

Why Fly under Visual Flight Rules?

If anyone is curious why the Cix VFR Club members prefer flying small aeroplanes around the UK, rather than jetting off to foreign climes, then read on.

Pilots who have flown both under Visual Flight Rules (VFR) and Instrument Flight Rules (IFR) usually find VFR flying is the harder of the two - IFR flight is really very simple most of the time. The only real challenge with IFR flying is in SID/STAR procedures or in a VOR or NDB approach.

The MAJOR difference between IFR and VFR is that IFR pilots always know where they are going whilst VFR pilots NEVER know where they are going. An IFR pilot will tune in a radio navigation beacon (navaid) such as a VOR, and will always have a point to aim at ahead of the aircraft's actual position. A VFR pilot has to fly a calculated heading and this may be affected by incorrect winds or gyro errors. Therefore he will never know where he is going unless he constantly verifies his position by checking against a map.

This may also come as a shock for someone used to flying complex passenger aircraft in FS, and just tuning in radio nav aids or banging a route into FSNavigator. What you gain in enjoyment of the challenge of flying complex aircraft is balanced by the simplicity of navigation. Perhaps what VFR pilots such as the Cix VFR Club members most enjoy is the challenge of navigation, and the aircraft, generally classed as "light aircraft" (below 7600 kg maximum weight) that are flown VFR are generally much simpler than the big boys. It is possible of course to fly VFR in a complex type such as a medium size turboprop "regional airliner", and there you get both the complex aircraft AND complex navigation. In fact you almost get a third challenge – you could call it mental gymnastics, because the speeds at which you travel necessitate quicker thinking and more agile mental arithmetic than do the slow two and four seat singles.

The major difference between this sort of flying and using nav aids is in preparation. You HAVE to do some work on plotting your route before you jump in the cockpit. With IFR flight you can start up, dial in a course or VOR radial and let the autopilot take you on the right route. With a VFR flight, given only a heading and distance to your destination or en route waypoint, you don't have sufficient information to simply jump in the aircraft and take off.

If you had no wind effect you could take off and tune the autopilot to the first published course - but this isn't enough. Granted it will take you in the right direction but how do you know when you reach the waypoint? All you have is a distance. The answer is the dreaded phrase Flight Planning. How deep you go into this depends on your enthusiasm but it has to be done.

The best option would be to have a 'half mil' aeronautical chart and draw the track and distance on this. It would show you the actual location of your aiming point and give you some clues as to the towns and objects you might see en route to confirm your course is good. If you find map reading straightforward then you may have to do nothing more. For users without maps the only option is to convert the course and distance into something you can work with and this has to be both a heading and a time. With no wind, heading and track (course) should be the same. To ensure there are no track errors from gyro drift, check the Direction Indicator agrees with the magnetic compass reading before you start to taxi out. To synchronise the two in FS, press the 'D' key. (For definitions of "heading", "track" etc, see Exercise 16, Navigation Theory on the Club web site).

For flight time you HAVE to know the cruising speed of the aircraft you are flying. More than that - you have to actually decide on your speed and use throttle to maintain this, rather than just applying full power and letting FS do its own thing. Once you know the speed at which you will be flying, you can do a calculation to work out the time to your destination or waypoint from the distance given. A simple calculator is all that is needed and $\text{Dist} / \text{Speed} \times 60$ will give you the flight time in minutes. After that it is just a matter of rigidly flying the heading, time the flight and at the end look around (and underneath) for the landing site or turning point. One little pointer here - the higher you fly the faster you will be going for the

same indicated airspeed so to avoid the complications of calculating true airspeed from indicated airspeed, it is best to stay at an altitude of about 2000ft.

If the route is a good one you may be lucky in picking up a few vital clues en route - like flying over a major town or other distinct object. Real flying just ain't like that though and some routes can take you over miles of bland countryside, such as in East Anglia. In that part of the country there isn't a lot down there to aid your map reading - except dozens of disused airfields.

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