Flight Planning

Table of Contents

Frequent or Planned Destinations Record

Airport _____ Ident. _____

FBO _____ Freq. _____ Tel: (___) _____

Fax: (___) _____

Hotel _____ Tel: (___) _____

Fax: (___) _____

Catering _____ Tel: (___) _____

Airport _____ Ident. _____

FBO _____ Freq. _____ Tel: (___) _____

Fax: (___) _____

Hotel _____ Tel: (___) _____

Fax: (___) _____

Catering _____ Tel: (___) _____

Airport _____ Ident. _____

FBO _____ Freq. _____ Tel: (___) _____

Fax: (___) _____

Hotel _____ Tel: (___) _____

Fax: (___) _____

Catering _____ Tel: (___) _____

Notes _____

_____

_____

Airport _____ Ident. _____

FBO _____ Freq. _____ Tel: (___) _____

Fax: (___) _____

Hotel _____ Tel: (___) _____

Fax: (___) _____

Catering _____ Tel: (___) _____

Airport _____ Ident. _____

FBO _____ Freq. _____ Tel: (___) _____

Fax: (___) _____

Hotel _____ Tel: (___) _____

Fax: (___) _____

Catering _____ Tel: (___) _____

Airport _____ Ident. _____

FBO _____ Freq. _____ Tel: (___) _____

Fax: (___) _____

Hotel _____ Tel: (___) _____

Fax: (___) _____

Catering _____ Tel: (___) _____

Notes _____

_____

_____

_____

Flight Planning General

Takeoff Weight Determination

Charts in the Aircraft Flight Manual (AFM) Performance Section IV provide the means to determine the maximum takeoff gross weight permitted by FAR 25 as well as associated speeds and flight paths.

The flow chart (**Figure 5-1)** on the following page illustrates the steps to determine appropriate takeoff weight.

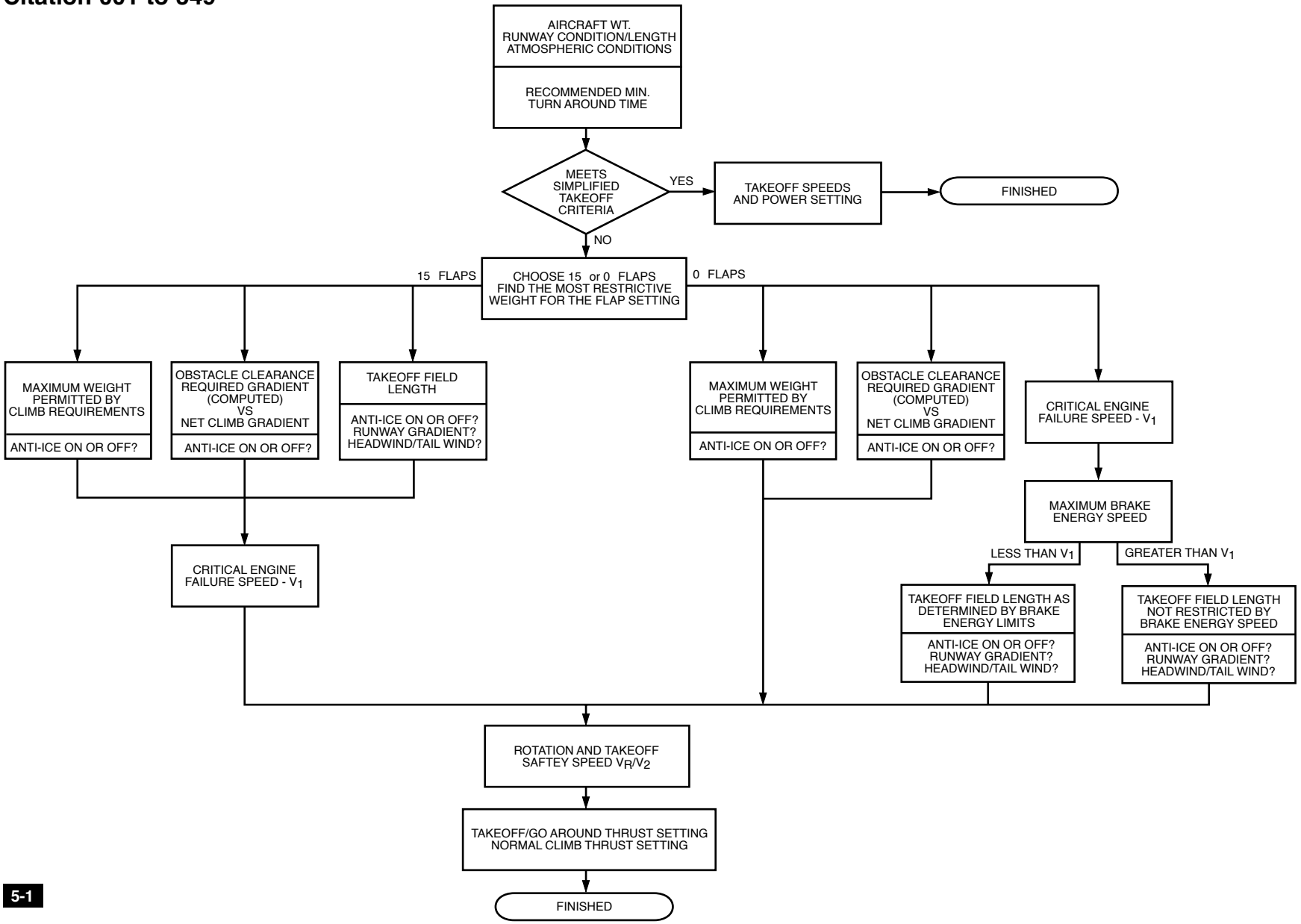
Takeoff weight (**Figure 5-2**, page 5-7) is limited by the most restrictive of the following:

- maximum certified takeoff weight
- maximum takeoff weight permitted by climb requirements
- takeoff field length

NOTE: The aircraft may be limited in takeoff gross weight by the most restrictive of aircraft conditions, airport conditions, and atmospheric conditions.

Takeoff Weight Determination

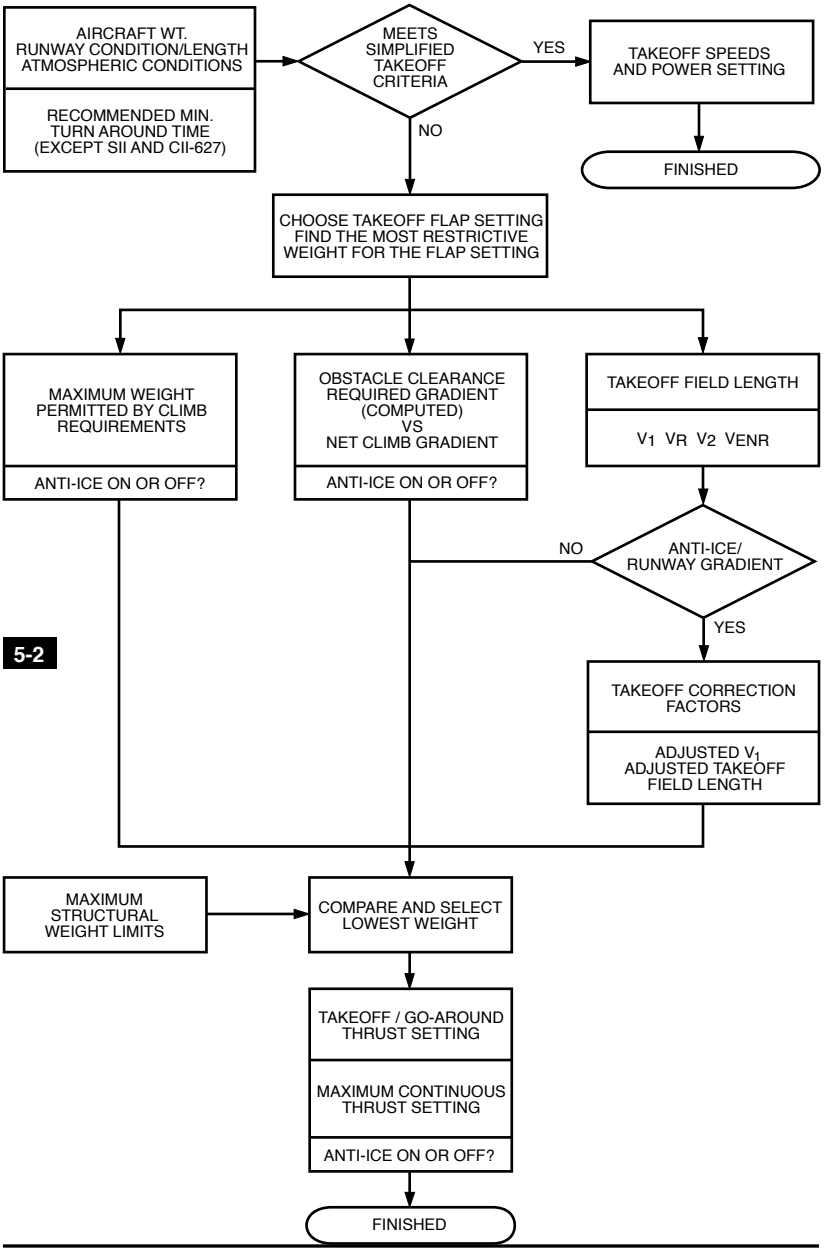
Citation 001 to 349



5-1

Takeoff Weight Determination

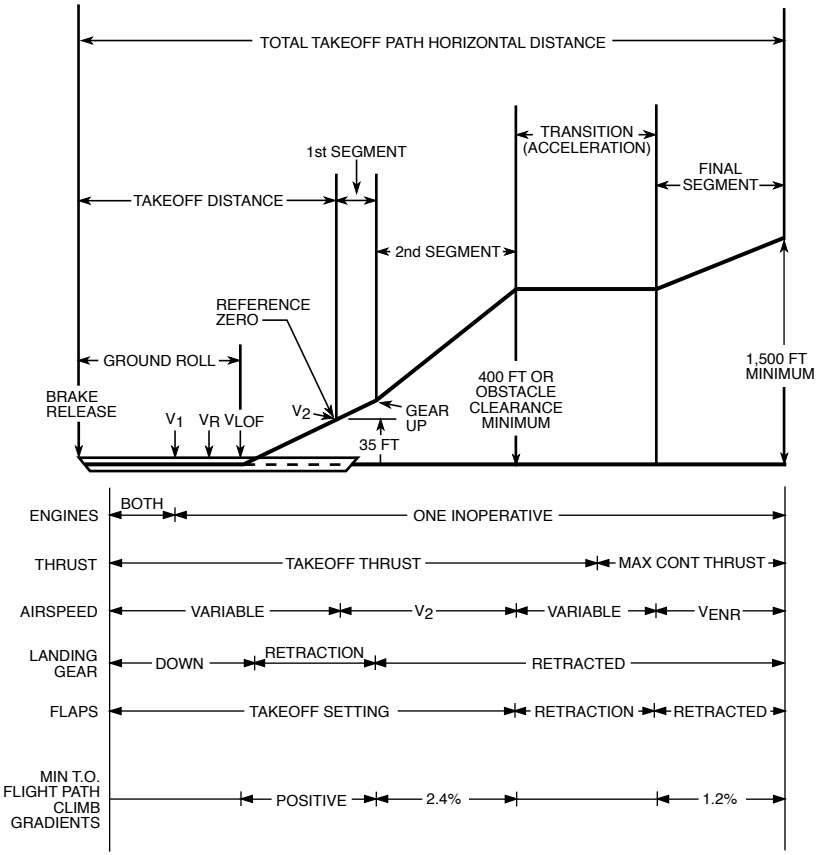
Citation I; Citation II; Citation SII



5-2

Takeoff Profile

One Engine Inoperative



5-3

Takeoff weight is limited by the most restrictive of:

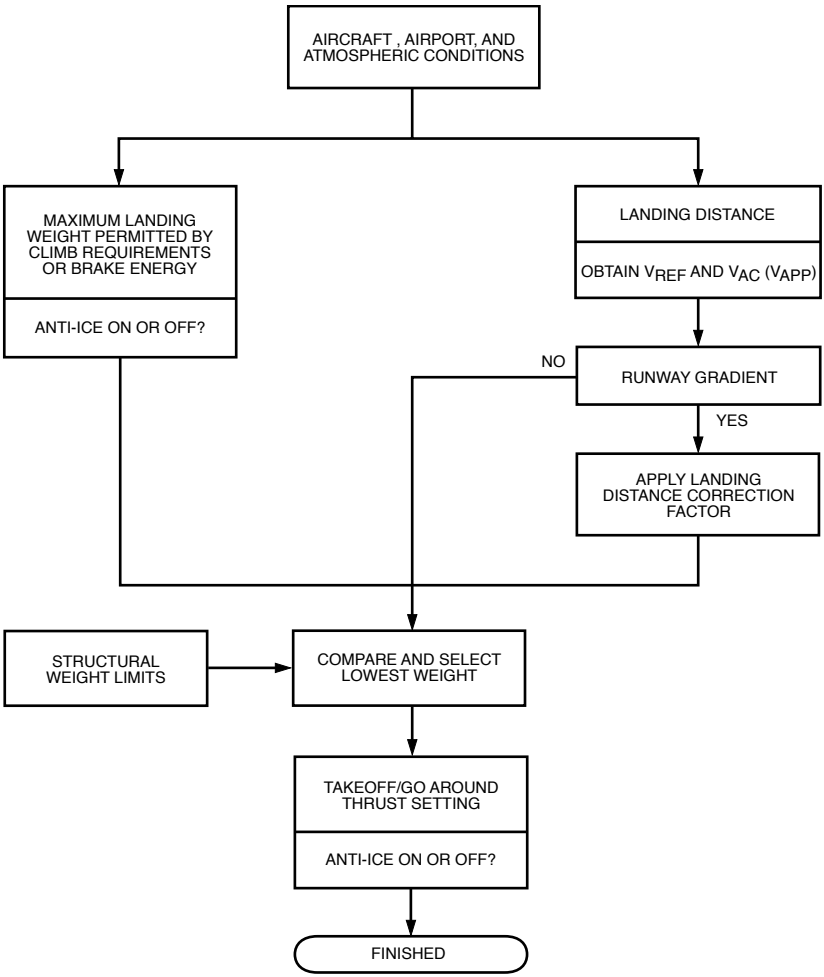
maximum certified takeoff weight

maximum takeoff weight permitted by climb requirements

takeoff field length.

Landing Weight Determination

All Citation Models



5-4

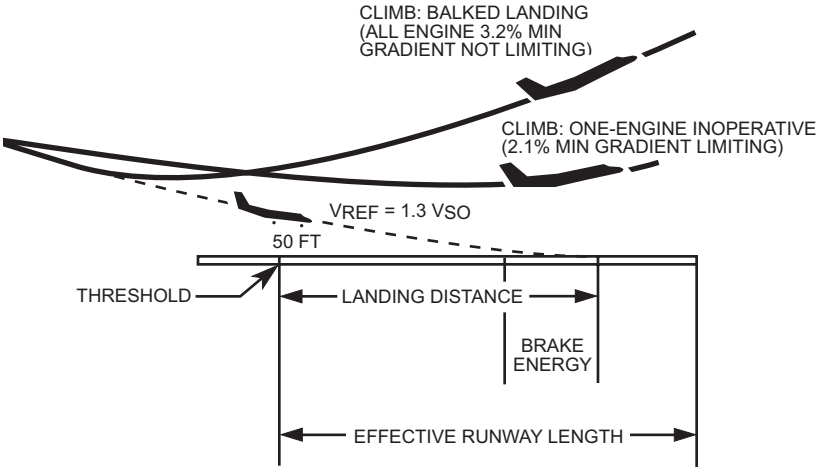
NOTE: Performance charts referenced in the above flow chart are found in the AFM, Section IV.

Landing Path Profile

All Citation Models

The maximum allowable landing weight (**Figure 5-5**) is limited by the most restrictive of the following:

- maximum certified landing weight
- maximum landing weight permitted by climb requirements or brake energy
- landing distance.



5-5

Sample Weight and Balance Loading Form

Payload Computations				Item	Weight (Lbs)	Moment/100
Item	Arm	Weight (Lbs)	Moment/100	1. Basic Empty Weight *A/C CG = _____		
Occupants Seat 1 Seat 2 Seat __ Seat __ Seat __ Seat __ Seat __ Seat __ Seat __ Toilet				2. Payload		
				3. Zero Fuel Weight (Do not exceed maximum zero fuel weight.) *A/C CG = _____		
				4. Fuel Loading		
				5. Ramp Weight (Do not exceed maximum ramp weight.) *A/C CG = _____		
				6. Less Fuel for Taxiing		
				7. **Takeoff Weight (Do not exceed maximum takeoff weight.) *A/C CG = _____		
Baggage Nose Fwd Cab Aft Cab Tailcone				8. Less Fuel to Destination		
				9. **Landing Weight (Do not exceed maximum landing weight.) *A/C CG = _____		
Cabinet Contents				* *Aircraft CG* = $\frac{Moment/100}{Weight} \times 100$		
Surface Anti-Icing Fluid †				** Totals must be within approved weight and center-of-gravity limits. It is the responsibility of the operator to ensure that the aircraft is loaded properly. The Basic Empty Weight CG is noted on the Aircraft Weighing Form. If the aircraft has been altered, refer to the Weight and Balance Record for information.		
Payload						

+ (SII only)

Weight and Balance Form Completion Instructions

Follow the steps below to compute a loading moment and establish that CG is within allowable limits.

1. Obtain basic empty weight and moments from the aircraft weighing form. If the aircraft has been altered, refer to the weight and balance record. *Basic empty weight is the weight of the aircraft, including full oil and all undrainable fluids.*
2. Use the Crew and Passenger Loading Moments Table to determine the moment for each load station.
3. Use the Baggage Loading Moments Table to determine the moment for baggage loading in the nose compartment, in the aft compartment, or in the tailcone compartment.
4. Use the Cabinet Loading Moments Table to determine the moment for any cabinet contents. Total the weight and moments for the crew and passengers, baggage and cabinet contents. Enter the totals in the payload position of the Weight and Balance Form.
5. Use the Fuel Loading Moments Table to determine the moment of the fuel being loaded. Enter the weight and moment of the fuel in the Weight and Balance form.
6. Determine the fuel and moment used for taxi. Assume a standard 200-lb (**150-lb for C0 and CI**) burnoff. The difference between the starting fuel moment and the moment of the fuel remaining on board after taxi equals the taxi fuel moment. Subtract the taxi fuel weight and moment from the ramp weight and moment to find the takeoff weight and moment. Check that the operational takeoff weight is within limits.
7. Compute the takeoff CG in inches by dividing the takeoff weight into the takeoff moment x 100. Enter the CG Moment Envelope chart at the bottom with the computed CG and move up to the Takeoff Weight line. If the intersection of these two lines falls within the shaded area, the aircraft is within CG limits for takeoff.

8. To determine the estimated weight of the fuel to be used to reach destination, compute the difference between the fuel moment remaining after taxi and the fuel moment remaining after reaching destination. Enter the weight of the fuel burned and the computed moment on the Weight and Balance form and subtract them from the takeoff weight figures. Confirm that the landing weight is within limits.
9. Compute the landing CG in inches by dividing the landing weight into the landing moment x 100. Enter the CG Moment Envelope chart at the bottom with the computed CG and move up to the Landing Weight line. If the intersection of these two lines falls within the shaded area, the aircraft is within CG limits for landing.

International Flight Planning
Frequently Used International Terms

International Term	Explanation
ACC	Area Control Center
ADCUS	Advise Customs
AFIL	Air-Filed ICAO Flight Plan
ARINC	Aeronautical Radio Inc.
ATS	Air Traffic Services
BERNA	Swiss Radio Service
DEC	General Declaration (customs)
ETP	Equal Time Point (navigation)
FIC	Flight Information Center
FIR	Flight Information Region
GCA	Ground Controlled Approach
GEOMETER	A clear plastic attachment to a globe that aids in making surface measurements and determining points on the globe
IATA	International Air Traffic Association
ICAO	International Civil Aviation Organization
MET	See METAR
METAR	Routine Aviation Weather Reports
MNPS	Minimum Navigation Performance Specifications
NAT	North Atlantic

International Term	Explanation
NOPAC	North Pacific
OAG	Official Airline Guide
OKTA	Measure of cloud cover in eighths (five OKTAs constitute a ceiling)
OTS	Organized Track Structure
PPO	Prior Permission Only
PSR	Point of Safe Return (navigation)
QFE	Used in some nations; an altimeter setting that causes the altimeter to read zero feet when on the ground
QNE	Altimeter setting used at or above transition altitude (FL 180 in U.S.); this setting is always 29.92
QNH	Altimeter setting that causes altimeter to read field elevation on the ground
SITA	Societe Internationale de Telecommunications Aeronautiques; international organization provides global telecommunications network information to the air transport industry
SPECI	Aviation selected special WX reports
SSR	Secondary Surveillance Radar
TAF	Terminal Airdrome Forecast
UIR	Upper Information Region
UTA	Upper Control Area
WWV/WWVH	Time and frequency standard broadcast stations

International Operations Checklist

Aircrews are required to carry all appropriate FAA licenses and at least an FCC Restricted Radio Telephone Operations license. In addition, passport, visas, and an International Certificate of Vaccination are often required. The International Flight Information Manual (IFIM) specifies passport, inoculation and visa requirements for entry to each country.

The IFIM is a collection of data from Aeronautical Information Publications (AIP) published by the civil aviation authorities (CAA) of various countries.

The following detailed checklist should be helpful in establishing international operations requirements and procedures. You may want to use it to prepare your own customized checklist for your organization's planned destinations.

I. DOCUMENTATION

PERSONNEL, CREW

- ❒ Airman's certificates
- ❒ Physical
- ❒ Passport
- ❒ Extra photos
- ❒ Visa
- ❒ Tourist card
- ❒ Proof of citizenship (not driver's license)
- ❒ Immunization records
- ❒ Traveler's checks
- ❒ Credit cards
- ❒ Cash
- ❒ Passenger manifest (full name, passport no.)
- ❒ Trip itinerary
- ❒ International driver's license

AIRCRAFT

- ❒ Airworthiness certificate
- ❒ Registration
- ❒ Radio licenses
- ❒ MNPS certification
- ❒ Aircraft flight manual
- ❒ Maintenance records
- ❒ Certificates of insurance (U.S. military and foreign)
- ❒ Import papers (for aircraft of foreign manufacture)

II. OPERATIONS

PERMITS

- ❒ Flight authorization letter
- ❒ Overflights
- ❒ Landing
- ❒ Advance notice
- ❒ Export licenses (navigation equipment)
- ❒ Military
- ❒ Customs overflight
- ❒ Customs landing rights

SERVICES

Inspection

- ❒ Customs forms
- ❒ Immigrations
- ❒ Agricultural (disinfectant)

Ground

- ❒ Handling agents
- ❒ FBOs
- ❒ Fuel (credit cards, carnets)
  - ❒ Prist

- ❒ Methanol
- ❒ Anti-ice/De-ice

❒ Maintenance

- ❒ Flyaway kit (spares)
- ❒ Fuel contamination check

Financial

❒ Credit cards

❒ Carnets

❒ Letters of credit

- ❒ Banks
- ❒ Servicing air carriers
- ❒ Handling
- ❒ Fuelers

❒ Traveler's checks

❒ Cash

COMMUNICATIONS

Equipment

❒ VHF

❒ UHF

❒ HF SSB

❒ Headphones

❒ Portables (ELTs, etc.)

❒ Spares

Agreements

❒ ARINC

❒ BERNA (Switzerland)

❒ SITA

❒ Stockholm

NAVIGATION

Equipment

- ❒ VOR
- ❒ DME
- ❒ ADF
- ❒ Inertial
- ❒ VLF/OMEGA
- ❒ LORAN
- ❒ GPS

Publications

- ❒ Onboard computer (update)
- ❒ En route charts (VFR, IFR)
- ❒ Plotting charts
- ❒ Approach charts (area, terminal)
- ❒ NAT message (current)
- ❒ Flight plans
- ❒ Blank flight plans

III. OTHER PUBLICATIONS

- ❒ Operations manual
- ❒ International Flight Information Manual
- ❒ Maintenance manuals
- ❒ Manufacturer's sources
- ❒ World Aviation Directory
- ❒ Interavia ABC
- ❒ Airports International Directory
- ❒ MNPS/NOPAC
- ❒ Customs Guide

IV. SURVIVAL EQUIPMENT

- ❒ Area survival kit (with text)
- ❒ Medical kit (with text)
- ❒ Emergency locator transmitter
- ❒ Floatation equipment
  - ❒ Raft
  - ❒ Life Jackets

V. FACILITATION AIDS

- ❒ U.S. Department of State
- ❒ U.S. Department of Commerce
- ❒ U.S. Customs Service
- ❒ National Flight Data Center (FAA) Notams
- ❒ FAA Office of International Aviation
- ❒ FAA Aviation Security

VI. OTHER CONSIDERATIONS

- ❒ Pre-flight planner
- ❒ Aircraft locks
- ❒ Spare keys
- ❒ Security devices
- ❒ Commissary supplies
- ❒ Electrical adapters (razors, etc.)
- ❒ Ground transportation
- ❒ Hotel reservations
- ❒ NBAA International Feedback cards
- ❒ Catering
- ❒ WX service
- ❒ Reservations
- ❒ Slot times

ICAO International Flight Plan Form

AIR TRAFFIC SERVICES
ICAO FLIGHT PLAN

SERVICES DE LA CIRCULATION AERIENNE
OACI PLAN DE VOL

PRIORITY / PRIORITE — FF

ADRESSEE(S) / DESTINATAIRE(S)

FILING TIME / HEURE DE DEPOT

ORIGINATOR / EXPEDITEUR

SPECIFIC IDENTIFICATION OF ADDRESSEE(S) AND/OR ORIGINATOR / IDENTIFICATION PRECISE DU9DES0 DESTINATAIRE(S) ET/OU DE L'EXPEDITEUR

MESSAGE / TYPE DE MESSAGE

7 AIRCRAFT IDENTIFICATION / IDENTIFICATION DE L'AERONEF

8 FLIGHT RULES / REGLES DE VOL

TYPE OF FLIGHT / TYPE DE VOL

9 NUMBER / NOMBRE

TYPE OF AIRCRAFT / TYPE D'AERONEF

WAKE TURBULENCE CAT
CAT. DE TURBULENCE DE SILLAGE

10 EQUIPMENT / EQUIPMENENT

13 DEPARTURE AERODROME / AERODROME DE DEPART

TIME / HEURE

15 CRUSING SPEED
VITESSE CROISIERE

LEVEL / NIVEAU

ROUTE / ROUTE

16 DESTINATION AERODROME
AERODROME DE DESTINATION

TOTAL EFT / DUREE TOTALE ESTIMEE
HR. MIN.

ALTN AERODROME
AERODROME DE DEGAGEMENT

2ND ALTN AERODROME
2EME AERODROME DE DEGAGEMENT

18 OTHER INFORMATION / RESEIGNEMENTS DIVERS

SUPPLEMENTARY INFORMATION (NOT TO BE TRANSMITTED IN FPL MESSAGES)
RENSEIGMNEMENTS COMPLEMENTAIRES (A NE PAS TRANSMETTRE DANS LES MESSAGES SE PLAN DE VOL DEPOSE)

19

ENEURANCE / AUTONOMIE
HR. MIN.
E /

PERSONS ON BOARD / PERSONNES A BORD
P /

EMERGENCY RADIO / RADIO DE SECOURS
UHF VHF ELBA
R / U V E

SURVIVAL EQUIPMENT / EQUIPEMENT DE SURVIE
POLAR POLAIRE — DESERT DESERT — MARITIME MARITIME — JUNGLE JUNGLE
S / P D M J

JACKETS / GILETS DE SAUVETAGE
LIGHT LAMPE — FLUORES FLUORES — UHF — VHF
J / L F U V

DINGHIES / CANOTS
NUMBER NUMBRE — CAPACITY CAPACITE — COVER COUVERTURE — COLOR COULEUR
D / C

AIRCRAFT COLOUR AND MARKINGS / COUEUR ET MARQUES DE L'AERONEF
A /

REMARKS / REMARQUES
N /

PILOT-IN-COMMAND / PILOTE COMMANDANT DE BORD
C /)

FILED BY / DEPOSE PAR

SPACE RESERVED FOR ADDITIONAL REQUIREMENTS / ESPACE RESERVE A DES FINS SUPPLEMENTAIRES

ICAO Flight Plan Form Completion – Items 7-19

Complete all ICAO flight plans prior to departure. Although the ICAO flight plan form is printed in numerous languages, the format is always the same.

Always enter cruising speed and cruising level as a group. In the body of the flight plan form, if one item changes, the other item must be re-entered to keep speed and level a matched pair.

Always enter latitude and longitude as 7 or 11 characters. If entering minutes of one, enter minutes of the other as well, even if zeros.

Significant points should not be more than one hour apart.

Consider entering overflight/landing permissions after RMK/ in Item 18.

Item 7: Aircraft Identification (7 characters maximum)

Insert (A) the aircraft registration marking or (B) aircraft operating agency ICAO designator followed by the flight identification.

A. Insert only the aircraft registration marking (e.g., EIAKO, 4XBCD, N2567GA) if one of the following is true:

- the aircraft's radiotelephony call sign consists of the aircraft registration marking alone (e.g., OOTEK)
- the registration marking is preceded by the ICAO telephone designator for the aircraft operating agency (e.g., SABENA OOTEK
- the aircraft is not equipped with radio.

B. Insert the ICAO designator for the aircraft operating agency followed by the flight identification (e.g., KL511, WT214, K7123, JH25) if the aircraft's radiotelephony call sign consists of the ICAO telephony designator for the operating agency followed by the flight identification (e.g. KLM 511, NIGERIA 213, KILO UNIFORM 123, JULIETT HOTEL 25).

Item 8: Flight Rules and Type of Flight (1 or 2 characters)

Flight Rules: Insert one of the following letters to denote the intended flight rules category:

- **I** if IFR
- **V** if VFR
- **Y** if IFR first*
- **Z** if VFR first*

*Note: Specify in Item 15 (Route) the point(s) where a flight rules change is planned.

Type of Flight: Insert one of the following letters to denote the type of flight when so required by the appropriate ATS authority:

- **S** if scheduled air service
- **N** if non-scheduled air transport operation
- **G** if general aviation
- **M** if military
- **X** if other than the above

Item 9: Number (1 or 2 characters) and Type of Aircraft (2 to 4 characters) and Wake Turbulence Category (1 character)

Number of Aircraft: Insert number of aircraft if more than one.

Type of Aircraft: Insert the appropriate designator as specified in ICAO Doc 8643, Aircraft Type Designators. If no such designator has been assigned, or in case of formation flight comprising more than one aircraft type, insert ZZZZ, then specify in Item 18 the number(s) and type(s) of aircraft, preceded by TYP/.

Wake Turbulence Category: Insert / + H, M, or L:

- **/H** Heavy – maximum certificated T/O mass of 136,000 kg (300,000 lbs) or more
- **/M** Medium – maximum certificated T/O mass of less than 136,000 kg but more than 7,000 kg (between 15,500 and 300,000 lbs)
- **/L** Light – maximum certificated T/O mass of 7,000 kg or less (15,500 lbs)

Item 10: Equipment

Radio Communication, Navigation, and Approach Aid Equipment: Insert one of the following letters:

- **N** if COM/NAV/approach aid equipment is not carried or is inoperative.
- **S** if standard COM/NAV/approach aid equipment (VHF RTF, ADF, VOR, ILS, or equipment prescribed by ATS authority) is on board and operative;

and/or insert one of the following letters to indicate corresponding COMM/NAV/approach aid equipment is available and operative:

- **A** not allocated
- **B** not allocated
- **C** LORAN C
- **D** DME
- **E** not allocated
- **F** ADF
- **G** (GNSS)
- **H** HF RTF
- **I** Inertial Navig.
- **J** (Data Link)
- **K** (MLS)
- **L** ILS
- **M** Omega
- **O** VOR
- **P** not allocated
- **Q** not allocated
- **R** RNP type certification
- **T** TACAN
- **U** UHF RTF
- **V** VHF RTF
- **W** when prescribed by ATS
- **X** when prescribed by ATS
- **Y** when prescribed by ATS
- **Z** Other (specify in Item 18)

SSR Equipment: Insert one of the following letters to describe the operative SSR equipment on board:

- **N** None
- **A** Transponder Mode A (4 digits- 4 096 codes)
- **C** Transponder Mode A and Mode C
- **X** Transponder Mode S without aircraft ID or pressure-altitude transmission
- **P** Transponder Mode S with pressure altitude transmission, but without aircraft ID transmission
- **I** Transponder Mode S with aircraft ID transmission, but without pressure-altitude transmission
- **S** Transponder Mode S with both pressure altitude and aircraft ID transmission

Item 13: Departure Aerodrome (4 characters) and Time (4 characters)

Departure Aerodrome: Insert one of the following:

- ICAO four-letter location indicator of the departure aerodrome.
- If no location indicator assigned, insert ZZZZ, then specify in Item 18 the name of the aerodrome, preceded by DEP/.
- If flight plan submitted while in flight, insert AFIL, then specify in Item 18 the four-letter location indicator of the ATS unit from which supplementary flight plan data can be obtained, preceded by DEP/.

Time: Insert one of the following:

- for a flight plan submitted before departure: the estimated off-block time
- for a flight plan submitted while in flight: the actual or estimated time over the first point of the route to which the flight plan applies.

Item 15: Cruising Speed (5 characters), Cruising Level (5 characters), and Route

Cruising Speed: Insert the true air speed for the first or whole cruising portion of the flight in one of the following forms:

- Kilometers per hour: K + 4 figures (e.g., K0830)
- Knots: N + 4 figures (e.g., N0485)
- Mach number: M + 3 figures (e.g., M082) if prescribed by ATS.

Cruising Level: Insert the planned cruising level for the first or whole portion of the planned route using one of the following forms:

- Flight level: F + 3 figures (e.g., F085; F330)
- Standard metric level in tens of metres: S + 4 figures (e.g., S1130) if prescribed by ATS.
- Altitude in hundreds of feet: A + 3 figures (e.g., A045; A100)
- Altitude in tens of metres: M + 4 figures (e.g., M0840)
- For uncontrolled VFR flights: VFR

Route: Include changes of speed, level, and/or flight rules.

For flights along designated ATS routes:

- If the departure aerodrome is on or connected to the ATS route, insert the designator of the first ATS route.
- If the departure aerodrome is not on or connected to the ATS route, insert the letters DCT followed by the point of joining the first ATS route, followed by the designator of the ATS route.
- Insert each point at which a change of speed, change of level, change of ATS route, and/or a change of flight rules is planned. For a transition between lower and upper ATS routes oriented in the same direction, do not insert the point of transition.
- In each case, follow with the designator of the next ATS route segment even if it is the same as the previous one (or with DCT if the flight to the next point is outside a designated route), unless both points are defined by geographical coordinates.

Flights outside designated ATS routes:

- Insert points not normally more than 30 minutes flying time or 200 nautical miles apart, including each point at which a change of speed or level, a change of track, or a change of flight rules is planned.
- When required by ATS, define the track of flights operating predominantly in an east-west direction between 70°N and 70°S by reference to significant points formed by the intersections of half or whole degrees of latitude with meridians spaced at intervals of 10 degrees of longitude. For flights operating in areas outside those latitudes, define the tracks by significant points formed by the intersection of parallels of latitude with meridians normally spaced not to exceed one hour's flight time. Establish additional significant points as deemed necessary.

  For flights operating predominantly in a north-south direction, define tracks by reference to significant points formed by the intersection of whole degrees of longitude with specified parallels of latitude that are spaced at 5 degrees.
- Insert DCT between successive points unless both points are defined by geographical coordinates or bearing and distance.

Examples of Route Sub-entries

Enter a space between each sub-entry.

1. ATS route (2 to 7 characters): BCN1, B1, R14, KODAP2A
2. Significant point (2 to 11 characters): LN, MAY, HADDY
   - degrees only (7 characters – insert zeros, if necessary): 46N078W
   - degrees and minutes (11 characters – insert zeros if necessary): 4620N07805W
   - bearing and distance from navigation aid (NAV aid ID [2 to 3 characters] + bearing and distance from the NAV aid [6 characters – insert zeros if necessary]): a point 180 magnetic at a distance of 40 nautical miles from VOR "DUB" = DUB180040

3. Change of speed or level (max 21 characters):

   insert point of change/cruising speed and level – LN/N0284A045, MAY/N0305F180, HADDY/N0420F330, DUB180040/M084F350

4. Change of flight rules (max 3 characters):

   insert point of change (space) change to IFR or VFR – LN VFR, LN/N0284A050 IFR

5. Cruise climb (max 28 characters)

   insert C/point to start climb/climb speed / levels –

   C/48N050W / M082F290F350

   C/48N050W / M082F290PLUS

   C/52N050W / M220F580F620

Item 16: Destination Aerodrome (4 characters), Total Estimated Elapsed Time (EET, 4 characters), Alternate Aerodrome(s) (4 characters)

Destination aerodrome: insert ICAO four-letter location indicator. If no indicator assigned, insert ZZZZ.

Total EET: insert accumulated estimated elapsed time. If no location indicator assigned, specify in Item 18 the name of the aerodrome, preceded by DEST/.

Alternate aerodrome(s): insert ICAO four-letter location indicator. If no indicator assigned to alternate, insert ZZZZ and specify in Item 18 the name of the alternate aerodrome, preceded by ALTN/.

Item 18: Other Information

This section may be used to record specific information as required by appropriate ATS authority or per regional air navigation agreements. Insert the appropriate indicator followed by an oblique stroke (/) and the necessary information. See examples below.

- Estimated elapsed time/significant points or FIR boundary designators: EET/CAP0745, XYZ0830.
- Revised destination aerodrome route details/ICAO aerodrome location indicator: RIF/DTA HEC KLAX. (Revised route subject to reclearance in flight.)
- Aircraft registration markings, if different from aircraft I.D. in Item 7: REG/N1234.
- SELCAL code: SEL/_____.
- Operator's name, if not obvious from the aircraft I.D. in Item 7: OPR/_____.
- Reason for special handling by ATS (e.g., hospital aircraft, one-engine inoperative): STS/HOSP, STS/ONE ENG INOP.
- As explained in Item 9: TYP/_____.
- Aircraft performance data: PER/_____.
- Communication equipment significant data: COM/UHF Only.
- Navigation equipment significant data: NAV/INS.
- As explained in Item 13: DEP/_____.
- As explained in Item 16: DEST/_____, or ALTN/_____.
- Other remarks as required by ATS or deemed necessary: RMK/_____.

Item 19: Supplementary Information

Endurance: insert fuel endurance in hours and minutes.

Persons on Board: insert total persons on board, including passengers and crew. If unknown at time of filing, insert TBN (to be notified).

Emergency Radio, Survival Equipment, Jackets, Dinghies: cross out letter indicators of all items not available; complete blanks as required for items available. (jackets: L = life jackets with lights, J = life jackets with fluorescein).

ICAO Position Reporting Format

Outside the U.S., position reports are required unless specifically waived by the controlling agency.

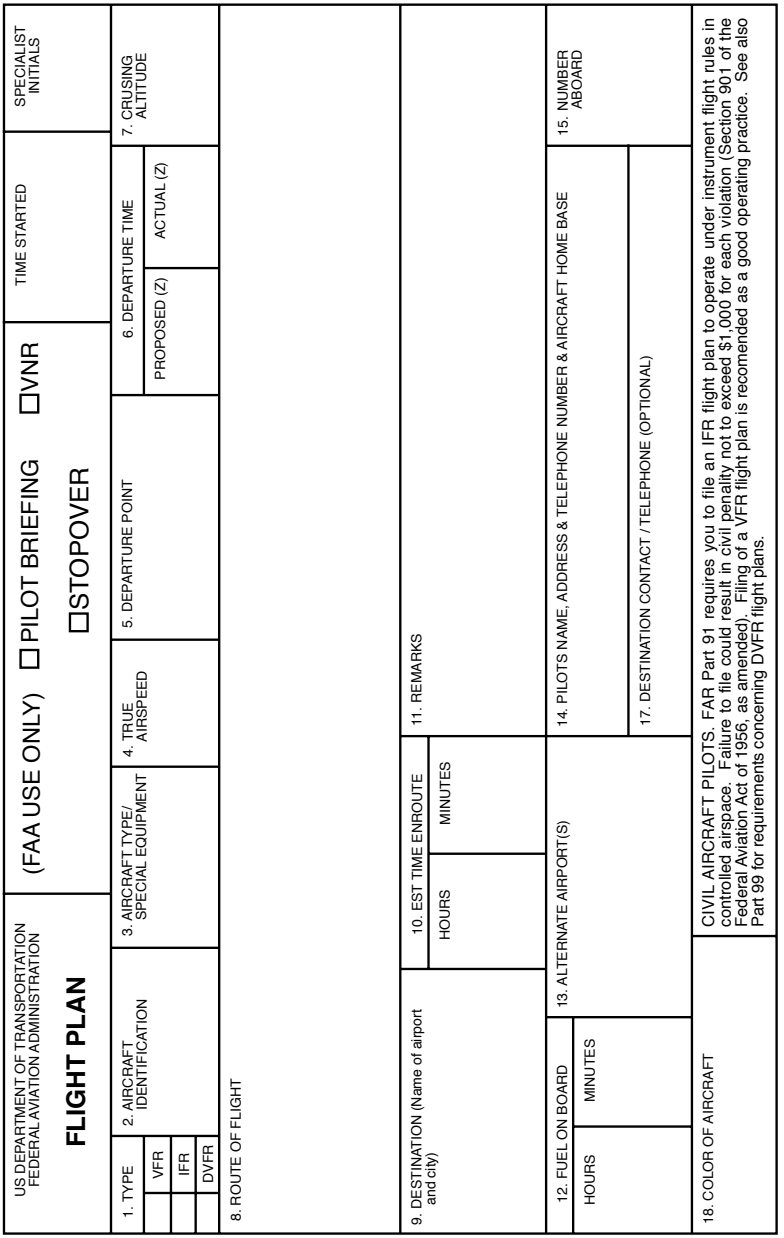
Initial Contact (Frequency Change)

1. Call sign
2. Flight level (if not level, report climbing to or descending to cleared altitude)
3. Estimating (next position) at (time) GMT

Position Report

1. Call sign
2. Position (if position in doubt, use phonetic identifier. For oceanic reports, first report the latitude, then the longitude (e.g., 50N 60W)
3. Time (GMT) or (UST)
4. Altitude or flight level (if not level, report climbing to or descending to altitude)
5. Next position
6. Estimated elapsed time (EET)

FAA Flight Plan Form



FAA Flight Plan Form Completion Instructions

Block 1 Check the type flight plan. Check both the VFR and IFR blocks if composite VFR/IFR.

Block 2 Enter your complete aircraft identification, including the prefix “N,” if applicable.

Block 3 Enter the designator for the aircraft, or if unknown, the aircraft manufacturer’s name.

When filing an IFR flight plan for a TCAS equipped aircraft, add the prefix T for TCAS.
Example: T/G4/R.

When filing an IFR flight plan for flight in an aircraft equipped with a radar beacon transponder, DME equipment, TACAN-only equipment or a combination of both, identify equipment capability by adding a suffix to the AIRCRAFT TYPE, preceded by a slant (/) as follows:

- **/X** no transponder
- **/T** transponder with no altitude encoding capability
- **/U** transponder with altitude encoding capability
- **/D** DME, but no transponder
- **/B** DME and transponder, but no altitude encoding capability
- **/A** DME and transponder with altitude encoding capability
- **/M** TACAN only, but no transponder
- **/N** TACAN only and transponder, but with no altitude encoding capability
- **/P** TACAN only and transponder with altitude encoding capability
- **/C** RNAV and transponder, but with no altitude encoding

/R RNAV and transponder with altitude encoding capability

/W RNAV but no transponder

/G FMS/EFIS/R

This suffix is not to be added to the aircraft identification or be transmitted by radio as part of the aircraft identification.

/G Global Positioning System (GPS)/Global Navigation Satellite System (GNSS) equipped aircraft with oceanic, en route, terminal, and GPS approach capability.

/E Flight Management System (FMS) with barometric Vertical Navigation (VNAV), oceanic, en route, terminal, and approach capability. Equipment requirements are:
(a) Dual FMS which meets the specifications of AC25-15, Approval of Flight Management Systems in Transport Category Airplanes; AC20-129, Airworthiness Approval of Vertical Navigation (VNAV) Systems for use in the U.S. National Airspace System (NAS) and Alaska; AC20-130, Airworthiness Approval of Multi-Sensor Navigation Systems for use in the U.S. National Airspace System (NAS) and Alaska; or equivalent criteria as approved by Flight Standards.
(b) A flight director and autopilot control system capable of following the lateral and vertical FMS flight path.
(C) At least dual inertial reference units (IRUs).
(d) A database containing the waypoints and speed/altitude constraints for the route and/or procedure to be flown that is automatically loaded into the FMS flight plan.
(e) An electronic map.

/F A single FMS with barometric VNAV, en route, terminal, and approach capability that meets the equipment requirements of /E (a) above.

Block 4 Enter your true airspeed (TAS).

Block 5 Enter the departure airport identifier code, or if code is unknown, the name of the airport.

Block 6 Enter the proposed departure time in Coordinated Universal Time (UTC). If airborne, specify the actual or proposed departure time as appropriate.

Block 7 Enter the appropriate IFR altitude (to assist the briefer in providing weather and wind information).

Block 8 Define the route of flight by using NAVAID identifier codes, airways, jet routes, and waypoints.

Block 9 Enter the destination airport identifier code, or if unknown, the airport name. Include the city name (or even the state name) if needed for clarity.

Block 10 Enter estimated time enroute in hours and minutes.

Block 11 Enter only those remarks pertinent to ATC or to the clarification of other flight plan information, such as the appropriate call sign associated with the designator filed in Block 2 or ADCUS.

Block 12 Specify the fuel on board in hours and minutes.

Block 13 Specify an alternate airport, if desired or required.

Block 14 Enter the complete name, address, and telephone number of the pilot in command. Enter sufficient information to identify home base, airport, or operator. This information is essential for search and rescue operations.

Block 15 Enter total number of persons on board (POB), including crew.

Block 16 Enter the aircraft's predominant colors.

Block 17 Record the FSS name for closing the flight plan. If the flight plan is closed with a different FSS or facility, state the recorded FSS name that would normally have closed your flight plan. Information transmitted to the destination FSS consists only of that in Blocks 3, 9, and 10. Estimated time enroute (ETE) will be converted to the correct estimated time of arrival (ETA).

Optional Record a destination telephone number to assist search and rescue contact should you fail to report or cancel your flight plan within 1/2 hour after your estimated time of arrival (ETA).

ICAO Weather Format

On July 1, 1993, the worldwide (ICAO) and North American aerodrome weather codes merged into a new international code for forecasts and reports. The new codes are the result of an effort to meet revised aeronautical requirements and reduce confusion in the aviation community.

The United States converted to METAR/TAF format on July 1, 1996 with terminal aerodrome forecast (TAF) replacing the terminal forecast airport and meteorological aviation routine weather report (METAR) replacing the airport surface observation (AOS).

Although the aviation community now uses a standard set of codes, some differences remain between U.S. and ICAO codes. For example, the following differences may remain in effect.

- ❏ Horizontal visibility is reported in statute miles (SM) in the U.S. code and in meters in the ICAO code. To avoid confusion, the suffix SM follows the visibility value if it is reported in U.S. code. Additionally, when forecast visibility in the U.S. exceeds six statute miles, the prefix P appears (e.g., P6SM - a visibility forecast greater than six statute miles).
- ❏ Runway visual range (RVR) is reported in feet (FT) in the U.S. code and in meters in ICAO code. When RVR is reported for a U.S. runway, the suffix FT is added (e.g., R27L/2700FT, runway 27 left RVR 2,700 ft). RVR is reported only in actual weather, not a forecast TAF.
- ❏ Ceiling and visibility okay (CAVOK) is not used in the U.S.
- ❏ Temperature, turbulence, and icing conditions are not forecast in a U.S. TAF. Turbulence and icing are forecast in Area Forecasts (FAS). Surface temperatures are forecast only in public service and agricultural forecasts.
- ❏ Trend forecasts are not included in U.S. METARs.

- ❏ An altimeter setting in a U.S. METAR is in inches of mercury. In an ICAO METAR, it is in hectopascals (millibars). To avoid confusion, a prefix is always assigned: an A for a U.S. report or a Q for an ICAO report (e.g., A2992 or Q1013).
- ❏ In the U.S., remarks (RMKs) precede recent (RE) weather and wind shear (WS) information reported at the end of METARs.
- ❏ Low level windshear, not associated with convective activity, will appear in U.S., Canadian, and Mexican TAFs.

Sample TAF

A terminal aerodrome forecast (TAF) describes the forecast prevailing conditions at an airport and covers either a 9-hour period or a 24-hour period. Nine-hour TAFs are issued every three hours; 24-hour TAFs are issued every six hours. Amendments (AMD) are issued as necessary. A newly issued TAF automatically amends and updates previous versions. Also, many foreign countries issue eighteen hour TAFs at six hour intervals.

The following example has detailed explanations of the new codes.

KHPN 091720Z 091818 22020KT 3/4SM -SHRA
BKN020CB FM2030 30015G25KT 1500 SHRA
OVC015CB PROB40 2022 1/4SM TSRA OVC008CB
FM2300 27008KT 1 1/2SM -SHRA BKN020
OVC040 TEMPO 0407 00000KT 1/2SM -RABR
VV004 FM1000 22010KT 1/2SM -SHRA OVC020
BECMG 1315 20010KT P6SM NSW SKC

KHPN. ICAO location indicator. The usual 3 letter identifiers we are familiar with are now preceeded by a K for the contiguous United States. Alaska and Hawaii will use 4 letter identifiers with PA and PH respectively. Changes are planned to incorporate alphabetic identifiers for those weather reporting stations where numbers and letters are now used (e.g., W10 changed to KHEF).

091720Z. Issuance time. The first two digits (**09**) indicate the date; the following four digits (**1720**) indicate time of day. All times are in UTC or Zulu.

091818. Valid period. The first two digits (**09**) indicate the date. The second two digits (**18**) are the hour that the forecast period begins. The last two digits (**18**) indicate the hour that the forecast expires. The example is a 24-hour forecast.

22020KT. Surface wind. The first three digits (**220**) are true direction to the nearest 10°. The next two digits (**20**) indicate speed. **KT** indicates the scale is in knots. TAFs may also use kilometers-per-hour (**KMH**) or meters per second (**MPS**). If gusts are forecast, a **G** and a two-digit maximum gust speed follow the five-digit wind reading (e.g., **22020G10KT**). Five zeros and the appropriate suffix indicate calm winds (e.g., **00000KT/KMH/MPS**).

NOTE: Towers, ATIS and airport advisory service report wind direction as magnetic.

3/4SM. Prevailing horizontal visibility. Visibility (**3/4SM**) is in statue milles in the U.S. However, most countries use meters which appears with no suffix (e.g., **1200**).

-SHRA. Weather and/or obstruction to visibility (**Table 5-A**, page 5-42). The minus sign (-) indicates light, a plus sign (+) indicates heavy, and no prefix indicates moderate. If no significant weather is expected, the group is omitted. If the weather ceases to be significant after a change group, the weather code is replaced by the code for no significant weather (**NSW**).

BKN020CB. Cloud coverage/height/type. The first three letters indicate expected cloud coverage. Cloud height is indicated by the second set of three digits; these are read in hundreds of feet (or multiples of 30 meters). When cumulonimbus is forecast, cloud type (**CB**) follows cloud height.

NOTE: More than one cloud layer may be reported.

When an obscured sky is expected and information on vertical visibility is available, the cloud group is replaced by a different five-digit code (e.g., **VV004**). The first two digits are Vs. The three figures following indicate vertical visibility in units of 100 ft. For indefinite vertical visibility, the two Vs would be followed by two slash marks (**VV**//).

FM2030. Significant change expected in prevailing weather. The from code (**FM**) is followed by a four-digit time code (**2030**). Prevailing weather conditions consist of surface wind, visibility, weather, and cloud coverage.

PROB40 2022. Probability (**PROB**) and a two-digit code for percent (**40**) is followed by a four-digit code (**2022**) that indicates a beginning time (**20**) and an ending time (**22**) to the nearest whole hour for probable weather conditions. Only 30% and 40% probabilities are used; less than these are not sufficient to forecast; 50% and above support the normal forecast.

TEMPO. Temporary change followed by a four-digit time. Forecasts temporary weather conditions. Indicates that changes lasting less than an hour and a half may occur anytime between the two-digit beginning time and two-digit ending time.

Decoding TAFs

The latter half of the sample TAF is decoded based on the preceding information.

30015G25KT 1/2SM SHRA OVC015CB

- Surface winds, 300° true direction
- Mean speed, 15 kts
- Gusts, maximum gust 25 kts
- Visibility, 1/2 statute mile
- Moderate showers of rain
- Overcast at 1,500 ft with cumulonimbus clouds

FM2300 27008KT 1 1/2SM -SHRA BKN020 OVC040

- Significant change expected from 2300 hours
- Surface winds, 270° true direction at 8 kts
- Visibility, one and one-half statute mile
- Light showers of rain
- Broken clouds at 2,000 ft with a second overcast layer at 4,000 ft

TEMPO 0407 00000KT 1/4SM -RA BR VV004

- Temporary between 0400 and 0700 hours
- Calm winds
- Visibility 1/4 statute mile
- Light rain and mist
- Indefinite ceiling, vertical visibility 400 ft

FM1000 22010KT 1/2SM -SHRA OVC020

- Significant change expected from 1000 hours
- Surface winds, 220° true direction at 10 kts
- Visibility, 1/2 statute mile
- Light showers of rain
- Overcast skies at 2,000 ft

BECMG 1315 20010KT P6SM NSW SKC

- Change to the forecast conditions between 1300 and 1500 hours
- Expected surface winds, 200° true direction at 10 kts
- Visibility, more than 6 statute miles
- No significant weather
- Clear skies

Sample METAR

A routine aviation weather report on observed weather, or METAR, is issued at hourly or half-hourly intervals. A special weather report on observed weather, or SPECI, is issued when certain criteria are met. Both METAR and SPECI use the same codes.

A forecast highly likely to occur, or TREND, covers a period of two hours from the time of the observation. A TREND forecast indicates significant changes in respect to one or more of the following elements: surface wind, visibility, weather, or clouds. TREND forecasts use many of the same codes as TAFs.

Most foreign countries may append a TREND to a METAR or SPECI. In the U.S., however, a TREND is not included in a METAR or SPECI.

The following example indicates how to read a METAR.

KHPN 201955Z 22015G25KT 2SM
R22L/1000FT TSRA OVC010CB 18/16 A2990
RERAB25 BECMG 2200 24035G55

KHPN. ICAO location indicator.

201955Z. Date and time of issuance. METARs are issued hourly.

22015G25KT. Surface wind (same as TAF). If the first three digits are VAR, the wind is variable with wind speed following. If direction varies 60° or more during the ten minutes immediately preceding the observation, the two extreme directions are indicated with the letter V inserted between them (e.g., **280V350**).

NOTE: G must vary 10 kts or greater to report gust.

2SM. Prevailing horizontal visibility in statute miles. In the U.S., issued in statute miles with the appropriate suffix (**SM**) appended. When a marked directional variation exists, the reported minimum visibility is followed by one of the eight compass points to indicate the direction (e.g., **2SMNE**).

R22L/1000FT. The runway visual range group. The letter **R** begins the group and is followed by the runway description (**22L**). The range in feet follows the slant bar (**1000FT**). In other countries range is in meters and no suffix is used.

TSRA OVC010CB. Thunderstorms (**TS**) and rain (**RA**) with an overcast layer at 1,000 ft and cumulonimbus clouds.

NOTE: More than one cloud layer may be reported.

18/16. Temperatures in degrees Celsius. The first two digits (**18**) are observed air temperature; the last two digits (**16**) are dew point temperature. A temperature below zero is reported with a minus (**M**) prefix code (e.g., **M06**).

A2990. Altimeter setting. In the U.S., **A** is followed by inches and hundredths; in most other countries, **Q** is followed by hectopascals (i.e., millibars).

RERAB25. Recent operationally significant condition. A two letter code for recent (**RE**) is followed by a two letter code for the condition (e.g., **RA** for rain). A code for beginning or ending (**B** or **E**) and a two-digit time in minutes during the previous hour. When local circumstances also warrant, wind shear may also be indicated (e.g., **WS LDG RWY 22**).

NOTE: A remark (RMK) code is used in the U.S. to precede supplementary data of recent operationally significant weather.

NOTE: RMK [SLP 013] breaks down SEA LVL press to nearest tenth (e.g., 1001.3 reported as SLP 013).

BECMG AT 2200 24035G55. A TREND forecast. The becoming code (**BECMG**) is followed by a when sequence (**AT 2200)** and the expected change (e.g., surface winds at 240° true at 35 kts with gusts up to 55 kts).

NOTE: For more information on METAR/TAF, consult the FAA brochure “New Aviation Weather Format METAR/TAF.” Copies may be obtained by writing to: FAA/ASY-20, 400 7th Street, S.W. Washington, DC 20590.