

## Cross Country Flight Plan Directions – Pilotage/Dead Reckoning

*Tip - Do all planning in pencil to allow corrections*

1. Using plotter on sectional chart, draw your intended course from departure to destination. It may be a straight line or have bends as needed.
2. Mark off visual checkpoints you can identify from the air every 15-25 miles.
3. Determine your intended cruising altitude based on VFR altitude rules (91.159), terrain, airspace restrictions, etc.
4. Obtain a weather briefing. Make sure to record:
  - Wind speed, direction, and temperature at your intended cruising altitude. Interpolate as needed. Based on winds, you may choose to change your intended cruising altitude to get a more favorable wind.
  - Surface wind speed, direction, and temperature at departure and destination airports
  - Altimeter setting at departure and destination airports
5. Calculate pressure altitude at departure airport field elevation using flight computer or table.
6. Calculate pressure altitude at cruising altitude.
7. Using POH performance charts, calculate time, fuel, and distance to climb from airport elevation to cruising altitude. Note that a staged climb may be required based on airspace restrictions, terrain, etc.
8. Starting on top line of flight plan log, fill in the blanks for the climb out leg as follows:
  - FROM = Departure airport
  - ROUTE = Direct
  - TO = "TOC" (Top of Climb). This will be the point where we level off from climb and transition to cruise flight.
  - ALT = "climbing"
  - WIND = wind direction and speed, interpolated from surface and cruise altitude wind direction and speed
  - TAS = true airspeed as calculated with flight computer based on calibrated airspeed in climb, pressure altitude, and temperature. Since temperature and pressure altitude are changing throughout the climb, you can calculate starting and ending values and take the average for the leg.
  - TC = true course for the leg as measured from sectional chart with plotter
  - GS = groundspeed as calculated with flight computer based on true course, true airspeed, and wind. Note that since wind is changing throughout the climb you may calculate starting and ending values and take the average for the leg.

- WCA = wind correction angle as calculated from flight computer based on true course, true airspeed, and wind
- TH = true heading, calculated based on true course +/- wind correction angle. Note – electronic flight computer may give true heading directly, so wind correction angle may not be needed.
- Var = magnetic variation, looked up from nearest isogonic line
- MH = magnetic heading, calculated from true heading +/- magnetic variation
- Dev = magnetic deviation as looked up from airplane's compass card
- CH = compass heading, calculated from magnetic heading +/- magnetic deviation
- DIST = calculate distance covered during the climb based on time to climb from step #7 and average groundspeed during climb
- ETE = estimated time enroute based what was calculated from step #7
- ETA = estimated time of arrival based on planned departure time +ETE
- ATA = actual time of arrival. Leave this blank, to be filled in during flight.

9. Fill in the remaining lines of the line of flight plan log for cruise flight as follows, one for each leg:

- FROM = Starting checkpoint for the leg
- ROUTE = Direct
- TO = Ending checkpoint for the leg
- ALT = Your selected cruising altitude
- WIND = Wind direction and speed at your cruising altitude
- TAS = true airspeed as calculated at cruising altitude using charts or tables in POH. Use 65% power for cruise. Note the engine rpm that gives 65% power so you may set it in flight.
- TC = true course for the leg as measured from sectional chart with plotter
- GS = groundspeed as calculated with flight computer based on true course, true airspeed, and wind
- WCA = wind correction angle as calculated from flight computer based on true course, true airspeed, and wind
- TH = true heading, calculated based on true course +/- wind correction angle. Note – electronic flight computer may give true heading directly, so wind correction angle may not be needed.
- Var = magnetic variation, looked up from nearest isogonic line
- MH = magnetic heading, calculated from true heading +/- magnetic variation
- Dev = magnetic deviation as looked up from airplane's compass card
- CH = compass heading, calculated from magnetic heading +/- magnetic deviation
- DIST = distance for the leg as measured with plotter on sectional chart
- ETE = estimated time enroute, calculated with flight computer based on ground speed and distance for the leg
- ETA = estimated time of arrival based on ETA at starting checkpoint + ETE
- ATA = actual time of arrival. Leave this blank, to be filled in during flight.

10. Total up the distance and time enroute for the flight.

11. Calculate fuel requirements based on POH for taxi, takeoff, climb, and cruise. If desired you can calculate fuel consumption during the decent phase of the flight, but if you assume cruise fuel consumption rate all the way to the destination, this will be simpler for planning and more conservative.
12. Look up and fill in required frequencies, altitudes, etc using chart supplement book.
13. Fill in takeoff weight and VFR flight plan