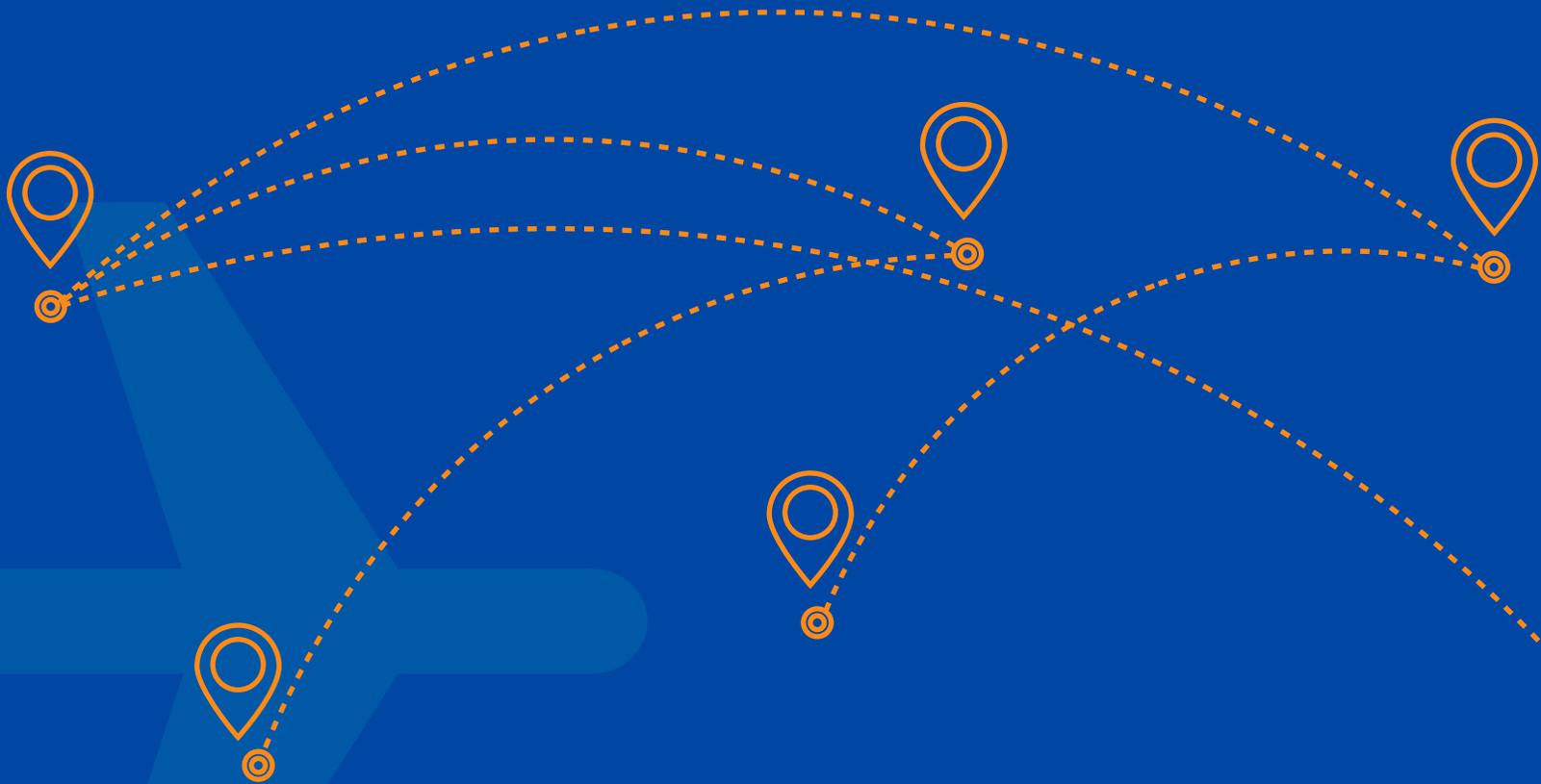
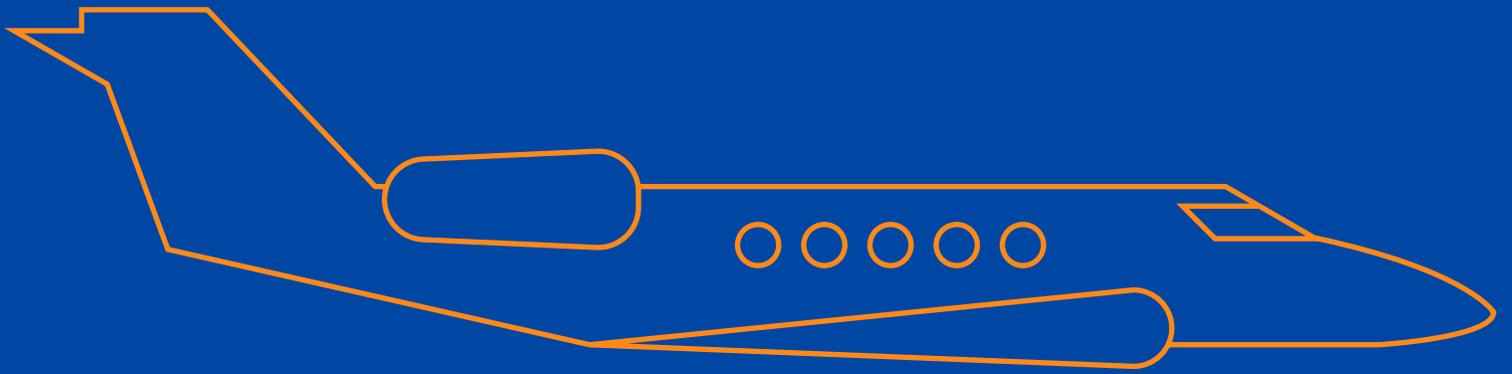


FLIGHT PLANNING GUIDE



Safety is in the small stuff.



Introduction



A flight plan is a critical part of a flight and it is essential to ensure that it's properly prepared. Unfortunately, mistakes are often made when completing them, due to lack of knowledge or confusion about regulations. Errors on sample flight plans are also a frequent reason why Letters of Authorization are either delayed or not approved. In this guide, we will provide some basic information to help with some of the more frequently misunderstood parts of the flight plan process.



Flight plans are comprised of two distinct parts:



ATC Flight Plan

(i.e., the coded ICAO portion) – This is what is ultimately sent to ATC and provides important information to air traffic services relative to an aircraft's capabilities and route.

Navigation Plan

(sometimes referred to as Master Document or Computer Flight Plan) – This is a more detailed, multi-page plan that outlines your fuel, point profile, ETEs, ETAs, and so forth.

Whether you're applying for LOAs with the FAA or just conducting your flights on a daily basis, there are detailed rules you need to follow which can sometimes appear confusing or overwhelming.



Supporting an Authorization Request (LOA Application)

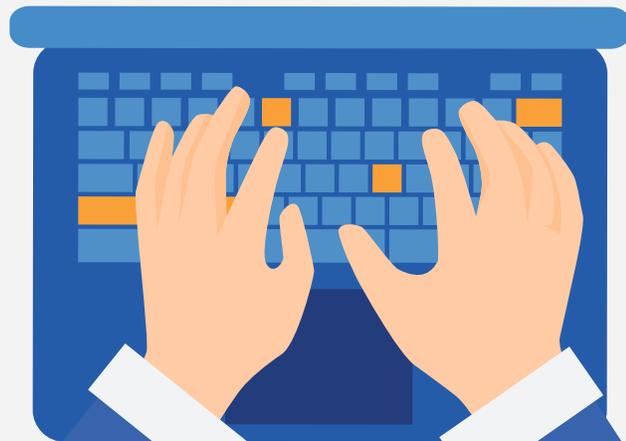


According to the FAA, "Over 80% of A056 Applications fail because the equipment of the aircraft does not match what is being claimed and filed on the flight plan."

When applying for an authorization, there is a lot to prepare and the FAA is very particular about the finer details. For applications such as A056, Data Link Communications (CPDLC/ADS-C), and B036, Oceanic and Remote Operations (RNP-10/RNP-4/RNP-2), a sample flight plan is required.

The FAA will specifically check whether the flight planning codes listed in your sample plan (ICAO Items 10 and 18) correctly match up to the aircraft equipment and capabilities that you are applying for. In addition, the FAA will review the overall formatting of your plan and scrutinize how fuel is distributed.

The unfortunate reality is that the FAA often identifies errors in these sections of the flight plan, which can cause avoidable delays in the approval process. Errors can involve back and forth between the operators and inspectors, and may cost days, weeks, or even months in delays. Most of this can be avoided by double-checking the topics and information noted in this guide.





Fuel and Formatting



Ensuring you have the proper amount of fuel is extremely important. It's not just crucial to calculate for holding, alternates and bad weather, but also to know how to properly display fuel values on your flight plan.

Your fuel will usually be described on your flight plan in a broken-out format, such as the one below:

```

DEPARTURE DATE/TIME      ARRIVAL DATE/TIME - INCLUDES TAXI TIMES
27/17.00 (ZULU)          27/21.07 (ZULU)
27/14.00 (LOCAL)         27/22.07 (LOCAL)

      FUEL  TIME  DIST  ARRIVE  TAKEOFF  LAND  AV  PLD  OPNLWT
POA  EIDW  008781  03.54  1968  20.54Z  032367  023586  000200  020500
ALT  EINN  000746  00.32  0143
HLD  000581  00.30
FXI  000150
RES  001559  00.45
EXTRA  000000  00.00
TOT  011817  05.51

                                GREAT CIRCLE DIST 1899
    
```

ICAO Annex 6 (both parts I and II) outline how operators should calculate the fuel they require. Keep in mind that the fuel requirements for flights outside of the US usually follow ICAO standards, and are more restrictive than the ones outlined in the CFRs.

On the next page is a more detailed breakdown of these calculations.

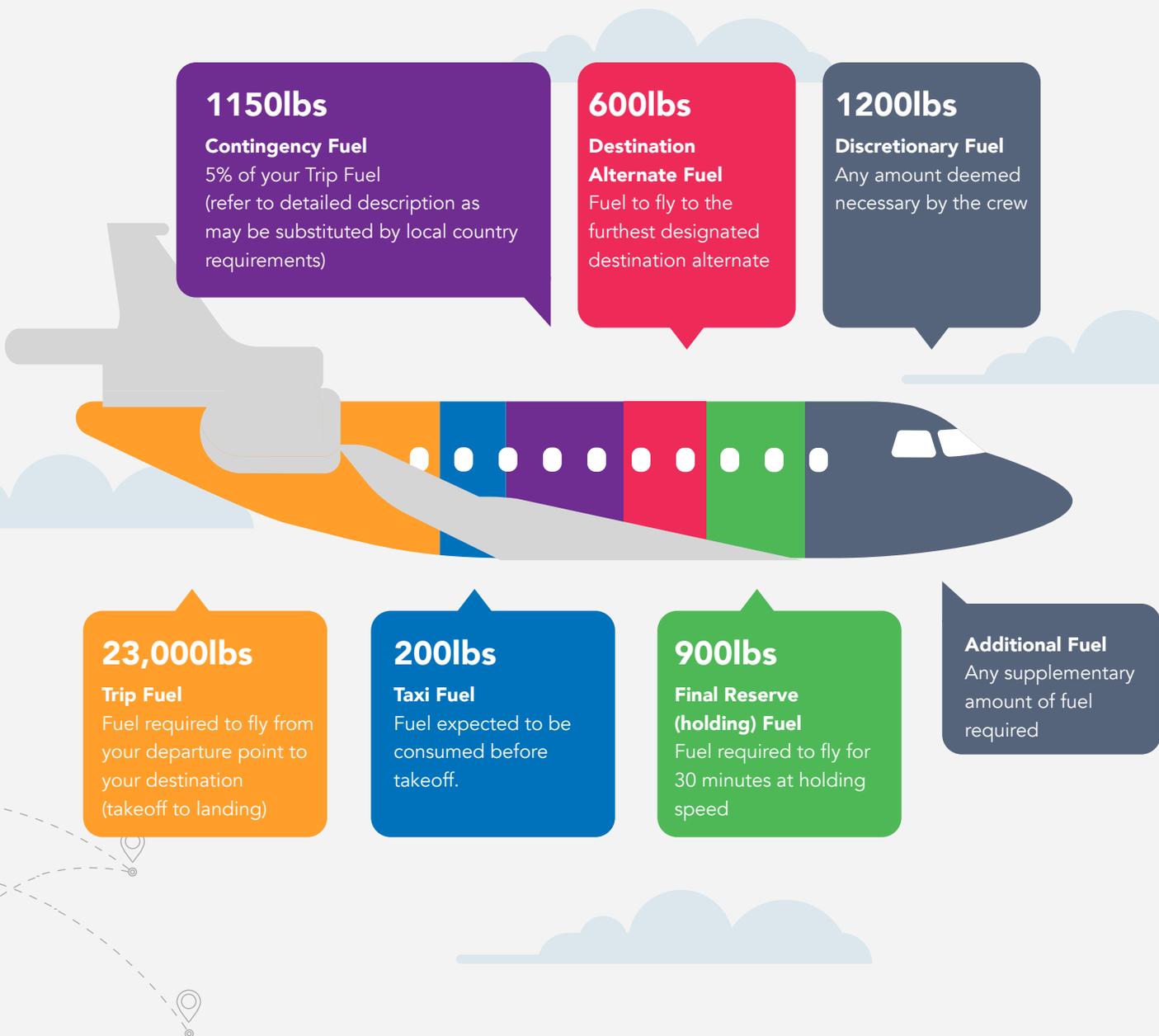


Fuel and Formatting



Fuel Allocation at a Glance

Below is a breakdown of how ICAO publications require that you allocate fuel when preparing your flight plans. To try to simplify the overall process, we have diagrammed it below. For this example, we are going to consider a Private Flight (Part 91 / ICAO Annex 6 Part II) using a total fuel load of 27,050 lbs on a flight from Teterboro to Paris:





Fuel Allocation: The Details



What does all of that mean? Here is a more detailed explanation of ICAO's fuel requirements.

	ICAO's Requirements	What this means for you
Taxi fuel	Fuel expected to be consumed before takeoff.	As the title suggests, this is the fuel needed to move the aircraft on the ramp before takeoff.
Trip fuel	Fuel required to fly from takeoff, or the point of inflight re-planning, until landing at the destination airport.	This is the basic amount of fuel that would be needed to make the trip from departure to destination, assuming that no issues or deviations came up.
Contingency fuel <small>(AKA, "Reserve Fuel")</small>	Fuel required to compensate for unforeseen factors, such as weather deviations, individual airplane variance in fuel consumption, extended taxi times, etc. Contingency fuel must be calculated as no less than five percent of the planned trip fuel, based on the consumption rate used to plan the trip fuel. For commercial (i.e., Part 135) flights, this amount must also not be lower than the amount required to fly for five minutes at holding speed at 450m (1,500 ft) above the destination aerodrome in standard conditions.	<p>This is additional fuel that must be carried to ensure that the trip can be made, taking into account that unexpected changes along the way (even if they are minor) will result in more fuel being needed. It is often also called "reserve fuel," although ICAO strictly uses the term "contingency fuel."</p> <p>Note that ICAO's requirement is fairly simple for non-commercial (i.e., Part 91) operators. The only ICAO requirement is 5% of your trip fuel.</p> <p>However, in many cases you will actually need to exceed ICAO's requirements, as ICAO is not the bottom line. For example, IFR flights from, to, or within the US and Europe need to adhere to the "45 minute" rule, meaning that you must carry at least 45 minutes of contingency fuel. This could very well be greater than the 5% rule stated above.</p> <p>When you have multiple requirements for contingency fuel, make sure that you apply the most restrictive one, i.e., the greater value by weight. This way you will ensure you meet all applicable regulatory requirements.</p> <p>Also note that your contingency fuel does NOT include your final reserve fuel; we will cover that below.</p>



Fuel Allocation: The Details



Destination alternate fuel

a) Where a destination alternate aerodrome is required, the amount of fuel required to enable the airplane to:

- i. Perform a missed approach at the destination aerodrome;
- ii. Climb to the expected cruising altitude;
- iii. Fly the expected routing;
- iv. Descend to the point where the expected approach is initiated; and
- v. Conduct the approach and landing at the destination alternate aerodrome; or

b) Where two destination alternate aerodromes are required, the amount of fuel required to enable the airplane to proceed to the destination alternate airport which requires the greater amount of alternate fuel; or

c) Where a flight is operated without a destination alternate airport, the amount of fuel required to enable the airplane to fly for 15 minutes at holding speed at 450 m (1,500 ft) above destination airport elevation in standard conditions; or

d) Where the airport of intended landing is an isolated airport:

- i. For a reciprocating engine airplane, the amount of fuel required to fly for 45 minutes plus 15 percent of the flight time planned to be spent at cruising level, including final reserve fuel, or two hours, whichever is less; or
- ii. For a turbine-engined airplane, the amount of fuel required to fly for two hours at normal cruise consumption above the destination aerodrome, including final reserve fuel.

In short, this is the fuel you would need in order to make it from your destination to your alternate, if for any reason you are not able to land at your preferred destination.

Note that even if you are not planning a flight with an alternate, you may NOT ignore this requirement. Even if no alternate is listed on the plan, some additional fuel is still required. You would instead be required to carry enough fuel for an additional 15 minutes at holding speed above your destination, in addition to your final reserve fuel.



Fuel Allocation: The Details



<p>Final reserve fuel</p> <p>(AKA, "Holding fuel")</p>	<p>An amount of fuel calculated using the estimated mass on arrival at the destination alternate airport, or the destination airport when no destination alternate airport is required:</p> <ul style="list-style-type: none"> a) For a reciprocating engine airplane, the amount of fuel required to fly for 45 minutes, under speed and altitude conditions specified by the State of the Operator; or b) For a turbine-engined airplane, the amount of fuel required to fly for 30 minutes at holding speed at 450 m (1,500 ft) above aerodrome elevation in standard conditions. 	<p>In short this would either be an additional 45 or 30 minutes of fuel to keep the airplane in a holding pattern above the destination, depending on what type of engines are fitted. Turbojet aircraft would apply 30 minutes.</p>
<p>Additional fuel</p>	<p>Any supplementary fuel required if the minimum fuel calculated above is not sufficient to:</p> <ul style="list-style-type: none"> a) Allow the airplane to descend as necessary and proceed to an alternate airport in the event of engine failure or loss of pressurization, whichever requires the greater amount of fuel based on the assumption that such a failure occurs at the most critical point along the route; <ul style="list-style-type: none"> i. Fly for 15 minutes at holding speed at 450 m (1,500 ft) above airport elevation in standard conditions; and ii. Make an approach and landing; b) Allow an airplane engaged in EDTO to comply with the EDTO critical fuel scenario as established by the State of the Operator; or c) Meet additional requirements not covered above. 	<p>Consider this "Other, Part 1."</p> <p>This is additional fuel that may need to be carried for regulatory purposes outside of what ICAO has prescribed, or additional fuel needed if ICAO's requirements above are not enough to allow the aircraft to complete the flight in the event of engine failure or loss of pressurization.</p> <p>This would also include additional fuel needed to engage in ETOPS, if you are a commercial operator. For non-commercial operators (i.e., Part 91), ETOPS would not apply.</p>
<p>Discretionary fuel</p>	<p>Extra fuel to be carried at the discretion of the PIC.</p>	<p>Consider this "Other, Part 2."</p> <p>This is additional fuel that is carried for non-regulatory purposes. If your flight department has opted to carry an extra reserve for any reason – for example, unique performance considerations for your specific aircraft – you would categorize it as "discretionary fuel."</p>



Fuel Allocation: The Details

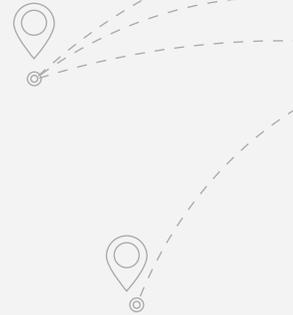


Make sure you are familiar with the labels used on your flight plan for each fuel allocation and that you can sufficiently explain these to an authority that might ask, such as a ramp inspector. Your flight planning providers usually have the flexibility to update the labels used on your flight plan (or may already have some alternate templates) in case it is not clear whether or not you are complying with all that is outlined above.

Note that even if your total fuel is compliant with ICAO, a ramp inspector may not consider the plan to be acceptable if it is not clear that each of the individual ICAO requirements are met. In other words, "75 minutes" of total fuel may not be acceptable, whereas saying "30 minutes of holding and 45 minutes of contingency" would be, even though practically they are the same thing.

Your flight plan format should then include a navigation log with all the relevant waypoints, fuel and fuel flow values, altitudes, speeds, temperatures, wind details, etc.

When required, ETP (Equal Time Point) calculations should be included and be sure to also account for additional fuel at the ETP Diversion Airports. A lot of flight planning systems will provide calculations down to an arrival with 0 lbs!



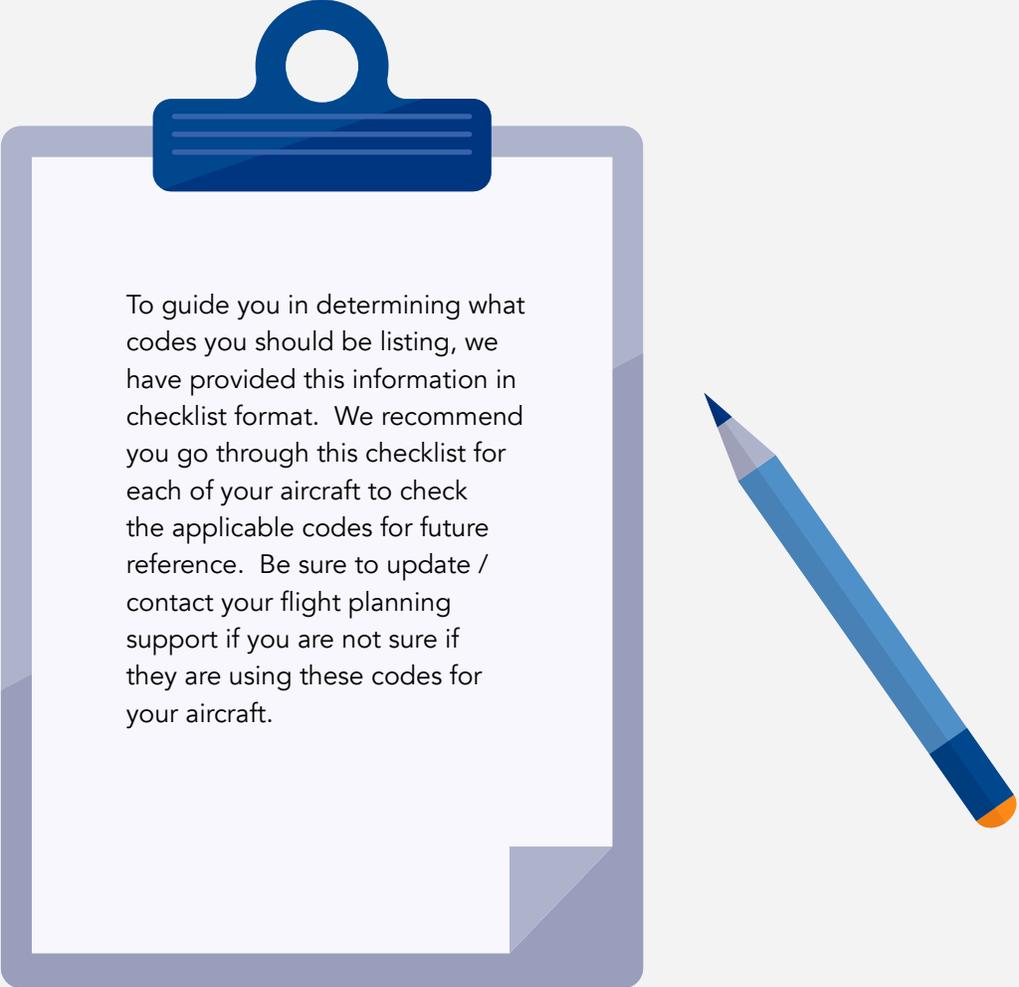


© Flight Planning Codes



While flight planning codes may seem like just a bunch of letters and numbers on paper, errors can have real consequences when received by ATC, such as inadvertent flight penalties, significant reroutes or the inability to receive an in-flight clearance.

Keep in mind that when flight plans are filed, they are often processed by an automated system (Eurocontrol IFPS for example). Based on the codes and overall syntax of the submitted flight plan, ATC will assign delays, reroutes or may even reject the flight plan, simply due to incorrect formatting.



To guide you in determining what codes you should be listing, we have provided this information in checklist format. We recommend you go through this checklist for each of your aircraft to check the applicable codes for future reference. Be sure to update / contact your flight planning support if you are not sure if they are using these codes for your aircraft.



STEP 1: Select Field 10a Codes

Field 10a – This field corresponds to the Equipment and Capabilities of the aircraft:

- N No Capabilities (Not Common)**
This should only be used if no COM/NAV equipment is carried – or the equipment is unusable.
- S Standard (Typical)**
In almost all cases, this should be checked. Standard is considered to be VHF, VOR and ILS.
- A GBAS Landing System (Not Common)**
This should be checked if you are equipped with GBAS to support approaches, landing, and departures. To find out if you are equipped, check your AFM Limitations Section or navigation equipment list (i.e computerized maintenance program - Chapter 34).
- B LPV (APV with SBAS) (Varies)**
This should be checked if you are equipped and capable of LPV approaches (RNAV GNSS with LPV minima). To find out if you can do these operations, check your AFM Navigation Limitations section, and look for the term LPV. These operations often require an LOA (FAA - C052).
- C LORAN C (Not Common)**
This has been decommissioned, and is no longer used.
- D DME (Typical)**
This should be checked if your aircraft is equipped with DME. To find out if you are equipped, check your navigation equipment list (i.e computerized maintenance program - Chapter 34).
- E1 FMC WPR (Varies)**
This should be checked if your aircraft has, in addition to Datalink Capabilities, an FMS with Waypoint Reporting (WPR) function. These are position reports that can be forwarded to ATC and used to replace HF voice position reports. To find out if you are capable, check the datalink portion of your AFM (this is usually in the Limitations Section).
- E2 D-FIS (Varies)**
This should be checked if your aircraft has, in addition to Datalink Capabilities, an FMS with the capability to receive messages from flight information services (FIS), such as weather reports and operational data. To find out if you are capable, check the datalink portion of your AFM (this is usually in the Limitations Section).
- E3 PDC (Varies)**
This should be checked if your aircraft has, in addition to Datalink Capabilities, an FMS with the capability to receive PDCs (Pre-Departure Clearances). To find out if you are capable, check the datalink portion of your AFM (this is usually in the Limitations Section).



© Flight Planning Codes



- F ADF (Typical)**
Check this if you are equipped with ADF. To find out if you are equipped, check your navigation equipment list (i.e. computerized maintenance program - Chapter 34).
- G GNSS (Typical)**
This should be checked if equipped with a GPS. To find out if you are equipped, check your navigation equipment list (i.e. computerized maintenance program - Chapter 34).
- H HF RTF (Typical)**
Check this if you are equipped with HF Radio(s). To find out if you are equipped, check your communications equipment list (i.e. computerized maintenance program - Chapter 23).
- I INS (Varies)**
Check this if you are equipped with Inertial Navigation System (INS/IRS/IRU). To find out if you are equipped, check your navigation equipment list (i.e. computerized maintenance program - Chapter 34).
- J1 VDL Mode 2 (CPDLC over ATN) (Varies)**
Check this if you are capable of CPDLC over ATN, which is the European datalink network. To find out if you are capable of this, check your AFM Limitations Section and look for the term ATN B-1. These operations typically require an LOA (FAA – A056).
- J2 HFDL (CPDLC over FANS 1/A) (Not Common)**
Check this box if you are capable of High Frequency Data Link Communications. To find out if you are capable of this, check your AFM Limitations Section and look for the term HFDL.
- J3 VDL Mode A (CPDLC over FANS 1/A) (Varies)**
Check this if you are capable of CPDLC over FANS using VHF Datalink Mode A (analog). To find out if you are capable of this, check your AFM Limitations Section and look for the term VDL M0/A. These operations typically require an LOA (FAA – A056). Please note that both J3 and J4 may be used.
- J4 VDL Mode 2 (CPDLC over FANS 1/A) (Varies)**
Check this if you are capable of CPDLC over FANS using VHF Datalink Mode A (digital). To find out if you are capable of this, check your AFM Limitations Section and look for the term VDL M0/2. These operations typically require an LOA (FAA – A056). Please note that both J3 and J4 may be used.
- J5 Satellite Inmarsat (CPDLC over FANS 1/A) (Varies)**
Check this if you are capable of CPDLC over FANS using Satellite Datalink over the Inmarsat Network. To find out if you are capable of this, check your AFM Limitations Section and look for the term Inmarsat. These operations typically require an LOA (FAA – A056). Please note that though both J5 and J7 may be selected, it is usually one or the other.





Flight Planning Codes



J6 Satellite MTSAT (CPDLC over FANS 1/A) (Not Common)

Check this if you are capable of CPDLC over FANS using Satellite Datalink over the MTSAT Network. To find out if you are capable of this, check your AFM Limitations Section and look for the term MTSAT. These operations typically require an LOA (FAA – A056).

J7 Satellite Iridium (CPDLC over FANS 1/A) (Varies)

Check this if you are capable of CPDLC over FANS using Satellite Datalink over the Iridium Network. To find out if you are capable of this, check your AFM Limitations Section and look for the term Iridium. These operations typically require an LOA (FAA – A056). Please note that though both J5 and J7 may be selected, it is usually one or the other.

K MLS (Not Common)

Check this if you are equipped and capable of utilizing Microwave Landing Systems. This would be outlined in your AFM Navigation Limitations Section.

L ILS (Typical)

Check this if you are capable of ILS. ILS equipment can be specified by using the letter S (Standard) only and/or by inserting the letter L. To find out if you are capable of this, check your AFM Navigation Limitations Section.

M1 Inmarsat (ATC SATVOICE) (Varies)

Check this if you are equipped with an Air Traffic Control (ATC) SATellite VOICE radio (SATVOICE) with data transiting via the Inmarsat satellite network. To find out if you are equipped with this type of radio, check your equipment list (i.e computerized maintenance program - Chapter 23). If the AFM or aircraft documentation does not indicate that the system has been installed in accordance with AC 20-150, it is not approved for use and this code must not be used.

M2 MTSAT (ATC SATVOICE) (Not Common)

Check this if you are equipped with an Air Traffic Control (ATC) SATellite VOICE radio (SATVOICE) with data transiting via the MTSAT satellite network. To find out if you are equipped with this type of radio, check your equipment list (i.e computerized maintenance program - Chapter 23).

M3 Iridium (ATC SATVOICE) (Varies)

Check this if you are equipped with an Air Traffic Control (ATC) SATellite VOICE radio (SATVOICE) with data transiting via the Iridium satellite network. To find out if you are equipped with this type of radio, check your equipment list (i.e computerized maintenance program - Chapter 23). If the AFM or aircraft documentation does not indicate that the system has been installed in accordance with AC 20-150, it is not approved for use and this code must not be used.

Important: You are not limited to the number of "J" codes you can enter when describing your aircraft capabilities, and you must enter ALL applicable codes. It is very common for a plan to include 3-4 of these codes.



Flight Planning Codes



O VOR (Typical)

Check this if you are equipped with VOR Equipment. To find out if you are equipped, check your equipment list (i.e computerized maintenance program - Chapter 23). Please note that VOR equipment can be specified by using the letter S (Standard) only and/or by inserting the letter O.

P1 RCP400 (Not Common)

Check this if you comply with Required Communication Performance 400 (in seconds). To find out if you are compliant with this standard, check your AFM Limitations Section and look for the term RCP400. These operations typically require an LOA (FAA – A056).

P2 RCP240 (Varies)

Check this if you comply with Required Communication Performance 240 (in seconds). To find out if you are compliant with this standard, check your AFM Limitations Section and look for the term RCP240. These operations typically require an LOA (FAA – A056).

P3 RCP400 (SATVOICE) (Not Common)

Check this if you comply with Required Communication Performance 400 SATVOICE (in seconds). To find out if you are compliant with this standard, check your AFM Limitations Section and look for the term RCP400 SATVOICE. These operations typically require an LOA (FAA – A056).

R PBN (Typical)

Check this if you are compliant with Performance Based Navigation standards. To find out if you are compliant check your AFM Navigation Limitations Section and look for terms such as RNAV and RNP. These operations typically require an LOA (FAA – B036 / C063 / C052).

T TACAN (Not Common)

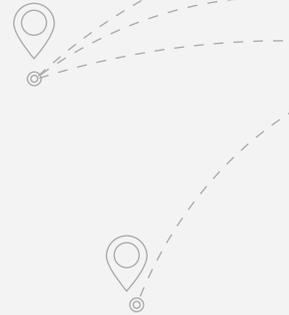
Check this if your aircraft is capable of Tactical Air Navigation using UHF. To find out if you are capable of such operations, check your AFM Navigation Limitations Section and look for the term TACAN.

V VHF RTF (Typical)

Check this if your aircraft is equipped with Very High Frequency Radio(s). To find out if you are equipped, check your equipment list (i.e computerized maintenance program - Chapter 23).

W RVSM (Typical)

Check this if you are compliant with Reduced Vertical Separation Minima standards. To find out if you are compliant, check your AFM Navigation Limitations Section and look for the term RVSM. These operations typically require an LOA (FAA – B046).



Important: If you are trying to show that you are PBCS capable on your flight plan, then code "P2" in Item 10a is only part of the required coding. PBCS also requires that you have a "SUR/RSP180" entry in Item 18; refer to the detailed information later in this guide.





Flight Planning Codes



X NAT HLA (MNPS) (Typical)

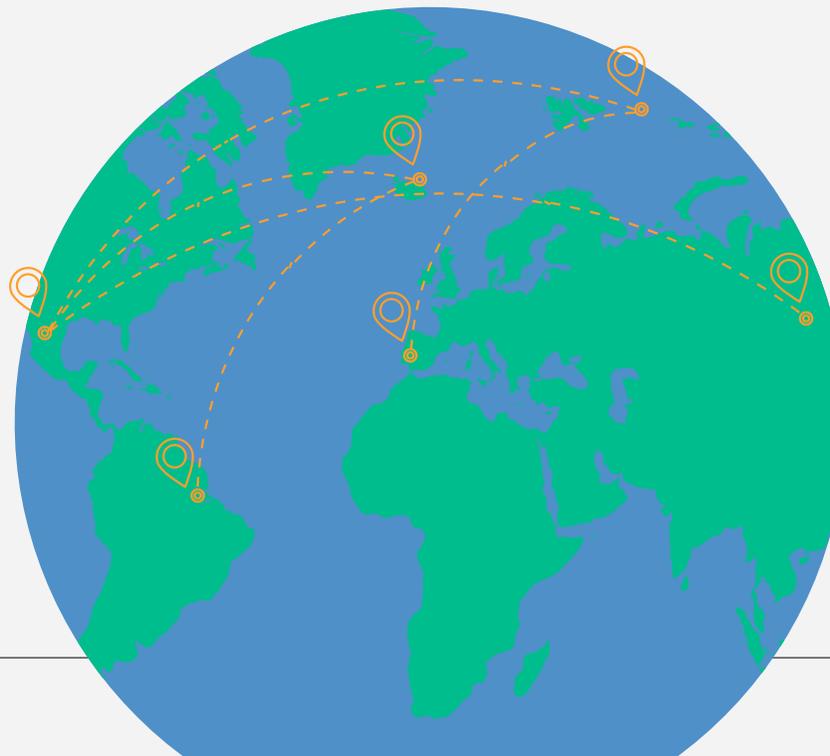
Check this if you are compliant with North Atlantic High-Level Airspace standards. To find out if you are compliant, check your AFM Navigation Limitations Section and look for the term MNPS or NAT HLA. These operations typically require an LOA (FAA – B039).

Y 8.33kHz VHF Radio (Typical)

Check this if you are equipped with a VHF radio that has a 8.33kHz channel split. To find out if your VHF radio is capable of this split, consult your equipment list (i.e. computerized maintenance program - Chapter 23).

Z Other Capacities (Typical)

Check this box if you have additional equipment capabilities. If so, this should then be followed by COM/, NAV and/or DAT/ in field 18 of the flight plan. Example: NAV/RNP2, DAT/1FANS2PDC).





Flight Planning Codes



STEP 2: Select Field 10b Codes

Field 10b – This field corresponds to the Surveillance Equipment and Capabilities of the aircraft:

The first set of codes below correspond to Transponder Codes – Check only one.

Note: As of December 31st 2019, all aircraft in the United States wishing to operate in Class A, B, and C airspace, and above 10,000 ft in Class E airspace are required that their ADS-B Out Transponders be compliant with CFR 91.227. To find out if your equipment complies with this, please consult the [FAA Approved ADS-B Out equipment page](#):

- N No Capabilities**
- A Mode A (Not Common)**
- C Mode A and C (Not Common)**
- S Mode S, ACID and Altitude (Not Common)**
- P Mode S, Altitude, no ACID (Not Common)**
- I Mode S, ACID, no Altitude (Not Common)**
- X Mode S, no ACID, no Altitude (Not Common)**
- E Mode S, ACID, Altitude, extended squitter (Not Common)**
- H Mode S, ACID, Altitude, Enhanced Surveillance (Varies)**
Check this box if you are equipped with ADS-B Out/In Transponder
- L Mode S, ACID, Altitude, Enhanced Surveillance, extended squitter (Typical)**
Check this box if you are equipped with ADS-B Out/In Transponder

The second set of codes below correspond to Transponder Codes – Check only one.

- B1 1090 MHz out capability (Typical)**
Check this box if you are equipped with an ADS-B out transponder. To find out if you are equipped, consult your equipment list (i.e. computerized maintenance program chapter 34), and cross check with the FAA Approved ADS-B Out equipment link in the note above. Please note that for US registry, an LOA is no longer required for this (FAA A153 has been decommissioned).



STEP 2: Select Field 10b Codes



B2 1090 MHz out and in capability (Not Common)

Check this box if you are equipped with an ADS-B Out AND In transponder. To find out if you are equipped, consult your equipment list (i.e. computerized maintenance program chapter 34), and cross check with the FAA Approved ADS-B Out equipment link in the note above. Please note that for US registry, an LOA is no longer required for this (FAA A153 has been decommissioned).

U1 UAT out capability (Not Common)

Check this box if you are equipped with a Universal Access Transceiver for ADS-B Out. To find out if you are equipped, consult your equipment list (i.e. computerized maintenance program - Chapter 34).

U2 UAT out and in capability (Not Common)

Check this box if you are equipped with a Universal Access Transceiver for ADS-B Out AND In. To find out if you are equipped, consult your equipment list (i.e. computerized maintenance program - Chapter 34).

V1 VDL Mode 4 out capability (Not Common)

Check this box if you are capable of ADS-B VHF Datalink Mode 4 out. To find out if you are compliant, consult your AFM Limitations Section and look for VDL Mode 4.

V2 VDL Mode 4 out and in capability (Not Common)

Check this box if you are capable of ADS-B VHF Datalink Mode 4 out / in. To find out if you are compliant, consult your AFM Limitations Section and look for VDL Mode 4.

The third set of codes below correspond to the ADS-C capabilities of your aircraft:

D1 ADS-C FANS-1/A, and/or (Varies)

Check this box if you are equipped with a datalink system capable of ADS-C over the FANS 1/A(+) network. To find out if you are capable of this, check your AFM Limitations Section and look for the term FANS 1/A(+) and corresponding ADS-C aircraft allocated performance. These operations typically require an LOA (FAA – A056).

G1 ADS-C ATN (Not Common)

Check this box if you are equipped with a datalink system capable of ADS-C over the European ATN-B1 network. To find out if you are capable of this, check your AFM Limitations Section and look for the term ATN-B1 and corresponding ADS-C aircraft allocated performance. These operations typically require an LOA (FAA – A056).

Important: Code "G1" should only be used if your aircraft is specifically capable of ADS-C via ATN, and not just for ADS-C capability in general. Most aircraft that are ATN-compliant utilize the network for CPDLC only, not ADS-C.



Flight Planning Codes



STEP 3 Select Field 18 Codes

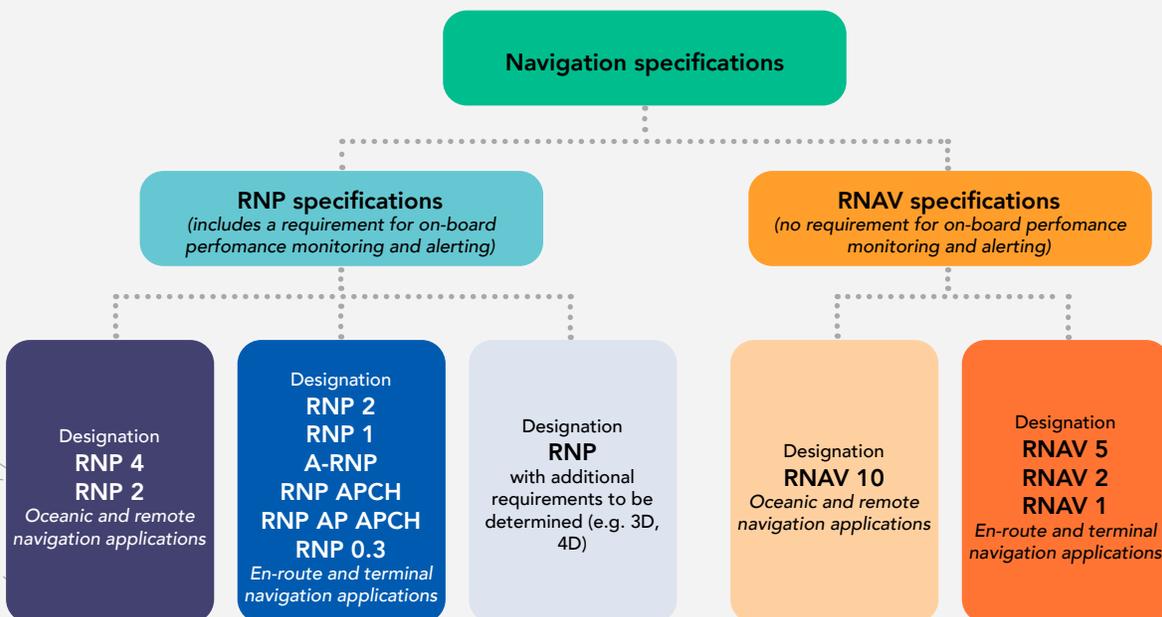
Field 18 – This field corresponds to the “Other” information that the operator should be providing to ATC.

Codes relating to PBN capabilities

The following codes are to be checked and included as part of the PBN/ entries. The PBN sub-field contains the RNAV and/or RNP certifications and operational approvals applicable for the flight. Include as many of the descriptors below as apply to the flight, up to a maximum of 8 entries, i.e. a total of not more than 16 characters inside a single occurrence of PBN/. Duplicate entries for the sub-field PBN/ is not permitted. Any additional capabilities (i.e. RNP2) should be added within the field NAV/ after the PBN/ codes.

To accurately find out which codes to check off below, check your AFM under the navigation limitations section, they are usually laid out there either in a table or in a detailed list.

Below is a depiction of the various navigation specifications:



Source: ICAO Doc 9613 (Fourth Edition)



Flight Planning Codes



RNAV and RNP systems are fundamentally similar. The key difference between them is the requirement for on-board performance monitoring and alerting.

- A navigation specification that includes a requirement for on-board performance monitoring and alerting is referred to as an RNP specification.
- One not having such requirements is referred to as an RNAV system.

Oceanic and Remote Continental RNP

- A1 RNP-10 (commonly referred to as RNAV-10)**
- L1 RNP-4**

RNAV 5 (referred to sometimes as B-RNAV)

- B1 All (indicates that you are capable of B1-B5)**
- B2 GNSS**
- B3 DME/DME**
- B4 VOR/DME**
- B5 INS or IRS**
- B6 LORANC**

RNAV 2

- C1 All (indicates that you are capable of C2-C4)**
- C2 GNSS**
- C3 DME/DME**
- C4 DME/DME/IRU**

RNAV 1 (referred to sometimes as P-RNAV)

- D1 All (indicates that you are capable of D1-D4)**
- D2 GNSS**
- D3 DME/DME**
- D4 DME/DME/IRU**



Flight Planning Codes



RNP 1 (indicates that you are capable of O1-O4)

- O1 All
- O2 GNSS
- O3 DME/DME
- O4 DME/DME/IRU

Approach

- S1 RNP APCH
- S2 RNP APCH w/BARO VNAV

AR Approach (Authorization Required Approach)

- T1 RNP AR APCH With RF
- T2 RNP AR APCH Without RF





Flight Planning Codes



Codes relating to CPDLC and ADS-B

When checking any of the codes in fields 10a/ and 10b/ relating to CPDLC and ADS-B, the corresponding entries should also be listed in field 18

SUR/ This field corresponds to any included surveillance applications or capabilities not specified in Item 10b.

-ADS-B: Typically, you'll be listing the technical standard orders that your transponders meet, for example 260B, which indicates that you meet the DO-260B/TSO C166b standards. You can check this by looking at your AFM limitations section pertaining to ADS-B, or looking at the specification sheet for your installed transponders.

-RSP: Typically, if you have an installed and approved ADS-C system, you'll be listing what required surveillance performance you comply with. You can check this by looking at your AFM limitations section pertaining to ADS-C (most often under Datalink) and checking what your interoperability standards are. You'll usually find RCP240 and RSP180. The latter should be entered under the SUR/ field.

DAT/ This field is used to indicate data applications or capabilities not specified in Item 10a, including the aircraft's CPDLC capabilities within continental US airspace, if so fitted.

-1FANS2PDC: This code shows priority preference to obtain clearances through datalink or PDC (e.g. CPDLC-DCL is the primary preference; PDC is the secondary that will be used if the primary is unavailable and not feasible).

-1FANSE2PDC: This code is to be used to obtain CPDLC-DCL / PDC and enroute clearances for aircraft that have US-Enroute CPDLC capabilities without any known load issues (i.e., UM80).

CPDLCX This code is used to show that the aircraft is exempt from the European ATN CPDLC mandate, either by age, weight, or a previously-accepted FANS installation. This code should not be entered if "J1" is present in Item 10a.

For additional information refer to:
<https://www.easa.europa.eu/faq/115370>

Important: If you are trying to show that you are PBCS capable on your flight plan, then code "SUR/RSP180" in Item 18 is only part of the required coding. PBCS also requires that you have a "P2" entry in Item 10a; refer to the detailed information earlier in this guide.

Note: As of Jan 2023, the FAA does not permit US domestic en route CPDLC for any aircraft / operators that are not participating in the L3Harris CPDLC trials. If you are not part of the trial, please be aware that you should file the code 1FANS2PDC instead of 1FANSE2PDC, even if your aircraft is capable of US domestic en route CPDLC."

L3Harris CPDLC Trial:
<https://www.l3harris.com/datacomm>

Note: There are additional US continental CPDLC code options, however these are very uncommon. For a full list of codes refer to: <https://www.l3harris.com/datacomm>



Flight Planning Codes



NAV/ This code is used for any navigation capabilities that are outside of the scope entered in the PBN/ field. For flights that will take place wholly or in part in the United States, the FAA requires that a NAV/ entry be added to item 18 along with a code to address any advanced PBN capabilities the crew wants to make use of. Refer to the supplementary table below for the applicable codes.

Note: ICAO does not currently have codes for these capabilities so you should use free text to list the codes.

Z1	▶ Radius to Fix (RF)
Z2	Fixed Radius Transitions (FRT)
Z5	Time of Arrival Control (TOAC)
R1	Helicopter RNP 0.3
P1	Advanced RNP (A-RNP)
M1	▶ RNP-2 (Continental)
M2	RNP-2 (Oceanic / Remote)

Note: Although each aircraft will be different, the items in bold are the most common capabilities in business jets that would require a NAV/ code.

Note: If a NAV/ code will be entered in Item 18, remember that code Z must be included in Item 10a.

Other Codes Related to Field 18

- DEP/ Non-standard Departure (e.g. MD24)**
To be included if the airport you are departing out of does not have an ICAO designator. In this case, you would list "ZZZZ" in the departure airport field (field 13) and then list DEP/ in field 18 followed by any relevant information about your departure airport (this can be the non-standard airport code, airport coordinates etc.).
- DEST/ Non-standard Destination (e.g. EMI090021)**
To be included if the airport you are arriving to does not have an ICAO designator. In this case, you would list "ZZZZ" in the arrival airport field (field 16) and then list DEST/ in field 18 followed by any relevant information about your arrival airport (this can be the non-standard airport code, airport coordinates etc.).
- DOF/ Date of Flight (YYMMDD, e.g. 121123) – Required**
Usually added automatically by your flight planning system.
- REG/ Registration (e.g. N123A) - Required**
Usually added automatically by your flight planning system.
- EET/ Estimated Elapsed Times (e.g. KZNY0124)**
Usually added automatically by your flight planning system.
- SEL/ SELCAL (e.g. BPAM) Required if equipped with HF**
- TYP/ Non-standard AC Type**
To be included if your aircraft type does not have an ICAO designator. In this case, you would list "ZZZZ" in the type of aircraft field (field 9) and then list TYP/ in field 18 followed by any relevant information about your aircraft (this is free text so list any relevant information).
- CODE/ Aircraft/Mode S Transponder address in hexadecimal format (e.g. A519D9) Required**



Flight Planning Codes



- DLE/ Delay (at a fix) (e.g. EXXON0120)**
To be included if you have planned an orbit/loitering flight plan, where you would indicate over which point on the route you wish to exercise a delay for this purpose.
- OPR/ Operator Required**
The operator name is required in field 18. This will be used among other things, for ANSP (Air Navigation Service Providers) to collect navigation charges.
- ORGN/ Flight Plan Originator (e.g. KHOUARCW)**
Indicates the filing originator AFTN address and usually added automatically by your flight planning system.
- PER/ Performance Category (e.g. A)**
Indicates the aircraft performance approach category. Can be letters A, B, C, D, E based on the indicated airspeed at the runway threshold (VAT).
- ALTN/ Non-standard Alternate(s) (e.g. 61NC)**
To be included if the alternate airport you selected does not have an ICAO designator. In this case, you would list "ZZZZ" in the alternate airport field (field 16) and then list ALTN/ in field 18 followed by any relevant information about your alternate airport (this can be the non-standard airport code, airport coordinates etc.).
- RALT/ Enroute Alternate(s) (e.g. EINN CYR KDTW)**
Usually added automatically by your flight planning system if requested in the flight plan calculation.
- TALT/ Take-off Alternate(s) (e.g. KTEB)**
Usually added automatically by your flight planning system if requested in the flight plan calculation.
- RIF/ Route to revised Destination**
Used for Reclear in Flight (RIF) flight plans and will usually be added automatically by your flight planning system if requested in the flight plan calculation.
- RMK/ Remarks**
Any additional information to be included in the flight plan.





Flight Planning Codes



Codes relating to Special Handling

These codes will typically be used **only** to outline specific types of operations that you wish to make ATC aware of. You would start by listing the identifier STS/ followed by any of the following types (i.e. STS/HEAD)

STS	Special handling
ALTRV	Altitude reservation
HUM	Humanitarian
ATFMX	Exempt from ATFM
FFR	Fire fighting
FLTCK	Flight check
HEAD	Head of State
HAZMAT	Hazardous materials
SAR	Search and Rescue
MEDEVAC	Life-critical medical flight
HOSP	Medical flight
MARSA	Military assumes responsibility for separation of aircraft
NONRVSM	Non-RVSM requesting operations in RVSM airspace
STATE	Military, customs, or police



Flight Planning Codes



Sample ATC Flight Plan:

Field 10a/
Communications and Nav
Capabilities / Equipment

Field 10b/
Surveillance Capabilities

```
(FPL-N123X-IG
-GLF6/M-SABDE2E3FGHIJ1J3J4J5P2RWXYZ / LB1D1
-KTEB0900
-N0516F410 DCT BREZY V39 CMK DCT MERIT DCT HFD J42 PUT DCT TUSKY
N261A JOOPY DCT 49N050W/M089F410 51N040W 53N030W 54N020W DCT DOGAL/
N0514F410 DCT BEXET DCT DEVOL DCT LIFFY UL975 MALUD Q38 VOLFI Z197
LISTO LOREL5F
-EGGW0608 EGSS
PBN/A1B1C1D1L1O1S2 NAV/M1Z1 DAT/1FANS2PDC SUR/260B RSP180
DOF/200514 REG/N123X EET/CZQM0049 CZQX0134 EGGX0341 EISN0441
EGTT0520 SEL/ABCD CODE/AB1234 OPR/SAMPLE AIRLINES PER/C
-E/0822 P/4 S/M J/F D/2 26 YELLOW A/WHITE BLACK C/CAPTAIN SAMPLE)
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Field 18/ PBN/
Performance Based
Navigation capabilities

Field 18/ Additional
Nav/ Surveillance capabilities

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