

Elements of Cross Country Flight Planning

1 FAA Requirements

Two FARs in particular relate to planning cross country flights. These are:

- FAR §91.103 Preflight Action: At minimum the pilot must be familiar with the runway lengths at the airport(s) of intended use and the relevant performance capabilities of the aircraft. For *any* flight "not in the vicinity of the airport", the pilot must also be familiar with the weather reports, forecasts, fuel requirements and available alternates.
- FAR §91.151 Fuel Requirements for flight in VFR conditions: enough fuel to cruise 30 minutes beyond destination (day), and 45 minutes at night

2 Sources of Information

1. Sectional Chart: contains all information on route, airspace, nav-aids etc. Several types: standard sectional, VFR terminal area chart, and WAC chart (bigger scale for long flights)
2. Airport Facility Directory (AFD): more detailed information on airports (Several commercial editions also exist such as Flight Guide).
3. Aircraft Operator's Manual: for performance information, take off and landing distances, cruise fuel burn and airspeed etc. etc.
4. NOTAMS (notices to Airmen) from the FAA regarding and airports, airspace or nav-aids along your route (obtained from DUATS or the AFSS during briefing) There are 3 types of NOTAMS:
 - FDC NOTAMs: these are regulatory in nature usually pertaining to airspace restrictions, special events etc.
 - NOTAM (L): The "L" means "Local"; these pertain to the departure airport and local area. They contain information about taxiway closures, construction, lights being out of service etc.
 - NOTAM(D): The "D" means "Distance"; these pertain to the route of flight and will provide information about any Nav-Aids being out of service or other advisories that affect your route of flight.

3 Cross-Country Flight Planning Procedure

1. Pick a destination, lay out the course on the sectional, correct for magnetic variation on the direct course and then look for:
 - Radio aids to navigation on or near your course - can be used for direct navigation (homing), and for position checks (cross check radials for example).
 - Airspace which will affect your route - any class B, C or D airspace will require communications with the controlling facility. Make a note of the frequencies beforehand
 - Note any low altitude federal airways (shaded blue line between VORs). These can be useful for your route planning since they give direct routes between VORs including the heading and the distance in nm. However, note that these are class E airspace starting at 1200 ft AGL and are 8 miles wide. IFR traffic flies primarily

along airways so be alert for traffic when following or crossing these routes. IFR traffic operates on the odd/even thousand altitudes (eastbound 5000,7000 etc. westbound 6000,8000 etc.)

- Terrain features enroute - obvious landmarks to use as position checks.
 - Choose a cruise altitude based on airspace, terrain and direction of flight; for VFR flights above 3000 ft AGL, the cruise altitudes are: for a *magnetic course* of 0-179°, odd-thousand +500 ft (ex: 5500 ft, 7500 ft etc.), and for 180-359°, even-thousand + 500 (6500 ft, 8500 ft etc.)
 - Other airports enroute - note for potential diversion spots and as sources of traffic.
 - *REMEMBER: the amount of air traffic and corresponding risk of mid-air increases dramatically in the vicinity of radio beacons and airports!*
2. Determine the total distances and courses for each leg flown from the sectional, make an estimate of necessary time enroute
 3. It is a good idea to use a navigation log. Note the major landmarks and/or radio check points and the miles in the log. While flying, note the time between check points and use this to determine ground speed.
 4. Call the AFSS or use DUATS for a weather briefing and NOTAMS. Get winds-aloft forecast and weather enroute and at the destination airports. File a VFR flight plan. (see the section on flight plans)

4 Weather Information and Filing a Flight Plan

Checking weather is *always* extremely important!` (especially around Seattle!). Flight plans should be filed for any non-local flight.

1. Local weather sources - radio, TV, internet etc.
2. Aviation Specific weather sources:
 - (Automated) Flight Service Stations (AFSS): 1-800-992-7433 (1-800-WXBRIEF). Listen to current and forecast weather recordings, talk to a weather briefer and file a flight plan
 - On the web: DUATS <http://www.duats.com> - all the functions of an AFSS including filing flight plans
 - Some ASOS / AWOS and ATIS facilities also have a phone number you can call to get the current observed weather.

Filing the Flight Plan

- VFR Flight plans are used to notify search and rescue if you fail to complete your flight.
- VFR flight plans are also required for international flights and flights into the NDZ (more than 12 miles offshore).
- A flight plan is filed with flight service with an estimated time of departure, and becomes void if the flight plan is not opened within 1 hour of that time
- The flight plan can be activated in one of three ways:
 1. Call the AFSS and ask for your flight plan to be activated. You can also request flight plan activation immediately after filing

2. At a tower controlled airport you can request ground control to open your flight plan for you
 3. The flight plan can be activated once airborne on the local flightwatch frequency (122.0 is the default, check for RCO's at VORs near the airport of departure and check the AFD for listed RCO frequencies.
- Flight plans should be closed with the FSS upon arrival at your destination. Again this can be done from the air or the ground on flightwatch frequency, by request to the tower at controlled airports, or by calling the AFSS once on the ground.
 - Should you not close your flight plan, the FSS will allow ½ hour of "grace time" and then start search procedures. They will first call the destination to see if you've landed. They will next call any other contact numbers (aircraft home base etc.). If the aircraft can not be located, a full Search and Rescue effort will be initiated along your route of flight. *Pilots can be liable for the costs of SAR operations!!*

Flight plans require the following information: Aircraft N number, type of aircraft, equipment on board (Mode-C transponder = U), KTAS, departure point, departure time, cruising altitude, route (usually "direct" for VFR flights unless you're following specific nav-aids), destination, estimated time enroute, any remarks (ex; making a fuel stop during the flight), fuel on board (hours, minutes) alternate airports if any, pilot's name and phone number, number of people on board, color of aircraft and aircraft home base (optional).

5 En-Route Procedures

Cross country flying is easy - if you stay ahead of the airplane. Always have a good idea of where you are, what the winds are doing, where the next navigation reference point should be and about how long it should take to arrive there.

Tips & Tricks for staying with, and ahead, of the airplane:

1. Note times at major navigation points. In case of uncertain position, a note on the last known position *and time* along with estimated ground speed provides an excellent start to re-locating your position.
2. If you have more than one radio, or the radio has the ability to toggle between two frequencies, enter the next frequency you'll be using before you need it
3. If you have a heading bug, set it to desired heading. If you have a rotating-card ADF and aren't using the ADF, you can set your heading on the card as a memory aid.
4. Updates on weather can be obtained from flight watch. The main frequency is 122.0, and there are RCO's at many VORs as well. Also, some VORs broadcast recorded weather, HIWAS, ASOS/AWOS or TWEB. Look at the legend on the sectional to see what the symbols look like - it's a shaded circle in the upper right hand corner of the communications box. HIWAS means "Hazardous Inflight Weather Advisory Service" and is a broadcast of SIGMET, AIRMET, and urgent PIREP information. ASOS/AWOS reports local, automated weather observations, and TWEB is "Transcribed Weather Broadcast", a full area weather briefing recording including winds aloft. Unfortunately these are rare.
5. *Remember to listen to the audio signal on all navigation radios! (tune and ident) to ensure that the station is broadcasting and that you are tuned to the right signal.*
6. Request flight following when available; this will let ATC know where you are and they can provide traffic advisories to you. However, *flight following in no way*

reduces the pilot's responsibility for see and avoid!

7. Do your part for providing accurate weather to pilots on the ground - make a pilot report. Pilot reports to flight watch are *always* appreciated, especially if the weather is deviating from the forecast.
8. When entering controlled airspace, start listening on the frequency of the controlling agency at least 10 miles out if possible. Attempt to contact the controlling agency no more than 5 miles out. A busy day on the radio can mean not getting clearance in time to enter the airspace and you'll have to circle to stay outside.
9. Familiarize yourself with the layout of your destination airport before arrival, note which runway will most likely be in use from the forecast wind, and plan your arrival into the traffic pattern accordingly. Also note any right-hand traffic patterns.
10. Have fun! And don't forget to *close your flight plan after your flight is finished!!*