# Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Pre-Planning Preparation</td>
<td>2</td>
</tr>
<tr>
<td>Overview</td>
<td>2</td>
</tr>
<tr>
<td>Weather</td>
<td>3</td>
</tr>
<tr>
<td>NOTAMs</td>
<td>5</td>
</tr>
<tr>
<td>Preferred Routes</td>
<td>5</td>
</tr>
<tr>
<td><strong>Departure Segment Planning</strong></td>
<td>6</td>
</tr>
<tr>
<td>Departure Airport Information</td>
<td>6</td>
</tr>
<tr>
<td>Takeoff Minimums</td>
<td>6</td>
</tr>
<tr>
<td>Departure Procedure</td>
<td>6</td>
</tr>
<tr>
<td>Top of Climb Calculations</td>
<td>7</td>
</tr>
<tr>
<td><strong>Arrival Segment Planning</strong></td>
<td>8</td>
</tr>
<tr>
<td>Arrival Procedure</td>
<td>8</td>
</tr>
<tr>
<td>Descent Planning</td>
<td>9</td>
</tr>
<tr>
<td>Arrival Airport Information</td>
<td>10</td>
</tr>
<tr>
<td>Choosing an Alternate</td>
<td>10</td>
</tr>
<tr>
<td><strong>Enroute Segment Planning</strong></td>
<td>11</td>
</tr>
<tr>
<td>Federal Airway Routing</td>
<td>11</td>
</tr>
<tr>
<td>Direct Routing Between Navaids or Fixes</td>
<td>12</td>
</tr>
<tr>
<td>IFR Altitudes</td>
<td>12</td>
</tr>
<tr>
<td>Cruise Performance</td>
<td>13</td>
</tr>
<tr>
<td><strong>Navigation Log</strong></td>
<td>14</td>
</tr>
<tr>
<td>Flight Plan Form &amp; Filing</td>
<td>15</td>
</tr>
</tbody>
</table>
Introduction

The purpose of this supplement to consider the additional factors and concerns associated with IFR Flight. Thorough understanding of VFR Flight Planning is assumed, and the use of the VFR Flight Planning Supplement is recommended for completing the flight planning process and performance calculations.

Resources

- Enroute Charts
- Departure, Arrival, and Approach Charts
- Airport/Facility Directory (A/FD)
- Navigation Logs
- Aircraft POH/AFM
- E6B Computer
- FAR/AIM

Both the pilot and the aircraft must be current for IFR Flight.

- **Pilot:** 61.57(c)
- **Aircraft:** 91.411, 91.413, 91.171, and other inspections.
Pre-Planning Preparation

Overview

*ForeFlight > Maps > VFR Sectional*

1. Create a straight line between the two airports using the Search Airport or Route box, and add your UTC departure time into the search box.

2. In ForeFlight, look at the total straight-line distance in the nav log bar that appears. Consider the possibility of needing to stop for fuel.

Look for range information in the Performance section – “Range Profile” Chart of the POH to verify for your specific aircraft. If you actually plan to fly this flight, be sure you are adhering to specific ATP fuel policies.

---

**A**
**T**
**P**

The following fuel limitations apply to all operations in ATP aircraft.

The maximum duration of flight limitation is based on the airplane’s fuel tank capacity.

- Less than 48 gallons ......................... 2:30 duration
- 48 gallons or greater .......................... 3:30 duration

ATP policy is for all flights to depart with full fuel tanks unless operational necessity dictates otherwise.

---

**CHECKRIDE FACT**

For the checkride, you are required to plan to your first fuel stop.

3. Conduct a survey of the VFR Sectional on the iPad to learn more about the geographical area that the flight will cover (e.g. northern Arizona to southern California). This provides a framework to better correlate weather reports to the route of flight.

Consider your route based on terrain. A VFR sectional is required for all IFR cross country flights in mountainous terrain. An airport is required within engine–out

**Weather**

**NOTE:** If WiFi is unavailable, get a weather briefing from another approved source.

4. Refer to graphical weather products first in order to get a general picture of the weather conditions. This is an important cue for the pilot to know which specific details are needed to look for within the textual reports and forecasts.


*ForeFlight > Maps > Radar*

This graphic indicates areas of precipitation only, not clouds. To avoid precipitation, this chart is helpful, but to avoid clouds, reference the TAF and Area Forecast. Be aware that it shows present conditions, not forecast.

*ForeFlight > Maps > Satellite*

This graphic gives you a current visual guide to clouds. Be aware you tops have tops of ceiling information with this graphic, and that it shows present conditions – not forecast.

*ForeFlight > Maps > PIREPs*

Because UAs come directly from pilots, they are the only weather product containing direct observations made of the actual conditions in flight. Pay special attention to the location and time of the report. UAs are particularly helpful in determining areas of turbulence and icing.

*ForeFlight > Maps > Flight Rules*

This graphic can help the pilot quickly determine areas of IFR and VFR weather conditions, which can give the pilot a visual sense of which route may be best.

*ForeFlight > Imagery > NOAA Prognostic Charts > Surface Analysis Chart(s)*

Review this graphic to locate large weather systems such as fronts and pressure systems. This can cue the pilot as to what general weather may be expected along the route.
This chart is a forecast; therefore, it can be helpful when looking ahead up to 24 hours before a flight.

Look at the graphic forecast for your estimated time of departure to see forecast.

These graphics can be very helpful at getting a quick glance of the wind and temperature conditions for the flight. In just a few seconds, it can be determined whether there will be a head wind or tailwind and whether the temperature will be above or below freezing.

The freezing level chart can give a quick glance as to whether the flight will be above or below the freezing level, but keep in mind that this product is merely an observation, not a forecast.

Get a preliminary briefing on the iPad to view textual weather information. You’ll get a more thorough, legal briefing once you’ve determined your route of flight.

NOTE: Verify your CSC DUATS account is saved in ForeFlight.

This information is helpful in looking ahead up to the next day to determine if there is a chance for thunderstorms along the planned route of flight.

The TAF is one of the most important weather products to the IFR pilot as its forecast information can be used to predict weather at the destination and alternate airports.

The FA forecasts cloud height, precipitation, and visibility with respect to specific geographic regions. This information, when combined with the information from the Winds and Temperatures Aloft forecast, can be very helpful.
in determining whether conditions for structural icing exist along your planned route of flight.

**AAT**

Single Engine aircraft will not be flown with a ceiling less than 1,000’ or a visibility less than 3 miles, unless prior approval has been received from Flight Operations.

**NOTAMs**

6. Look at all NOTAM information in the Briefing. NOTAM information is critical to flight safety and should be accessed prior to any flight. NOTAMs can contain information relating to airport closures, navaid service outages (including GPS satellite availability), MEA changes, IAP changes, and TFRs.

**Preferred Routes**

In order to aid in the efficient and orderly operation of IFR traffic using Federal Airways, a system of preferred IFR routes has been established. It is to the pilot’s advantage to plan for the use of a preferred route when one exists between the departure and destination airports. A list of preferred IFR routes can be found in the A/FD.
1. Complete Weight and Balance and CG Calculations for departure in the same manner for a VFR flight.

**Departure Airport Information**

2. To determine if you can safely depart, view your departure airport in the Airports tab in ForeFlight. Verify the information with the AF/D.

3. View the TAF for your departure time, making note of conditions.

**Takeoff Minimums**

4. Consider Takeoff Minimums for 121 regulations. Although not required to adhere to under part 91 operations, awareness of these minimums is critical to safety. If none exist, 1 mile visibility is considered standard takeoff minimum for aircraft of two engines or less.

   ForeFlight > Airports > Procedures > Departure > Takeoff Minimums

**Departure Procedure**

ForeFlight > Airports > Procedures > Departure

5. When planning for departure, familiarize yourself with departure procedures that exist for that airport. Plan for a departure procedure based on weather, terrain, and common clearances.

**Standard Instrument Departure (SID)**

Airports that have special traffic–flow needs or complex airspace will generally have a SID published to assist in the transition from takeoff to the enroute structure in an orderly, safe, and efficient manner. One SID may have several “transitions” leading to different enroute fixes, in which case the pilot should plan for the transition best suited for the flight. Include these points in the NavLog.

To file a SID as part of a flight plan, simply start the “Route of Flight” box on the FAA Flight Plan form with the name and transition of the departure desired as follows: DEPARTURE.TRANS.
**Obstacle Departure Procedure (ODP)**

If no SID is published, an Obstacle Departure Procedure might exist. Airports that have nearby obstacles or high terrain may require specific departure routing, a climb gradient greater than 200 ft/nm, or both. In these cases, an ODP will be published. Verify required climb gradient can be maintained. Verify required climb gradient can be maintained.

\[
	ext{Required Rate of Climb (FPM)} = \frac{\text{GS in knots}}{60} \times \text{Climb Gradient (ft/nm)}
\]

Refer to the POH to determine if the rate of climb in ft/min will be possible at field elevation.

You cannot file an ODP, but if one is expected, include it in the NavLog. ODPs are assigned by ATC upon takeoff from a controlled airport.

**Proceed Direct to an Enroute Fix**

If no Obstacle Departure Procedure (ODP) or Standard Instrument Departure (SID) is published for the airport, plan your first leg from the airport direct to an enroute fix in the NavLog.

*To file* a departure where no published departure procedure exists, simply begin with the “Route of Flight” box on the FAA Flight Plan form with the symbol “_lst” then include the identifier of the first fix of the enroute segment.

Be aware that ATC may issue a fourth type of departure segment during an IFR Clearance – Radar Vectors to an enroute fix. You cannot file your flight plan this way.

Remember - anything you plan for in your NavLog is changed as soon as you receive a clearance from ATC.

**Top of Climb Calculations**

6. The procedures for calculating the time, fuel, and distance to climb are the same as those for any VFR flight. Determine your climb speed. In the Performance section of the POH, look at any Climb charts that exist to complete your calculations.

<table>
<thead>
<tr>
<th><strong>CHECKRIDE FACT</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Use the performance charts from the POH of the specific aircraft you will be flying for all performance calculations. If you are flying an airplane with a modified engine, refer to all supplements for modified performance data.</td>
</tr>
</tbody>
</table>
SECTION 3

Arrival Segment Planning

Arrival Procedure

1. Determine the type of arrival that will be flown.

Proceeding Direct To Airport From An Enroute Fix (Visual Approach)

This can only be accomplished in VMC conditions, and if the conditions are such, this type of arrival is preferred. A visual approach can be anticipated during the flight planning process if the forecast weather indicates ceilings of at least 1,000' and 3 SM of visibility. The pilot should plan to remain on the enroute structure (airway) until receiving the visual approach clearance.

To file a flight that will proceed from an enroute fix directly to the airport, simply end the “Route of Flight” box on the FAA Flight Plan form with the name of the last enroute fix to be overflown.

Standard Terminal Arrival (STAR)

Airports that have special traffic–flow needs or complex airspace will generally have a STAR published to assist in the transition from a point on the enroute structure to the terminal environment in an orderly, safe, and efficient manner. One STAR may have several “transitions” feeding aircraft into the terminal environment from different enroute fixes, in which case the pilot may select the transition best suited for the flight.

It is important to note that since a STAR transitions the flight into the terminal environment and not to the airport itself, it will usually be followed by a clearance to fly an IAP or visual approach.

To file a STAR as part of the flight plan, simply end the “Route of Flight” box of the FAA Flight Plan form with the name of the STAR and the transition desired. For example: TRANS.ARRIVAL.
**Instrument Approach Procedure (IAP)**

Many IAPs have an Initial Approach Fix (IAF) within the enroute structure (i.e. along an airway.) Many do not, and will have a feeder route leading from the enroute structure to the IAF.

*To file* a flight that has an initial approach fix is within the enroute structure, it is not necessary to indicate the specific approach that is anticipated, rather, simply end the “Route of Flight” box on the FAA Flight Plan form with the name of the last enroute fix to be overflown (in this case, the IAF).

*To file* a flight that has a feeder route leading from the enroute structure to the IAF, simply end the “Route of Flight” box on the FAA Flight Plan form with the name of the last enroute fix to be overflown (in this case, the first feed route fix).

**Radar Vectors From An Enroute Fix**

If the weather is forecast to be VMC, the pilot can expect to be vectored from an enroute fix to a point from which a visual approach can be initiated once the pilot visually acquires the airport or preceding aircraft. If the weather is forecast to be IMC, the pilot should plan on flying an IAP. Do not plan for radar vectors if the forecast calls for IFR conditions at the ETA.

*To file* a flight where you are expecting radar vectors from an enroute fix, you will simply end the “Route of Flight” box on the FAA Flight Plan form with the name of the last enroute fix to be overflown. Note that if terminal radar service is not available for that airport, radar vectors will never be assigned.

**Descent Planning**

2. Consider minimum altitudes such as MEAs or transition altitudes on STARs when planning your descent. Using a constant rate of Descent, the pilot can determine the time, fuel, and distance required to reach the target descent altitude by the desired fix. Remember that all descents must be cleared by ATC, so your descent profile in flight might differ from your flight planning calculations.

In some cases when a flight takes place over mountainous terrain with high MEAs, it may not be possible to descend prior to reaching an IAF, in which case the Top of Descent will be at the IAF.

Plan your descent using Cruise Performance charts if you do not have specific descent charts (Cessna 172 and DA–40). In the Piper Seminole, use the Fuel, Time, and Distance to Descent Chart, paying special attention to conditions for descent.

Use the "3 : 1 Rule" to determine your descent distance at cruise ground speed. Time and fuel to descend will be calculated as part of cruise calculations later.
If planning for a Seminole, use the Fuel, Time, and Distance to Descend chart in the POH.

\[
\text{Distance to Descend} = \frac{\text{Altitude to Lose} \times 3}{1,000}
\]

### Arrival Airport Information

3. View your departure airport in the **Airports** tab in ForeFlight. Verify the information with the AF/D.

4. View the TAF for your departure time, making note of conditions. Pick an appropriate alternate airport if destination weather forecasts ceiling less than 2,000' or visibility less than 3 SM, ±1 hour of ETA.

---

**ATP**

- Slow the aircraft to 100 KIAS within 10 NM of the airport.
- This procedure is required for training and crew cross-country flights. If ATC requests that you keep your speed up, the max speed will be 120 KIAS. The 100 KIAS assists on setting up for the approach and allows for more time to scan the area for traffic avoidance.
- Remember, time decreases confusion and stress.

### Choosing an Alternate

**ForeFlight > Airports > Procedures > Arrival > Alternate Minimums**

*(if non-standard)*

5. The alternate airport weather forecast must:
   - Meet the minimums stated in the terminal procedures (Alternate Minimums in ForeFlight), or if none are given,
   - At least 600' ceiling and 2 SM visibility if a precision approach is available
   - At least 800' ceiling and 2 SM visibility if only a non-precision approach is available
   - If no IAP exists, or if only a GPS approach exists for that airport, the pilot must be able to descend from the lowest enroute altitude and land while maintaining basic VFR.

Your alternate must be close enough to reach and still have 45 minutes of reserve fuel on board, but far enough away that the weather conditions will be more favorable.

---

**ATP**

- ATP policy is that full fuel tanks are required for each flight unless prevented by operational necessity.

---

10 • Arrival Segment Planning
1. If a preferred route exists, your route has been chosen for you. If no preferred route exists, check for recently assigned ATC routes in ForeFlight.

   ForeFlight > NavLog > Edit > Routes

2. Determine whether the flight will follow Federal Airways or direct courses.

**Federal Airway Routing (required for all instrument cross-country flights)**

Ensure the flight remains at or above the MEA(s) for the airway, keeping in mind these may change between VORs.

Using airways instead of direct routing reduces the preflight planning for the pilot as the pilot will not need to address issues such as navigational service volumes or terrain clearance. All Federal Airways are flight–tested and navaid reception and terrain clearance are guaranteed, provided the pilot flies the center of the airway at or above the minimum altitude published.

A **ATP** policy requires that all instrument cross-country flights be **planned** along Federal Airways. When flying a cross-country flight, fly the ATC cleared route. This may include airways or direct-to routing.

**NOTE:** In mountainous terrain, ATC may send you direct to a fix at an altitude below published MEAs or grid-MORAs. Use your best judgment when accepting a direct-to clearance in mountainous terrain.

To **file** a flight that will proceed along airways, describe the desired route in the “Route of Flight” box of the FAA Flight Plan form with the designators of the airway(s) requested. If more than one airway is to be used, indicate the points of transition. If the transition is made at an unnamed intersection, indicate the next succeeding fix.
Direct Routing Between Navaids or Fixes

This planning method is given for informational purposes only. ATP policy requires that all cross-country flights be planned along Federal Airways.

Ensure the flight remains at or above the grid–MORA(s).

In many cases, a Federal Airway does not provide the most direct path from one airport to another. The pilot may wish to fly a direct route in an effort to save time and fuel. The preflight planning for this type of enroute segment may require much more research and time than simply flying an airway. There are two types of direct routes to choose from:

- Direct courses from one radio fix to another, and
- Direct route from departure to destination by way of Area Navigation (RNAV)

To file a route of flight that consists of direct courses from one radio fix to another, simply indicate the names of the fixes to be overflown. These fixes automatically become compulsory reporting points. Special attention must be paid to not exceed the operational service volume of the radio fix used. The pilot should also consult the A/FD for unusable portions of an aid's service volume.

To file a route of flight that consists of a direct route from departure to destination by way of RNAV (GPS), a few specific rules need to be remembered:

- The direct portion of the flight must be planned to begin and end over appropriate arrival and departure transition fixes (e.g. a fix ending a SID or beginning a STAR).
- Define the direct route using waypoints if they exist.
- Indicate a minimum of one waypoint for each ARTCC to be flown through within 200 NM of the preceding ARTCC’s boundary.
- Indicate a waypoint for each turnpoint in the route.
- Avoid prohibited and restricted airspace by at least 3 NM.
- These direct flights may only be approved in a radar environment.

IFR Altitudes

3. Pay special attention to cloud ceilings, convective activity, winds aloft and freezing levels when choosing an altitude.

When flying a Federal Airway, the flight must be planned to remain at or above the Minimum Enroute Altitude (MEA) for that airway, unless within 22 NM of a navaid defining that airway, at which point the flight may operate at or above the Minimum Obstruction Clearance Altitude (MOCA). For routes that do not follow Federal Airways, remain at or above the grid–MORA(s) applicable to the route of flight.
Comply with the hemisphere rule, and VFR altitudes.

360° – 179° .......................................................... Choose an Odd Altitude
180° – 359° .......................................................... Choose an Even Altitude
This should be chosen for the first enroute magnetic course.

When filing an IFR flight plan, indicate in Box 7 of the FAA Flight Plan form only the first intended cruising altitude. If it is anticipated that the cruising altitude will change, requests for subsequent altitudes may be made with ATC while in flight.

**Cruise Performance**

4. Cruise performance calculations can be performed in the same manner as those for a VFR flight. When flying under IFR, strictly follow the calculated manifold pressure, RPM, and mixture settings that you plan for. An improperly leaned mixture can cause the engine to burn extra fuel. Extra consumption can cut into the planned fuel reserve and severely limit the pilot’s options in the case of a diversion.

**ACPP Instructors must train each ACPP student to use the following procedures to set cruise power on cross-country flights.**

During preflight planning students will reference the Fuel and Power Chart and Speed Power Chart in Section 5 of the Piper Seminole Information Manual to determine 55% rated power.

This will allow the student to attain an approximate fuel flow based on the determined power settings. The student must then compare calculated fuel consumption to actual fuel consumption throughout the flight.

The Fuel and Power Chart can be quickly referenced in flight on the back of the pilots visor in most aircraft.
1. Write each checkpoint on the IFR navigation log, starting with departure airport.
   • Include departure method and TOC.

2. Create a checkpoint for each point at which there is a course change:
   • It is not necessary to list every fix along the route on the navigation log.
   • For long straight segments, include a checkpoint approximately each 50nm.
   • Make a note of all fixes along specific course, for situational awareness.

3. Write arrival checkpoints, ending at arrival airport.
   • Include TOD and arrival method.

4. Complete distance and magnetic course information from the Low Enroute Chart for each segment.

5. Complete performance information on the IFR navigation log:
   • All courses on IFR charts are magnetic; therefore, convert the printed winds aloft from true to magnetic prior to making any performance calculations.

6. Ensure the aircraft has enough fuel on board to fly to the first point of intended landing, then to the alternate, if needed, then for 45 minutes at the cruise fuel burn rate.
   • Determine fuel for completion of flight, and fuel legally required for flight.
1. Complete the FAA Flight Plan form in accordance with the following:

- **Box 1**: Indicate IFR
- **Box 2**: A/C Identification
- **Box 3**: A/C type and Equipment Code: /U – Mode C, no DME /G – GPS with enroute, terminal, and approach capability
- **Box 4**: Calculated Average True Airspeed for Cruise Portion
- **Box 5**: Departure Airport ID
- **Box 6**: Planned UTC Departure Time
- **Box 7**: Initial Cruising Altitude
  (any enroute changes should be requested to ATC)
- **Box 8**: Route of Flight, as described in this supplement.
- **Box 9**: Destination Airport ID
- **Box 10**: Time in Hours and Minutes from Takeoff to Landing
- **Box 11**: Enter Remarks as necessary (e.g. NO SID/STAR)
- **Box 12**: Indicate Fuel On Board – **not required fuel**
  (ATP Policy required full tanks)
- **Box 13**: Alternate Airport ID, if necessary
- **Box 14**: Pilot’s Information
- **Box 15**: Number of People On Board
- **Box 16**: Color of the Aircraft
- **Box 17**: Home Airport and Phone Number

2. Call FSS (1–800–WX–BRIEF) to file the flight plan and receive a standard weather briefing. You may also file on your iPad if you have a CSC DUATS Login that is saved in ForeFlight.

ATP Policy Requires **all students** call 1–800–WX–Brief for a standard weather briefing before flight.
The Most Respected Name in Pilot Certification

Airline Career Pilot Program
Tuition Reimbursement Programs
Type Rating Programs
Airline Transport Pilot Certification Training Program
Aircraft Dispatcher Training

550+ PLACEMENTS
Over 550 airline placements in the past 12 months – more than any other flight school.

7k+ GRADUATES
ATP has consistently trained more than 7,000 pilots for certification at exactly the advertised price.

100% FINANCING
Full financing available. Only ATP offers financing solutions for successful career training.

30 YEARS
ATP has provided professional flight training for over 30 years.

ATPFlightSchool.com