by crew.

(h) Normally, the altimetry system being used to control the aircraft should be selected to provide the input to the altitude-reporting transponder transmitting information to ATC.

(i) If the pilot is notified by ATC of an Assigned Altitude Deviation (AAD) error which exceeds 300 ft (90m) then the pilot should take action to return to CFL as quickly as possible.

(9) Post Flight. In making maintenance log book entries against malfunctions in height-keeping systems, the following information should be noted when appropriate.

(a) Primary and standby altimeter readings.

(b) Altitude selector setting.

(c) Subscale setting on altimeter.

(d) Autopilot used to control the airplane and any differences when the alternate system was selected.

(e) Differences in altimeter readings if alternate static ports selected.

(f) Use of air data computer selector for fault diagnosis procedure.

(g) Transponder selected to provide altitude information to ATC and any difference if alternate transponder or altitude source is manually selected.

b. STRATEGIC LATERAL OFFSET PROCEDURES (SLOP)

(1) The intent of this procedure is to reduce risk (increase the safety margin) by distributing aircraft laterally and equally across the three available positions. Pilots should use the SLOP as standard operating practice in the course of normal oceanic operations to mitigate collision risk and wake turbulence. This procedure provides for the application of lateral offsets within the following guidelines:

(a) Along a route or track there will be three positions that an aircraft may fly: centerline or one or two miles right; and

(b) Offsets will not exceed 2 NM right of centerline.

(2) GUIDELINES - Distributing aircraft laterally and equally across the three available positions is now a standard ICAO operating procedure and pilots are required to adopt this procedure. It should also be noted that:

(a) Aircraft without automatic offset programming capability must fly the centerline.

(b) Operators capable of programming automatic offsets may fly the centerline or offset one or two nautical miles right of centerline to obtain lateral spacing from nearby aircraft. An aircraft overtaking another aircraft should offset within the confines of this procedure, if capable, so as to create the least amount of wake turbulence for the aircraft being overtaken.

(c) Pilots should use whatever means available (TCAS, radios, visual, etc . . .) to determine the best flight path to fly.

(d) For wake turbulence purposes, pilots may only fly one of the three positions listed above. For additional options and inflight contingency procedures refer to appropriate Area Planning documents.

NOTE: It is recognized that the pilot will use his/her judgment to determine the action most appropriate to any given situation and has the final authority and responsibility for the safe operation of the aircraft. The use of air-to-air channel, 123.45, may be used to coordinate the best wake turbulence offset option.

(e) Pilots may apply an offset outbound at the oceanic entry point but must return to centerline at the oceanic exit point.

(f) Aircraft transiting radar-controlled airspace mid-ocean are to remain on their established offset positions.

(g) There is no ATC clearance required for this procedure and it is not necessary that ATC be advised.

(h) Voice Position reports are to be based on the current ATC clearance and not the positions.

(SPEC/ICAO Doc 4444 15.2.4, NAT MNPS 8.5)

c. SPECIAL PROCEDURES FOR IN-FLIGHT CONTINGENCIES IN OCEANIC AREAS AND REMOTE AREAS

(1) The following general procedures are intended as guidance only. Although all possible contingencies cannot be covered, they provide for cases of inability to maintain assigned level due to:

(a) inability to maintain assigned flight level due to meteorological conditions, aircraft performance or pressurization failure;

(b) enroute diversion across the prevailing traffic flow; and

(c) loss of, or significant reduction in, the required navigation capability when operating in an airspace where the navigation performance accuracy is a prerequisite to the safe conduct of flight operations.

(2) The procedures are applicable primarily when rapid descent and/or turn-back, or diversion to an alternate airport is required. The pilot's judgment shall determine the sequence of actions to be taken, taking into account specific circumstances.

(3) If an aircraft is unable to continue the flight in accordance with its ATC clearance, and/or an aircraft is unable to maintain the navigation performance accuracy specified for the airspace, a revised clearance shall be obtained, whenever possible, prior to initiating any action.

(4) The radiotelephony distress signal (MAYDAY) or urgency signal (PAN PAN) preferably spoken three times shall be used as appropriate. Subsequent ATC action with respect to that aircraft shall be based on the intentions of the pilot and the overall air traffic situation.

(5) If prior clearance cannot be obtained, an ATC clearance shall be obtained at the earliest possible time and, until a revised clearance is received, the pilot shall:

(a) Leave the assigned route or track by initially turning 90 degrees to the right or to the left. When possible, the direction of the turn should be determined by the position of the aircraft relative to any organized route or track system. Other factors which may affect the direction of the turn are:

1 The direction to an alternate airport, terrain clearance;

2 Any lateral offset being flown; and

3 The flight levels allocated on adjacent routes or tracks.

FAA NOTE: A turn of less than or greater than 90 degrees may be required depending on the type of contingency and whether the pilot intends to continue in the same direction or reverse course.

(b) Following the turn, the pilot should:

1 If unable to maintain the assigned flight level, initially minimize the rate of descent to the extent that is operationally feasible;

2 Take account of other aircraft being laterally offset from its track;

3 Acquire and maintain in either direction a track laterally separated by 15 NM (28 km) from the assigned route; and

4 Once established on the offset track, climb or descend to select a flight level which differs from those normally used by 500 ft. (150m);

(c) Establish communications with and alert nearby aircraft by broadcasting, at suitable intervals; aircraft identification, flight level, position (including ATS route designator or the track code, as appropriate) and intentions on the frequency in use and on 121.5 MHz (or, as back-up, on the inter-pilot air-to-air frequency 123.45 MHz);

(d) Maintain a watch for conflicting traffic both visually and by reference to ACAS (TCAS) (if equipped);

(e) Turn on all aircraft exterior lights (commensurate with appropriate operating limitations);

(f) Keep the SSR transponder on at all times; and

(g) Take action as necessary to ensure the safety of the aircraft.

(6) When leaving the assigned track to acquire and maintain the track laterally separated by 15 NM (28 km), the flight crew, should, where practicable, avoid overshooting the track to be acquired, particularly in airspace where a 30 NM (55.5 km) lateral separation minimum is applied.

(SPEC/ICAO 4444 15.2, FAA International NOTAMS Sec. 2)

d. EXTENDED RANGE OPERATIONS BY AIRCRAFT WITH TWO-TURBINE POWER-UNITS (ETOPS) - If the contingency procedures are employed by a twin engine aircraft as a result of an engine shutdown or failure of an ETOPS critical system, the pilot should advise ATC as soon as practicable of the situation, reminding ATC of the type of aircraft involved, and request expeditious handling.

(SPEC/ICAO 4444 15.2, FAA International NOTAMS Sec. 2)

e. WEATHER DEVIATION PROCEDURES FOR OCEANIC-CONTROLLED AIRSPACE

(1) The following procedures are intended to provide guidance for deviations around adverse meteorological conditions. All possible circumstances cannot be covered. The pilot’s judgment shall ultimately determine the sequence of actions taken and ATC shall render all possible assistance.

(2) If the aircraft is required to deviate from track to avoid weather and prior clearance cannot be obtained, an air traffic control clearance shall be obtained at the earliest possible time. In the meantime, the aircraft shall follow the procedures detailed in paragraph (6)(b) below.

(3) The pilot shall advise ATC when weather deviation is no longer required, or when a weather deviation has been completed and the aircraft has returned to the centerline of its cleared route.

(4) Obtaining priority from ATC when weather deviation is required:

(a) When the pilot initiates communications with ATC, rapid response may be obtained by stating “WEATHER DEVIATION REQUIRED” to indicate that priority is desired on the frequency and for ATC response.

(b) The pilot still retains the option of initiating the communications using the urgency call "PAN PAN" (spoken three times) to alert all listening parties to a special handling condition which will receive ATC priority for issuance of a clearance or assistance.

(5) Actions to be taken when controller-pilot communications are established:

(a) The pilot notifies ATC and requests clearance to deviate from track, advising, when possible, the extent of the deviation expected.

1 ATC takes one of the following actions:

a If there is no conflicting traffic in the horizontal dimension, ATC will issue clearance to deviate from track; or

b If there is conflicting traffic in the horizontal dimension, ATC separates aircraft by establishing vertical separation; or

c If there is conflicting traffic in the horizontal dimension and ATC is unable to establish vertical separation, ATC shall:

(1) Advise the pilot unable to issue clearance for requested deviation.

(2) advise pilot of conflicting traffic; and

(3) request pilot's intentions

SAMPLE PHRASEOLOGY:
"Unable (requested deviation), traffic is (call sign, position, altitude, direction), advise intentions."

2 The pilot should take the following actions:

a Comply with air traffic control clearance issued; or

b Advise ATC of intentions and execute the procedures detailed in subparagraph (6) below. (ATC will issue essential traffic information to all affected aircraft).

c If necessary, establish voice communications with ATC to expedite dialogue on the situation.

(6) Actions to be taken if a revised ATC clearance cannot be obtained:

(a) The pilot shall take the actions listed below under the provision that the pilot may deviate from rules of the air when it is absolutely necessary in the interests of safety to do so.

(b) If a revised air traffic control clearance cannot be obtained and deviation from track is required to avoid weather, the pilot shall take the following actions:

1 if possible, deviate away from an organized track or route system;

2 establish communication with and alert nearby aircraft by broadcasting, at suitable intervals: flight identification, flight level, aircraft position (including the ATS route designator or the track code) and intentions (including the magnitude of the deviation expected) on the frequency in use, as well as on frequency 121.5 MHz (or, as a backup, the VHF inter-pilot air-to-air frequency 123.45).

3 watch for conflicting traffic both visually and by reference to ACAS (if equipped);

4 turn on all aircraft exterior lights (commensurate with appropriate operating limitations);

5 for deviations of less than 10 NM, aircraft should remain at the level assigned by ATC;

6 for deviations of greater than 10 NM, when the aircraft is approximately 10 NM from track, initiate a level change based on the following criteria:

Route center line track	Deviations > 10 NM	Level change
EAST 000-179° Magnetic	LEFT RIGHT	DESCEND 300 ft CLIMB 300 ft
WEST 180-359° Magnetic	LEFT RIGHT	CLIMB 300 ft DESCEND 300 ft

NOTE: If, as a result of actions taken under the provisions of Sub-paragraphs (6)(b)2. and (6)(b)3. above, the pilot determines that there is another aircraft at or near the same flight level with which a conflict may occur, then the pilot is expected to adjust the path of the aircraft, as necessary, to avoid conflict.

7 When returning to track, be at its assigned flight level, when the aircraft is within approximately 10 NM of centerline.

8 If contact was not established prior to deviating, continue to attempt to contact ATC to obtain a clearance. If contact was established, continue to keep ATC advised of intentions and obtain essential traffic information.

(SPEC/ICAO 4444 15.2.3, AIM 7-1-15c., & FAA International NOTAMS Sec. 2)

RVSM PHRASEOLOGY (*Indicates a pilot transmission)	
Meaning	Phraseology
For a controller to ascertain the RVSM approval status of an aircraft.	(callsign) **CONFIRM RVSM APPROVED**

RVSM PHRASEOLOGY (*Indicates a pilot transmission)	
Meaning	Phraseology
For a pilot to report non-RVSM approval status: i. on the initial call on any frequency within the EUR RVSM Airspace (controllers shall provide a read-back with this same phrase); and ii. in all requests for flight level changes pertaining to flight levels within the EUR RVSM Airspace and iii. in all read-backs to flight level clearances pertaining to flight levels within the EUR RVSM Airspace. Additionally, except for State aircraft, pilots shall include this RTF phrase to read-back flight level clearances involving the vertical transit through FL290 or FL410. (See examples below)	**NEGATIVE RVSM***
For a pilot to report RVSM approval status.	**AFFIRM RVSM***
For a pilot of a non-RVSM approved State aircraft to report non-RVSM approval status, in response to the RTF phrase (callsign) CONFIRM RVSM APPROVED	**NEGATIVE RVSM STATE AIRCRAFT***
Denial of ATC clearance into the EUR RVSM Airspace.	(callsign) **UNABLE CLEARANCE INTO RVSM AIRSPACE MAINTAIN** (or **DESCEND TO,** or **CLIMB TO**) **FLIGHT LEVEL** (number)
For a pilot to report when severe turbulence affects the aircraft's capability to maintain the height-keeping requirements for RVSM.	**UNABLE RVSM DUE TURBULENCE***
For a pilot to report that the aircraft's equipment has degraded below the MASPS required for flight within the EUR RVSM Airspace. (The phrase is to be used to convey both the initial indication of the non-MASPS compliance, and henceforth, on initial contact on all frequencies within the lateral limits of the EUR RVSM Airspace until such time as the problem ceases to exist, or the aircraft has exited EUR RVSM Airspace)	**UNABLE RVSM DUE EQUIPMENT***

RVSM PHRASEOLOGY (*Indicates a pilot transmission)	
Meaning	Phraseology
For a pilot to report the ability to resume operations within the EUR RVSM airspace after an equipment or weather-related contingency.	**READY TO RESUME RVSM***
For a controller to confirm that an aircraft has regained its RVSM approval status, or to confirm that the pilot is ready to resume RVSM operations.	**REPORT ABLE TO RESUME RVSM**

Example 1: A Non-RVSM approved State aircraft operating as GAT, maintaining FL260, subsequently requests a climb to FL320.

Pilot RTF:	(call sign) **REQUEST FL320, NEGATIVE RVSM**
Controller RTF:	(call sign) **CLIMB TO FL320**
Pilot RTF:	(call sign) **CLIMB TO FL320, NEGATIVE RVSM**

Example 2: A non-RVSM approved State aircraft operating as GAT, maintaining FL260, subsequently requests a climb to FL320.

Pilot RTF:	(call sign) **REQUEST FL320, NEGATIVE RVSM**
Controller RTF:	(call sign) **CLIMB TO FL320**
Pilot RTF:	(call sign) **CLIMB TO FL320, NEGATIVE RVSM**

Example 3: A non-RVSM approved State aircraft operating as GAT, maintaining FL360, subsequently requests a climb to FL380.

Pilot RTF:	(call sign) **REQUEST FL380, NEGATIVE RVSM**
Controller RTF:	(call sign) **CLIMB TO FL380**
Pilot RTF:	(call sign) **CLIMB TO FL380, NEGATIVE RVSM**

Example 4: A non-RVSM approved civil aircraft maintaining FL280 subsequently requests a climb to FL320.

Pilot RTF:	(call sign) **REQUEST FL320, NEGATIVE RVSM**
Controller RTF:	(call sign) **UNABLE CLEARANCE INTO RVSM AIRSPACE, MAINTAIN FL280**

Co-ordination between ATS Units

Meaning	Phraseology
To verbally supplement an automated estimate or message exchange that does not automatically transfer Item 18 flight plan information.	**NEGATIVE RVSM** or **NEGATIVE RVSM STATE AIRCRAFT** (as applicable)
To verbally supplement estimate messages of non-RVSM approved aircraft.	**NEGATIVE RVSM** or **NEGATIVE RVSM STATE AIRCRAFT** (as applicable)
To communicate the cause of a contingency relating to an aircraft that is unable to conduct RVSM operations due to severe turbulence or other severe weather-related phenomenon [or equipment failure, as applicable].	**UNABLE RVSM DUE TURBULENCE** (or **EQUIPMENT**, as applicable)

(TFMWG-E/USA 02-0038)

6-7 RNP REQUIREMENTS

a. REQUIRED NAVIGATION PERFORMANCE (RNP)

(1) Area navigation. Navigation defined by geographic points, rather than ground based navigation aids, will form the basis for the future Global Air Traffic Management (GATM) operating environment. This concept is known as Area Navigation (RNAV). One missing element from the RNAV concept is the level of confidence in navigation accuracy, which RNP provides. RNP RNAV is the combined concept of RNP and RNAV.

(2) RNP Concept. The RNP concept is defined as a statement of the navigation performance accuracy necessary for operation within a defined airspace. Note: additional requirements beyond accuracy, apply to each RNP type.

(3) Application of RNP. The term RNP helps describe airspace, routes, and procedures (including departures, arrivals and instrument approach procedures). The term is flexible and can apply to unique approach procedures or large regions of airspace (e.g., BRNAV/RNP-5). The term also denotes a complete and unambiguous set of navigation performance requirements for the aircraft. The term RNP-(x) RNAV (or RNP RNAV type) is used to differentiate between the different RNP RNAV types. An aircraft complying with the navigation performance of a particular RNP type will comply with the corresponding requirements to a particular type of flight phase or operation.

(4) RNP RNAV Types. The table below lists the RNP types applicable for all DoD aircraft. Publication of this table is intended to provide crews with general information to evaluate equipment requirements relating to various RNP airspace classes. The applicable range provides guidance for determining the operational capability of the aircraft. For example, if the desired route of flight includes RNP-6 airspace, an aircraft must comply with RNP-5 accuracy, integrity, and continuity. Conversely, if the aircraft is equipped to meet RNP-5 accuracy then it may operate in any applicable range requiring RNP-5 or higher criteria.

(5) RNP Assumptions. The objective of the concept of RNP RNAV is to define all applicable navigation performance requirements, including both the airborne and external navigation elements.

(6) RNP System Performance Requirements.

(a) Accuracy. Aircraft operating in RNP airspace shall remain within the RNP value (X) nautical miles of its course centerline for 95% of the flight (e.g., RNP-4 equals within 4 NM).

(b) Integrity (containment). The track containment limit is twice the RNP RNAV value (e.g., 8 NM for RNP-4). The concept of a containment region forms the foundation for the containment integrity requirements. It provides the crew an indication of the maximum limit of "protected" airspace for a given route segment.

(c) Continuity (containment). This requirement defines the equipment that must be available at dispatch or upon initiating an RNP RNAV operation. Containment continuity requirements are based on the concept of a defined containment region.

RNP RNAV Type	Applicable Range
RNP-10 RNAV	RNP-10 to RNP-19.9
RNP-5 RNAV	RNP-5 to RNP-9.9
RNP-4 RNAV	RNP-2 to RNP-4.99
RNP-1 RNAV	RNP-1 to RNP-1.99
RNP-1 RNAV	RNP-0.3 to RNP-0.99

FLIGHT PLANNING

6-8 GENERAL AIR TRAFFIC

a. SECURITY CONTROL OF AIR TRAFFIC

(1) During Defense Emergency or Air Defense Emergency conditions, additional special security instructions may be issued in accordance with the Security Control of Air Traffic and Air Navigation Aids (SCATANA) Plan and Emergency Security Control of Air Traffic (ESCAT).

(2) Under the provisions of the SCATANA Plan, the United States Military will direct the action to be taken (in regard to Landing, Grounding, Diversion, or Dispersal of Aircraft and the Control of Air Navigational Aids) in defense of the United States and airspace controlled by the United States during emergency conditions.

(3) If any portion of SCATANA is implemented, Air Traffic Control facilities which provide service in United States Controlled Airspace will broadcast appropriate instructions received from the United States Military over available Air Traffic Control frequencies.

(4) Pilots are required to file a Defense Visual Flight Rules (DVFR) or Instrument Flight Rule (IFR) flight plan and obtain Air Traffic Control approval prior to conducting flight operation when SCATANA or ESCAT is in effect. Pilots must include their Air Traffic Priority List Number in the "REMARKS" Section of the flight plan.

b. MILITARY AUTHORITY ASSUMES RESPONSIBILITY FOR SEPARATION OF AIRCRAFT (MARSA) - The application of MARSA is a Command prerogative and must not be invoked indiscriminately by individual units or pilots. It is used only for special IFR Operations requiring its use. Examples are Air Refueling, Air Intercept Training, and Military Training Routes. Commands authorizing MARSA must insure that its implementation and terms of use are documented and coordinated with the Air Traffic Control agency having jurisdiction over the area in which such Operations are conducted. Terms of use must assigned responsibility and provide for separation among participating aircraft.

c. RADAR TRAFFIC INFORMATION SERVICE - A service provided by Radar Air Traffic Control facilities. Pilots receiving this service are advised of any Radar target observed on the Radar display which may be in such proximity to the position of their aircraft or its intended route of flight that it warrants their attention. This service is not intended to relieve the pilot of his responsibility for continual vigilance to see and avoid other aircraft.

6-9 FILING FLIGHT PLANS (DAY/NIGHT)

a. FILING OF FLIGHT PLAN (DD FORM 1801 INTERNATIONAL FLIGHT PLAN AND ICAO FLIGHT PLAN)

(1) Flight Plans will be submitted to the Base Operations Dispatch Section prior to take-off. IFR Plans will be submitted a minimum of 2 hours prior to proposed take-off time for entry into the Air Traffic Control system (some countries/Air Traffic Control Regions require IFR Flight Plans in excess of two hours prior, and aircrews are advised to plan accordingly). Flight Plans, except those involving Buffer Zones or Air Defense Identification Zone, may be filed by radio if no other means are available.

(2) In the event of a delay of 30 minutes in excess of the estimated departure time for a controlled flight or a delay of one hour for an uncontrolled flight for which a flight plan has been submitted, the flight plan should be amended or a new flight plan submitted and the old flight plan cancelled, whichever is applicable.

b. CLOSING OF FLIGHT PLAN (ICAO) -
Make a report of arrival to the nearest appropriate Air Traffic Service unit, at the earliest practicable moment after landing, for any flight for which a flight plan has been submitted.

(1) UNITED STATES MILITARY AIRPORTS - Flight plans can be closed by personally turning in the duplicate copy of DD Form 1801 or ICAO flight plan to the Base Operations.

(2) UNATTENDED FIELDS - When landing at unattended fields pilots will close flight plans by radio prior to landing or by telephone as soon as possible after landing.

(3) DIVERSIONARY LANDINGS - Pilots of aircraft landing at a weather alternate or destination other than originally filed will insure appropriate aeronautical authorities (Base Operations Dispatcher, Civil National Dispatchers, etc.) are notified to send both the departure point and originally intended destination in an arrival messages.

c. FILING OF FLIGHT PLAN (FAA) - The Direct User Access Terminal (DUAT) service is not formatted to provide flight notification messages to military users or users filing to military installations.

(1) File flight plan Form DD175 in accordance with AFI 11-202 Vol 3, current OPNAVINST 3710.7, AR 95-1 or CG-333. When planning to penetrate an Air Defense Identification Zone, follow the Air Defense Identification Zone Flight Plan Procedures in the appropriate Enroute Supplement.

NOTE: All aircraft departing U.S. Air Force installations must have a flight plan on file.

(2) Flight Plans filed with a military Base Operations are passed to Federal Aviation Administration Flight Service immediately after aircraft departure. Flight Service then notifies the destination base of each aircraft's ETA. The base, if necessary, can take action to divert aircraft to an alternate, or initiate advisory action on NOTAMs, weather, or haz. Pilots should file IFR flight plan at least 30 min (1 hour in some areas) prior to ETD.

(3) Prior to departing civil airports, file Flight Plan with nearest Flight Service Station (FSS). This may be done in person using Federal Aviation Administration Form 7233-1, by telephone, or by aircraft radio if other means are not available. For those airports not within local calling distance of a Flight Service Station, the Federal Aviation Administration provides two types of leased telephone service to the nearest station. Foreign Exchange (FX) permits dialing a local number which will connect to the distant Flight Service Station at the cost of a local call. Another service, inter-Phone, is a private line extension to the nearest Flight Service Station. If neither of these services is available, call the nearest Flight Service Station by long distance collect. (Leave a copy of the Flight Plan and Passenger Manifest with the airport manager or other suitable person). When departing civilian fields, the pilot must insure that the actual departure time is passed to the TIE-IN Flight Service Station serving that departure field. This can be done by the pilot direct to the TIE-IN Flight Service Station. If the take-off time is not passed to the TIE-IN Flight Service Station, the aircraft will arrive unannounced at the next destination.

(4) Flight Plan filing procedures for operations above FL600 will be in accordance with current practices, except where classified information must be withheld. For example, for True Airspeed (TAS) certain aircraft may file TAS-SC (meaning supersonic classified) and for altitude, they may file above FL600.

d. CLOSING OF FLIGHT PLAN (FAA) - The pilot must insure that the proper agency is notified of flight termination.

(1) MILITARY INSTALLATIONS - the pilot should verbally confirm the closing of his flight plan with tower or Base Operations personnel.

(2) NON-MILITARY INSTALLATIONS - The pilot closes the flight plan with Flight Service through any means of communications available. Collect long distance telephone service may be used.

(3) When no ATS unit exists at the aerodrome of arrival, the arrival report shall be made as soon as practicable after landing and by the quickest means available to the nearest Air Traffic Service unit. When communications facilities at the aerodrome of arrival are known to be inadequate and alternate arrangements for the handling of arrival reports on the ground are not available, the aircraft shall, if practicable, transmit by radio immediately prior to landing a message comparable to an arrival report, to an appropriate Air Traffic Service unit, normally the air-ground communication facility serving the Air Traffic Service unit in charge of the Flight Information Region in which the aircraft is flying.

e. DoD NOTAM SYSTEM - The Headquarters Air Force DoD NOTAM Division (AF/XOO-ARAN), Herndon, VA, manages the DoD NOTAM System, which is part of the United States NOTAM System (USNS).

(1) NOTAM SERVICE-NOTAM information for DoD aircrews is obtained using the DoD Internet NOTAM Distribution System (DINS) which is derived from the United States Consolidated NOTAM Office at the FAA Air Traffic Control Systems Command Center, Herndon, VA.

(a) The primary DINS system NOTAMWeb WWW.NOTAMS.JCS.MIL page incorporates many features to assist the user when retrieving NOTAM requests. Real time NOTAM data is available, and contains all NOTAMs validated by the U.S. NOTAM System (USNS), which includes domestic, international, military and from Flight Data Centers (FDC).

(b) Aircrews using DINS will not need to consult FLIP to determine if a location has NOTAM support. DINS will provide a plain language notice, highlighted in red, when a requested location is not in the U.S. NOTAM System. If the requested location is not covered, it does not transmit NOTAM information to the USNS. NOTAM information for airports not covered by USNS can be obtained from the appropriate country's Aeronautical Information Service (AIS) or you must contact the requested location to receive NOTAM information.

(c) DINS will allow users to request NOTAM information in either Raw Text or Report Text format. Raw text is the international machine readable ICAO format with multiple report fields, NOTAM series, and NOTAM numbers displayed. Report Text is the translated NOTAM summary format which aircrews find desirable. Report Text format will also insert a blank line between each NOTAM to improve their readability.

(d) Special Notices and Center (ARTCC, US and ACC, worldwide) are available. Special Notices and ARTCC NOTAMS are available as user selectable from the DoD NOTAM System menu, ACC NOTAMS are available via ICAO Identifier.

(e) ALTERNATE LOCATION - Use WWW.NOTAMS.FAA.GOV to retrieve NOTAMs should the primary DINS server be out of service.

(2) Aircrews, clearing from locations with no access to DINS, can obtain a NOTAM briefing by contacting one of the installations listed in the FLIP, Flight Information Handbook, section C, or the nearest Aeronautical Information Service.

(3) All instrument procedures suspended by NOTAM due to a pending revision to DoD FLIP will be annotated on NOTAM summaries as "Not Authorized". This indicates that a major revision to the published procedure has been affected by the Federal Aviation Administration/Host Country/ and the currently published procedure is no longer valid. Therefore, any clearance issued by an Air Traffic Control agency for a procedure NOTAMed "Not Authorized" would not be valid for DoD FLIP users. Rationale: A procedure that has been NOTAMed "Not Authorized" may not be used by DoD FLIP users.

(4) The following NOTAM will appear as a location NOTAM: "GPS ONLY NPA NOT AVBL FROM 29 MAY 1500 TIL 29 MAY 1520". This means that Non-Precision Approaches utilizing the Global Positioning System only is not available for that location during the time specified. This NOTAM is computer generated at the US NOTAM Office and is self-canceling. No action on this NOTAM is required from Airfield Management or Flight Planning personnel.

(5) The DINS system displays SNOWTAM NOTAMs for select OCONUS locations. A SNOWTAM is originated and issued whenever the presence, removal or significant changes in hazardous conditions occur due to snow, slush, ice or water contaminants. Line 5 of the SNOWTAM NOTAM shows the NOTAM number, prefaced by "SWBI", i.e. SWBI0372. ICAO Document, Annex 15, Appendix 2 describes the SNOWTAM format. An excerpt is provided below:
The format normally contains the following 17 lines:
Line 1: A) field. Aerodrome location indicator
Line 2: B) field. DTG of observation or measurement completion in UTC
Line 3: C) field. Runway designators
Line 4: D) field. Cleared runway length if less than published length
Line 5: E) field. Cleared runway width if less than the published width
Line 6: F) field. Deposits over total runway length. Observed on each third of the runway, starting from threshold having the lowest runway designation number
Line 7: G) field. Mean depth (mm) for each third of total runway length
Line 8: H) field. Friction measurements on each third of runway and friction measuring device
Line 9: J) field. Critical snowbanks
Line 10: K) field. Runway lights
Line 11: L) field. Further clearance
Line 12: M) field. Further clearance expected to be completed by ? (UTC)
Line 13: N) field. Taxiway
Line 14: P) field. Taxiway snowbanks
Line 15: R) field. Apron
Line 16: S) field. Next planned observation/measurement is for ? (month/day/hour in UTC)
Line 17: T) field. Plain language remarks (including contaminant and other operationally significant information)

(6) In the pacific Theatre NOTAM issues can be resolved by the following respective agencies:
Alaska, 611 AOG/JAOC (317-552-5265)
Guam, 613 AOS/DOBA (315-366-3509)
Hickman AFB/Johnston Atoll, 15 ABW/Detl (315-448-0229)
Japan, 605AOS/DOO (315-225-4467)
Korea, 607 CPS/DOJA (315-725-5344/784-6224)
PACAF Circuit/Network problems: Defense Information Systems Agency Pacific
(DISPAC) (315-456-2777 ext 105 or 449-8257)

NOTE: Direct any questions pertaining to this matter to HQ PACAF/DOJA DSN 315-449-4232/4182.

(7) Headquarters Air Force, DoD European NOTAM Liaison Office (AF/XOO-ARANE), located at Ramstein AB, Germany, (DSN 480-8092, C011-49-6371-478092) is the single point of contact for DoD NOTAM matters within the European Theater and works closely with the National Geospatial-Intelligence Agency Liaison Europe, and NOTAM user units in solving European area NOTAM problems.

(8) Headquarters Air Force, DoD NOTAM office, (AF/XOO-ARAN), is located at Federal Aviation Administration Air Traffic Control Command System Center, 13600 EDS Drive, Herndon, VA 20171. (DSN 994-4205/06/07, C1-888-876-6826, FAX DSN 851-3440) and is staffed with DoD coordinators from each service to provide interface between Federal Aviation Administration and the military services.

f. UNITED STATES ARMY AIR ADVISORY (AIRAD) SYSTEM KOREA - The United States Army AIRAD) System in the Republic of Korea is operated by the 4th Bn 58th Avn Regt. This system supplements NOTAM coverage for airfields and heliports not serviced by the United States NOTAM System (USNS). To submit an AIRAD, contact Guardian Control AIRAD clerk at 741-6779/6780, FAX 741-6716.

g. NOTAM INFORMATION ON CIVIL (FAA) FACILITIES - If a proposed flight will terminate at a civil airport, air-crews should obtain/review all Federal Aviation Administration "D" and "L" series NOTAMs including those contained in the "NOTICES TO AIRMEN" publication (NTAP). Flight Service Station briefers will not provide NOTAMs from the NTAP unless specifically requested.

(1) "L" Series: These "Local" NOTAMs must be obtained from the Flight Service Station (FSS) which serves the destination airport. Obtain the commercial phone number for the destination Flight Service Station from the FLIP civil Airport/Facility Directory, or any Flight Service Station.

(2) "D" Series: These "Distance" NOTAMs, which are similar to the DoD NOTAM, may be obtained from any Flight Service Station. This type civil NOTAM is included in the DINS for those locations covered by the DoD.

(3) "NOTICES TO AIRMEN": This publication is issued every 28 days. Data in this publication which is current on the effective date of the next Airport/Facility Directory (AFD) will be transferred to the AFD and removed from this publication. The NTAP is available on line at http://www.faa.gov/NTAP.

h. ICAO NOTAM SYSTEM - This worldwide NOTAM System involves the exchange of NOTAMs between countries. Published by International NOTAM Offices, these NOTAMs are available on the DoD WEB Site, at most Civilian Airport Dispatch Sections and Air Traffic Control Centers. To obtain NOTAM information concerning airports not covered by a Military NOTAM System, pilots should contact one of these facilities for a NOTAM briefing. US NOTAM System (USNS) Specialist (which includes the DoD Coordinators and the FAA personnel) do not provide NOTAM briefings to aircrews.

6-10 CLEARANCE INFORMATION

a. AIR TRAFFIC CONTROL CLEARANCES

(1) CLEARANCE DELIVERY - At airports where a Control Tower is in operation, Air Traffic Control IFR Clearances normally are relayed to pilots of departing aircraft by the Tower "Ground Control" position. At many busy airports, however, a Tower "Clearance Delivery" position has been established and a separate radio frequency has been designated for this purpose. No visual surveillance or control over the movement of traffic is exercised by the Tower "Clearance Delivery" position of operation.

(2) INITIAL RADIO CONTACT - Pilots in their initial radio communication with the facility concerned will state: AIRCRAFT IDENTIFICATION, LOCATION ON THE AIRPORT, TYPE OF OPERATION PLANNED (IFR), POINT OF FIRST INTENDED LANDING AND REQUESTED ACTION (TAXI/CLEARANCE ON REQUEST/ETC.).

(3) TAXI INSTRUCTION READBACK - Pilots will acknowledge by readback all runway assignment and hold short instructions.

(4) IFR CLEARANCE ITEMS - IFR Clearances to departing aircraft are issued prior to take-off and will include the following items as appropriate, in order listed:

(a) Aircraft identification.

(b) Clearance limit.

(c) Departure procedure or SID.

(d) Route of flight.

(e) Altitude data in the order flown.

(f) USAF: When an airborne aircraft is being issued a Clearance containing an altitude assignment by USAF Air Traffic Controllers, no more than one of the following will be included in the same transmission:

1 Frequency change.

2 Transponder change.

3 Heading.

4 Altimeter setting.

5 Traffic information containing an altitude.

6 Holding instructions.

7 Any special information.

8 Frequency and beacon information.

b. ABBREVIATED IFR DEPARTURE CLEARANCE - Air Traffic Control may issue Abbreviated IFR Clearances which will not include all of the information of a Detailed Clearance. However, an Abbreviated Clearance cannot be issued or accepted if the route of flight originally filed with Air Traffic Control has been changed by the pilot. In this case, the pilot will request a Detailed Clearance be issued by Air Traffic Control. An Abbreviated Clearance will not be issued when a pilot requests a Detailed Clearance.

(1) When operating in a Radar environment, Air Traffic Control will issue the Abbreviated Clearance as follows:

(a) If a Standard Instrument Departure is assigned: "CLEARED TO (destination) AIRPORT; (SID name and number) DEPARTURE, (transition name) TRANSITION; THEN, AS FILED. MAINTAIN (altitude); and, if required, additional instructions or information".

(b) If a Standard Instrument Departure is not assigned: "CLEARED TO (destination) AIRPORT AS FILED. MAINTAIN (altitude); and, if required, additional instructions or information."

(2) When operating in a non-Radar environment, Air Traffic Control will specify one, two, or more fixes as necessary to identify the initial route of flight. "CLEARED TO (destination) AIRPORT AS FILED VIA NOTTINGHAM, PATUXENT. MAINTAIN (altitude)".

(3) When a filed route will require minor revisions Air Traffic Control will note the revision by stating "except change route to read" follow by the amended route portion. "CLEARED TO (destination) AIRPORT (SID and SID transition, as required); THEN AS FILED EXCEPT CHANGE ROUTE TO READ (amended

route portion). MAINTAIN (altitude); and, if required additional instructions or information".

(4) ALTITUDE AMENDMENTS - If a controller restates a previously issued altitude to "MAINTAIN", it is considered an amended clearance. When previously issued altitude restrictions are omitted from the "amended clearance", the altitude restrictions are cancelled.

(5) "CLEARANCE READBACK" - There is no requirement for pilots to readback Air Traffic Control clearances while on the ground (except runway assignment and hold short instructions); however, pilots should clarify any portion of clearance that is not completely understood. In addition, controllers may request pilots to readback any clearance.

c. CLEARANCE LIMIT - Initial clearances will include whenever practicable, the destination airport as the clearance limit. However, Air Traffic Control may utilize short range clearance procedures, in lieu of a clearance to destination airport. When any part of the route beyond the short-range clearance limit differs from that specified in the original flight plan, clearance will include the proposed routing beyond said clearance limit. When a flight has been cleared to a fix short of the filed destination, additional clearance to proceed beyond or instructions to hold at such fix, whichever is appropriate, will be issued at least 5 minutes before aircraft is estimated to reach the fix. If further clearance has not been received, hold in accordance with holding procedures paragraph as discussed later in this chapter. Flights conducted in accordance with IFR for the initial part of the flight and VFR for subsequent portions will be cleared to the fix at which the IFR portion of the flight terminates.

d. USE OF STANDARD INSTRUMENT DEPARTURES (SIDs) - Standard Instrument Departure (SID) procedures are available at most military and joint civil/military airports. All pilots are encouraged to use SIDs provided no flight derogation will ensue. After a SID is accepted in the air traffic clearance, the pilot will conform to exact routings, altitudes, and specific restrictions shown on the departure chart or received from the air traffic controller. Except for Radar vectors, route amendments to the published procedures will not be accepted unless the entire procedure is issued verbatim.

(1) After an aircraft is established on a SID and subsequently is Radar vectored or cleared off of the SID/SID TRANSITION, pilots shall consider the SID cancelled, unless the controller adds "expect to resume SID".

e. DEPARTURE RADAR - Normally aircraft will be cleared out of the Terminal Area utilizing SIDs via radio navigation aids. When a pilot is given a vector taking his aircraft off a previously assigned non-Radar route, he will be advised briefly what the vector is to achieve. Thereafter, Radar service will not be terminated until the aircraft has been re-established "on-course" using an appropriate navigation aid and the pilot has been advised of his position. When a flight has a malfunctioning directional gyro, the pilot will be advised, prior to issuance of vectors, to make all turns at the standard rate and to execute turns immediately upon receipt of instructions.

f. ADHERENCE TO AIR TRAFFIC CLEARANCE

(1) When an air traffic clearance has been obtained under either VFR or IFR, the pilot in Command of the aircraft shall not deviate from the provisions thereof unless an amended clearance is obtained. The addition of a VFR restriction does not authorize a pilot to deviate from the route of flight or any other provisions of the Air Traffic Control clearance.

(2) The most important and guiding principle to remember is that the last Air Traffic Control clearance has precedence over the previous Air Traffic Control clearance. When the route or altitude in a previously issued clearance is amended, the controller will restate applicable altitude restrictions. If previously issued altitude restrictions are omitted from an amended clearance, those altitude restrictions are cancelled. Pilots should always request route/altitude verification from Air Traffic Control if any portion of a clearance is not completely understood.

NOTE: When an aircraft is vectored off a previously assigned route, the controller is required to inform the pilot of the airway, route or point to which the aircraft is being vectored.

(3) Should a pilot for any reason be incapable of complying with any provision of an issued Air Traffic Control clearance or restriction added thereto, he is expected to immediately advise Air Traffic Control. A brief reason, such as, "Unable Account of Load", may be included if considered necessary. He may then expect an amended Air Traffic Control clearance.

g. ENROUTE CLEARANCE - If it becomes necessary for a pilot to deviate from an approved route or altitude/Flight Level when on an IFR flight plan, it is important that the request for deviation be forwarded to Air Traffic Control as far in advance as possible. Delay in submitting the request, or inability to do so, may delay or even preclude, Air Traffic Control approval of the request, or require that additional restrictions be placed on the clearance.

(1) If thunderstorm conditions are of such severity that an immediate deviation from course and/or altitude/Flight Level is necessary and time will not permit approval by Air Traffic Control, the pilot's emergency authority may be exercised. However, when time permits, the following information should be furnished to Air Traffic Control when requesting clearance to detour thunderstorm activity.

(a) Point at which detour will commence.

(b) Route and extent of detour (direction and distance).

(c) Altitude(s)/Flight Level(s).

(d) Point and ETA where original route will be resumed.

(e) Flight conditions (IFR or VFR).

(f) Any further deviation that may become necessary.

(g) Advise if aircraft is equipped with functioning airborne Radar.

NOTE: When flying within the Class A Airspace, the proposed detour should be defined by appropriate navigational aids (however, not necessarily over or directly between such aids). When this is not possible and traffic exists at the desired altitude/Flight Level, Air Traffic Control will be unable to approve the detour.

(2) FAA CONTROLLED OCEANIC INFLIGHT CHANGES - Procedures for weather deviations and other contingencies in oceanic controlled airspace. Since aircraft will not fly into known areas of weather, weather deviation requests should take priority over routine requests. If there is conflicting

traffic and ATC is unable to establish vertical separation, ATC shall:

(a) Advise the pilot that standard separation cannot be applied.

(b) If possible, suggest a course of action.

NOTE: ATC may suggest that the pilot climb or descend to a contingency altitude (1,000 feet above or below that assigned if operating above FL290: 500 feet above or below that assigned if operating at or below FL290).

(c) To the extent practical, provide traffic information to all affected aircraft. Phraseology; "standard separation not available, deviate at pilot's discretion; suggest climb (or descent) to (appropriate altitude): traffic (position and altitude); report deviation complete."

(d) At the completion of the deviation. Standard separation shall be established as soon as practicable.

NOTE: In the event that pilot/controller communications cannot be established or a revised ATC clearance is not available, pilots will follow standard inflight procedures.

(3) When the altitude/Flight Level instructions in an Air Traffic Control clearance requires that a pilot "maintain" his assigned altitude/Flight Level while in Control Areas, changes while enroute should be requested prior to the time the change is desired.

NOTE: Due to traffic conditions, it is frequently necessary for Air Traffic Control to change the altitude/Flight Level or route originally assigned.

(4) Pilots entering Flight Information Region/Upper Information Region borders and Upper Control Areas will contact the appropriate Area Control Center in the next area five minutes before entry into that area, to confirm Air Traffic Control clearance within the next area, unless cleared by the adjacent Area Control Center.

h. IFR CLEARANCE WITH VFR RESTRICTIONS

(1) A pilot on an IFR flight plan operating in VFR weather conditions may request VFR ON TOP in lieu of an assigned altitude. This would permit the pilot to select an altitude or Flight Level of his choice (subject to any Air Traffic Control restrictions).

(2) Pilots desiring to climb through a cloud, haze, smoke or other Meteorological formation and then either cancel their IFR flight plan or operate VFR ON TOP may request a climb to VFR ON TOP. The Air Traffic Control authorization shall contain either a top report or a statement that no top report is available, and a request to report reaching VFR ON TOP. Additionally, the Air Traffic Control authorization may contain a clearance limit, routing and an alternative clearance if VFR ON TOP is not reached by a specified altitude.

(3) A pilot on an IFR flight plan, operating in VFR conditions, may request to climb/descend in VFR conditions.

(4) Air Traffic Control may not authorize VFR ON TOP/VFR CONDITIONS operations unless the pilot requests the VFR operation or a clearance to operate in VFR conditions will result in Noise Abatement benefits where part of the IFR departure route does not conform to a Federal Aviation Administration approved Noise Abatement route or altitude.

(5) When operating in VFR conditions with an Air Traffic Control authorization to "MAINTAIN VFR ON TOP/MAINTAIN VFR CONDITIONS" pilots on IFR flight plans must:

(a) Fly at the appropriate VFR altitude.

(b) Comply with basic VFR weather minimums.

(c) Comply with IFR that are applicable to this flight (i.e., min IFR altitudes, position reporting, radio communications, course to be flown, adherence to Air Traffic Control clearance, etc.).

NOTE: Pilots should advise Air Traffic Control prior to any altitude change to ensure the exchange of accurate traffic information.

(6) Air Traffic Control authorization to "MAINTAIN VFR ON TOP" is not intended to restrict pilots so that they must operate only above an obscuring Meteorological formation (layer). Instead, it permits operation above, below, between layers or in areas where there is no Meteorological obscuration. It is imperative, however, that pilots understand that clearance to operating "VFR ON TOP/VFR CONDITIONS" does not imply cancellation of the IFR flight plan.

(7) Pilots operating VFR ON TOP/VFR CONDITIONS, may receive traffic information, from Air Traffic Control, on other pertinent IFR or VFR aircraft. However, aircraft operating in Terminal Control Areas/Terminal Radar Service Areas shall be separated by normal Air Traffic Control separation.

NOTE - When operating in VFR weather conditions, it is the pilot's responsibility to be vigilant so as to see and avoid other aircraft.

(8) Air Traffic Control will not authorize VFR or VFR ON TOP Operations in Positive Control Area's.

i. COMBINATION CLEARANCES - Clearances issued when a flight plan indicated IFR for the first portion of flight and VFR for the latter portion will normally clear an aircraft to the point at which the change is proposed. Once the pilot has reported over the clearance limit and does not desire IFR clearance, he should advise Air Traffic Control to cancel the IFR portion of his flight plan. Further clearance will not be necessary for VFR flight beyond that point. If the pilot desires to continue his IFR flight plan beyond the clearance limit, he should contact Air Traffic Control at least 5 minutes prior to the clearance limit and request further IFR clearance. If the requested clearance is not received prior to reaching the clearance limit fix, the pilot will be expected to hold.

j. ATC CLEARANCE READBACK/ALTITUDE VERIFICATION PROCEDURES

(1) Pilots of airborne aircraft should read back those parts of Air Traffic Control clearances which contain altitude assignments/restrictions or Radar vectors, as a means of mutual verification. The readback should be made in the same sequence in which it was received and should be preceded by the aircraft identification. However, the readback of a clearance need not be verbatim.

(2) After receiving a revised altitude clearance, include the newly assigned altitude/Flight Level when reporting vacating the previously assigned altitude/Flight Level, e.g., "PACER 82, leaving FL240 for one six thousand." In addition, if the clearance includes an altitude restriction at some fix/facility, include that altitude and the fix/facility at which it applies in the report.

(3) "CLEARANCE READBACK" - There is no requirement for pilots to readback Air Traffic Control clearances;

however, pilots should clarify any portion of clearance that is not completely understood. In addition, controllers may request pilots to readback any clearance.

k. APPROACH CLEARANCES - When necessary, approach clearances will specify that the pilot execute a particular instrument approach. However, Air Traffic Control may delete this procedure when it wants to indicate to the pilot that he may execute an instrument approach of his choice. The first aircraft estimated over the fix from which the approach is commenced will be the first to receive an approach clearance, followed by other aircraft in order of their Estimated or Actual Time of Arrival over the fix. If visual contact with the ground is made before the approach is completed, the complete approach procedure will be followed unless the pilot receives approval for a VFR approach or cancels his IFR Flight plan.

NOTE: It is solely the pilots prerogative to cancel his IFR clearance. However, a pilot's retention of an IFR clearance does not afford priority over VFR flights. For example, this does not preclude the requirement for the pilot of an arriving IFR aircraft to adjust this flight path as necessary to enter a traffic pattern in sequence with arriving VFR flights. Combined procedures which specify minima for more than one facility (i.e., TACAN and Instrument Landing System) may be used when one facility is off the air. The USAF Air Traffic Control facility will give a clearance for the entire procedure, as named in the FLIP Terminal volumes, when the Instrument Landing System is inoperative with an added note that the Instrument Landing System is inoperative. If the ADF, VOR or TACAN portion of the procedure is inoperative they will provide the pilot with Radar or DF guidance to the Instrument Landing System final approach. The national state Air Traffic Control Agency may be expected to provide an Air Traffic Control clearance for an approach using only the operating ADF, VOR or TACAN facility when the Instrument Landing System is inoperative. If the ADF, VOR or TACAN is inoperative, the national Air Traffic Control will provide additional navigational guidance to the Instrument Landing System final approach, if this type procedure is to be used.

6-11 SUPPLEMENTARY AIRPORT INFORMATION

a. MAINTENANCE/TEST SIGNAL

(1) A standardized Maintenance/Test Facility Identification Signal has been implemented in accordance with AFCC CEMI 500-4. This signal will be utilized on TRACALS facilities which are undergoing maintenance or test functions which require the facility to radiate an identification signal. The facility identification will be removed from service during periods when Maintenance/Test Actions render the facility unusable or unreliable for air navigation. The test signal will consist of a series of dots transmitted for three quarters of an identification cycle with the interval between dots equal to the time of each dot.

(2) The test signal will be utilized on all USAF operating Navigational Aids, excluding those designated as part of the National Airspace System. Use of the Maintenance/Test was specifically designed to prevent the flying public from utilizing a facility during periods when the facility is required to radiate but is considered unreliable/unusable.

b. VOR RECEIVER CHECK POINTS

(1) VOR test facility (VOT) (on selected civil and joint use airfields). VOT frequencies are listed opposite "Navigational Aids" in the Airport/Facility Directory listings in the Enroute Supplement.

(2) Certified airborne check points (on established airways and/or in the vicinity of selected VOR facilities).

(3) Certified check points on the airport surface (military and civil airfields).

(a) The VOR test facility (VOT) transmits a test signal which provides users of VOR a convenient and accurate means to determine the operational status of their receivers. The facility is designed to provide a means of checking the accuracy of a VOR receiver while the aircraft is on the ground. The radiated test signal is used by tuning the receiver to the designated frequency of the test facility. With the Course Deviation Indicator centered, the course selector shall read Zero degrees with the "To-From" indicator reading "From", or the course selector should read 180 degrees with the "To-From" indicator reading "To". Should the VOR receiver be of the automatic indicating type, the indication should be 180 degrees. (This is true for all airborne receivers except Mitchell, which will indicate Zero degrees). Two means of identification are used with the VOR radiated test signal. In some cases, a continuous series of dots are used, while in others, a continuous 1020 Megahertz tone will identify the test signal. Information concerning an individual test signal can be obtained from the local Flight Service Station.

(b) Airborne and ground check points consist of certified radials that should be received at specific points on the airport surface or over specific landmarks while airborne in the immediate vicinity of the airport. Should an error in excess of ±4 degrees be indicated through use of the ground check or ±6 degrees using the airborne check, IFR flight should not be attempted.

(c) TACAN receiver check point tolerances: Military bases normally designate a specific ground point for checking the accuracy of aircraft TACAN receivers. The tolerances for the ground check are similar to the VOR within ±4 degrees of the designated radial and within one-half mile or 3 percent of the distance to the facility, whichever is greater.

(4) The list of VOR Airborne Check Points is published in the Area Planning Documents (AP1, AP2, AP3 and AP4) under country listing.

ENROUTE

6-12 AIRWAY/ROUTES INCLUDING CONDITIONAL ROUTE INFORMATION

a. ENROUTE DESCENT

(1) An enroute descent is a descent from an enroute altitude to the final approach of an established procedure without execution of the entire Instrument Approach Procedure prescribed in the FLIP Terminal publication. The type of final approach to be flown (Precision Approach Radar, Airport Surveillance Radar, Instrument Landing System, TACAN, etc.) should be understood by the pilot and controller prior to commencing descent. An enroute descent may be requested as follows: "REQUEST ENROUTE DESCENT TO (destination airport)". This service may also be initiated by the controller, in which case he must advise the pilot of his intention to provide this service. The pilot may refuse the service in favor of a published Instrument Approach Procedure, either High or Low Altitude. Controllers are not to authorize an enroute descent if other than normal vectoring delays are anticipated. When an enroute descent is authorized, the controller may not terminate it without the consent of the pilot, except as required by a Radar outage or other emergency situations.

(2) It is the pilot's responsibility to request a High Altitude approach if an enroute descent is not desired.

(3) An enroute descent may be issued in a nonradar environment. However, Radar capability should exist which will permit the controller to vector the aircraft to the final approach course of a published High Altitude Instrument Approach Procedure or Precision Approach Radar/Airport Surveillance Radar approach. This procedure will not be used if other than normal vectoring delays are anticipated.

(4) Prior to issuance of a descent clearance below the highest Initial Approach Fix altitude established for any High Altitude Instrument Approach Procedure for the destination airport, the controller will inform the pilot:

(a) Type of approach to expect.

(b) Radar vectors will be provided to the final approach course.

(c) Current weather whenever the ceiling is below either 1,000 feet (1,500 feet for Air Force controllers) or the highest circling minimum (whichever is greater), or when the visibility is less than 3 miles.

b. SFA-UHF SINGLE FREQUENCY APPROACH - This service is provided to single-piloted jet aircraft on an IFR flight plan during the hours of darkness or when the aircraft is in instrument weather conditions. The abbreviation "SFA" will be shown after the heading "COMMUNICATIONS" in the Enroute Supplement when procedures have been implemented by that station. Pilots receiving this service will not be required to change frequency from beginning of penetration to touchdown, except that pilots conducting an enroute descent are required to change frequency when control is transferred from the Air Route Traffic Control Center to the Terminal facility. Controllers may discontinue the service to all pilots who cancel IFR flight plans during daylight hours and to those pilots in level flight who cancel IFR flight plans at night.

TERMINAL

6-13 TERMINAL AREA PROCEDURES

a. USE OF GREEN ANTI-COLLISION LIGHTS BY USN/USMC AIRCRAFT - USN/USMC aircraft have been authorized to display green anti-collision light(s) for the purpose of identifying aircraft involved in aerial refueling Operations. When displayed, subject anti-collision light(s) will be used in conjunction with standard position lights.

b. ILS CRITICAL AREAS - Erratic Instrument Landing System signals may occur when aircraft and/or vehicles are located near the Glide Slope or localizer antennas. When landing or departing aircraft pass over the antennas, the signal may also be temporarily affected. When interference occurs, it can adversely affect aircraft flying a coupled (Instrument Landing System signal tied in with the aircraft autopilot) or autoland Instrument Landing System approach. Aircrews need to advise the Air Traffic Control agency, prior to reaching the FAF (Final Approach Fix), when a coupled or autoland approach is being conducted. Air traffic controllers will furnish safety advisories to these aircraft when aircraft or vehicles are in or over the designated Instrument Landing System critical area. The phraseology used by the controller will be: "Localizer/Glide signal not protected."

c. VISUAL APPROACH SLOPE INDICATOR

(1) The Visual Approach Slope Indicator (VASI), is designed to provide by visual reference the same information that the Glide Slope unit of an Instrument Landing System provides electrically. If the VASI Glide Slope is flown with correct power settings and airspeed, touchdown will be made in the normal touchdown area.

(2) The VASI is aligned to provide a Visual Glide Slope of 2.5 degrees to 3 degrees from horizontal. A 2.5 degree Glide Slope will be 266 feet at a distance of 1.0 nautical miles, and 1329 feet at a distance of 5.0 nautical miles. A 3 degree Glide Slope will be 318 feet at a distance of 1.0 nautical miles, and 1593 feet at a distance of 5.0 nautical miles. Only the Final Approach Course and Transition Areas are protected for Obstruction Clearance.

(3) The VASI Glide Slope is normally aligned to coincide with the Instrument Landing System and Precision Approach Radar Glide Slope, where these facilities are located on the same runway. In cases where the Glide Slope angles differ, deviations will be shown in the applicable Enroute Supplement under "Service."

(4) In order to conduct a VASI approach, align the aircraft with the runway or runway lights approximately 250-300 feet elevation for each mile distance from the airport. When the Glide Path is intercepted the pilot will see the near bars as white, and the far bars as red. A position below the Glide Path will cause both bars to be red, and a high position will cause both bars to be white. A departure from the Glide Path is indicated to the pilot by a transition in color from red through pink to white (high) or vice versa (low). The lights are arranged so that the pilot will see the following:

(a) Standard Federal Aviation Administration 2-Bar VASI

1 Above Glide Path White White
White White

2 On Glide Path Red Red
White White

3 Below Glide Path Red Red
Red Red

(b) 3-Bar VASI

1 Above both Glide Paths White White
White White
White White

2 On upwind Glide Path Red Red
White White
White White

3 On downwind Glide Path Red Red
Red Red
White White

4 Below both Glide Paths Red Red
Red Red
Red Red

(5) The intensity of VASI at civil facilities can be adjusted by the controller at pilots request. USAF Installations are automatically adjusted by a photo-electric cell. USAF/USN VASI lights remain on continuously except where a hazard is created by this condition. Such conditions will be included in the appropriate listing in the Enroute Supplement.

(6) Tri-color visual Approach Indicators have been installed at general aviation and air carrier airports. The Tri-color Approach Slope Indicator normally consists of a single light unit, projecting a three-color visual approach path into the final approach area of the runway upon which the system is installed. In all of these systems, a below Glide Path indication is red, the above Glide Path indication is amber and the on path indication is green. Presently installed Tri-color VASIs are low candlepower projector-type systems. Research tests indicate that these systems generally have a daytime useful range of approximately 1/2 to 1 mile. Nighttime useful range, depending upon visibility conditions, varies from 1 to 5 miles. Projector-type VASIs may be initially difficult to locate in flight due to their small light source. Once the light source is acquired, however, it will provide accurate vertical guidance to the runway. Pilots should be aware that this yellow-green-red configuration produces a yellow-green transition light beam between the yellow and green primary light segments and an anomalous yellow transition light beam between the green and red primary light segments. This anomalous yellow signal could cause confusion with the primary yellow "too-high" signal.

d. LOW COST VISUAL APPROACH SLOPE INDICATOR (LCVASI)

(1) Visual reference available to the pilot using LCVASI are different from those provided by standard VASI. Pilots must understand how LCVASI operates as well as its capabilities and limitations.

(2) LCVASI consists of 3 sets of 4 white lights on 3 mounts usually installed on only one side of the runway. The rear set of lights, A is the "Glide Slope indicating" set of lights and is installed abeam the touchdown point, while the front set of lights, B, are the "reference" set of lights and are installed nearer the runway threshold. Where LCVASI are installed, the FLIP Enroute Supplement, should contain a remark in the Airport/Facility Direct stating, for example, "LCVASI L Runway 26- See FLIP Planning (GP)" to indicate that LCVASI is installed on the left side of Runway 26. and that the pilot should consult General Planning for proper procedures for using LCVASI.

(3) Glide Path information provided by LCVASI does not directly inform the pilot how low or high he is in relation to on-glide as does the color coding of standard VASI. Rather, LCVASI indicates, on, above, or below the Glide Path and depends upon the pilot's interpretation of the light pattern. The aircraft position relative to the Glide Path is represented by the middle set of lights: if the middle set of lights is low, the aircraft is low: and, if the middle set of lights is high, the aircraft is high. The more the center set of lights is displaced from the straight-line on-glide indication, the greater the deviation from on-glide.

(4) There are certain limitations to LCVASI that pilots must be aware of to safely use the system. The system should only be used when the aircraft is on final and aligned with approximately ±5 degrees of the runway. If used during the turn to final or when not aligned with the runway, the rear set of lights will appear behind or to the outside of the front set of lights. This can result in reverse or confusing interpretations of the system. The usable range of LCVASI is approximately 1/2 to 2 nautical miles. Glide Path deviations are easily discernible within approximately 1 nautical mile of touchdown. To properly fly the system corrections to Glide Path should be made as soon as the pilot determines that he is seeing a high or low indication. Since there is currently no definite method of determining how high or how low a given indication of Glide Path deviation is, pilots should use other reference available on final to supplement LCVASI information. LCVASI is capable of providing on-glide indications to within 1/2 to 1 degree of Glide Path within approximately 2 nautical miles of touchdown.

e. AIRCRAFT WAKE TURBULENCE

(1) Phenomena resulting from the passage of an aircraft through the atmosphere. The term includes vortices, thrust stream turbulence, jet wash, propeller wash and rotor wash, both on the ground and in the air. The three basic effects of wake turbulence on a following aircraft are imposed roll, loss of altitude or rate of climb and possible structural stress.

(a) Jet engine blast (thrust stream turbulence), during ground Operations, can cause damage and upsets if encountered at close range. Exhaust velocity versus distance studies at various thrust levels have shown a need for light aircraft to maintain an adequate separation during ground Operations. Below are examples of the distance required to avoid exhaust velocities of greater than 25 mph:

(b) Wing tip vortices are generated by an aircraft from the time it rotates on take-off until it touches down on landing. The strength of the vortex generated is governed by the aircraft's weight, speed and the shape of its wing. Special attention needs to be given to situations of light wind, where vortices may stay in the approach and runway touchdown areas, drift to a parallel runway or sink to the landing or take-off paths of succeeding aircraft.

(c) Aircraft take-off weight capacity is used to identify classes for the application of wake turbulence criteria separation procedures. The following classes and examples of aircraft within these classes are provided as a guide to determine the appropriate wake turbulence separation required.

1 HEAVY (255,000 pounds or more - FAA) (300,000 pounds or more - ICAO)
EXAMPLES: B-2 B-52
E-3 C-5
C-17 Boeing
747/757/767/777
KC-10 KC-135

2 LARGE (41,000 pounds to 255,000 pounds - FAA)
MEDIUM (15,500 pounds to 300,000 pounds - ICAO)
EXAMPLES: C-130 C-9
MH-53J F-15
F-16 F-117
T-43 SR-71

3 SMALL MORE THAN 12,500 (12,500 pounds to 41,000 pounds - FAA)
EXAMPLES: C-21 C-12
MH-60G U-2
T-1 T-38
NT-39 F-5

4 SMALL 12,500 OR LESS (Less than 12,500 pounds - FAA)
LIGHT (Less than 15,000 pounds - ICAO)
25 MPH VELOCITY B727 DC8 DC10
Takeoff Thrust 550 Feet 700 Feet 2100 Feet
Breakaway Thrust 200 Feet 400 Feet 850 Feet
Idle Thrust 150 Feet 100 Feet 350 Feet.
EXAMPLES: UH-1 T-3 T-43 T-37

5 Crew members of a heavy jet should include the term “HEAVY” in their call signs. Example: “REACH 452

HEAVY." This procedure is not to be used when either the major command or the user determines that association of the term "HEAVY" with the call sign may compromise the assigned mission.

6 For operations conducted behind heavy aircraft, Air Traffic Control will specify the word "HEAVY" when this information is known.

7 Controllers will, when utilizing Radar separation:

a Provide separation for IFR aircraft operating directly behind, or directly behind and less than 1,000 feet below, or following an aircraft conducting an instrument approach by:

(1) FAA: Heavy behind heavy - 4 miles
Large/heavy behind B757 - 4 miles
Small behind B757 - 5 miles
Small/large behind heavy - 5 miles

(2) ICAO: Heavy behind Heavy - 4 miles
Medium behind Heavy - 5 miles
Light behind Heavy - 6 miles
Light behind Medium - 5 miles

b Provide separation of IFR aircraft on final for the same runway will be provided the following separation at the time the preceding aircraft is over the landing threshold.

(1) FAA: Small behind large - 4 miles
Small behind B757- 5 miles
Small behind heavy - 6 miles

(2) ICAO: Heavy behind Heavy - 4 miles
Medium behind Heavy - 5 miles
Light behind Heavy - 6 miles
Light behind Medium - 5 miles

8 Additionally, appropriate time or distance intervals are provided to departing aircraft when controllers utilize Non-Radar procedures.

a FAA:

(1) Two minutes or the appropriate 4 or 5 mile radar separation when takeoff behind a heavy/B757 jet will be.

(a) From the same threshold.

(b) On a crossing runway and projected flight paths will cross.

(c) From the threshold of a parallel runway when staggered ahead of that of the adjacent runway by less than 500 feet and when the runways are separated by less than 2,500 feet

(2) 3 minute interval will be provided when a small aircraft will takeoff:

(a) From an intersection on the same runway (same or opposite direction) behind a departing large aircraft.

(b) In the opposite direction on the same runway behind a large aircraft takeoff or low/missed approach.

(c) A 3 minute interval will be provided for all aircraft taking off (same above) when the preceding aircraft is a heavy/B757 jet, and the operations are on either the same runway or parallel runways separated by less than 2,500 feet.

b ICAO:

(1) Arriving aircraft, for timed approaches, the following minima shall apply:

(a) Medium aircraft behind Heavy aircraft - 2 minutes

(b) Light aircraft behind a Heavy or Medium aircraft - 3 minutes

(2) Departing Aircraft, a minimum of 2 minutes shall be applied between a Light or Medium aircraft taking off behind a Heavy aircraft or a Light aircraft taking off behind a Medium aircraft when the aircraft are using:

(a) the same runway

(b) parallel runways if the projected flight path of the second aircraft will cross the projected flight path of the first aircraft at the same altitude or less than 300m (1000 ft) below

(c) parallel runways separated by 760m or more, if the projected flight path of the first aircraft at the same altitude or less than 300m (1000 ft) below.

(3) A separation minimum of 3 minutes shall be applied between a LIGHT or MEDIUM aircraft when taking off behind a HEAVY aircraft or a LIGHT aircraft when taking off behind a MEDIUM aircraft from:

(a) an intermediate part of the same runway; or

(b) an intermediate part of a parallel runway separated by less than 760m.

(4) Displaced landing threshold, a separation minimum of 2 minutes shall be applied between a LIGHT or MEDIUM aircraft and a HEAVY aircraft and between a LIGHT aircraft and a MEDIUM aircraft when operating on a runway with a displaced landing threshold when:

(a) a departing LIGHT or MEDIUM aircraft follows a HEAVY aircraft arrival and a departing LIGHT aircraft follows a MEDIUM aircraft arrival; or

(b) an arriving LIGHT or MEDIUM aircraft follows a HEAVY aircraft departure and an arriving LIGHT aircraft follows a MEDIUM aircraft departure if the projected flight paths are expected to cross.

(5) Opposite direction, a separation minimum of 2 minutes shall be applied between a LIGHT or MEDIUM aircraft and a HEAVY aircraft and between a LIGHT aircraft and a MEDIUM aircraft when the heavier aircraft is making a low or missed approach and the lighter aircraft is:

(a) utilizing an opposite-direction runway for take-off; or

(b) landing on the same runway in the opposite direction, or on parallel opposite-direction runway separated by less than 760m

Note: When operating outside the United States, expect ICAO standards.

(d) VORTEX AVOIDANCE PROCEDURES

1 General. Under certain conditions, airport traffic controllers apply procedures for separating aircraft from heavy jet aircraft. The controllers will also provide VFR aircraft, with whom they are in communication and which in the tower's opinion may be adversely affected by wake turbulence from a large aircraft, the position, altitude and direction of flight of the large aircraft followed by the phrase "CAUTION, WAKE TURBULENCE." whether or not a warning has been given, however, the pilot is expected to adjust his Operations and flight path as necessary to preclude serious wake encounters.

2 The following vortex avoidance procedures are recommended for the various situations:

a Landing behind a large aircraft - same runway: Stay at or above the large aircraft's final approach flight path. Note his touchdown point, land beyond it.

b Landing behind a large aircraft - when parallel runway is closer than 2500 feet: consider possible drift to your runway. Stay at or above the large aircraft's final approach flight path. Note his touchdown point.

c Landing behind a large aircraft; crossing runway: Cross above the large aircraft's flight path.

d Landing behind a departing large aircraft; same runway: Note large aircraft's rotation point. Land well prior to rotation point.

e Landing behind a departing large aircraft crossing runway: Note large aircraft's rotation point, if past the intersection, continue the approach, land prior to the intersection. If large aircraft rotates prior to the intersection, avoid flight below the large aircraft's flight path. Abandon the approach unless a landing is assured well before reaching the intersection.

f Departing behind a large aircraft: Note large aircraft's rotation point. Rotate prior to large aircraft's rotation point, continue climb above and stay upwind of the large aircraft's climb path until turning clear of his wake. Avoid subsequent headings which will cross below and behind a large aircraft. Be alert for any critical take-off situation which could lead to a vortex encounter.

g Intersection take-off; same runway: Be alert to adjacent large aircraft Operations particularly upwind of your runway. If intersection take-off clearance is received, avoid subsequent heading which will cross below a large aircraft's path.

h Departing or landing after a large aircraft executing a Low/missed approach, or touch-and-go landing or whose final approach or take-off flight path crosses over the runway of intended use: Because vortices settle and move laterally near the ground, the vortex hazard may exist along the runway and in your flight path after a large aircraft has executed a low missed approach or a touch-and-go landing, particularly in light quartering wind conditions. You should assure that an interval of at least 2 minutes has elapsed before your take-off or landing.

i Enroute VFR - (thousand foot altitude plus 500 feet). Avoid flight below and behind a large aircraft's path. If a large aircraft is observed above on the same track (meeting or overtaking) adjust your position laterally, preferably upwind.

(e) Rotor vortices are helicopter generated. A helicopter hovering can generate a downwash from its main rotor(s) similar to the propeller blast of conventional aircraft. In forward flight, this energy is transformed into a pair of trailing vortices similar to wing tip vortices. Pilots of small aircraft and helicopters should avoid both the vortices and downwash of heavy helicopter.

(2) PILOT RESPONSIBILITY - Pilots are reminded that in Operations conducted behind all aircraft, acceptance from Air Traffic Control of:

(a) Traffic information, or

(b) Instructions to follow an aircraft, or

(c) The acceptance of a visual approach clearance is an acknowledgement that the pilot will ensure safe take-off and landing intervals and accepts the responsibility of providing his own wake turbulence separation.

f. HOLDING PROCEDURES

(1) AIRSPEED - Pilots will not exceed the following maximum airspeeds while in the holding pattern unless depicted otherwise. If the situation requires an airspeed greater than the maximum allowed for holding, notify Air Traffic Control so that appropriated separation may be applied.

All Aircraft

0-6000' MSL. . . . . 200 KIAS
above 6000' MSL-14,000' MSL . . . . . 230 KIAS
above 14,000' MSL . . . . . 265 KIAS

Exceptions:

(a) Holding patterns at USAF airfields only - 310 KIAS maximum unless otherwise depicted.

(b) Holding patterns at Navy airfields only - 230 KIAS maximum all altitudes unless otherwise depicted.

(c) Copter/STOL only approaches 100 KIAS.

(2) HOLDING (FEDERAL AVIATION ADMINISTRATION).

(a) Whenever an aircraft is cleared to a fix other than the destination airport and delay is expected, it is the responsibility of the Air Traffic Control controller to issue complete holding instructions (unless the pattern is charted*), an Expect Further Clearance time and the best estimate of any additional enroute/terminal delay.

(b) If the holding pattern is charted and the controller doesn't issue complete holding instructions, the pilot is expected to hold as depicted on the appropriate chart.* Holding instructions that contain only the holding direction (i.e., "Hold East") inform pilots that the pattern is charted.

*NOTE: Only those holding patterns depicted on United States Government Low/High Altitude Enroute, Area/Terminal charts or STARs should be used.

(c) If no holding pattern is charted and holding instructions have not been issued, ask Air Traffic Control for holding instructions prior to reaching the fix. This procedure will eliminate the possibility of entering a holding pattern other than that desired by Air Traffic Control. If unable to obtain holding instructions prior to reaching the fix (due to frequency congestion, stuck microphone, etc.), hold in a standard pattern on the course on which you approach the fix and request further clearance as soon as possible. In this event, the altitude/Flight Level of the aircraft at the clearance limit will be protected so that separation will be provided as required.

(d) When an aircraft is 3 minutes or less from a clearance limit and a clearance beyond the fix has not been received, the pilot is expected to start a speed reduction in order to cross the fix at or below the maximum holding airspeed.

(e) When no delay is expected, the controller should issue a clearance beyond the fix as soon as possible and, whenever possible, at least 5 minutes before the aircraft reaches the clearance limit.

(f) Pilots should report to Air Traffic Control the time and altitude/Flight Level at which the aircraft reaches the clearance limit and report leaving the clearance limit.

(g) Patterns at the most generally used holding fixes are depicted (charted) on United States Government Low or High Altitude Enroute, Area/Terminal charts and STARs. Pilots are expected to hold in the pattern depicted unless specifically advised otherwise by Air Traffic Control.

(h) An Air Traffic Control clearance requiring an aircraft to hold at a fix where the pattern is not charted will include the following information:

1 Direction of holding from the fix in terms of the eight cardinal compass points (i.e., North, Northeast, East, Southeast, etc.).

2 Holding fix (the fix may be omitted if included at the beginning of the transmission as the clearance limit).

3 Radial, course, bearing, airway or route on which the aircraft is to hold.

4 Leg length in miles if Distant Measuring Equipment or Area Navigation is to be used (leg length will be specified in minutes on pilot request or if the controller considers it necessary).

5 Direction of turn if left turns are to be made, the pilot requests, or the controller considers it necessary.

6 Time to expect further clearance and any pertinent additional delay information.

(i) For additional holding procedures, see applicable service directives.

NOTE: In the event of two-way communications failure, comply with procedures in the Flight Information Handbook.

ADDITIONAL INFORMATION

6-14 RADAR ASSISTED FLIGHT INFORMATION SERVICES

a. VFR ADVISORY SERVICE

(1) VFR advisory service is provided by numerous nonradar Approach Control facilities to those pilots intending to land at an airport served by an Approach Control Tower. This service includes: wind, runway, traffic and NOTAM information, unless this information is contained in the Automatic Terminal Information Service broadcast and the pilot indicates he has received the Automatic Terminal Information Service information.

(2) Such information will be furnished upon initial contact with concerned Approach Control facility. The pilot will be requested to change to the tower frequency at a predetermined time or point, to receive further landing information.

(3) Where available, use of this procedure will not hinder the operation of VFR flights by requiring excessive spacing between aircraft or devious routing. Radio contact points will be based on time or distance rather than on landmarks.

(4) Compliance with this procedure is not mandatory but pilot participation is encouraged.

b. RADAR ATC PROCEDURES -
Ordinarily, flights which are directed by Radar will be vectored over routes which overlie navigation courses established by other Navigation Aids, i.e., VOR/VORTAC/TACAN and Low/Medium Frequency. If a pilot is given a vector taking his aircraft off a previously assigned non-Radar route, he will be advised briefly what the vector is to achieve. Thereafter, Radar service will not be terminated until the aircraft is re-established within the airspace to be protected for the airway or route being flown, or on an assigned heading which will intercept the desired radial, course, or bearing within a reasonable distance, and the pilot informed of his position. The position advisory may be deleted for DME equipped aircraft.

(1) When a flight has a malfunctioning directional gyro, the pilot will be advised of the type of vector; "this will be a no-gyro vector." The pilot will be issued the direction of turn and when to stop turn; "turn left/right, stop turn."

(2) SPEED ADJUSTMENT PROCEDURES - Air traffic controllers will keep speed adjustments to the minimum necessary to achieve or maintain required or desired spacing and will avoid adjustments which require alternate decreases and increases. Pilots will be permitted to resume normal speeds when previously specified adjustments are no longer needed.

NOTE: It is the pilot's responsibility and prerogative to refuse speed adjustments considered excessive or contrary to the aircraft's operating specifications.

(a) Speed adjustments to aircraft will not be assigned:

1 At or above FL290 without pilot consent.

2 While executing a published High Altitude Instrument Approach Procedure.

3 While in a holding pattern.

4 While inside the Final Approach Fix on final or a point 5 miles from the runway, whichever is closer to the runway.

(b) Approach clearances cancel any previously assigned speed adjustments. Pilots are expected to make their own speed adjustments to complete the approach unless the adjustments are restated.

(c) If required, previously issued speed adjustments shall be restated by Air Traffic Control at the time approach clearance is issued.

(3) ALTITUDE VERIFICATION PROCEDURES - After receiving a revised clearance or an approach clearance, prior to final approach descent, all military pilots will report the newly assigned/designated altitude when they report vacating the previously assigned altitude/Flight Level or when they acknowledge an approach clearance; e.g. Army 12706 leaving two thousand five hundred for one thousand seven hundred; Pacer 82 cleared for the High TACAN Runway 36 approach, leaving FL240 for one six thousand; Pacer 82 cleared for the VOR-DME Runway 12 approach, leaving seven thousand for three thousand four hundred.

(4) MINIMUM VECTORING ALTITUDES (MVA) - Are established for use by Air Traffic Control when Radar Air Traffic Control is exercised. Minimum vectoring altitudes are determined by applying 1000 feet above the highest obstruction in non-mountainous areas and 2000 feet in mountainous areas. Where lower MVAs are required in designated mountainous areas to achieve compatibility with terminal routes or to permit vectoring to an Instrument Approach Procedure, 1000 feet clearance may be authorized by Air Traffic Control. While being Radar vectored, IFR altitude assigned by Air Traffic Control will be at or above the MVA.

(5) LOW ALTITUDE ALERTS (FEDERAL AVIATION ADMINISTRATION) - Air Traffic Control will issue low altitude alerts to pilots of Radar identified aircraft if the controller observes an automatic altitude report on Radar showing the aircraft to be at an altitude, which in. the controller's judgment, places the aircraft in unsafe proximity to terrain/obstructions. The provision of this service is contingent upon the capability of the controller to observe the unsafe condition. The low altitude alert will be issued as follows: "Tall 01, low altitude alert, check your altitude immediately."

c. RADAR ASSISTANCE TO VFR AIRCRAFT

(1) Radar equipped Federal Aviation Administration and USAF Air Traffic Control facilities provide Radar assistance and navigation service (vectors) to VFR aircraft provided the aircraft can communicate with the facility, are within Radar coverage, and can be Radar identified.

(2) Pilots should clearly understand that authorization to proceed in accordance with such Radar navigational assistance does not constitute authorization for the pilot to violate Federal Air Regulations. In effect, assistance provided is on the basis that navigational guidance information issued is advisory in nature and the responsibility of flying the aircraft safely, remains with the pilot.

(3) In many cases, the controller will be unable to determine if flight into instrument conditions will result from his instructions. To avoid possible hazards resulting from being vectored into IFR conditions, pilots should keep the controller advised of the weather conditions in which he is operating and along the course ahead. Controllers will vector VFR aircraft only when one of the following conditions exist.

(a) The controller suggests the vector and the pilot concurs.

(b) A special program has been established and vectoring service has been advertised.

(c) In the controller's judgment the vector is necessary for air safety.

(d) The pilot requests the vector.

(4) Radar navigation assistance (vectors) and other Radar derived information may be provided in response to pilot requests. Pilots should understand, however, that provision of service under these conditions is not mandatory. It depends on whether the controller can fit it in along with higher priority duties. Many factors, such as limitations of Radar, volume of traffic, communications frequency congestion, and controller workload could prevent the controller from providing it. The controller has complete discretion for determining if he is able to provide the service in a particular case. His decision not to provide the service in a particular case is not subject to question.

d. TERMINAL RADAR PROGRAMS FOR VFR AIRCRAFT

(1) BASIC RADAR SERVICE FOR VFR AIRCRAFT

(a) Basic Radar service provides traffic information and limited vectoring to VFR aircraft on a work load permitting basis.

(b) Vectoring service may be provided when requested by the pilot or with pilot concurrence when suggested by Air Traffic Control.

(c) Pilots of arriving aircraft should contact Approach Control on the publicized frequency listed in the IFR Supplement, give their position, altitude, Radar beacon code (if transponder equipped), destination and request traffic information.

(d) Approach Control will issue wind and runway, except when the pilot states "HAVE NUMBERS" or this information is contained in the Automatic Terminal Information Service broadcast and the pilot indicates he has received the Automatic Terminal Information Service information. Traffic information is provided on a workload permitting basis. Approach Control will specify the time or place at which the pilot is to contact the tower on local control frequency for further landing information. Upon being told to contact the tower, Radar service is automatically terminated.

(2) PILOTS OPERATING VFR IN A TERMINAL RADAR SERVICE AREA

(a) Must maintain an altitude when assigned by Air Traffic Control unless the altitude assignment is to maintain at or below a specified altitude. When the altitude assignment is no longer needed for separation or when leaving the Terminal Radar Service Area, the instruction will be broadcast, "Resume appropriate VFR altitudes." Pilots must then return to an altitude that conforms to Federal Air Regulations 91.109, VFR semi-circular rule, as soon as practicable.

(b) When not assigned an altitude should coordinate with Air Traffic Control prior to any altitude change.

(3) STAGE III SERVICE (RADAR SEQUENCING AND SEPARATION SERVICE FOR VFR AIRCRAFT)

(a) The TRSA is contained in a Radar environment and control is predicated thereon; however, this does not preclude application of nonradar separation when required or deemed appropriate. The type of separation used will depend on prevailing conditions (traffic volume, type of aircraft, ceiling and visibility, etc.).

(b) Within the Terminal Radar Service Area, traffic information on observed but unidentified targets will, to the extent possible, be provided all IFR and participating VFR aircraft. At the request of the pilot, vectoring will be provided to avoid the observed traffic, insofar as possible, provided the aircraft to be vectored is within the airspace under the jurisdiction of the controller.

(c) Departing aircraft should inform Air Traffic Control of their intended destination and/or route of flight and proposed cruising altitude.

(4) Pilots responsibility: These programs are not to be interpreted as relieving pilots of their responsibilities to see and avoid other traffic operating in basic VFR weather conditions, to maintain appropriate terrain and obstruction clearance, or to remain in weather conditions equal to or better than the minima required by Federal Air Regulations 91.155. whenever compliance with an assigned route, heading and/or altitude is likely to comprise said pilot responsibility respecting terrain and obstruction clearance and weather minima, Approach Control should be so advised and a revised clearance or instruction obtained.

INTENTIONALLY
LEFT
BLANK

Chapter 7

INTERNATIONAL CIVIL AVIATION ORGANIZATION

SECTION A - ORGANIZATION OF THE ICAO

7-1 GENERAL - ICAO, with Headquarters in Montreal, Canada, was established 4 April 1947 when 26 Nations ratified the Convention. It then became affiliated with the United Nations as a specialized international body dealing with aviation matters.

7-2 ICAO MEMBER NATIONS - The following states are members of ICAO and accordingly subscribe to ICAO Rules and Procedures.

Afghanistan
Albania
Algeria
Angola
Antigua and Barbuda
Argentina
Armenia
Australia
Austria
Azerbaijan
Bahamas
Bahrain
Bangladesh
Barbados
Belgium
Belize
Benin
Bhutan
Bolivia
Bosnia and Herzegovina
Botswana
Brazil
Brunei Darussalam
Bulgaria
Burkina Faso
Burundi
Cambodia
Cameroon
Canada
Cape Verde
Central African Republic
Chad
Chile
China
Colombia
Comoros
Congo
Cook Islands
Costa Rica
Cote d'Ivoire
Croatia
Cuba
Cyprus
Czech Republic
Democratic People's Republic of Korea
Democratic Republic of the Congo
Denmark
Dominican Republic
Ecuador
Egypt
El Salvador
Equatorial Guinea
Estonia
Ethiopia
Federated States of Micronesia
Fiji
Finland
France
Gabon
Gambia
Germany
Ghana
Greece
Grenada
Guatemala
Guinea
Guinea-Bissau
Guyana
Haiti
Honduras
Hungary
Iceland
India
Indonesia
Iran (Islamic Republic of)
Iraq
Ireland
Israel
Italy
Jamaica
Japan
Jordan
Kazakhstan
Kenya
Kiribati
Kuwait
Lao People's Democratic Republic
Latvia
Lebanon
Lesotho
Liberia
Libyan Arab Jamahiriya
Lithuania
Luxembourg
Djibouti
Malawi
Malaysia
Maldives
Mali
Malta
Marshall Islands
Mauritania
Mauritius
Mexico
Moldova
Monaco
Mongolia
Morocco
Mozambique
Myanmar
Namibia
Nauru
Nepal
Netherlands
New Zealand
Nicaragua
Niger
Nigeria
Norway
Oman
Pakistan
Panama
Papua New Guinea
Paraguay
Peru
Philippines
Poland
Portugal
Qatar
Republic of Korea
Romania
Russian Federation
Rwanda
Saint Lucia
Saint Vincent and the Grenadines
Madagascar
San Marino
Sao Tome and Principe
Saudi Arabia
Senegal
Seychelles
Sierra Leone
Singapore
Slovenia
Solomon Islands
Somalia
South Africa
Spain
Sri Lanka
Sudan
Suriname
Swaziland
Sweden
Switzerland
Syrian Arab Republic
Thailand
Togo
Tonga
Trinidad and Tabago
Tunisia
Turkey
Uganda
Ukraine
United Arab Emirates
United Kingdom
United Republic of Tanzania
United States
Uruguay
Uzbekistan
Vanuatu
Venezuela
Viet Nam
Yemen
Zambia
Zimbabwe

7-3 COMPLIANCE WITH ICAO PROCEDURES - Although ICAO rules and procedures are binding upon International Civil Aviation only; Military Aircraft are expected to avoid conflicting with National Regulations. Some countries issue special regulations for military aircraft, usually applicable to flights outside Controlled Airspace. For flights in Controlled Airspace, it is usually necessary to conform fully with Civil Procedures. The requirement for compliance with ICAO procedures is described in Federal Air Regulations 91.1(b), General Operating and Flight Rules.

NOTE: When missions are of such a highly classified nature that any advance notification to the ICAO Air Traffic Center would be prejudicial to the national security, no notification will be given. All operational Commanders should carefully evaluate such flights and weigh the need for security versus safety of flight. Nothing in ICAO regulations is intended to curtail or restrict an operational Commander in the control of flights for which higher authority holds him responsible.

7-4 COMPATIBILITY OF ICAO PROCEDURES - The rules of the air promulgated by ICAO and those contained in United States military flying regulations are compatible but not identical. Where minor differences exist, the following will be used as a guide to determine which procedures shall be applied.

a. USAF pilots flying over United States territories and possessions shall comply with AFI 11-202 Vol 3; Naval aviators shall comply with OPNAVINST 3710.7 (latest series). Coast Guard aviators shall comply with COMDTINST M3710.1.

b. United States military pilots flying over a Contracting State of ICAO shall comply with the national procedures of the country (with exceptions noted under paragraph a. above) which are ICAO rules of the air as modified by the differences registered with ICAO of the country being overflown and any appropriate provisions of bilateral agreements the United States may have with that country.

c. United States military pilots flying over the foreign country which is not a Contracting State of ICAO shall comply with the national practices of that country and any special provisions of the bilateral agreements the United States may have with that country. in the absence of any national practice or bilateral agreements governing rules of the air, the ICAO rules and procedures shall be followed.

d. During routine Operations United States military pilots, when flying over the high seas, shall comply with ICAO rules and procedures. United States Naval aviators shall comply with procedures as set forth in current OPNAVINST 3770.4.

7-5 TERRITORIAL APPLICATION OF ICAO PROCEDURES - The ICAO has recommended standard terms and procedures for aircraft Operations on an international basis. The various countries which subscribe to ICAO have implemented these terms and procedures with variations or deviations according to their own international relations, national regulations and needs. This chapter will present standard ICAO rules and procedures applicable on a worldwide basis. When there are national deviations from standard ICAO procedures, which are filed with ICAO, these differences will be noted in the individual country listing in the applicable DoD FLIP, AREA PLANNING (AP 1, 2, 3 and 4) Enroute Charts and in the Flight Information Handbook (FIH).

7-6 ICAO AIR TRAFFIC SERVICES - There are eight designated ICAO Regions throughout the world which are shown on the ICAO Regional Chart. For the purpose of assisting and controlling aircraft within each ICAO Region, the airspace has been further divided into Information Regions and Controlled Airspace. The basic breakdown of the ICAO Region begins with the Flight Information Region (FIRs).

a. A Flight Information Region is an airspace of defined dimensions within which Flight Information Service (FIS) and Alerting Service is provided. This service is used basically to notify appropriate organizations regarding aircraft in need of assistance. It is provided either by a Flight Information Center (FIC) or an Area Control Center (ACC).

(1) In some instances, Upper Flight Information Regions (UIRs) have been established above the Flight Information Regions. The Upper Information Region and Flight Information Region have the same basic function, yet the Upper Information Region may cover a number of Flight Information Regions. The lower limit of the Upper Information Region is normally coincident with the upper limit of the Flight Information Regions which they cover. Usually the Flight Information Center or Area Control Center of one of the underlying Flight Information Regions furnishes the appropriate provisions of the Air Traffic Service within the Upper Information Region.

(2) Flight Information Service is established for the purpose of providing advice and information useful to the safe and efficient conduct of flight. Air Traffic Control is not provided. Flight Information Service will use the terms "Advise" or "Suggest" in ground to air communications to preclude mandatory compliance. The service provided includes Sigmets, Navigational Aids status, airfield conditions and any other information likely to affect safety. Service to IFR flights shall also include weather conditions at departure, destination and alternate airports; traffic hazards to aircraft operating outside Control Areas/Zones; and for overwater flights, when practicable and when requested by the pilot, information on surface craft in the area. Service to VFR flights shall also include weather conditions along the route of flight which are likely to make VFR Operations impractical. (NOTE: Flight Information Service does not relieve the pilot-in-command of any of his responsibilities. The final decision regarding suggestions to alter flight remains with the pilot.

b. When Air Traffic Control is implemented within the airspace of an Flight Information Region, the area is designated as Control Area/Flight Information Region. In some areas, the CTAs (Control Areas) may cover only a portion of the Flight Information Region. The Area Control Center will exercise positive control within that portion designated at Control Area, but furnish only Flight Information Service within the remainder of the Flight Information Region. Air Traffic Control service takes precedence over Flight Information Service within these areas.

c. Controlled airspace is established according to the needs and available facilities in different areas. It is an airspace of defined dimensions within which Air Traffic Control service is provided. Controlled airspace may appear in various forms.

(1) A Control Area (CTA) is an airspace of defined dimensions extending upwards from a specified height above the earth. The Lower Limit is not less than 200 meters, or in some cases, 700 feet above the earth. The Lower Limit does not necessarily have to be established uniformly in a given CTA. It may laterally encompass an entire Flight Information Region or only a portion of one, or it may extend along designated airways. An upper limit is established when Air Traffic Control will not be provided above such limit, or the CTA, is situated below an Upper CTA (UTA). This situation is similar to the Flight Information Region/Upper Information Region relationship previously described. They both have common functions and the UTA may cover several CTAs, Flight Information Regions or portions thereof.

(2) A Control Zone (CTLZ) laterally encompasses those portions of the airspace not within Control Areas, containing the paths of IFR flight arriving and departing airports. A CTLZ's lower limit is the ground, and if located within the lateral limits of a Control Area, extends vertically to at least the lower limit of the Control Area.

(3) A Terminal Control Area (TCA) is a portion of a Control Area normally situated at the confluence of airways in the vicinity of one or more major airports. A TCA supplements a Control Zone and is established to protect IFR flights over a wider area in the vicinity of an airport.

(4) An Advisory Route (ADR) is merely a recommended route in uncontrolled, advisory airspace. No control will be

offered, but "advice" or "suggestions" will be made to facilitate flights. This service does not afford the degree of safety and cannot assume the same responsibility as Air Traffic Control service in respect to the avoidance of collisions. It is for the pilot to decide and to inform the unit providing this service whether or not he will comply with the advice or suggestions. When flying ADRs, entry clearance into Control Areas must still be obtained.

d. Corridors are designated by national authority and are normally the only routes in which aircraft may operate, unless otherwise specified, corridors should be considered positive control route. Uncontrolled corridors within Controlled Airspace may be provided if necessary to enable uncontrolled VFR traffic access through Controlled Airspace or to aerodromes in a Control Zone.

e. New airspace classifications were developed by ICAO to provide standard designations to airspace and Air Traffic Services worldwide. These airspace classifications are published in ICAO Annex 11 and were authorized for implementation on 14 Nov 91, but not all ICAO contracting states implemented the classifications on that date. Remaining ICAO Contracting States will implement the airspace classifications on yet undertermined future dates. ICAO Contracting States may select only those airspace classifications appropriate to their needs.

(1) Implementation of the airspace classifications by an ICAO Contracting State will be indicated in the country entry of the appropriate Area Planning book under VISUAL FLIght RULES and INSTRUMENT FLIGHT RULES, e.g., INSTRUMENT FLIght RULES. The United Kingdom has implemented the ICAO Annex 11 airspace classifications.

(2) Air Traffic Service (ATS) airspaces. Airspaces of defined dimensions, alphabetically designated, within which specific types of flights may operate and for which Air Traffic Services and rules of operation are specified. States shall select those airspace classes appropriate to their needs.

a Air Traffic Service airspaces shall be classified and designated in accordance with the following:

Class A. IFR flights only are permitted, all flights are subject to Air Traffic Control service and are separated from each other.

Class B. IFR and VFR flights are permitted, all flights are subject to Air Traffic Control service and are separated from each other.

Class C. IFR and VFR flights are permitted, all flights are subject to Air Traffic Control service and IFR flights are separated from other IFR flights and from VFR flights. VFR flights are separated from IFR flights and receive traffic information in respect of other VFR flights.

Class D. IFR and VFR flights are permitted, and all flights are subject to Air Traffic Control service, IFR flights are separated from other IFR flights and receive traffic information in respect of VFR flights, VFR flights receive traffic information in respect of all other flights.

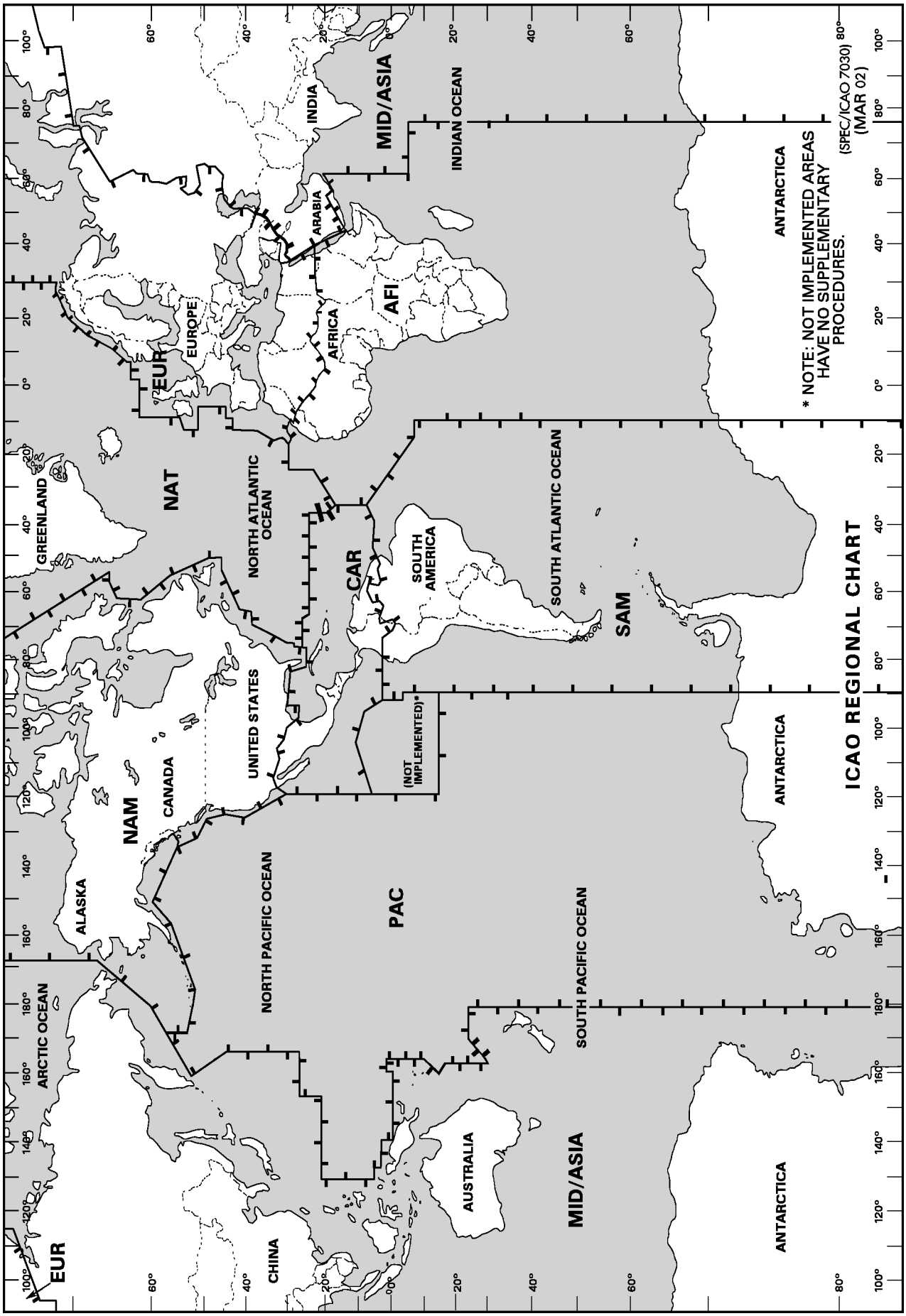
Class E. IFR and VFR flights are permitted, IFR flights are subject to Air Traffic Control service and are separated from other IFR flights. All flights receive traffic information as far as is practical.

Class F. IFR and VFR flights are permitted, all participating IFR flights receive an air traffic advisory service and all flights receive Flight Information Service if requested.

Class G. IFR and VFR flights are permitted and receive Flight Information Service if requested.

b The requirements for flights within each class of airspace shall be as shown in the following table.

NOTE - Where the proposed Air Traffic Service airspaces adjoin vertical, i.e. one above the other, flights at a common level would comply with requirements of, and be given services applicable to, the less restrictive class of airspace. In applying these criteria, Class B airspace shall therefore be considered less restrictive than Class A airspace; Class C airspace less restrictive than Class B airspace, etc.


ICAO REGIONAL CHART
(SPEC/ICAO 7030)
(MAR 02)
* NOTE: NOT IMPLEMENTED AREAS HAVE NO SUPPLEMENTARY PROCEDURES.
EUR
EUROPE
NAT
NORTH ATLANTIC OCEAN
GREENLAND
NAM
CANADA
ALASKA
UNITED STATES
CAR
SOUTH AMERICA
SOUTH ATLANTIC OCEAN
SAM
(NOT IMPLEMENTED)*
PAC
NORTH PACIFIC OCEAN
SOUTH PACIFIC OCEAN
ARCTIC OCEAN
CHINA
AUSTRALIA
MID/ASIA
INDIA
ARABIA
AFRICA
AFI
INDIAN OCEAN
ANTARCTICA

ATS AIRSPACE CLASSIFICATIONS

Class	Type of flight	Separation provided	Service provided	VMC visibility and distance from cloud minima*	Speed limitation*	Radio commu-nication requirement	Subject to an Air Traffic Control clearance
A	IFR only	All aircraft	Air traffic control service	Not applicable	Not applicable	Continuous two-way	Yes
B	IFR	All aircraft	Air traffic control service	Not applicable	Not applicable	Continuous two-way	Yes
	VFR	All aircraft	Air traffic control service	8 km (5 miles) at and above 3050 meters (10,000 ft) AMSL 5 km (3 miles) below 3050 meters (10,000 ft) AMSL Clear of clouds	Not applicable	Continuous two-way	Yes
C	IFR	IFR from IFR IFR from VFR	Air traffic control service	Not applicable	Not applicable	Continuous two-way	Yes
	VFR	VFR from IFR	1) Air traffic control service for separation from IFR: 2) VFR/VFR traffic information (and traffic avoidance advice on request)	8 km (5 miles) at and above 3050m (10,000 ft) AMSL 5 km (3 miles) below 3050m (10,000 ft) AMSL 1 500m (5000 ft) horizontal; 300m (1000 ft) vertical distance from cloud	250 kt IAS below 3050m (10,000 ft) AMSL	Continuous two-way	Yes
D	IFR	IFR from IFR	Air traffic control service including traffic information about VFR flights (and traffic avoidance advice on request)	Not applicable	250 kt IAS below 3050m (10,000 ft) AMSL	Continuous two-way	Yes
	VFR	Nil	Traffic information between VFR and IFR flights (and traffic avoidance advice on request)	8 km (5 miles) at and above 3050m (10,000 ft) AMSL 5 km (3 miles) below 3050m (10,000 ft) AMSL 1 500m (5000 ft) horizontal; 300m (1000 ft) vertical distance from cloud	250 kt IAS below 3050m (10,000 ft) AMSL	Continuous two-way	Yes
E	IFR	IFR from IFR	Air traffic control service and traffic information about VFR flights as far as practical	Not applicable	250 kt IAS below 3050m (10,000 ft) AMSL	Continuous two-way	Yes
	VFR	Nil	Traffic information as far as practical	8 km (5 miles) at and above 3050m (10,000 ft) AMSL 5 km (3 miles) below 3050m (10,000) AMSL 1 500m (5000 ft) horizontal; 300m (1000 ft) vertical distance from cloud	250 kt IAS below 3050m (10,000 ft) AMSL	No	No

7-6 ICAO PROCEDURES

Class	Type of flight	Separation provided	Service provided	VMC visibility and distance from cloud minima*	Speed limitation*	Radio commu-nication requirement	Subject to an Air Traffic Control clearance
F	IFR	IFR from IFR as far as practical	Air traffic advisory service; flight information service	Not applicable	250 kt IAS below 3050m (10,000 ft) AMSL	Continuous two-way	No
	VFR	Nil	Flight information service	8 km (5 miles) at and above 3050m (10,000 ft) AMSL 5 km (3 miles) below 3050m (10,000 ft) AMSL 1 500m (5000 ft) horizontal; 300m (1000 ft) vertical distance from cloud At and below 900m (3000 ft) AMSL or 300m (1000 ft) above terrain whichever is higher - 5 km (3 miles) clear of cloud and in sight of ground or water	250 kt IAS below 3050m (10,000 ft) AMSL	No	No
G	IFR	Nil	Flight information service	Not applicable	250 kt IAS below 3050 m (10,000 ft) AMSL	Continuous two-way	No
	VFR	Nil	Flight information service	8 km (5 miles) at and above 3050m (10,000 ft) AMSL 5 km (3 miles) below 3050m (10,000 ft) AMSL 1 500 m (5000 ft) horizontal; 300m (1000 ft) vertical distance from cloud At and below 900m (3000 ft) AMSL or 300m (1000 ft) above terrain whichever is higher - 5 km (3 miles)** clear of cloud and in sight of ground or water	250 kt IAS below 3050m (10,000 ft) AMSL	No	No

* When the height of the transition altitude is lower than 3050 meters (10,000 feet) AMSL, FL100 should be used in lieu of 10,000 feet.

** When so prescribed by the appropriate Air Traffic Service authority:

a. lower flights visibilities to 1 500 meters (5000 feet) may be permitted for flights operating:

(1) at speeds that will give adequate opportunity to observe other traffic or any obstacles in time to avoid collision; or

(2) in circumstances in which the probability of encounters with other traffic would normally be low, e.g. in areas of low traffic volume and for aerial work at low levels;

b. helicopters may be permitted to operate in less than 1 500 meters (5000 feet) flights visibility, if maneuvered at a speed that will give adequate opportunity to observe other traffic or any obstacles in time to avoid collision.

SECTION B - ICAO STANDARD PROCEDURES

7-7 GENERAL - ICAO standard rules and procedures are published in the following paragraphs. Deviations or compliances with these standards by Theater, ICAO Region, Flight Information Region/Upper Information Region, and country are explained in AP/1, AP/2, AP/3 and AP/4.

7-8 VISUAL FLIGHT RULES -

a. Refer to paragraph 7-6 for VFR and IFR criteria under the ICAO Annex 11 airspace classifications.

b. Minimum weather criteria for conducting VFR flights are shown below. Visibility and horizontal measurement is shown in statue miles.

	Above①	At or Below①
WITHIN CONTROLLED AIRSPACE		
Flight visibility	8 kilometers (5 miles)	8 kilometers (5 miles) 5 kilometers (3 miles)②
Distance from Cloud		
a. horizontal	1.5 kilometers (1 mile)	1.5 kilometers (1 mile)
b. vertical	300 meters (1000 feet)	300 meters (1000 feet)

①900 meters (3000 feet) AMSL or 300 meters (1000 feet) above terrain, whichever is higher, unless higher plane is prescribed on the basis of regional air navigation agreements or by appropriate Air Traffic Service authority.

②When so prescribed by appropriate Air Traffic Service authority.

③Helicopters may be flown when the visibility is less than 1.5 kilometers (1 mile) if operated at an airspeed that allows the pilot adequate opportunity to see any air traffic or other obstructions in time to avoid collision.

c. Unless clearance is obtained from an Air Traffic Control unit, VFR flights shall not take-off or land at an airport within a Control Zone, or enter the Airport Traffic Zone or traffic pattern when the ceiling is less than 450 meters (1500 feet) or the ground visibility is less than 8 kilometers (5 miles) or 5 kilometers (3 miles) if so prescribed by appropriate Air Traffic Service authority.

d. Unless authorized by appropriate Air Traffic Service authority, VFR flights shall not be flown:

(1) Between Sunset and Sunrise, or such other periods between Sunset and Sunrise as may be prescribed by the appropriate Air Traffic Service authority.

(2) Above FL200.

(3) At transonic and supersonic speeds.

(4) Below 150 meters (500 feet) above ground or water except when landing or taking off.

(5) Over the conjested areas of cities, towns or settlements or over an open-air assembly of persons at a height less than 300 meters (1000 feet) above the highest obstacle within a radius of 600 meters (2000 feet) from the aircraft.

e. Flights cruising above 900 meters (3000 feet) from the terrain, or a higher datum specified by the state concerned, will be conducted at a Flight Level appropriate to the track as specified in the Table of Cruising Levels in this chapter.

f. VFR flights wishing to change to IFR shall, if a flight plan was submitted, communicate the necessary changes to be effected to its current flight plan. Flight plan must be submitted to the appropriate Air Traffic Service and a clearance obtained prior to proceeding IFR within Controled Airspace.

7-9 INSTRUMENT FLIGHT RULES -

Unless otherwise authorized by appropriate Air Traffic Service authority, flights must be conducted in accordance with IFR:

a. Refer to paragraph 6-6 for VFR and IFR criteria under the ICAO Annex 11 airspace classifications.

b. When weather conditions do not permit flight under VFR, except that within Control Zones, special VFR flights may be authorized by an Air Traffic Control unit to proceed in Instrument Meteorological Conditions.

c. Regardless of weather conditions when operate between Sunset and Sunrise (or such other period between Sunset and Sunrise as may be prescribed by appropriate Air Traffic Service authority).

d. When so required by appropriate Air Traffic Service authority for operation within specified areas.

e. Above Flight Level 200.

f. At transonic and supersonic speeds.

7-10 PROCEDURES APPLICABLE TO ALL IFR FLIGHTS -

a. Aircraft shall be equipped with suitable instruments and with navigation equipment appropriate to the route to be flown.

b. Except for take-off or landing, or unless specifically authorized by appropriate Air Traffic Service authority, aircraft will not be flown at a level which is below the Minimum Flight Altitude established by each state. Where no minimum is established, aircraft shall maintain a minimum of 300 meters (1000 feet) above the highest terrain within 8 kilometers (5 miles) of the estimated position of the aircraft. In Mountainous Areas, the minimum altitude will be 600 meters (2000 feet).

NOTE: It remains the pilot's responsibility to ensure that any clearances issued by an Air Traffic Control Unit are safe in respect to minimum altitude

7-11 IFR FLIGHTS WITHIN CONTROLLED AIRSPACE -

a. A Flight plan is to be filed as required by individual states.

b. Air Traffic Control clearance to enter Controled Airspace must be obtained before entry and adherence to the clearance strictly complied with after entry.

c. Cruising Levels shall be selected from the Table of Cruising Levels in this chapter. These levels will be complied with unless otherwise indicated in appropriate Aeronautical Information Publications or Air Traffic Control clearances.

d. Establish and maintain two-way communications with the appropriate Air Traffic Control unit.

e. Position reports will be transmitted as and when required by the appropriate Air Traffic Service authority.

f. If an emergency compels deviation from the current flight plan, the controlling agency must be informed immediately.

g. It is possible air traffic control may erroneously clear non-compliant aircraft for a VOR or ILS approach. This clearance does not constitute waiver from FM immunity requirements. If cleared for an ILS or VOR approach in a non-compliant aircraft where FM Immunity requirements apply, notify the controller your aircraft is **Non-FM Immune** and request an alternate approach. If there is any doubt, do not fly the approach. NOTE: It is possible some air traffic services may require verbal notification that the aircraft is Non-FM Immune to assist in handling of air traffic.

7-12 IFR FLIGHTS OUTSIDE CONTROLLED AIRSPACE

a. Cruising levels shall be selected from the Table of Cruising Levels in this chapter, except when otherwise specified by the appropriate Air Traffic Service authority for flights at or below 900 meters (3000 feet) MSL.

b. When so prescribed by the appropriate authority, an IFR flight operating within specified areas or along specified routes outside Controlled Airspace shall file a flight plan and maintain a listening watch on the appropriate radio frequency and establish two-way communications, as necessary, with the Air Traffic Service unit providing Flight Information Service.

c. Position Reports will be transmitted at designated reporting points, or, in absence of reporting points, at certain time intervals as specified by the Air Traffic Service unit

7-13 SECONDARY SURVEILLANCE RADAR (SSR) TRANSPONDER PROCEDURES (ICAO Doc. 8168) -

a. When an aircraft carries a serviceable transponder, it shall be operated at all times during flight, regardless of whether the aircraft is within or outside airspace where SSR is used for Air Traffic Service purposes.

b. Operate the transponder and select modes and codes as directed by Air Traffic Control or as prescribed on the basis of regional air navigation agreements.

c. In the absence of any Air Traffic Control directions or regional air navigation agreements, operate the transponder on Mode A Code 2000.

d. When an aircraft is equipped with serviceable Mode C, it will be operated continuously in this mode unless otherwise directed by Air Traffic Control.

7-14 ALTIMETER SETTING - The standard altimeter setting procedures developed under ICAO are outlined in the following paragraphs.

a. TERMS

(1) QNH ALTIMETER SETTING - A QNH altimeter setting (INDICATED ABOVE MEAN SEA LEVEL) shall be made available to aircraft in taxi clearances prior to take-off. They are also made available so that the pilot may determine in flight, when necessary, whether the Flight Levels provide adequate terrain clearance. In most areas, these are added to weather broadcasts. QNH altimeter settings shall also be made available to aircraft in approach clearances and in clearances to enter the traffic circuit. QNH will read elevation of the airport when aircraft is on the ground.

(2) QFE ALTIMETER SETTING - That setting which will indicate the "HEIGHT" above the station (i.e., the altimeter will read "ZERO" when the aircraft lands at that station.) These are normally made available in landing instruction on request from the aircraft.

NOTE: Altimeter settings provided to aircraft should be rounded down to the nearest lower whole millibar.

(3) QNE ALTIMETER SETTING - The QNE setting is the standard altimeter setting. It shows the altitude above the standard datum plane (pressure altitude).

(4) TRANSITION ALTITUDE - The altitude in the vicinity of an aerodrome at or below which the vertical position of an aircraft is determined from an altimeter set to sea level pressure (QNH).

(5) TRANSITION LEVEL - The lowest Flight Level available for use above the Transition Altitude.

(6) TRANSITION LAYER - The airspace between the Transition Altitude and the Transition Level.

b. TRANSITION FROM FLIGHT LEVELS TO ALTITUDES AND VICE VERSA - The vertical position of aircraft at or below Transition Altitude shall be expressed in altitude (QNH). Vertical position at or above the Transition Level shall be expressed in terms of Flight Levels. When passing through the Transition Layer, vertical position shall be expressed in terms of Flight Levels when climbing, and in terms of altitude (QNH) when descending.

c. TAKE-OFF AND CLIMB - A QNH altimeter setting shall be provided to aircraft by Air Traffic Control prior to take-off. The vertical position of an aircraft during climb shall be by reference to altitudes until reaching the Transition Altitude above which vertical position shall be by reference to Flight Levels.

d. ENROUTE

(1) VERTICAL SEPARATION - Vertical separation and vertical position of an aircraft during enroute flight shall be expressed in terms of Flight Levels. However, on local or short range flights between adjacent airports, flights may be cleared on a QNH altimeter setting, if the entire flight is at or below the Transition Altitude of the airport concerned.

(2) CRUISING LEVELS - An aircraft shall be flown at Flight Levels specified for the airway, or if off airway at Flight Levels corresponding to the magnetic tracks, as shown on the cruising altitude diagrams in the Enroute Supplement.

(3) TERRAIN CLEARANCE - The lowest usable Flight Level providing terrain clearance and/or the prescribed minimum IFR cruising level shall be determined by Air Traffic Control and/or the pilot using QNH pressure values. QNH altimeter setting reports will be available from sufficient locations to permit determination of terrain clearance with an acceptable degree of accuracy. For those areas in which adequate QNH altimeter setting reports cannot be provided, the appropriate authority shall make available in the most usable form the information required to determine the lowest Flight Level which will assure adequate terrain clearance.

e. APPROACH AND LANDING - QNH altimeter setting will be provided to aircraft in the approach clearance. The vertical position of an aircraft during approach shall be controlled by reference to Flight Levels until reaching the Transition Level below which vertical positioning shall be by reference to altitudes.

(1) After the approach clearance has been issued and the descent to land is commenced, the vertical position of an aircraft above the Transition Level may be made by reference to altitudes (QNH) provided that level flight above the Transition Altitude is not indicated or anticipated.

NOTE: This is intended to apply primarily to turbine engine aircraft for which an uninterrupted descent from a high altitude is desirable and to airports equipped to control such aircraft by reference to altitudes throughout the descent.

f. MISSED APPROACH - Vertical position of an aircraft during missed approach will be governed by the same procedures specified for take-off and climb, enroute and approach and landing outlined in the above paragraphs. If descent is stopped above the Transition Altitude the altimeter must be reset to 29.92 (QNE) to insure adequate separation between this level and the adjacent levels above and below.

g. FLIGHT PLANNING - The levels at which a flight is to be conducted shall be specified in a flight plan.

(1) In terms of Flight Levels, if the flight is to be conducted at or above the Transition Level or the lowest usable Flight Level, whichever is applicable.

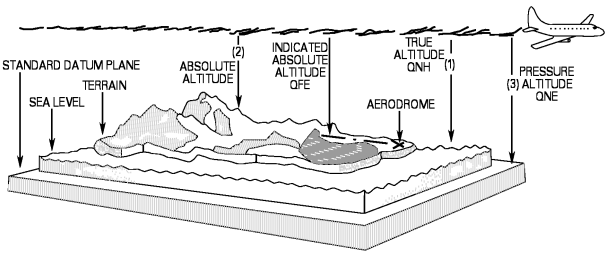
(2) In terms of altitude (QNH), if the flight is to be conducted in the vicinity of an airport or between adjacent airports at or below the Transition Altitude or altitudes concerned.

h. FLIGHT LEVELS - The Flight Level or levels selected for a flight should:

(1) Ensure adequate Terrain Clearance.

(2) Satisfy Air Traffic Control requirements.

(3) Be compatible with the cruising level requirements of the airway, or if off airway the magnetic tracks shown in the "Table of Cruising Levels" in the Enroute Supplement.



TYPES OF ALTITUDE

7-15 HOLDING PROCEDURES -

a. Pilots will not exceed the following maximum airspeeds when entering or established in the holding pattern.

Levels(1)	Normal conditions	Turbulence conditions
Up to 4,250 m (14,000 ft) inclusive	425 km/h (230kt)(2) 315 km/h(170 kt)(4)	520 km/h (280 kt)(3) 315 km/h (170 kt)(4)
Above 4,250 m (14,000 ft) to 6,100 m (20,000 ft) inclusive	445 km/h (240 kt)(5)	520 km/h (280 kt) or 0.8 Mach, whichever is less(3)
Above 6,100 m (20,000 ft) to 10,350 m (34,000 ft) inclusive	490 km/h (265 kt)(5)	
Above 10,350 m (34,000 ft)	0.83 Mach	0.83 Mach

(1) The levels tabulated represent altitudes or corresponding Flight Levels depending upon the altimeter setting in use.

(2) When the holding procedure is followed by the initial segment of an Instrument Approach Procedure promulgated at a speed higher than 425 km/h (230 kt), the holding should also be promulgated at this higher speed wherever possible.

(3) The speed of 520 km/h (280 kt) (0.8 Mach) reserved for turbulence conditions shall be used for holding only after prior clearance with Air Traffic Control, unless the relevant publications indicate that the holding area can accommodate aircraft flying at these high holding speeds.

(4) For holdings limited to CAT A and B aircraft only.

(5) Wherever possible, 520 km/h (280 kt) should be used for holding procedures associated with airway route structures.

b. Having entered the holding pattern, on the second and subsequent arrivals over the fix the aircraft is turned to fly an outbound track which will most approximately position the aircraft for the turn onto the inbound track.

c. CONTINUE OUTBOUND:

(1) For 1 minute if at 4250 meters (14,000 feet) or below or for 1 1/2 minutes if above 4250 meters (14,000 feet) where timing is specified, or

(2) Until the appropriate limiting DME is attained where distance is specified, then

d. Turn to realign the aircraft on the inbound track.

7-16 IDENTIFICATION OF AIR TRAFFIC SERVICE ROUTES -

The ICAO has recommended adoption of a system of route designators to be used to identify controlled, advisory and uncontrolled Air Traffic Service routes worldwide through the recommended use of a combination of basic designators (alphanumeric), and supplementary prefixes and suffixes (alpha only). The system provides a uniform method of route identification which relates to regional, airborne navigation capability (i. e., RNAV versus non-RNAV equipped),

airspace vertical structure, or aircraft category usage limitation considerations as follows:

a. BASIC DESIGNATORS

(1) The letters A, B, G and R are used to identify routes which form part of the regional Air Traffic Service networks, but which are not RNAV routes.

(2) The letters L, M, N and P identify RNAV routes which form part of the regional Air Traffic Service networks.

(3) The letters H, J, V and W identify routes which do not form part of the regional Air Traffic Service networks, and which are not RNAV routes.

(4) The letters Q, T, Y and Z identify RNAV routes which do not form part of the regional networks of Air Traffic Service routes.

b. SUPPLEMENTARY DESIGNATOR PREFIXES

(1) K (KOPTER) is used to identify a low level route established for use primarily by helicopters.

(2) U (UPPER) is used to indicate that the route (or portion thereof) is established in upper airspace.

(3) S (SUPERSONIC) is used to indicate a route which is established exclusively for use by supersonic aircraft during acceleration, deceleration and while in supersonic flight.

c. DESIGNATOR SUFFIXES

(1) The letter F to indicate that on the route or portion thereof advisory service only is provided.

(2) The letter G to indicate that on the route or portion thereof flight information service only is provided.

(3) For RNP 1 routes at and above FL200, the letter Y to indicate that all turns on the route between 30 and 90 degrees shall be made within the allowable RNP tolerance of a tangential arc between the straight leg segments defined with a radius of 22.5 NM (e.g. A123Y[1]).

(4) For RNP 1 routes at and below FL190, the letter Z to indicate that all turns on the route between 30 and 90 degrees shall be made within the allowable RNP tolerance of a tangential arc between the straight leg segments defined with a radius of 15 NM (e.g. G246Z[1]).

d. DESIGNATOR APPLICATIONS

ICAO recommends that Air Traffic Service route designators described above should consist of a basic alphanumeric designator, i.e., A411, which may be supplemented by one prefix as required, i.e., UA411, and/or as required by a single suffix, i.e., A411F.

e. DESIGNATOR PRONUNCIATIONS

With the exception of the descriptors "KOPTER", "UPPER" and "SUPERSONIC", the ICAO spelling (phonetic) alphabet will be used in voice communications when referring to the following Air Traffic Service route designators or suffixes:

A	=	ALFA	N	=	NOVEMBER
B	=	BRAVO	P	=	PAPA
D	=	DELTA	Q	=	QUEBEC
F	=	FOXTROT	R	=	ROMEO
G	=	GOLF	T	=	TANGO
H	=	HOTEL	V	=	VICTOR
J	=	JULIETT	W	=	WHISKEY
L	=	LIMA	Y	=	YANKEE
M	=	MIKE	Z	=	ZULU

NOTE: Some countries continue to identify Air Traffic Service routes using color designations instead of the phonetic alphabet; i.e., A - Amber, B - Blue, G - Green, etc.

7-17 VERTICAL SEPARATION -

a. CRUISING LEVEL

(1) VFR - Whenever possible aircraft on transit flights above 3000 feet Above Ground Level are to be flown at appropriate Cruising Levels.

(2) IFR - Outside Controlled Airspace under IFR aircraft are to be flown at appropriate Cruising Levels unless precluded by the nature of the operation.

(3) The cruising levels to be observed are as follows:①

TRACK②											
From 000° to 179°③						From 180° to 359°③					
IFR FLIGHTS			VFR FLIGHTS			IFR FLIGHTS			VFR FLIGHTS		
FL	ALTITUDE		FL	ALTITUDE		FL	ALTITUDE		FL	ALTITUDE	
	Meters	Feet		Meters	Feet		Meters	Feet		Meters	Feet
-90			-	-	-	0			-	-	-
10	300	1000	-	-	-	20	600	2000	-	-	-
30	900	3000	35	1050	3500	40	1200	4000	45	1350	4500
50	1500	5000	55	1700	5500	60	1850	6000	65	2000	6500
70	2150	7000	75	2300	7500	80	2450	8000	85	2600	8500
90	2750	9000	95	2900	9500	100	3050	10000	105	3200	10500
110	3350	11000	115	3500	11500	120	3650	12000	125	3800	12500
130	3950	13000	135	4100	13500	140	4250	14000	145	4400	14500
150	4550	15000	155	4700	15500	160	4900	16000	165	5050	16500
170	5200	17000	175	5350	17500	180	5500	18000	185	5650	18500
190	5800	19000	195	5950	19500	200	6100	20000	205	6250	20500
210	6400	21000	215	6550	21500	220	6700	22000	225	6850	22500
230	7000	23000	235	7150	23500	240	7300	24000	245	7450	24500
250	7600	25000	255	7750	25500	260	7900	26000	265	8100	26500
270	8250	27000	275	8400	27500	280	8550	28000	285	8700	28500
290	8850	29000	300	9150	30000	310	9450	31000	320	9750	32000
330	10050	33000	340	10350	34000	350	10650	35000	360	10950	36000
370	11300	37000	380	11600	38000	390	11900	39000	400	12200	40000
410	12500	41000	420	12800	42000	430	13100	43000	440	13400	44000
450	13700	45000	460	14000	46000	470	14350	47000	480	14650	48000
490	14950	49000	500	15250	50000	510	15500	51000	520	15850	52000
etc.	etc.	etc.	etc.	etc.	etc.	etc.	etc.	etc.	etc.	etc.	etc.

① Except when, on the basis of regional air navigation agreements, a modified table of cruising levels based on a nominal vertical separation minimum of less than 600 meters (2000 feet) but not less than 300 meters (1000 feet) is prescribed for use, under specified conditions, by aircraft operating above FL290 within designated portions of the airspace.

② Magnetic track, or in polar areas at latitudes higher than 70 degrees and within such extensions to those areas as may be prescribed by the appropriate Air Traffic Service authorities. Grid tracks are determined by a network of lines parallel to the Greenwich Meridian superimposed on a polar stereographic chart in which the direction towards the North Pole is employed as the Grid North.

③ Except where, on the basis of regional air navigation agreements, from 090 degrees to 269 degrees and from 270 degrees to 089 degrees is prescribed to accommodate predominant traffic directions and appropriate transition procedures to be associated therewith are specified.

7-18 AIR TRAFFIC CONTROL CLEARANCES -

Clearances shall contain positive and concise data and shall, as far as practicable, be phrased in a standard manner. In addition to aircraft identification, clearances shall contain the following in the order listed:

a. CLEARANCE LIMIT - A clearance limit shall be described by specifying the "Name" of the appropriate reporting point, or airport, or Controlled Airspace boundary.

b. ROUTE OF FLIGHT - The route of flight shall be detailed in each clearance when deemed necessary. The phrase "cleared via flight planned route" may be used to describe any route or portion thereof, provided the route or portion thereof is identical to that filed in the flight plan and sufficient routing details are given to definitely establish the aircraft on its route. The phrases "cleared via (designation) departure" or "cleared via (designation) arrival" may be used when standard departure or arrival routes have been established by the appropriate Air Traffic Service authority and published in Aeronautical Information Publications.

c. Levels of flight for the entire route or part thereof and changes of levels if required. Instructions included in clearances relating to levels shall consist of:

(1) Levels at which specified reporting points are to be crossed when necessary.

(2) The place or time for starting climb or descent, when necessary.

(3) The rate of climb or descent, when necessary.

(4) Detailed instructions regarding departure or approach Levels.

d. ADHERENCE TO FLIGHT PLAN - Since all Air Traffic Control clearances are predicated on known traffic, adherence to the flight plan as cleared is mandatory

7-19 EMERGENCY PROCEDURES - States of emergency are internationally classified as being of two standards:

a. DISTRESS - The aircraft is threatened by serious and imminent danger and is in need of immediate assistance.

b. URGENCY - The calling station has a very urgent message to transmit concerning the safety of an aircraft, or some person on board or within sight.

NOTE: Standard International emergency procedures and individual country exceptions to standard procedures can be found in the Flight Information Handbook (FIH).

7-20 DIMENSIONAL UNITS - Amendment 13 to ICAO Annex 5 introduced a standardized system of units of measurement based on the International System of Units (SI) and certain non-SI units considered necessary to meet the specialized requirements of international civil aviation. This amendment became effective on the 26th of November 1981. The Table A below gives the units of measurement more widely used by aircrews.

TABLE A: UNITS OF MEASUREMENT

MEASUREMENT OF	PRIMARY SI UNIT	NON-SI ALTERNATIVE UNIT
Distance used in navigation, position reporting etc - generally in excess of 4000 Meters.	KILOMETERS (km)	①NAUTICAL MILES (NM)
Relatively short distances such as those relating to aerodromes (e.g. runway lengths)	METERS (m)	FEET (ft)
Altitudes, elevations and heights.	METERS (m)	FEET (ft)
Horizontal speed including wind speed.	KILOMETERS/PER HOUR (km/h)	KNOTS (kt)
Vertical Speed.	METERS PER SECOND (m/s)	FEET PER MINUTE (ft/min)
Wind direction for landing and taking off.	DEGREES MAGNETIC (°m)	DEGREES MAGNETIC (°m)
Wind direction except for landing and taking off.	DEGREES TRUE (°T)	DEGREES TRUE (°T)
Visibility (over 5 kilometers).	KILOMETERS (km)	KILOMETERS (km)
Visibility (Less than 5 kilometers) including runway visual range.	METERS (m)	METERS (m)
Altimeter setting.	②HECTO PASCALS (hPa)	MILLIBARS (mb)
Temperature.	DEGREES CELSIUS (°C) (CENTIGRADE)	DEGREES CELSIUS (°C) (CENTIGRADE)
Weight.	METRIC TONS (t) or KILOGRAMS (kg)	METRIC TONS (t) or KILOGRAMS (kg)
Time.	HOURS & MINUTES The day of 24 hrs beginning at midnight UTC	HOURS & MINUTES The day of 24 hrs beginning at midnight UTC
Cloud altitude and height.	METERS (m)	FEET (ft)

①1 International nautical mile - 1,852 meters
②1 Millibar = 100 Pascals = (hPa)

NOTES:

1. A list of Member States with differences from the Table A units of measurement will be published when available.

2. The units listed under "NON-SI ALTERNATIVE UNIT" are those that originally appeared under "Units in Blue Table".

3. As an interim measure, until Member States have declared their differences from Table A, the old units of measurement are shown in Table B as follows:

TABLE B: UNITS OF MEASUREMENT

MEASUREMENT OF	UNITS ICAO TABLE	UNITS IN BLUE TABLE
Distance used in navigation, position reporting etc - generally in excess of 2 to 3 nautical miles.	①NAUTICAL MILES (NM) and TENTHS	①NAUTICAL MILES (NM) and TENTHS
Relatively short distances such as those relating to aerodromes (e.g. runway lengths)	METERS (m)	METERS (m)
Altitudes, elevations and heights.	METERS (m)	FEET (ft)
Horizontal speed including wind speed.	KNOTS (kt)	KNOTS (kt)
Vertical Speed.	METERS PER SECOND (m/s)	FEET PER MINUTE (ft/min)
Wind direction for landing and taking off.	DEGREES MAGNETIC (°m)	DEGREES MAGNETIC (°m)
Wind direction except for landing and taking off.	DEGREES TRUE (°T)	DEGREES TRUE (°T)
Visibility (over 5 kilometers).	KILOMETERS (km)	KILOMETERS (km)
Visibility (Less than 5 kilometers) including runway visual range.	METERS (m)	METERS (m)
Altimeter setting.	MILLIBARS (mb)	MILLIBARS (mb)
Temperature.	DEGREES CELSIUS (°C) (CENTIGRADE)	DEGREES CELSIUS (°C) (CENTIGRADE)
Weight.	METRIC TONS (t) or KILOGRAMS (kg)	METRIC TONS (t) or KILOGRAMS (kg)
Time.	HOURS & MINUTES The day of 24 hrs beginning at midnight UTC	HOURS & MINUTES The day of 24 hrs beginning at midnight UTC
Cloud altitude and height.	METERS (m)	FEET (ft)

①1 International nautical mile - 1,852 meters

NOTES:

1. The above table is used for Air-Ground Communications.

2. Meteorological transmitted e.g., METAR, SPECI, TAF, VOLMET, etc will comply with the provisions of ICAO DOC 7605-MET/562/5 and Annex 3 Attachment A and promulgate wind direction in degrees TRUE. (Plain language reports or forecasts may be expressed by reference to the cardinal points e.g., North West, South etc).

Chapter 8

OPERATIONS AND FIRINGS OVER THE HIGH SEAS

8-1 GENERAL - The information in this chapter implements DoD Directive 4540.1, "Use of Airspace by United States Military Aircraft and Firings Over the High Seas,"dated 13 January 1981. It provides guidance for the procedures to be used by United States military aircraft conducting air operations or gunnery exercises within airspace over the high seas.

8-2 APPLICABILITY - These procedures apply to all DoD components.

8-3 DEFINITIONS - (As used in this chapter).

a. MILITARY AIRCRAFT - Includes manned and unmanned aircraft, remotely piloted vehicles, and cruise missiles.

b. DoD COMPONENTS - Includes Office of the Secretary of Defense, military departments, organization of the Joint Chiefs of Staff, the unified and Specified Commands, and the Defense Agencies.

c. MILITARY SERVICES - Refers to the Army, Navy, Air Force, and Marine Corps.

8-4 POLICY -

a. Freedom of the high seas includes the right of aircraft of all nations to use the airspace over the high seas, in accordance with the Geneva Conference on Law of the Sea, 1958, and International law, this freedom must be exercised by all countries with reasonable regard for the interests of other nations.

b. The sovereignty of a state extends beyond its land area to the outer limit of its territorial seas. The United States respects the rights of coastal states in waters off their coast, as reflected in the 1982 United Nations Convention on the Law of the Sea, as long as the rights of the United States and others under International law are also respected. The United States does not recognize territorial sea claims in excess of 12 nautical miles. The airspace beyond the territorial sea is considered International airspace where permission of the coastal state is not required for overflight and related military operations. This paragraph does not supersede specific guidance that may pertain to certain operations.

c. It is the policy of the DoD that all United States military aircraft and firings shall operate with due regard for the safety of all air and surface traffic. Further, when practical and compatible with the mission, United States military aircraft operations on the high seas shall observe:

(1) International Civil Aviation Organization (ICAO) flight procedures.

(2) Reasonable warning procedures with regard to the military aircraft of all nations and the Commonwealth of Independent States in accordance with the United States-Commonwealth of Independent States agreement. (Refer to paragraph 7-6, 7-12, and 7-13 of this chapter.)

8-5 SELECTION OF OPERATING AREAS -

Flight operations shall be conducted away from high density air traffic areas, when possible. Areas for aircraft and firing activities shall be selected so as not to interfere with established air routes and ocean shipping lanes. In establishing firing exercise areas, every effort shall be made to confine activities to warning areas, altitude reservations (stationary or moving), other special use airspace, or any combination thereof. Arrangements for airspace of altitude reservations shall be made through the appropriate airspace or altitude reservation function such as Federal Aviation Administration Central Altitude Reservation Function (CARF), European Central Altitude Reservation Function EUCARF), or Pacific Military Altitude Reservation Function (PACMARF).

8-6 NOTICES TO AIRMEN - When the activity may affect the safety of nonparticipants, coordination with the controlling agency and with appropriate Air Traffic Control facilities is essential to ensure safe routing of aircraft to, from and around operating areas. The DoD shall issue NOTAMS in accordance with AR 95-10/OPNAVINST 3721.20/AFJMAN 11-208 when the activity takes place outside published special-use airspace established in FLIP AP/1A.

8-7 OPERATIONS CONDUCTED UNDER ICAO PROCEDURES -

Normally routine point-to-point and navigation flights shall follow ICAO flight procedures. Refer to Chapter 6 of this publication for the ICAO procedures.

8-8 OPERATIONS NOT CONDUCTED UNDER ICAO PROCEDURES -

a. There are certain operational situations that do not lend themselves to ICAO flight procedures such as: military contingencies; classified missions; politically sensitive missions; or routine aircraft carrier operations or other training activities. Operations not conducted under ICAO flight procedures are conducted under the "Due Regard" or "operational" prerogative of military aircraft and are subject to one or more of the following conditions:

(1) Aircraft shall be operated in Visual Meteorological conditions; or

(2) Aircraft shall be operated within radar surveillance and radio communications of a surface radar facility; or

(3) Aircraft shall be equipped with airborne radar that is sufficient to provide separation between themselves, aircraft they may be controlling, and other aircraft; or

(4) Aircraft shall be operated outside controlled airspace.

b. The above conditions provide for a level of safety equivalent to that normally given by ICAO Air Traffic Control agencies; and fulfill United States Government obligations under Article 3 of the Chicago Convention of 1944 which stipulates there must be "due regard for the safety of navigation of civil aircraft" when flight is not being conducted under ICAO flight procedures. Essentially, flight under the "Due Regard" or "operational" option obligates the military aircraft Commander to be his own Air Traffic Control agency and to separate his aircraft from all other air traffic.

c. Flight under above provisions shall be regarded as deviations from normally accepted operating procedures and

practices, and shall not be undertaken routinely. Except for pre-planned mission, pilots or Commanders exercising "Due Regard" authority shall record the details in writing, and upon request from higher authority, furnish a detailed report. Planners should reference DoD Directive 4540.1, Use of Airspace by United States Military Aircraft and Firings Over the High Seas, prior to planning missions which will exercise "Due Regard".

8-9 OPERATIONS IN FOREIGN AIR DEFENSE IDENTIFICATION ZONES (ADIZ) -

Procedures applicable to United States military aircraft penetrating a foreign ADIZ on a flight plan or intending to penetrate the sovereign airspace of the ADIZ country are published in Section C of the DoD Enroute Supplements. Military aircraft transiting through a foreign ADIZ without intending to penetrate foreign sovereign airspace are not required to follow these procedures. For operations near the national territory of Russia or in proximity to Russian military forces, consult paragraph 7-13, Prevention of Dangerous Military Activities Between the US and Russia.

8-10 PROCEDURES FOR MISSILE/PROJECTILE FIRINGS -

Firing areas shall be selected so that trajectories are clear of established oceanic air routes or areas of known surface or air activity. An exception to this operating procedure may be made when it can be ascertained that aircraft are operating above the maximum ordinate of the trajectory.

8-11 SPECIAL PROVISIONS -

a. Details of classified operations shall not be divulged to unauthorized personnel.

b. In the event of combat operations in time of war, armed conflict, national emergency, situations requiring self- defense, or similar military contingencies, departure from the operating procedures in this chapter may be required. In all such instances, however, all possible precautions shall be taken to minimize any hazard to the safety of other air and surface traffic and departure from procedures set forth in this chapter shall be of no greater extent or duration than is required to meet the contingency.

c. The United States-Commonwealth of Independent States agreement (refer to paragraph 7-12) shall govern United States aircraft approaching aircraft and ships of Commonwealth of Independent States registry operating on and over the high seas.

8-12 PREVENTION OF INCIDENTS ON OR OVER THE HIGH SEAS (INCSEA) -

a. GENERAL - The information in the following paragraphs has been contracted from the agreement between the United States and Commonwealth of Independent States "Prevention of Incidents On and Over the High Seas" dated 25 May 1972 - and the protocol to this agreement dated 22 May 1973.

b. Definitions - (as used in the United States-Commonwealth of Independent States Agreement).

(1) "Ship" means:

(a) A warship belonging to the naval forces of the United States or Commonwealth of Independent States bearing the external marks distinguishing warships of its nationality, under the command of an officer duly commissioned by the government and whose name appears in the Navy list, and manned by a crew who are under the regular naval discipline.

(b) Naval auxiliaries of the United States or Commonwealth of Independent States, which include all naval ships authorized to fly the naval auxiliary flag where such a flag has been established by either the United States or Commonwealth of Independent States.

(2) "Aircraft" means all military manned heavier-than-air and lighter-than-air aircraft, excluding space craft.

(3) "Formation" means an ordered arrangement of two or more ships proceeding together and normally maneuvered together.

c. Approaching Commonwealth of Independent States aircraft and/or ships: Commanders of United States aircraft shall use the greatest caution and prudence in approaching aircraft and ships of the Commonwealth of Independent States operating on and over the high seas, in particular, ships engaged in launching or landing aircraft, and in the interest of mutual safety shall not permit simulated attacks by the simulated use of weapons against aircraft and ships, or performance of various aerobatics over ships, or dropping various objects near them in such a manner as to be hazardous to ships or to constitute a hazard to navigation.

d. SIMULATED ATTACKS - Ships and aircraft of the United States shall not make simulated attacks by aiming guns, missile launchers, torpedo tubes and other weapons at non-military ships of the Commonwealth of Independent States nor launch nor drop any objects near non-military ships of the Commonwealth of Independent States in such a manner as to be hazardous to these ships or to constitute a hazard to navigation.

e. LAUNCHING OR LANDING AIRCRAFT - United States ships operating in sight of Commonwealth of Independent States ships shall give proper signals concerning the intent to begin launching or landing aircraft.

f. NAVIGATION LIGHTS - United States aircraft flying over the high seas in darkness or under instrument conditions shall, whenever feasible, display navigation lights.

g. NOTIFICATION OF ACTIONS - The United States unit Commander shall provide through the established system or radio broadcasts of information and warning to mariners, not less than 3 to 5 days in advance as a rule, notification of actions on the high seas which represent a danger to navigation or to aircraft in flight.

h. REPORTS OF COLLISION - The United States and Commonwealth of Independent States shall exchange appropriate information concerning instances of collisions, incidents which results in damage, or other incidents at sea between ships and aircraft of the United States and Commonwealth of Independent States. The United States Navy shall provide such information through the Russian Naval Attache in Washington and the Russian Navy shall provide such information through the United States Naval Attache in Moscow.

8-13 PREVENTION OF DANGEROUS MILITARY ACTIVITIES BETWEEN THE US AND RUSSIA -

An agreement between the United States and Russia seeks to ensure safety of the personnel and equipment of each country's armed forces by avoiding certain dangerous military activities and expeditiously and peacefully resolving related incidents. Complete instructions and procedures are contained in the FIH, Section A.

8-14 MILITARY FLIGHTS IN INTERNATIONAL AIRSPACE, INTERNATIONAL STRAITS AND ARCHIPELAGIC SEA LANES -

a. PURPOSE - To provide policies for military flights consistent with the International recognized freedoms of navigation and overflight of the seas.

b. BACKGROUND - The policies in this enclosure are long established United States Government policy. This enclosure reiterates these policies in a single document.

c. POLICY -

(1) United States Government policy is to routinely and frequently exercise United States overflight rights in International airspace. Flight operations in International airspace are exempt from diplomatic clearance requirements. Further, military aircraft operating in International airspace (whether within or outside a Flight Information Region (FIR) or Air Defense Identification Zone (ADIZ), or transiting over water through International straits or archipelagic sea lanes are not legally subject to the jurisdiction or control of Air Traffic Control authorities of a foreign country.

(2) However, United States military aircraft are obligated under Article 3 of the Chicago Convention to exercise "Due Regard for the safety of navigation of civil aircraft." As a matter of United States policy, DoD Directive 4540.1, 13 January 1981, "Use of Airspace by Military Aircraft and Firings Over the High Seas," requires United States military aircraft operating over the high seas (or transiting over water through International straits or archipelagic sea lanes) to observe International Civil Aviation Organization (ICAO) flight procedures when practical and compatible with the mission.

(3) Definitions and responsibilities within categories of airspace follow:

(a) TERRITORIAL AIRSPACE - As applied to aircraft and their crews, includes the airspace above territorial seas, internal waters, and land territory. Consistent with International law, the United States Government recognizes territorial sea claims up to a maximum distance of 12 nautical miles from coastal states baselines drawn in accordance with International law. Diplomatic overflight clearance is official permission (consent) to operate in sovereign airspace. Consent of the coastal state is required for flight within territorial airspace, except when transiting International straits or exercising the right of archipelagic sea lanes passage.

(b) INTERNATIONAL AIRSPACE - International airspace includes all airspace seaward of coastal states territorial airspace. International airspace includes airspace over contiguous zones (defined below), exclusive economic zones, and the high seas. International airspace is open to aircraft of all nations. Military aircraft may operate in such areas free of interference of control by the coastal state.

(c) INTERNATIONAL STRAITS OVERLAPPED BY TERRITORIAL SEAS - Such straits connect one part of the high seas or an exclusive economic zone and another part of the high seas or an exclusive economic zone. All aircraft have the right of transit passage through these International straits. Such transits must be continuous and expeditious. Coastal states may not legally require prior approval or notification for exercise of the right of transit passage of International straits. As a matter of United States policy, when flying Due Regard, no prior notification to coastal states will be provided when exercising the right of transit passage. When flying in accordance with ICAO rules and procedures, an ICAO flight plan may be filed with coastal state civil aviation authorities when exercising the right of transit passage. In no event, however, whether flying Due Regard or ICAO rules and procedures, will a diplomatic clearance be obtained from a coastal state for transit of an International strait.

(d) ARCHIPELAGIC SEA LANES - Archipelagic waters are those waters enclosed by the baselines drawn by an archipelagic nation. All aircraft, including military aircraft, have the right of archipelagic sea lanes passage through air routes traversing the archipelagic waters and adjacent territorial sea of an archipelagic nation. Such air routes include all normal passage routes used for International navigation through or over archipelagic waters. Archipelagic nations may not legally require prior approval or notification for exercise of the right of archipelagic sea lanes passage. As a matter of United States policy, when flying Due Regard, no prior notification to archipelagic states will be provided when exercising the right of archipelagic sea lanes passage. When flying in accordance with ICAO rules and procedures, an ICAO flight plan may be filed with archipelagic nation civil aviation authorities when exercising the right of archipelagic sea lanes passage. In no event, however, whether flying Due Regard or ICAO rules and procedures, will a diplomatic clearance be obtained from an archipelagic nation for transit of archipelagic sea lanes.

(e) CONTIGUOUS ZONE - A contiguous zone is an area seaward of the territorial sea in which the coastal state may exercise the control necessary to prevent or punish infringement of its customs, fiscal, immigration, and sanitary laws and regulations that occur within its territory or territorial sea. The contiguous zone may not extend beyond 24 nautical miles from the baseline from which the breadth of the territorial sea is measured (i.e., 12 nautical miles territorial sea plus 12 nautical miles contiguous zone). In the contiguous zone ships and aircraft, including warships and military aircraft, of all states enjoy the high seas freedoms of navigation and overflight.

d. PROCEDURES -

(1) United States military aircraft operating in International airspace, through an International strait, or through archipelagic sea lanes, challenged by authorities of a coastal or archipelagic state should advise such authorities that it is a United States military aircraft. in accordance with International law, the aircraft is operating in International airspace, exercising the right of transit passage of an International strait, or exercising the right of archipelagic sea lane passage, as the case may be. Aircraft should continue on planned route of flight.

(2) United States military aircraft intercepted by foreign aircraft should comply with established DoD flight Information Procedures and International Intercept Procedures.

(a) If intercepted in territorial airspace (as defined in subparagraph c. (3)(a) of a foreign country, comply with direction to depart territorial airspace or comply with direction to land, provided landing can be safely accomplished (e.g., suitable airfield). Upon landing, immediately contact United States embassy for assistance.

(b) If intercepted in International airspace, International straits, or archipelagic sea lanes, aircraft should continue on planned routes of flights. Advise foreign authority and/or interceptor that it is a United States military aircraft and in accordance with International law, the aircraft is operating in International airspace, exercising the right of transit passage of an International strait, or exercising the right of archipelagic sea lanes passage. An aircraft Commander always retains the responsibility

for the safe conduct of the flight and has the option of landing the aircraft if, in the aircraft Commander's view, he has no other option than to follow the directions of an interceptor to prevent loss of life. If forced to land, immediately contact United States embassy for assistance.

e. OPERATIONAL GUIDANCE -

(1) The policy and procedures in paragraphs 3. and 4. are applicable to all DoD aircraft. However, responding to the authority of a coastal or archipelagic state, or complying with direction to land, pursuant to paragraph 4., may be contrary to mission specific operating procedures (e.g., Peacetime Application of Reconnaissance Programs (PARPRO)) or rules of engagement. In those instances, the operating procedures and rules of engagement prevail. Such mission specific procedures or rules must have Joint Staff approval before CINC implementation.

(2) For additional information, consult the DoD Foreign Clearance Guide (General Planning Booklet) and DoD Flight Information Publications (FLIP).

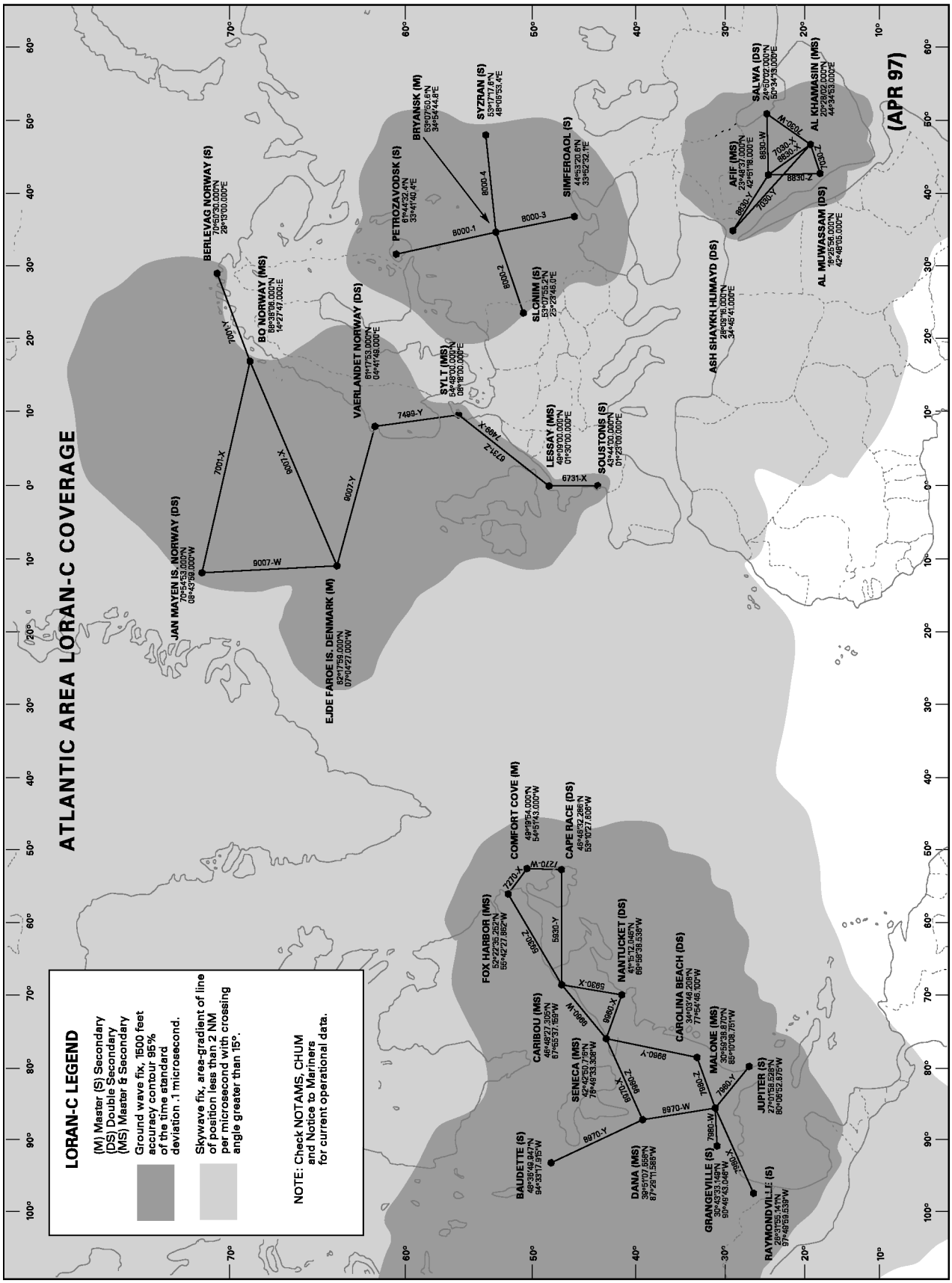
Chapter 9

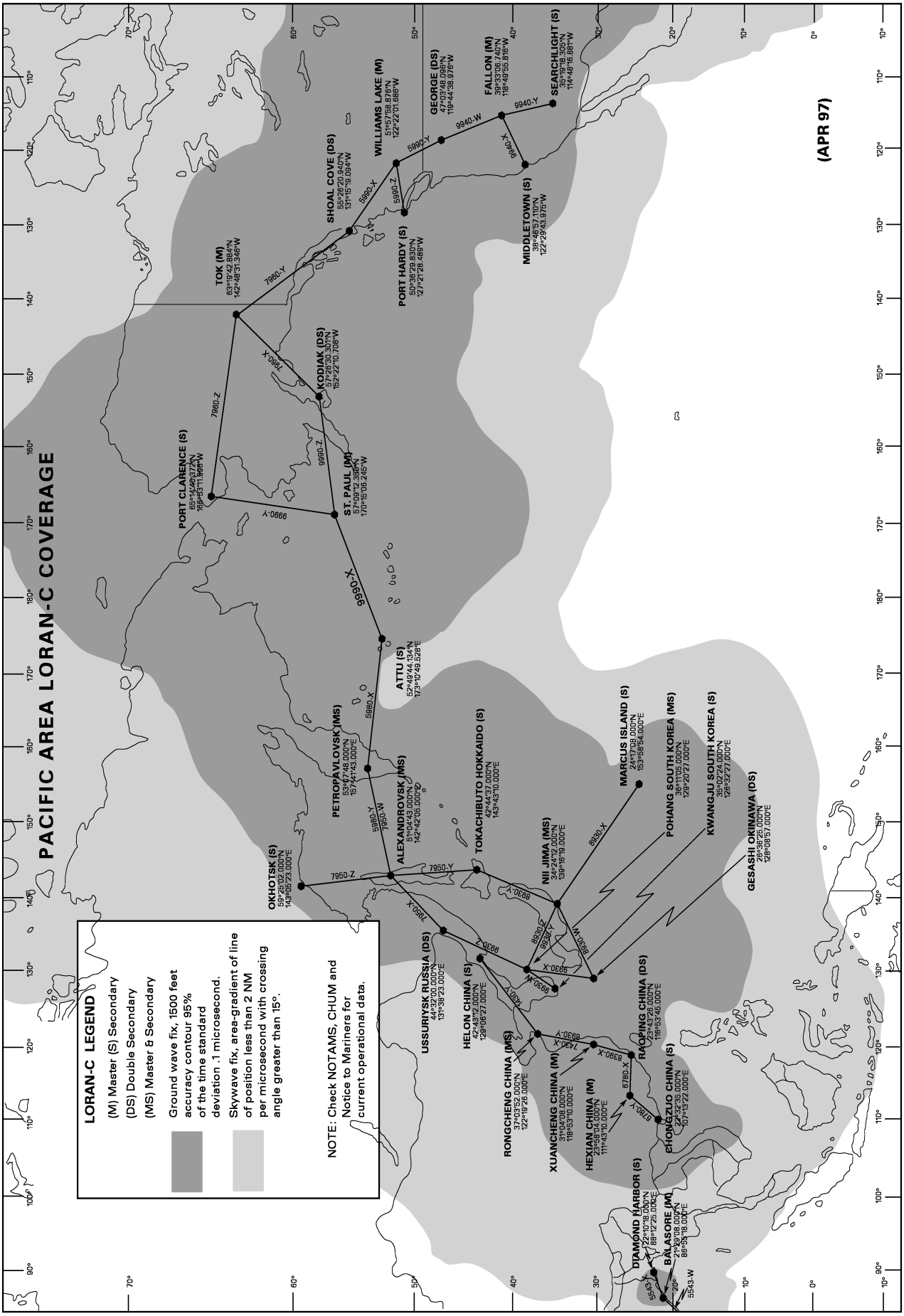
RESERVED

INTENTIONALLY
LEFT
BLANK

Chapter 10

LORAN CHART COVERAGE




PACIFIC AREA LORAN-C COVERAGE
(APR 97)
LORAN-C LEGEND
(M) Master (S) Secondary
(DS) Double Secondary
(MS) Master & Secondary
Ground wave fix, 1500 feet accuracy contour 95% of the time standard deviation .1 microsecond.
Skywave fix, area-gradient of line of position less than 2 NM per microsecond with crossing angle greater than 15°.
NOTE: Check NOTAMS, CHUM and Notice to Mariners for current operational data.
TOK (M)
63°19'42.884"N
142°49'31.346"W
SHOAL COVE (DS)
55°26'20.940"N
131°15'19.094"W
WILLIAMS LAKE (M)
51°57'58.876"N
122°22'01.688"W
GEORGE (DS)
47°03'48.095"N
119°44'38.976"W
FALLON (M)
39°33'06.740"N
118°49'35.819"W
SEARCHLIGHT (S)
35°19'18.305"N
114°48'16.881"W
MIDDLETOWN (S)
38°46'57.110"N
122°29'43.975"W
PORT HARDY (S)
50°36'29.830"N
127°21'28.489"W
KODIAK (DS)
57°25'30.350"N
152°22'10.708"W
PORT CLARENCE (S)
65°14'46.372"N
166°53'11.998"W
ST. PAUL (M)
57°09'12.395"N
170°15'05.245"W
ATTU (S)
52°49'44.134"N
173°10'49.528"E
OKHOTSK (S)
59°26'02.000"N
143°05'23.000"E
PETROPAVLOVSK (MS)
53°07'48.000"N
157°44'43.000"E
ALEXANDROVSK (MS)
51°04'43.000"N
142°42'05.000"E
TOKACHIBUTO HOKKAIDO (S)
42°44'37.000"N
143°43'10.000"E
NII JIMA (MS)
34°24'12.000"N
139°16'19.000"E
MARCUS ISLAND (S)
24°17'08.000"N
153°58'54.000"E
POHANG SOUTH KOREA (MS)
36°11'05.000"N
129°20'27.000"E
KWANGJU SOUTH KOREA (S)
35°02'24.000"N
126°32'27.000"E
GESASHI OKINAWA (DS)
26°36'25.000"N
128°08'57.000"E
USSURIYSK RUSSIA (DS)
44°32'00.000"N
131°38'23.000"E
HELON CHINA (S)
47°41'12.000"N
129°06'27.000"E
RONGCHENG CHINA (MS)
37°09'52.000"N
122°19'28.000"E
XUANCHENG CHINA (M)
31°04'08.000"N
118°53'10.000"E
HEXIAN CHINA (M)
23°45'10.000"N
111°42'10.000"E
RAOPING CHINA (DS)
23°43'26.000"N
116°53'45.000"E
CHONGZUO CHINA (S)
22°32'35.000"N
107°13'22.000"E
DIAMOND HARBOR (S)
22°12'16.000"N
88°12'25.000"E
BALASORE (M)
21°32'18.000"N
86°53'18.000"E
7960-Y
7960-Z
7960-X
9990-Y
9990-Z
9990-X
5990-Y
5990-Z
5990-X
9940-Y
9940-W
9940-X
7950-Z
7950-Y
7950-X
5980-X
7980-W
8930-X
8930-Y
8930-Z
8930-M
9930-Z
7430-Y
7430-X
6390-X
6780-Y
5543-W

Chapter 11

FLIP REVISIONS / QUALITY REPORTS / REQUISITIONS / DISTRIBUTION / SCHEDULES

11-1 REQUIREMENTS

a. The FLIP Coordinating Committee (FCC) is the central organization for controlling FLIP products. The FCC is comprised of three voting members; the US Army Aeronautical Service Agency represents the Army, the Naval Flight Information Group represents the Navy and Marine Corps, and the Air Force Flight Standards Agency represents the Air Force. The National Geospatial-Intelligence Agency (NGA), as the functional manager for DOD flight data and products, is represented by an individual from the Office of Military Support (OMS) who sits with the Armed Service representatives as a non-voting member. The FCC first insures that new requirements are proper for incorporation into FLIP and then considers operational needs and resource impacts of the new requirements. Once the FCC unanimously approves a new requirement for FLIP, it is passed by OMS into NGA for production scheduling or acquisition resourcing. If scheduled the FCC is notified by OMS of the expected delivery date. If unresourced the FCC must resubmit annually. If an Armed Service develops a requirement that does not gain unanimous FCC approval it may be individually submitted through each Service's GI&S requirements chain for competitive prioritization with other requirements and fulfillment.

b. Military service components within CONUS address suggestions and recommendations regarding current, new or revised FLIP products, data, or format changes directly to their own representive as described in paragraph 11-2.

c. A FLIP Maintenance Working Group (FMWG) was sanctioned by the FCC to validate for accuracy and currency all FLIP data pertinent to FLIP theater Operations. The FMWG chairperson administers three Theater FLIP Maintenance Working Groups (TFMWG) (ENAME, PAA and C&SA). The TFMWGs represent the concerns of the theater military service components and is the initial forum to address current, new, or revised FLIP products, data, or format changes. TFMWG recommendations are forwarded to the FMWG chairperson for consolidation and coordinated with the other TFMWGs. The FMWG chairperson forwards final recommendations to the FCC for action.

11-2 REVISIONS -

a. Modifications to FLIP fall into three general categories:

(1) REVISIONS - Adding, rearranging content or format, or deleting major blocks or types of information. Examples are:

(a) Adding new weather service information to Section C of the Flight Information Handbook.

(b) Rearranging the REMARKS section of an airport Enroute Supplement entry.

(c) Deleting obsolete navigational aid information from enroute charts.

(2) CHANGES - Maintaining the currency of existing information in response to operational changes. Examples are:

(a) Changing airport operating hours in the airport Enroute Supplement entry.

(b) Adding a newly authorized radio frequency to an Instrument Approach Procedure.

(3) CORRECTIONS - correcting improperly published information. Examples are:

(a) Correcting an improperly published course on an enroute chart.

(b) Correcting erroneous information concerning flight plans in General Planning.

b. The three types of modifications to FLIP are processed differently by each military service. It is important to adhere to the instructions below to ensure a submitted modification is promptly received, evaluated, approved, and implemented.

c. Originators, office of primary responsibility requester (OPRR), will prepare submissions in the appropriate format and perform primary responsibility for maintenance (OPRM) when required.

d. Originators will ensure submissions are clear, concise, and intelligible to aircrew and flight mission planners.

e. Originators will identify an expiration date, not to exceed 3 years. Entries not validated/updated within the time frame as stated will be subject to removal. Originators will also identify the source of data being added or changed.

NOTE: Office of Primary Responsibility Requestor (OPRR) is the military department or organization that either establishes or validates the requirement for the entry, and the Office of Primary Responsibility for Maintenance (OPRM) is the organization or document responsible for the currency of the entry. This information will be shown at the end of entries as shown in the following examples:

(SPEC/ENR 4.1-4) -The OPRR is the National Geospatial-Intelligence Agency (NGA) Product Specifications that mandate the need for an entry (SPEC). The OPRM is the host nation Military AIP document used by NGA to maintain the entry (ENR 4.1-4).

(AFFSA/AFFSA XOIA FIL 04-147) -The OPRR is the US Air Force Flight Standards Agency Instrument Standards/Aeronautical Information Branch. The Flight Information List (FIL) is the source document NGA used for the entry. 04-147 [04 identifies calendar year 2004, 147 identifies the FIL number for the calendar year]

(1) UNITED STATES AIR FORCE, ANG AND AFRC

(a) Except for requirement requests to publish changes to Terminal Instrument Procedures [paragraph (b) below] and changes to Military Airspace [paragraph (c) below], all requests for New Products, Publication of New Types of FLIP DATA, Revisions/changes/corrections and inquiries concerning current FLIP will be IAW AFI 11-201 and submitted to AFFSA/A3IF.

11-2 REVISIONS

AFFSA/A3IF is the USAF POC responsible for FLIP validation/production/maintenance and will coordinate with NGA, FAA National Flight Data Center (NFDC) and National Aeronautical Charting Office (NACO) on any and all USAF FLIP issues related to requested changes/maintenance/production. (USAFE see below)

AFFSA/A3IF is the USAF FCC member responsible for coordinating requirement issues with NGA, Army, and Navy.

The AFFSA/A3IF address is:
E-MAIL: hqaffsa.a3oia@tinker.af.mil
HQ AFFSA/A3IF
Bldg 4, Room 110
6500 South MacArthur Blvd
Oklahoma City, OK 73169
FAX: DSN 339-9005, C405-739-9005
MSG: AFFSA ANDREWS AFB, MD//XOIA
Branch Chief: DSN 339-9241, C405-739-9241
U.S. & CARIBBEAN/SOUTH AMERICA AI Specialist: DSN 339-9011, C405-739-9011
U.S. & PACIFIC AI Specialist: DSN 339-7871, C405-739-7871
OCONUS-EUROPE/ASIA & AFRICA AI Specialist: DSN 339-9241, C405-739-9241

NOTE 1: The following page contains a sample copy of the AFFSA FLIP REVISION REPORT, AF FORM 3546 (electronic only) at http://www.e-publishing.af.mil. Use AF FORM 3546 for adding, deleting, revising or submitting comments concerning FLIP products. Aircrews may also use this form for FLIP related problems or any other instrument flying concerns. In the event e-mail submission is not possible, form may be copied from GP and faxed to HQ AFFSA/A3IF, DSN 339-9007 C405-739-9007.

NOTE 2: DoD IFR Supplement data is also published in the FAA Airport/Facility Directory (A/FD).

(b) TERMINAL INSTRUMENT PROCEDURES-All procedural changes, including deletions to USAF procedures in FLIP terminal products and requests for publication of new or deletion of existing non-DOD instrument procedures, will be processed through the appropriate Major Command TERPS office in accordance with AFI 11-230. Procedural changes include changes to fix, radial, bearing, course, track, altitude, minima, obstacles, procedure identification, and operational notes. Non-procedural changes (Special Use Airspace, Airport Diagram/Airport Sketch, miscellaneous notes, communication frequencies, etc.) will be submitted to AFFSA/A3IF.

(c) MILITARY AIRSPACE-All Military Airspace (Special Use Airspace, Military Operations Area, Air Refueling Tracks/Anchors, IFR Low Level Routes, VFR Low Level Routes and Slow Speed Routes) changes/additions/deletions will be submitted to AFFSA/A3IF. AFFSA/A3IF will coordinate submissions for United States (FAA Controlled Airspace) with the USAF Representative (AFREP) at the applicable FAA Service Area office. Military airspace changes outside the United States and Canada that have been coordinated/published in host country Aeronautical Information Publications (AIPs) require no USAF input; NGA STL publishes these changes when received from the host country. All other airspace changes (i.e. Air Refueling Tracks/Anchors, Training Routes and Military Operations Areas) in foreign areas will be submitted to AFFSA/A3IF.

(d) USAFE ONLY: Submissions for the AP2 and AP4, new entries, changes, or deletions will be IAW AFI 11-201. USAFE SUP 1 as described below.

1. Originators will coordinate submissions with the appropriate NAF-designated wing standardization-evaluation (DOV) office Prior to forwarding to AFFSA/A3IF.

2. An info copy of all submissions will be sent to the Aeronautical Information Liaison Officer (AILO) at: usafe.ailo@ramstein.af.mil. Submissions will identify an expiration date, not to exceed 1 year and include stan/eval office coordination on submission packages. Entries not validated/updated within the time frame as stated will be subject to removal.

NOTE: For data West of 88° E, OPR is ENAME Theater; for data East of 88° E, OPR is PAA Theater.

USAF AFFSA FLIP REVISION REPORT

(Non-Procedural FLIP Data)

DATE: _____ *(AFFSA use only)*

Flight Information List *(FIL)* No. _____

(To Be Completed By Submitting Military / Civil Agency)

Submission Date: _____

Submitter Information:

Rank / Name / POC: _____

Organization / Address: _____

Phone: DSN: _____ Commercial: _____

Approving Official *(Airfield Mgr or Equivalent)*: _____

REFER TO GENERAL PLANNING *(GP)* CHAPTER 11 *(REVISIONS / SCHEDULED CUT-OFF DATES)* FOR ADDITIONAL INSTRUCTIONS

AIRPORT NAME	PAGE NUMBER *(In Current FLIP)*	LOCATION IDENT *(ICAO) (4 Characters)*	STATE	COUNTRY

Select one FLIP publication *(see below)* per submission. *(Ex: ENAME, US IFR, AP/1, AP/2, etc.)*

NOTE: National-Geospatial-Intelligence Agency (NGA) is responsible for updating all other associated (data) FLIP products.

*IAP/AD	ALASKA	AFRICA	C&SA	EEA	ENAME	FIH	PAA	US IFR/A/FD	US VFR	VFR ARR/DEP EUROPE
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

GP	AP/1	AP/1A	AP/1B	AP/2	AP/2A	AP/3	AP/3A	AP/4 & 4A	VFR ARR/DEP KOREA
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

(* Non-procedural changes only - Airport sketches, airport diagrams (AD), and RADAR notes. Detailed airport diagram changes will be submitted as an attachment with this form.)

NOTE: IFR Supplement Data is also published in the FAA Airport/Facility Directory *(A/FD)*

Use standard abbreviations found in IFR Supplement *(Section A)*. See format examples below. *(Add pages as necessary.)*

FORMAT EXAMPLES

TO ADD: Refer to DoD IFR - Supplement Airport/Facility Directory Legend Items 1 - 40.
Example: REMARKS - ADD: Twy F clsd to all acft btn Twy A and clamshell W of Twy C.

TO DELETE: Refer to DoD IFR - Supplement Airport/Facility Directory Legend Items 1 - 40.
Example: SERVICE - TRAN ALERT - DELETE: Full svc 0600 - 2100Z++ Mon-Fri, 1100 - 1900Z++ US hol. Ltd svc avbl on wkend - prior coord rqr. Ltd tran fac/prk. No fleet svc avbl.

TO REVISE: Example: Area Planning *(AP/1)* Page 3-31, Altus AFB *(KLTS)*, OK, REVISE CAUTION - {text *(Para. and/or line)* to be revised} TO: CAUTION - {new text}.

ADD: *(type changes here)*

DELETE: *(type changes here)*

REVISE: *(type changes here)*

When the form is complete:

1. Save form to your computer as "FLIP Change {DD - MM - YY} {airport ident}"
   (Example: "FLIP Change 05 May 04 KCEF")
2. E-MAIL THIS REPORT *(AS AN ATTACHMENT)* TO hqaffsa.a3oia@tinker.af.mil
   (In the event e-mail submission is not possible, form may be copied from GP and faxed to: DSN 339-9005, Commercial 405-739-9005)

(2) USN, USMC

(a) Military airspace (Special Use Airspace, Military Operations Area, Air Refueling Tracks/Anchors, IFR Low Level Routes, VFR Low Level Routes and Slow Speed Routes): All changes for the United States (Federal Aviation Administration ctl airspace) will be submitted to the Navy representative at the applicable Federal Aviation Administration region as described in OPNAVINST 3770.2.

(b) Revisions and changes to all other FLIP data will be submitted to:

Department of the Navy
Head, Naval Flight Information Group
Building 176, Suite 301
1339 Patterson Avenue, SE
Washington Navy Yard, DC 20374-5088
DSN: 288-3473/0974 C202-433-3473/0974
FAX: DSN 288-3458 C202-433-3458
E-MAIL: NAVFIG@navy.mil

Head-Mark.Brown@navy.mil
DSN 288-3473, C202-433-3473
AI Specialist-james.e.spencer@navy.mil
DSN 288-0974 C202-433-0974
Flt Proc Specialist - james.pulido.ctr@navy.mil
DSN 288-3516, C202-433-3516
Flt Proc Specialist-Bryan.Strong.CTR@navy.mil
DSN 325-6063, C202-685-6063
Flt Proc Specialist-robert.cathers@navy.mil
DSN 288-0008 C202-433-0008
Flt Proc Specialist-harold.mayo@navy.mil
DSN 288-0007 C202-433-0007
Flt Proc Specialist-michael.smet@navy.mil
DSN 288-3541 C202-433-3541
Flt Proc Specialist-thomas.draffen@navy.mil
DSN 288-3551, C202-433-3551

All requirement requests for corrections, new products or publication of new types of FLIP data will be sent to NAVFIG in accordance with NAVAIR 00-80T-114, APPENDIX Q, NATOPS Air Traffic Control Facilities Manual. Completed form may be submitted via Fax, E-mail or mail. Fax or E-mail forms must be followed with signed original form via mail. If you do not have access to the 00-80T-114, E-mail the AI Specialist and request the form APPENDIX Q. Calls to the Flt Proc Specialists should be kept to a minimum. The AI Specialist is responsible for maintenance of USN/USMC FLIP information.

Additionally, Naval Flight Information Group will coordinate with NGA, FAA and NACO on any and all USN/USMC issues related to requested changes/maintenance/production.

(3) USA, ARNG, or Army Reserve

(a) Military airspace (Special Use Airspace, Military Operations Area, Air Refueling Tracks/Anchors, IFR Low Level Routes, VFR Low Level Routes, and Slow Speed Routes): All changes for the United States (Federal Aviation Administration controlled airspace) will be submitted to the Army representative (DAAR) at the applicable Federal Aviation Administration region as described in AR 95-2.

(b) Changes, corrections, and revisions to FLIP for Europe, Africa, and the Middle East will be submitted to:

Commander
US Army Aeronautical Services
Detachment EUROPE
UNIT # 29243
APO AE 09102
TEL: Heidelberg DSN 373-8079/6426
C06221-17-8079/6426
FAX: 06221-17-8957 or DSN 373-8957
C06221-17-8957
MSG: CDRUSAADE HEIDELBERG
GE//ATAS-AD
E-MAIL: john.sharer@eur.army.mil

(c) Changes, corrections, and revisions to FLIP for Republic of Korea will be submitted to:

Commander
Eighth US Army
CJG-3 Aviation Division
ATTN: EAGC-EA-ATS
UNIT 15236
APO, AP 96205-5236
C011-82-2-7913-6462 or DSN 723-6462
FAX: C011-82-2-7913-5666 or DSN 723-5666
E-MAIL: dan.robinson@korea.army.mil

(d) Changes, corrections, and revisions to FLIP for all other geographic areas will be submitted to:

Commander
US Army Aeronautical Services Agency
ATTN: ATAS-AI
9325 Gunston Road, Suite N319
Fort Belvoir, VA 22060-5582
C703-806-4417 or DSN 656-4417
FAX: C703-806-4409 or DSN 656-4409
MSG: CDRUSAASA FT BELVOIR VA//ATAS-AI
E-MAIL: douglas.edsall@conus.army.mil

(e) Self-addressed official COMM CARDS are available in Army airport Operations for changes, corrections, or revisions.

(4) USCG
Send all changes, corrections, and revisions to:

Commandant (CG-711)
USCG
2100 Second St., SW
Washington, D.C. 20593-0001
C202-372-2200
MSG COMDT COGARD WASHINGTON
DC//CG-711//

(5) Remaining DoD or non-DoD organizations

(a) Revisions, changes and corrections will be submitted to:

NGA STL/PVA/L-27
3838 Vogel Road
Arnold, MO 63010-6238
C314-676-0684, DSN 846-0684 or
C301-227-7335 or DSN 287-7335
MSG: NGA ST LOUIS//TNXA
E-MAIL: quality@nga.mil

11-3 QUALITY REPORTS -

a. Submit all comments concerning the quality of DoD FLIP paper, digital and web-based products, e.g., textual and graphic legibility, page or graphic omissions, and incorrect and/or conflicting Digital Aeronautical Flight Information File (DAFIF) data to:

FLIP Planning, Flight Information Handbook, and Enroute Supplements & Charts:
NGA STL/PVAF/L-27
3838 Vogel Road
Arnold, MO 63010-6238
C314-676-0684, DSN 846-0684 or
C301-227-7335 or DSN 287-7335
FAX 314-676-3044 or DSN 846-3044
E-MAIL: quality@nga.mil

DAFIF:
NGA STL/PVAH/L-27
3838 Vogel Road
Arnold, MO 63010-6238
314-676-0589 or DSN 846-0589
FAX 314-676-3044, DSN 846-3044
E-MAIL: quality@nga.mil

Terminals:
NGA STL/PVAI/L-27
3838 Vogel Road
Arnold, MO 63010-6238
314-676-0588 or DSN 846-0588
FAX 314-676-3044, DSN 846-3044
E-MAIL: quality@nga.mil

Chart Updating Manual (CHUM) and Electronic Chart Updating Manual (ECHUM):
NGA STL/PVAC/L-27
3838 Vogel Road
Arnold, MO 63010-6238
636-321-5608, DSN 369-5608
FAX C314-263-4537 or DSN 693-4537
E-MAIL: chum@nga.mil

NOTE: Pre-addressed easy to use Quality Feedback Cards are included in each DoD Enroute Supplement and DAFIF CD ROM packages.

11-4 REQUISITIONING -

a. Information on and procedures for requisitioning FLIP products are outlined in Defense Logistics Agency (DLA) E-Catalog of Maps, Charts, and Related products and the DLA website at www.dscr.dla.mil/rmf. Various organizations serve as FLIP account managers who are responsible for account start-ups, cancellations, changes, etc. See items 1 through 3 and below note.

(1) United States Air Force and Non-DoD activities needing general requisitioning assistance should contact DLA 804-279-6500, DSN 695-6500, or 1-800-826-0342.

(2) US Naval/Marine Activities East of the Mississippi should contact MSO Norfolk at 757 445-2460 DSN 565-2460 for their requirements, West of the Mississippi contact MSO San Diego at 619 545-6069 DSN 765-6069.

(3) Army activities in Europe, North Africa, and the Middle East (ENAME) needing requisitioning assistance will contact United States Army Aeronautical Service Detachment Europe (USAAE), Heidelberg military DSN 373-6426/8029 or commercial (49)(0)6221-17-6426/8079. Remaining Army activities will contact United States Army Aeronautical Service Agency (USAASA), C703-806-4870, DSN 656-4870.

Note: All Auto Distribution (AD) requests that you submit for FLIP products must specify the product effective date and must be submitted 60 days prior to that effective date. Failure to submit (AD) requests 60 days in advance could adversely affect the timely receipt of your FLIP products.

b. STEP BY STEP ACCOUNT ESTABLISHMENT AND ORDERING PROCESSES:

Ordering and Requisitioning Procedures:

(1) Establish your DoD Activity Address Codes (DODAAC) account number by contacting your service contact point. A list of service contact points may be viewed at the following website http://www.dscr.dla.mil/rmf/accounts/dodaac.htm. For additional information and more service accounts see: https://day2k1.daas.dla.mil/daasinq/help.asp?cu=d&help= If you already have a DODAAC account number, proceed to step 2. NOTE: If your unit is deploying you must establish a new DODAAC account number for your deployed location.

(2) Complete DLA Form 1832 to establish your account with DLA. You may access this at the RMF website at http://www.dscr.dla.mil/rmf/ and selecting the Accounts Link located at the top of the website. If you have already completed a DLA Form 1832 proceed to step 3.

(3) Submit subscription amounts to Accounts Management Section 804-279-6500, DSN 695-6500, or 1-800-826-0342 or email acctmgr@dla.mil or fax 804-279-6510, DSN 695-6510. Include DODAAC, NRN/NSN and quantity required.

Methods of ordering from DLA:

Mapping Customer Operations (MCO) requires all Department of Defense and Federal agencies submit electronic orders via the Defense Automatic Addressing System (DAAS). Electronic ordering allows map customers to take advantage of their intra-service or agency logistics system to electronically transmit orders to the RMF. In lieu of intra-support systems, alternative electronic methods are offered by the DAAS Center, Wright Patterson AFB, Ohio. These methods greatly reduce order processing and shipping time. Electronic ordering also allows inter-support or DAAS automated systems to perform validation edits on orders prior to the RMF, thereby eliminating many of the errors which cause rejection or cancellation.

(1) Electronic Ordering
Electronic ordering is the only method for ordering products, however, various means are available to enable electronic transmission of MILSTRIP or FEDSTRIP requisitions. Your local supply activity or logistics office is the best source for information on what is available. Some of the methods used by customers for DAAS connectivity are:

(a) Intra-Service or Agency Logistics System
These systems are available at various levels and are designed to support specific missions of the organization. Contact your supporting supply activity or logistics office to learn more about what systems are available. If an intra-support system is not available, other options exists as discussed in the following.

(b) Web Requisitioning (WEBREQ)
Web Requisitioning is commonly referred to as WEBREQ. This system allows customers to order map products via internet. If you experience problems assessing WEBREQ, please contact the Defense Automated Addressing System (DAAS). Any questions or concerns you have with submitting requisitions through WEBREQ should be directed to the DAAS at (937) 656-3247 or DSN 986-3247. WEBREQ will be replaced by DOD EMALL by 2007.

(c) Department of Defense Electronic Mall (DOD EMALL)
The DOD EMALL is a DAASC web product designed to allow customers to efficiently locate and order map, charts and geospatial products from electronic catalogs through a "point, click, and ship" system. EMALL provides status and response documents back to the user. EMALL also accepts ordering via uploading of files from the DLA/NGA electronic map catalog. For information and access to DOD EMALL go to https://emall6.prod.dodonline.net. DOD EMALL will replace WEBREQ by 2007.

(d) DAASC Automated Message Exchange System (DAMES)
DAMES requires a desktop personal computer, modem, and telephone line. Software and assistance are available from the DAASC Information Center.

ATTN: Help Desk
Building 30207
5250 Patterson Rd.
Wright Patterson AFB, OH 45433-5328
(937) 656-3247 or DSN 986-3247
Fax (937) 656-3800/1 or DSN Fax 986-3800/1

(e) DAAS Integrated E-mail Logistics (DIELOG) System
The DIELOG system allows access to DAAS over the internet via electronic mail system. For more information send an e-mail to DAASC at: dielogreq@daas.dla.mil.

(f) Streamlined Automated Logistics Transmission System (SALTS)
SALTS is a U.S. Navy developed telephone, satellite, and e-mail system with users from a variety of services and agencies. For more information contact SALTS Project Office at (215) 697-1112 or DSN 442-1112; Fax (215) 697-1476 or DSN Fax 442-1476.

(2) FLIP Account Maintenance

(a) **Richmond Map Facility (RMF) Web Portal**. The web portal allows customers to review their account profile and edit as required, make changes to FLIP and map subscriptions, review status of requisition(s) and backorders, and finally, allows cross-referencing of National Stock Numbers (NSNs) and NGA Reference Numbers (NRNs). Access the RMF Web Portal at http://www.dscr.dla.mil/rmf/

11-5 AUTOMATIC DISTRIBUTION, FLIGHT INFORMATION PUBLICATIONS (FLIP) -

a. Procedures for distribution are outlined in DLA E-Catalog of Maps, Charts and Related Products, and DLA website www.dscr.dla.mil/rmf under ACCOUNTS.

b. Inquiries concerning automatic distribution shortages or undelivered shipments of Flight Information Publications for both Continental United States and Overseas based customers should be made through local receipt channels, such as the base Post Office, the base Transportation Office, the local parcel service, etc., whichever is the established transportation carrier for delivery of products. Every possible effort should be made on-base or locally to find delayed or undelivered shipments. If unsure from where the Automatic Initial Distribution (AD) originated, please contact NGA at the following numbers: DSN 369-5270, toll free COM 800-771-3149 or COM 636-321-5270.

c. If above self-search method fails, contact NGAs DoD FLIP printing contractors directly (except Army, see note below).

When inquiring about a product please state your DoD Activity Address Code (e.g.,JM5000) and the NGA Reference Number(s) of the Product(s).

(1) For "fold-out" charts (DoD-only products: Enroutes, Terminal Areas, Area Arrival Charts Depicting Terrain Data, and AP/1B Military Training Routes) contact
Techna-Graphics, Inc.
Toll free COM 800-831-6462.

(2) For "books" (DoD-only products: Terminal IAPs, Supplements, Supplement Terminals, Flight Information Handbook, and Planning) contact
Cenveo/R. R. Donnelley
Toll free COM 866-593-7136.

(3) For any FAA FLIP automatic distribution inquiries or to resolve any issues with the DoD contractors cited in (1) & (2) above, contact NGA EGMMAB, DSN 369-5270, toll free COM 800-771-3149 or COM 636-321-5270, FAX DSN 369-5113 or COM 636-321-5113.

d. For issues that pertain to Account changes, Web Requisitioning (WEBREQ), other products (e.g., Sectionals, etc.), contact Defense Logistics Agency (DLA), www.dscr.dla.mil/rmf, DSN 695-6500, COM 804-279-6500, Toll Free 800-826-0342.

Emergency / Crisis Support Ordering

The following Map Support Offices (MSO) may be able to supply limited quantities of FLIP products for emergency purposes only depending upon your location--but will not be able to supply a full compliment of products. You must follow normal procedures for reporting shortages as outlined in paragraph 11-5. For additional information or help with emergency and crisis support requisitions, please contact Customer Support at 804-279-6500 DSN 695-6500 or 1-800-826-0342. After normal duty hours (Monday through Friday, 0630 to 1700 EST), your call will be forwarded to the Staff Duty Officer

MSO Bahrain
DSN: 318-439-3625
Comm: 011-973-1785-3625

MSO Italy
DSN: 314-626-5477
Comm: 011-39-081-568-5477

MSO Norfolk
DSN: 565-2159
Comm: 757-445-2159

MSO Germany
DSN: 314-378-5400/5401
Comm: 011-49-7274-965400

MSO Japan
DSN: 315-264-5280
Comm: 011-81-467-63-3209

MSO San Diego
DSN: 735-6068
Comm: 619-545-6068

MSO Honolulu
DSN: 315-449-7099
Comm: 808-449-7099

MSO Korea
DSN: 315-765-4183
Comm: 011-82-51-801-7396

MSO Tampa
DSN: 968-4515
Comm: 813-828-4515

MSO Kuwait
DSN: 318-430-1110 (2498-1560/1520)
Comm: 011-965-980-4853

e. Non-Department of Defense Flight Information Publications - Non-DOD FLIP products are produced by commercial or foreign organizations (i.e., Jeppesen, RAF) and are not catalogued by the Defense Logistics Information Service (DLIS), nor managed by the Defense Supply Center Richmond-Mapping Customer Operations.

Non -DOD FLIP products are usually substituted for DOD FLIP products because the required coverage does not exist or does not contain critical information that is available on the non-DOD FLIP products.

For more information, please contact the National Geospatial-Intelligence Agency at 636-321-5270 or DSN 369-5270.
(TFMWG-E/AFFSA FIL 08-638)

11-6 FLIP PRODUCT DISPOSAL - Dispose of expired FLIP by tearing the book binders, or recycle to prevent resale.

11-7 REVISION SCHEDULES - Changes to FLIP Planning and Enroute products must be submitted through the channels specified in Paragraph 11-2. Changes to FLIP Terminal products must be submitted in accordance with current service directives. Changes must arrive at NGA STL by close of business (normally 1500 hours CST) on dates shown in the following tables. The Terminal schedule is for minor revisions only. Major revisions and/or new procedures must arrive at NGA STL 41 days prior to the effective date for the host country procedure and 70 days prior to the effective date for U.S. DoD developed procedures. Refer to Table C.

a. FLIP PLANNING CUT-OFF DATES

EFFECTIVE DATES	GENERAL PLANNING	NORTH AND SOUTH AMERICA			EUROPE NORTH AFRICA, AND MIDDLE EAST		PACIFIC AUSTRALASIA, AND ANTARCTICA		EASTERN EUROPE AND ASIA	
	GP	1	1A	1B	2	2A	3	3A	4	4A
20-Nov-08		8-Oct	**8-Oct**	**8-Oct**			8-Oct	**8-Oct**	8-Oct	**24-Oct**
18-Dec-08	**19-Nov**				19-Nov	**19-Nov**				
15-Jan-09		**3-Dec**	**3-Dec**	**3-Dec**			3-Dec	**3-Dec**		**17-Dec**
12-Feb-09					**16-Jan**	**16-Jan**				
12-Mar-09		28-Jan	**28-Jan**	**28-Jan**			**28-Jan**	**28-Jan**	**28-Jan**	**13-Feb**
9-Apr-09	13-Mar				13-Mar	**13-Mar**				
7-May-09		25-Mar	**25-Mar**	**25-Mar**			25-Mar	**25-Mar**		**10-Apr**
4-Jun-09					8-May	**8-May**				
2-Jul-09		**20-May**	**20-May**	**20-May**			20-May	**20-May**	20-May	**5-Jun**
30-Jul-09	**3-Jul**				**3-Jul**	**3-Jul**				
27-Aug-09		15-Jul	**15-Jul**	**15-Jul**			**15-Jul**	**15-Jul**		**31-Jul**
24-Sep-09					28-Aug	**28-Aug**				
22-Oct-09		9-Sep	**9-Sep**	**9-Sep**			9-Sep	**9-Sep**	9-Sep	**25-Sep**
19-Nov-09	23-Oct				23-Oct	**23-Oct**				
17-Dec-09		**4-Nov**	**4-Nov**	**4-Nov**			4-Nov	**4-Nov**		**18-Nov**

Bold text denotes book. Regular text denotes Planning Change Notice (PCN). AP1A, AP2A, AP3A and AP4A are only available digitally.

b. FLIP ENROUTE CUT-OFF DATES

		UNITED STATES			CARIBBEAN AND SOUTH AMERICA		EUROPE, NORTH AFRICA AND MIDDLE EAST		AFRICA		PACIFIC, AUSTRALASIA, AND ANTARCTICA		EASTERN EUROPE AND ASIA	
EFFECTIVE DATES	FLIGHT INFO HAND-BOOK	CHARTS	IFR SUPP	VFR SUPP	SUPP	CHARTS	SUPP	CHARTS	SUPP	CHARTS	SUPP	CHARTS	SUPP	CHARTS
20-Nov-08		8-Oct	**8-Oct**	8-Oct	**8-Oct**	8-Oct	**24-Oct**	24-Oct	**24-Oct**	24-Oct	8-Oct	8-Oct	**24-Oct**	24-Oct
18-Dec-08	**19-Nov**						**19-Nov**	19-Nov						
15-Jan-09		3-Dec	**3-Dec**		3-Dec	3-Dec	**17-Dec**	17-Dec	17-Dec		**3-Dec**	3-Dec	17-Dec	17-Dec
12-Feb-09				**31-Dec**			**16-Jan**	16-Jan						
12-Mar-09		28-Jan	**28-Jan**		**28-Jan**	28-Jan	**13-Feb**	13-Feb	**13-Feb**	13-Feb	28-Jan	28-Jan	**13-Feb**	13-Feb
9-Apr-09							**13-Mar**	13-Mar						
7-May-09		25-Mar	**25-Mar**	25-Mar	25-Mar	25-Mar	**10-Apr**	10-Apr	10-Apr		**25-Mar**	25-Mar	10-Apr	10-Apr
4-Jun-09							**8-May**	8-May						
2-Jul-09		20-May	**20-May**		**20-May**	20-May	**5-Jun**	5-Jun	**5-Jun**	5-Jun	20-May	20-May	**5-Jun**	5-Jun
30-Jul-09	**3-Jul**			**17-Jun**			**3-Jul**	3-Jul						
27-Aug-09		15-Jul	**15-Jul**		15-Jul	15-Jul	**31-Jul**	31-Jul	31-Jul		**15-Jul**	15-Jul	31-Jul	31-Jul
24-Sep-09							**28-Aug**	28-Aug						
22-Oct-09		9-Sep	**9-Sep**	9-Sep	**9-Sep**	9-Sep	**25-Sep**	25-Sep	**25-Sep**	25-Sep	9-Sep	9-Sep	**25-Sep**	25-Sep
19-Nov-09							**23-Oct**	23-Oct						
17-Dec-09		4-Nov	**4-Nov**		4-Nov	4-Nov	**18-Nov**	18-Nov	18-Nov		**4-Nov**	4-Nov	18-Nov	18-Nov

Bold text denotes book; regular text denotes Enroute Change Notice (ECN) or Terminal Change Notice (TCN).

c. FLIP TERMINAL CUT-OFF DATES

EFFECTIVE DATES	UNITED STATES HIGH/LOW	CARIBBEAN AND SOUTH AMERICA	CANADA AND NORTH ATLANTIC	EUROPE, NORTH AFRICA, AND MIDDLE EAST		AFRICA	PACIFIC, AUSTRALASIA AND ANTARCTICA		EASTERN EUROPE AND ASIA
	IAP/SID	IAP/SID	IAP/SID	IAP/SID	VFR ARR/DEP	IAP/SID	IAP/SID	VFR ARR/DEP	IAP/SID
20-Nov-08	**8-Oct**	**8-Oct**	8-Oct	24-Oct		**24-Oct**	8-Oct		**24-Oct**
18-Dec-08	5-Nov			**19-Nov**					
15-Jan-09	**3-Dec**	3-Dec	3-Dec	17-Dec		17-Dec	**3-Dec**		17-Dec
12-Feb-09	31-Dec			**16-Jan**	**16-Jan**			**16-Jan**	
12-Mar-09	**28-Jan**	**28-Jan**	**28-Jan**	13-Feb		**13-Feb**	28-Jan		**13-Feb**
9-Apr-09	25-Feb			**13-Mar**					
7-May-09	**25-Mar**	25-Mar	25-Mar	10-Apr		10-Apr	25-Mar		10-Apr
4-Jun-09	22-Apr			**8-May**	**8-May**			**8-May**	
2-Jul-09	**20-May**	**20-May**	20-May	5-Jun		**5-Jun**	**20-May**		**5-Jun**
30-Jul-09	17-Jun			**3-Jul**					
27-Aug-09	**15-Jul**	15-Jul	**15-Jul**	31-Jul		31-Jul	15-Jul		31-Jul
24-Sep-09	12-Aug			**28-Aug**	**28-Aug**			**28-Aug**	
22-Oct-09	**9-Sep**	**9-Sep**	9-Sep	25-Sep		**25-Sep**	9-Sep		**25-Sep**
19-Nov-09	7-Oct			**23-Oct**					
17-Dec-09	**4-Nov**	4-Nov	4-Nov	18-Nov		18-Nov	**4-Nov**		18-Nov

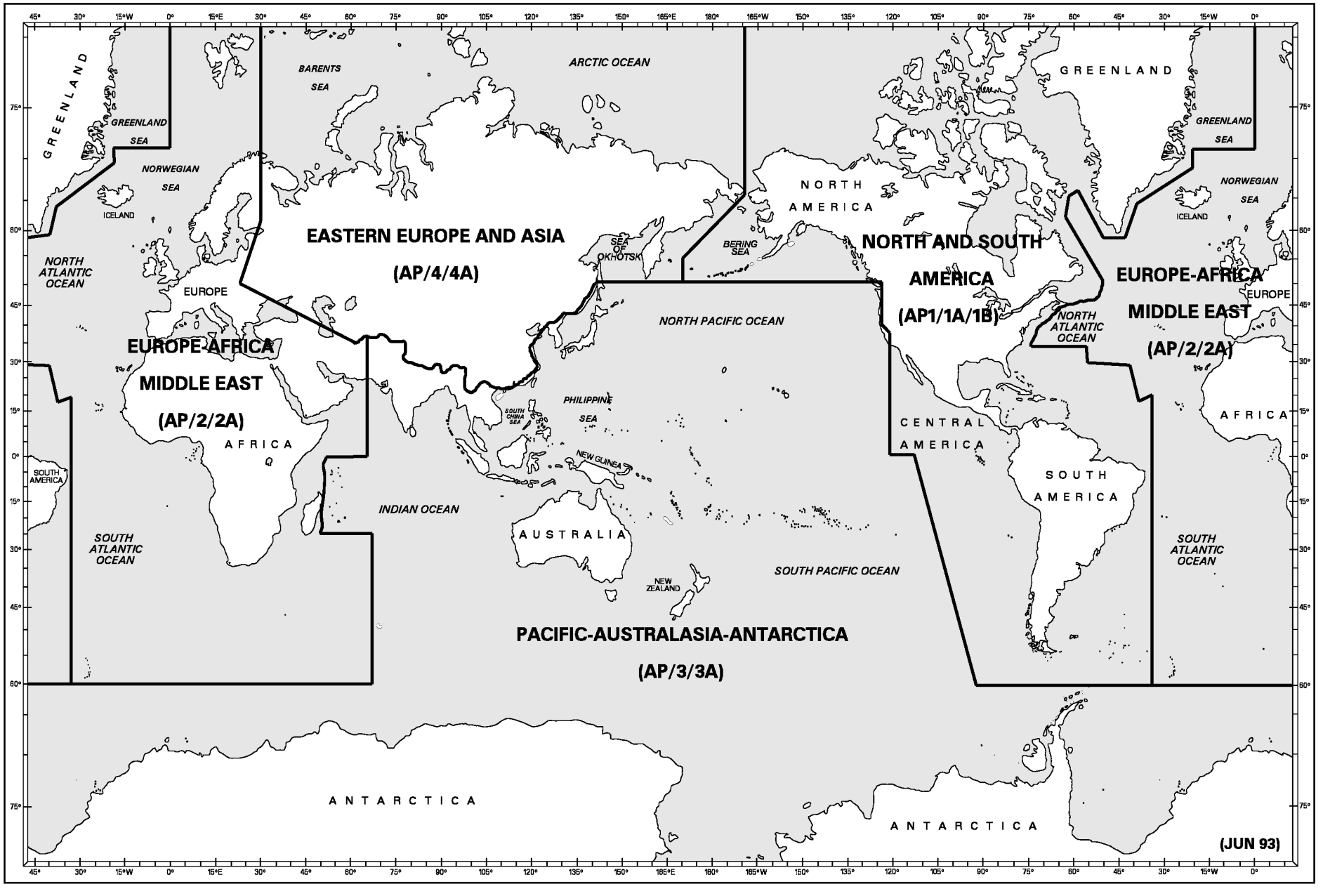
Major revisions are those that require the addition of, or the moving of symbols, tracks, or features. For example, adding arresting gear, changing missed approach tracks, moving obstacles, or adding overruns or taxiways are major revisions.

Bold text denotes book; regular text denotes Enroute Change Notice (ECN) or Terminal Change Notice (TCN).

CUT-OFF DATES FOR NEW PROCEDURES OR MAJOR REVISIONS

For new host country procedures, information must be received at NGA STL by close of business 41 days prior to effective date. For example, the cut-off for a 12 May publication would be close of business 1 April.

For U.S. DoD developed procedures, information must be received at NGA STL by close of business 70 days prior to effective date. For example, the cut-off for a 22 Dec publication would be close of business 13 Oct.

INTENTIONALLY
LEFT
BLANK

BOUNDARIES OF DOD FLIGHT INFORMATION PUBLICATION-PLANNING