



# THE EYES HAVE IT

Dr Chris King offers advice on what to expect from a CAA eye test and how to look after this most valuable asset.



The ability to see distance is normally measured on charts at six metres. This must be at least 6/6 in both eyes and 6/9 in each eye separately, corrected with glasses or contact lenses if necessary. The first number is your distance from the chart and the second number is the best line you can read correctly. Remember to attend your medical ideally with glasses and ideally without contact lenses for 24 hours, but brought with you to the medical. Bifocal or progressive (varifocal) spectacle lenses are acceptable provided well-tolerated.

Periodically, some pilots who need eye correction will be required to submit extended ophthalmological reports to the AME/CAA. There is no need for this if your prescription is less than +/- 3.00 dioptres, five yearly if -3.00 to -6.00 dioptres and two yearly if > 6.00 or > 3.00 dioptres.

For near vision you must be able to read the N5 print between 30 and 50cm and N14 print at 100cm with or without correction.

## Laser surgery

It is not recommended that you have laser surgery to obtain a medical certificate. If your eyes are outside the limits (+5 to -6 dioptres) and you have laser surgery to correct this you will

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still *not* be able to obtain a medical certificate. It might be worth discussing this with the CAA. The following is a résumé of the CAA requirements on laser surgery:

- Pre-operative refraction needs to be no more than +5 to -6 dioptres.
- A post-operative assessment with an eye specialist at the CAA will be required. You will need a report showing your post-operative refraction about a month before your visit to the CAA. In addition, a copy of your pre-operative refraction and operative details will be required.
- You must have no post-operative problems with glare, blur or haloes.

- Certification will be considered three months after LASIK and six months after LASIK/PRK.

## Colour vision

Colour vision is currently tested by using the Ishihara plates which are coloured numbers embedded in a coloured surround. The pilot has to identify the number from the coloured surround. Applicants who make errors with the Ishihara plates are offered further colour vision testing. Traditionally, this would be carried out using a lantern test where a series of signal lights at distance are



purpose. The test involves the applicant observing a pixelated background in changing shades of grey. Against this background, coloured pixels of precisely known colour and colour strength move diagonally across the screen. The coloured pixels have the same colour strength as the grey background. The applicant has to indicate that they have seen the direction of travel of the coloured pixels. The use of varying colour strength establishes a threshold of the applicant's colour vision ability. This CAD test has 100 per cent sensitivity and specificity for detecting colour vision deficiency and avoids the false positives in previous testing. The CAD also quantifies accurately the degree of red/green and yellow/blue colour vision loss. More details on this test can be obtained from the CAA.

## Contact lenses

Contact lenses are permissible in flight. However, pilots should ensure that they can wear their lenses on the ground for at least eight hours a day, five days a week for at least a month before wearing them in the air. This may not be feasible as the pressurised cockpit is a dry environment and may cause dehydration to the lenses.

Contact lenses are permissible for distance vision only. Monovision (one lens correcting for distance, the other for near vision), bifocal/varifocal, cosmetic coloured, Ortho-K and X-chrom/Chromagen lenses are not permissible.

## Sunglasses

Sunglasses are important for obvious reasons. The tint should be in a neutral colour and no darker than 80 per cent. A graded tint with the darkest tint at the top is useful. Photochromatic lenses which react to UV light by darkening are discouraged as cockpit glass can block UV light and impair performance.

Polarised lenses reduce light passing through the lenses by filtration of light, but they can cause distortion patterns from laminated windscreens as happens in cars.

Prescription sunglasses can count as a second pair of glasses. For night flying it is recommended that two non-tinted pairs of glasses are available. ■

simulated. These tests were originally developed in the 19<sup>th</sup> century for use in the maritime industry and various lanterns have been produced for other occupations, including rail and aviation. Because these lanterns are no longer manufactured and supported and there is known variability between differing JAR approved lanterns, an alternative test has been developed.

The new test is based on the interpretation of the PAPI lights which is one of the most important colour related tasks for a pilot.

The colour assessment and diagnosis (CAD) test has been developed for this