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DIRECTOR GENERAL OF CIVIL AVIATION
OPPOSITE SAFDARJUNG AIRPORT
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A.I.C.

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In exercise of the powers conferred by Rule 39B and 133A of the Aircraft Rules, 1937, the following requirements are hereby issued for information, guidance and compliance.

This AIC supersedes AIC 13 of 2008 dated 8-10-2008.

(M. Sathiyavathy)
DIRECTOR GENERAL OF CIVIL AVIATION

OPHTHALMOLOGICAL DISORDERS

1. Introduction. The AIC deals with assessment of candidates and civil aircrew having certain ophthalmological disorders. Conditions of the eye not covered herein should be dealt with on the merits of the case based on ICAO guidelines.

2. The following ophthalmological conditions are disqualifying for initial issue medical examinations:

(a) History/ evidence of recurrent keratitis
(b) Keratoconus
(c) Macular degeneration
(d) Hereditary degeneration which interferes with visual acuity and/or visual fields
(e) Retinitis Pigmentosa
(f) Retinal Detachment
(g) Retinal vascular disorders with exudates or neovascularisation
(h) Optic neuritis and optic atrophy
(i) Central Serous Retinopathy
(j) Glaucoma
(k) Any intraocular surgery
(l) Manifest squint

3. Candidates for initial issue medical examination having corneal / congenital lenticular opacities which are non-progressive and do not interfere with vision may be considered fit for flying duties.

4. Lattice Degeneration (LD) and retinal holes. LD of the retina is a common vitreo-retinal degeneration. High risk features in LD which may predispose to retinal detachment (RD) include extent of LD more than three clock hours, presence of vitreo-retinal traction, hole, tear and refractive error more than -5.00D. Sometimes, retinal holes may be present in the peripheral retina without being association lattice degeneration. There is no specific treatment for these, usually asymptomatic conditions, but high risk cases of LD and retinal holes can be treated prophylactically by cryotherapy or laser photocoagulation.

On detection of Lattice Degeneration or retinal holes, during initial or renewal medical, the civil aircrew are to be made temporary unfit and asked to report with opinion of vitreoretinal surgeon. If the reports brings out no high risk features requiring prophylactic treatment, the civil aircrew may be considered fit. If advised treatment and treated adequately by cryotherapy/laser photocoagulation, the civil aircrew may be considered fit four weeks after the procedure. All cases of LD henceforth will be reviewed at IAM/AFCME/MEC(E) only along with opinion of vitreoretinal surgeon.

5. Modern Kerato-refractive Surgery. Prospective aircrew aspirants and trained flight crew having undergone modern kerato-refractive surgery (PRK, LASIK, LASEK, Epi-LASIK, Femto-second LASIK etc.) will be considered for medical fitness for flying on a

case-to-case basis. Such cases will be examined only after a minimum period of six months after such a procedure. Medical fitness for initial issue of licence may be considered for such cases, if the visual requirements for the license category are met with stable corneal topography and refraction done at 6 months post procedure and no post-surgical complications like corneal opacity interfering with vision. The finding should be recorded and the progress/ deterioration be commented upon during subsequent Class I Medical examination conducted at IAM/AFCME/MEC (E).

6. Cataract Surgery and Intra-Ocular Lens Implantation with Monofocal Intraocular Lenses.

(a) Cataract Surgery by Phaco-emulsification. Flight crew having undergone cataract surgery where such surgery is performed by phaco-emulsification, medical fitness with the limitation, 'Fit to Fly as PIC with QEP' may be considered after four weeks of surgery if there are no post-surgical complications, vision is stable and within acceptable limits. Such crew may be upgraded to PIC status 12 weeks after surgery, if there are no post-surgical complications, vision is stable and within acceptable limits, with contact lenses or spectacles.

(b) Cataract Surgery by a Full Incision. Cases that have undergone full cataract incision will be kept in non-flying status for a period of six months. Thereafter, 'Fit to Fly as PIC with QEP' will be given for three months depending on the clinical status. Nine months post-operatively, PIC status may be considered if there are no post-surgical complications, vision is stable and within acceptable limits, with contact lenses or spectacles.

7. Glaucoma.

(a) The mere presence of raised Intra-Ocular Pressure (IOP) is called ocular hypertension and it involves an increased risk of developing glaucoma. An increased IOP, i.e above 22 mm or a difference between eyes of 6 mm Hg or more should cause a suspicion of glaucoma. Visual field testing by Automated Perimetry is essential to prove functional impairment. The diagnosis of glaucoma does not per se disqualify flying duties. Aircrew with glaucoma should be free of side effects from the local drug therapy given; the most important is the accommodative reduction of visual acuity. A three month period of safe use of topical medication should precede a flying status.

(b) Aircrew with glaucoma controlled by non-miotic drugs or surgery may be considered fit for flying duties only if the results of automated perimetry in the central 30^{o} results conform to mild glaucomatous loss in both eyes or moderate glaucomatous loss in one eye, the other eye being absolutely normal.

(c) The criteria for mild glaucomatous loss involve:

(i) Mean Deviation <-6 dB

(ii) Fewer than 18 points depressed below the P<5% level and fewer than 10 points below the p<10% level

(iii) No point in the central 5^{o} with sensitivity of less than 15dB

(d) The criteria for modertate glaucomatous loss involves:

(i) Mean Deviation <-12 dB

(ii) Fewer than 37 points depressed below the P<5% level and fewer than 20 points below the p<10% level

(iii) No absolute deficit (0dB) in the central 5^{o}

(iv) Only one hemi-field with sensitivity of <15 dB in the central 5^{o}

(e) The following variants of Glaucoma are considered acceptable for flying duties provided they are stable with accepted local medication.

(i) Ocular Hypertension. The finding shall be recorded and the progress/ deterioration monitored by the AMA Ophthalmologist in detail including IOP recording and visual field testing. Subsequent Class I Medical Examination will be conducted at IAM/AFCME/ MEC (E). Aircrew may be granted PIC status.

(ii) Open Angle Glaucoma. The finding shall be recorded and the progress/deterioration monitored by the AMA ophthalmologist in detail including IOP recording and visual field testing. Subsequent Class I Medical Examination will be conducted at IAM/AFCME/MEC(E). Aircrew with acceptable field defects will be fit for PIC with QEP status only.

(iii) Narrow angle/angle closure Glaucoma. Cases of narrow angle/angle closure Glaucoma (primary Angle Closure) may be treated with Laser Iridotomy by the AMA Ophthalmologist. Fitness for flying duties may be considered provided a minimum of three months have elapsed after an uneventful procedure. Such aircrew will be monitored by the AMA Ophthalmologist in detail including IOP recording and visual field testing. Subsequent Class I Medical Examination will be conducted at IAM/AFCME/ MEC(E). Aircrew with acceptable field defects will be fit for PIC with QEP status only.

(f) Glaucoma with co-existing significant pathology (e.g. Neovascular Glaucoma due to Proliferative Diabetic Retinopathy, Ischaemic CRVO, Uveitic Glaucoma) are considered not acceptable for Flying Duties.

8. Age-Related Macular Degeneration (ARMD).

(a) Patients with ARMD are often asymptomatic or sometimes notice mild symptoms including minimally blurred central visual acuity, contrast and colour disturbances and metamorphopsia. If geographic atrophy develops in the macular region, patients may notice a scotoma which can enlarge over months to years before eventually stabilizing. Patients with exudative AMD typically describe painless progressive blurring of their central visual acuity, which can be acute or insidious in onset. Patients, who develop sub-retinal haemorrhage from choroidal neo-vascularisation (CNV), typically report an acute onset. Other patients with choroidal neovascular membranes (CNVM) may experience insidious blurring secondary to shallow sub-retinal fluid or pigment epithelial detachments (PEDs). They also report relative or absolute central scotomas, metamorphopsia and difficulty in reading. A dilated examination of the fundus with slit lamp bio-microscopy, stereo colour photography of the fundus, flourescien angiography (FA), indocyanine green angiography (ICGA), fundus auto fluorescence (FAF) and optical coherence tomography (OCT) are performed for diagnosis of AMD. OCT provides a cross-

sectional view of the retina and can identify soft drusen, RPE detachments, sub-retinal and intra-retinal fluid, CNV and cystoids, macular oedema. Amsler Grid consists of evenly spaced horizontal and vertical lines printed on black or white paper. A small dot is located in the centre of the grid for fixation. While staring at the dot, the patient looks for wavy lines and missing areas of the grid. If the lines of the grid do not appear straight and parallel or there are missing areas or if any changes in the appearance of the Amsler grid are detected, the aircrew are to notify the AMA immediately.

(b) Aircrew with field defects will be fit PIC with QEP only. Assessment of visual fields for aircrew will be done as elaborated for glaucoma. The aircrew should have a corrected vision of N 14 at 1 m distance, to continue with flying duties. Gross metamorphopsia on Amsler Grid will be unfit for flying duties, even if visual standards are met.

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