

## Look out!

See or be hit! The formal term may be “see and avoid”, but either way it highlights the reality that, as VFR pilots, it is our responsibility to see other traffic before it gets big in the windscreen. Even in controlled airspace like at Jandakot, the controllers don’t separate us from other traffic – they only give us information to help us to separate ourselves. As the best collision-avoidance aid is the “Mark I eyeball”, it is worth considering some of the strengths and limitations of our eyes so we can optimise our lookout.

The retina is the back of the eye. Images fall on it, so it’s like the sensor in a digital camera that converts the input to a picture, or the film in an old camera. The retina has a central point called the fovea, and visual acuity – the sharpness of the image – is much clearer on the fovea than on other parts of the retina. Focus on the word “fovea” on the previous line and see how many words you can clearly see on either side of “fovea” without shifting your focus. Maybe one or two? This means that unless you are looking directly at something distant and making the image fall on your fovea, you may not see it clearly. So keep your eyes moving and make sure that distant aircraft that’s out to hit you paints its image smack bang on your fovea.

Another little trick that illustrates the need to keep your eyes moving involves peripheral vision. Look ahead and hold a finger up to the side of your head. Wiggle the finger and hold it so you can only just see it out of the corner of your eye. Then hold your finger still. You won’t be able to see it. This shows that the very periphery of your vision detects only movement. An aircraft on a collision course with you will appear to be stationary in your windscreen, which means there’s no relative movement, so your peripheral vision will not pick it up. Solution – keep your eyes moving so the aircraft gets out of your peripheral vision and onto your fovea.

You need a friend for the final party trick in this edition of Flyabout. Get said friend to hold their finger at the limit of peripheral vision (as per Party Trick 2), then move their finger in a 180° arc and follow it with their eyes. You’ll notice their eyes move smoothly. Then get them to do the same thing with their eyes – move through 180° – but without the finger to focus on. You’ll notice the eyes move in little jerks, or flicking motions. These little movements are called saccades. If your eyes are focused on an object crossing the sky in front of you (like the finger), then your eyes will move in one smooth continuous movement. But if you are scanning across an empty sky, your eyes will do the saccade thing – focus, flick, focus, flick, focus. While your eyes are flicking, they are blind. In effect, you have a series of little blind spots across the sky, which is clearly not very handy with all those aeroplanes out there trying to hit you.

What this means is that you may hear some traffic so you scan for it. You know it's there but you can't find it. That may be because in your scan, your eyes "flicked" past the traffic in one of their saccades. Look away, look back at the same spot, and chances are this time your focus will land on the aircraft.

Happy flying, and look out!