

Newsletter September 2017

The ADF trap

EI-YLG is well equipped with navigation aids and they are in good working order. The best ones for fixing position are the VOR and DME.

But the ADF looks deceptively easy to use - just tune to a transmission and the needle points the way. Many pilots dial in 252 kHz and assume that the needle will point to the RTE transmitter at Summerhill.

But that transmitter was off the air on several occasions earlier this year, yet the needle pointed "somewhere". The ADF works in the medium frequency band which does not depend on line-of-sight reception, so you can pick up stations hundreds of miles away if they are strong.

When RTE was off the air, the ADF was picking up a station in southern Europe. There are numerous reasons why an ADF bearing could be wrong, which is why pilots are supposed to have adequate knowledge before using it. For example, if you set 397 kHz, the frequency of the locator beacon at Knock, while you are at Weston, the needle would point northeast because it would be receiving the beacon at Portmarnock, which transmits on 398 kHz. . If you listened to the ident, you would hear, **dah dah dah / dit dah dah dit**, which is **OP**.

Fly towards Knock and in the midlands you would still hear the OP ident and also **dah dah dah / dah dit dah**, which is **OK**, the Knock beacon. As you get nearer to Knock, the needle will finally point in the right direction. The Designated Operational Coverage (DOC) of the Knock beacon is 25 NM. That means that trying to use it outside of that range might not give accurate bearings. No DOC is given for the OP at Dublin, but as it is a locator beacon, its primary purpose is in positioning for the ILS and so its DOC would also be low. Using commercial radio stations is risky because they may have more than one transmitter and may use a different one if the usual one is undergoing maintenance. Identing navigation beacons is **absolutely** essential – if you can't ident it, you shouldn't use it.

If you plan to use the ADF, do you know how to tune and test it before flight?

When you turn it on, it shows the active frequency and a timer. If you plan to use a different frequency, you should press the FRQ button to show the STBY and load the frequency, then transfer it to the USE position by pressing the flip-flop button. I regularly turn the ADF on and when I press the FRQ button, I see 252 on both USE and STBY positions, which

suggests that some pilots didn't know the proper way to set up frequencies.

The safest way to understand nav aids is to get a briefing, try out the particular aid on the RANT programme with an instructor and then practise with it in flight.

A little ADF test for you– assuming that the aircraft below is heading north, where is the radio station in relation to the aircraft?



Children of the magenta!



The Garmin GNS 430 will be fitted this month. This will mean that our communications frequencies will comply with the new rules for 8.33 kHz spacing.

Watch out for details of an introductory seminar on the Garmin in the near future.

In addition to VOR and DME, we will have built-in GPS navigation, including RNAV approaches for those who are instrument-rated.

If you only want to know how to tune communications frequencies and the VOR, you only need to understand the controls to the left of the line in the picture above. The GPS gives all sorts of navigational information but it takes a bit more study so you will have to become familiar with the controls to the right of the line.

Tip: Estimating crosswind component

Allow 1/6 of windspeed for each 10° of wind angle or 1/4 windspeed for each 15° of wind angle. This causes an over-estimate at angles of 60° or more, but it's sufficient for quick calculations.