

# Night VFR

Now that those of us with NVFR ratings need to do flight reviews to keep them current, here's a refresher on some of the considerations.

## Weather forecast

At night you can't necessarily see the cloud you're about to fly into, so choose your Lowest Safe Altitude and ensure there is no more than scattered cloud below that height plus 1000 ft.

## Ground lighting (AIP ENR 1.1-59)

Your aerodrome must have runway edge, threshold, windsock, and obstacle lighting. There is no requirement for taxiway lighting, so if you're taxiing at night without the help of taxiway lights, keep an extra sharp eye out, and remember your speed can be deceptive. Look at your wingtips to check you're taxiing at a fast walking pace and not a Usain Bolt 100 metres pace.

## Aircraft instruments (CAO 20.18 Appendix IV)

In addition to the flight instruments you need by day (ASI, altimeter, compass, timepiece), at night you also need:

- Attitude indicator – in the absence of the real horizon, this is the most important instrument in the aeroplane;
- DG;
- OAT gauge;
- Turn and balance indicator – in case your vacuum pump fails and you're left without the AI, this will be your main source of roll information;
- Indications that the power supply to the gyros is working – in most light singles the AI and DG are vacuum-powered and the turn coordinator is electric, so this means ammeter and suction gauge;
- Alternate static source.

Do your pre-flight before dark and turn all the lights on – inside and outside – to check they're working. Also make sure you have a torch, its batteries are not about to run out, and it's a practical one that you can sit on your lap or strap to your head like a coal miner, or somehow use it without needing to use a hand to hang onto it.

## Radio (AIP GEN 1.5)

Radio requirements are pretty simple: one VHF, one ADF, VOR or GNSS (even if your destination doesn't have any ground-based aids), and a transponder if in CTA.

## Alternates (AIP ENR 1.1-58)

By day you only have to worry about weather. By night you need to think about lights and navaids as well. If you can't remember the weather requirements, check the AIP. But for the others:

## Navaids

You must have an alternate within 1 hour unless:

1. Your destination has a VOR or NDB and you have a VOR or ADF, or
2. You have an IFR-approved GNSS and an appropriate qualification to use it.

## Lighting

There are three questions to ask yourself about lights.

1. Does the aerodrome have only portable lights? If so, you need a responsible person to turn them on, or you need an alternate. In most cases, we can skip this question.
2. Is the lighting pilot-activated? For most country aerodromes, yes. You need someone there to turn the lights on, or you need an alternate. This covers the chance of the VHF switching failing.
3. Does the lighting have standby power? If not, you need portable lights and someone to turn them on. This covers the chance of a power failure.

Questions 2 and 3 are completely separate and independent, so don't mix them together like many people do. If your lights are PAL and there's no one there, your aerodrome scores a "Fail" on Q2. You don't even need to go on to Q3. But if your aerodrome has PAL and someone there, or better still the lights are on all night, then go on to Q3.

The bit about having 2 VHF's or VHF and HF and 30 minutes holding fuel doesn't apply to your destination; it applies to your alternate. The normal rule is that if your aerodrome requires an alternate, it can't be used as an alternate (pretty common sense really), which means an aerodrome with PAL and no one there can't be nominated as an alternate. This is an exception to that rule.

## LSALT (AIP GEN 3.3)

Your LSALT must be 1000 ft above the highest obstacle within 10 nm of track. You can also use the IFR methods of calculating LSALT if you like, but the NVFR rule is much easier.

Find the highest terrain in your area of interest, and find the highest obstacle. Then apply the obscure little rule, buried in the CASR's (CASR 139.365), that says anyone who builds a structure higher than 110 metres (360 ft) must tell CASA. That means someone can build a tower 359 ft high and CASA may not know about it, so it may not be on your map. So if the highest obstacle is more than 360 ft above highest terrain, add 1000 ft to it to get your LSALT. If the highest obstacle is no more than 360 ft above highest terrain, which is more often the case, assume there's a 359 ft tower on the highest terrain, and add 1360 ft to get your LSALT.

You can fly below LSALT:

- When climbing on departure;
- Once you're within 3 nm of your destination and you can see the lights (bear in mind the runway lights at Northam are about as bright as the candles in St Joseph's Catholic Church in Wellington St, so just being within 3 nm may not be enough);
- When you're under radar control.

The next instalment will be on visual illusions at night.

Mantra of an SR-71 pilot: "Though I fly through the valley of death, I shall fear no evil, for I am at 80,000 feet and climbing." At that height, it's always night time!