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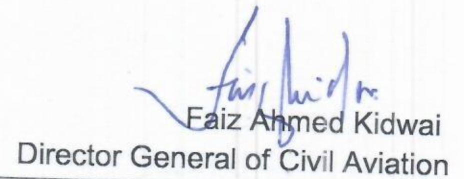
In exercise of the powers conferred by Rule 39B and 133A of the Aircraft Rules, 1937, the following requirements are hereby issued for information, guidance and compliance.

This AIC supersedes AIC 06 of 2016 dated 13-06-2016.



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OPHTHALMOLOGICAL DISORDERS

1. Introduction. This AIC lays down guidelines for assessment of DGCA license holders with ophthalmological disorders. Conditions of the eye not covered herein shall be assessed on the merits of the case.

2. Visual Standards

2.1 For Class 1 assessment- Distance visual acuity with or without correction shall be 6/9 or better in each eye separately and binocular visual acuity shall be 6/6 or better. No limits apply to uncorrected visual acuity.

2.2 For Class 2 assessment- Distance visual acuity with or without correction shall be 6/12 or better in each eye separately and binocular visual acuity shall be 6/9 or better. No limits apply to uncorrected visual acuity.

2.3 For Class 3 assessment- Distance visual acuity with or without correction shall be 6/9 or better in each eye separately and binocular visual acuity shall be 6/6 or better. No limits apply to uncorrected visual acuity.

2.4 Near Visual Acuity shall be N5 at 30-50 cm, N14 at 100 cm.

2.5 License holders who are prescribed corrective glasses shall wear them while exercising the privileges of their licenses. In addition, a pair of spare glasses is to be kept readily available.

Note – ICAO Annex 1 chapter 6 should also be referred for acceptable visual standards and guidelines.

3. The following ophthalmological conditions are disqualifying for initial issuance of Medical Assessment:

3.1 History/ evidence of recurrent keratitis

3.2 Keratoconus

3.3 Hereditary degenerative eye diseases which interferes with visual acuity and/or visual fields, like Retinitis Pigmentosa etc

3.4 Progressive retinal and macular disorders including Retinal vascular disorders with exudates or neovascularisation.

3.5 Optic neuritis and optic atrophy

3.6 Central Serous Retinopathy

3.7 Glaucoma

3.8 Any intraocular surgery including cataract surgery, post ICL implantation and retinal surgery etc.

3.9 Manifest squint.

Note- The above conditions are usually associated with reduced visual performance and applicants with them would normally be assessed unfit. In treatable cases, applicant can reapply after successful therapy. Final disposal will depend upon stability, progression and follow up issues on a case to case basis.

4. Applicants for Initial Medical Assessment having corneal / congenital lenticular opacities which are non-progressive and do not interfere with vision may be considered fit for unrestricted flying duties/ ATC Controller duties.

5. Lattice Degeneration (LD) and Retinal Holes. 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 examination, the license holders shall be declared temporary unfit for duties and reviewed with opinion of treating vitreoretinal surgeon. Applicants/License holders with no risk features requiring

prophylactic treatment, they may be considered fit for duty. If advised treatment and treated adequately by cryotherapy/laser photocoagulation, the applicant/ License holder may be considered fit, - four weeks after the procedure. All cases of LD cases will be reviewed at IAF Boarding centre/DGCA empanelled Aeromedical Evaluation centre only. The subsequent medical examinations can be performed by DGCA empanelled medical examiners along with report from treating Vitreo Retinal surgeon.

6. Refractive Surgeries. License holder having undergone modern kerato-refractive surgery (PRK, LASIK, LASEK, Epi- LASIK, Femto-second LASIK etc.) will be considered for issuance of medical certification on case-to-case basis. Such cases will be examined only after a minimum period of 06 weeks after the procedure when they may be assessed 'Fit to Fly as PIC with QEP' or to work under supervision (for ATCOs), provided the visual requirements for the license category are met with stable corneal topography and refraction. Further, they will be reviewed at 12 weeks post procedure for unrestricted medical fitness, provided there are no post-surgical complications like corneal opacity interfering with vision.

Fitness for initial issuance of medical assessment post refractive surgery will be considered, only after 06 months have elapsed post uncomplicated stable Keratorefractive surgery and if the visual requirements for the license category are met with stable corneal topography and refraction and no post-surgical complications like corneal opacity interfering with vision. The initial medical examination of such cases will be held at IAF Boarding centre /DGCA empanelled Aeromedical Evaluation centre only. These findings will be recorded and the progress/ deterioration be commented upon during subsequent Medical Examinations.

7. Keratoconus: License Holder diagnosed with Keratoconus will be considered for medical fitness on case-to-case basis at IAF Boarding centres/DGCA empanelled Aeromedical Evaluation centre only. Medical fitness may be considered for such cases, if the visual requirements for the license category are met with stable corneal topography and refraction. If License holder undergoes collagen cross linking procedure, they will be examined only after 03 months from the procedure. These findings will be recorded and the progress/ deterioration be commented upon during subsequent Medical Examination provided vision is stable and within acceptable limits. Medical examination of cases of keratoconus will be conducted at IAF Boarding centres/DGCA empanelled Aeromedical Evaluation centre only for initial 02 years and subsequently every 03 years at IAF Boarding centre/DGCA empanelled Aeromedical Evaluation centre with corneal topography and cornea specialist opinion.

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

8.1 Cataract Surgery by Phaco-Emulsification. License holders having undergone cataract surgery with IOL implantation by phaco-emulsification, medical fitness may be considered with the limitation, 'Fit to Fly as PIC with QEP' or to work under supervision for ATCOs,

four weeks after the surgery, provided there are no post-surgical complications, vision is stable and within acceptable limits. Such License holders may be considered fit for unrestricted duties, 08 weeks after the surgery, if there are no post-surgical complications, vision is stable and within acceptable limits, with spectacles or contact lens. Only monofocal IOLs shall be acceptable for fitness for duty.

8.2 Cataract Surgery by a Full Incision. License holder who undergo full cataract incision surgery (with monofocal IOL implantation) will be unfit for duties for a period of 12 weeks after surgery. Thereafter, they may be considered for restricted duties as per para 8a above depending on the clinical status. Subsequently, after another 04 weeks, unrestricted status may be considered, provided there are no post- surgical complications, vision is stable and within acceptable limits, with spectacles or contact lenses.

9. Glaucoma. Glaucoma is an insidious and progressive cause of vision loss and blindness. Early detection and treatment can preserve normal vision.

9.1 The 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 the applicants for 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 months period of safe use of topical medication should precede a flying status for all License holders.

9.2 License holders with glaucoma controlled by non-miotic drugs or surgery may be considered fit for duties only if the results of automated perimetry in the central 30^0 results conform to mild glaucomatous loss in both eyes or moderate glaucomatous loss in one eye, the other eye being absolutely normal.

9.3 The criteria for mild glaucomatous loss involves: -

(i) Mean Deviation < - 6 dB

(ii) Fewer than 18 points depressed below the p < 5% level and fewer than 10 points below the p < 1% level.

(iii) No point in the central 5 degrees with sensitivity of less than 15 dB.

9.4 The criteria for moderate 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 < 1% level.

(iii) No absolute deficit (0 dB) in the 5 central degrees

(iv) Only one hemi-field with sensitivity of < 15 dB in the 5 central degrees.

9.5 The Aeromedical disposal will be as follows-

(i) Ocular Hypertension. The finding shall be recorded and the progress/ deterioration monitored by the Ophthalmologist in detail including IOP recording and visual field testing. License holders may be granted fit for unrestricted duties. The medical examination of such cases will be conducted at IAF Boarding centres/DGCA empanelled Aeromedical Evaluation centre and thereafter according to periodic medical examination with Glaucoma specialist opinion.

(ii) Open Angle Glaucoma. The finding shall be recorded and the progress/deterioration monitored by the ophthalmologist in detail including IOP recording and visual field testing. The medical examination of such cases will be conducted at IAF Boarding centres/DGCA empanelled Aeromedical Evaluation centre and thereafter every 03 years at IAF BC/DGCA empanelled Aeromedical Evaluation centre with visual field, OCT RNFL & Glaucoma specialist opinion. License holders 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 Prophylactic Laser Iridotomy. Fitness for duties may be considered provided a minimum of 04 weeks have elapsed after an uneventful procedure. Such License holders will be monitored by their Ophthalmologist in detail including IOP recording and visual field testing. Medical Examination will be conducted at IAF Boarding centres/DGCA empanelled Aeromedical Evaluation centre and thereafter every 03 years at IAF BC/DGCA empanelled Aeromedical Evaluation centre with visual field, OCT RNFL & Glaucoma specialist opinion. License holders with acceptable field defects will be fit for PIC with QEP status only.

9.6 Glaucoma with co-existing significant pathology (e.g. Neovascular Glaucoma due to Proliferative Diabetic Retinopathy, Ischaemic CRVO, Uveitic Glaucoma) are considered unfit for issuance of medical assessment.

10. Retinal Detachment. Cases of RD who have undergoen surgery will be declared unfit for a period of 03 months. Thereafter, restricted medical fitness "Fit to fly as PIC with QEP or to work under supervision for ATCOs, may be given for 03 months depending on the clinical status. After that, unrestricted duties may be considered if there are no post-surgical complications, vision is stable with spectacles and visual field test are within acceptable standards. License holders with substandard vision and field defects will be unfit.

All such cases will be reviewed at IAF Boarding/DGCA empanelled Aeromedical Evaluation centre centre for next 02 years along with opinion of Vitreoretinal surgeon and subsequently according to their periodic medical exam with Vitreoretinal surgeon opinion.

11. Retinal Vascular Diseases, Retinal degeneration and Retinopathy (including Retinal artery occlusion, Ischaemic optic neuropathy & Retinal vein occlusion).

Individuals with Age related macular degeneration(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, they may notice a scotoma which can enlarge over months to years before eventually stabilizing. Individuals with exudative ARMD typically describe painless progressive blurring of their central visual acuity, which can be acute or insidious in onset. Individuals who develop sub-retinal haemorrhage from choroidal neo- vascularisation (CNV), typically report an acute onset. Others 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. The symptoms of macular disease include blurring and distortion of vision with micropsia or macropsia, which can be assessed with an Amsler grid.

Central Serous Chorioretinopathy (CSR) affects healthy young men with a hectic lifestyle. Only one eye is usually affected and reduction of acuity is mild (roughly 6/12 or 6/18). With a direct ophthalmoscope, dulling of the macular reflex is seen, representing a shallow central retinal detachment. Vision usually recovers spontaneously within six weeks in 90% of cases. It is also assessed with Amsler Grid charting. Stereo acuity is temporarily lost and pilots should not fly until full recovery occurs. If any changes in the appearance of the Amsler grid are detected, the aircrew are to notify the AMA immediately.

In all such cases, a dilated fundus examination with slit lamp bio-microscopy, stereo colour photography of the fundus, fluorescein angiography (FA) or indocyanine green angiography (ICGA) as required, fundus auto fluorescence (FAF) and optical coherence tomography (OCT) along with visual field test are required.

License holders, with above mentioned conditions, will be declared unfit. Cases that have undergone laser or taken intravitreal injection will be observed for a period of 3 months. Thereafter restricted medical fitness "Fit to fly as PIC with QEP or to work under supervision for ATCOs" may be considered for 03 months depending on the clinical status along with retina specialist opinion. After that, unrestricted medical fitness may be considered if there are no post procedural complications, vision is stable with spectacles and visual field test are within acceptable standards along with retina specialist opinion. Assessment of visual fields for License holders will be done as elaborated for glaucoma. License holder with acceptable field defects will be considered for restricted medical fitness as PIC with QEP only. The License holder 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 duties, even if visual standards are met. Further review will be conducted at IAF Boarding centre/DGCA empanelled Aeromedical Evaluation centre only. License holders with substandard vision and marked field defects will be made unfit.

12. <u>Colour Perception</u>

12.1 The testing procedure of colour perception is as follows: -

(i) CP-II - Candidate passes Ishihara Book Test or the Tokyo Medical College Book Test.

(ii) CP-III (Colour Defective Safe) - Candidate who recognizes white, red and green colours by large apertures shown by Martin's Lantern at 1.5 meters correctly or reads the requisite plates on Ishihara Book/ Tokyo Medical College Book.

(iii) CP-IV (Colour Defective Unsafe) - Candidates who are unable to recognize white, red and green colours by large apertures shown by Martin's Lantern at 1.5 meters correctly or unable to read plates 2-9 and 22-25 on the Ishihara Book or read the screening plates I and II, qualitative plates 1-3 in the Tokyo Medical College Book.

12.2 The disposal for colour perception is as follows: -

Sl. No.	Colour Perception	Class I (CPL & ATPL)	CLASS II (SPL & PPL)	CLASS III (ATCO Os)
(i)	CP II	FIT	FIT	FIT
(ii)	CP III (DEFECTIVE SAFE)	FIT	FIT	FIT
(iii)	CP IV (DEFECTIVE UNSAFE)	UNFIT	FIT for day time flying only	UNFIT

13. This AIC lays down only guidelines to assess DGCA License holder having Ophthalmologic disorders. Every disorder and complications of Eye diseases cannot be covered through AIC. Cases will be issued aeromedical assessment, based on individual merit of the case, type of License and expected duties.

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