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CHAPTER 6

EYESIGHT AND COLOUR PERCEPTION STANDARDS

CONTENTS

LEAFLETS

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Reference. JSP 950 Part 6 Chapter 7 (incorporating JSP 346)

0601. Visual Acuity Standards

a. Visual acuity standards applicable to all personnel on the Active and Reserve Lists of the Royal Navy Royal Marines and QARNNS who joined the Service AFTER 1 January 1995 are shown in Leaflet 6-01.

b. Prior to January 1995, a lower minimum standard of vision was acceptable as there was no generic requirement for individuals to undergo weapon training. There was also a higher level of vision required for those with bridge watchkeeping responsibilities. The past standards are outlined at Leaflet 6-02.

c. In interpretation of these standards, the current standards apply to all serving personnel, with the exception of those personnel who entered their current branch before 1 January 1995 in Standard II where the lower unaided visual acuity and higher refraction limits remain applicable.

d. Leaflet 6-03 shows the branch and trade specific eyesight and colour perception standards for entry into and service within the Naval Service.

0602. Methods of Testing

a. The testing of Distant Visual Acuity is laid down in JSP 950 Part 6 Chapter 7 (JSP 346 Chapter 2 Annex E) and Leaflet 6-04.

b. The testing of near visual acuity is laid down in Leaflet 6-04.

c. The testing of colour perception is laid down in Leaflet 6-05.

0603. Method of Recording PULHHEEMS Equivalent (PE)

Snellen figures	6/6	6/9	6/12	6/18	6/24	6/36	6/60	<6/60
P E	1	2	3	4	5	6	7	8

Right Eye P E Unaided	Left Eye P E Unaided
P E with spectacles	P E with spectacles

0604. Ocular Pathology

a. JSP 950 Part 6 Chapter 7 (346 Chapter 3 Leaflet 2 http://defenceintranetds.diiweb.r.mil.uk/sites/polestar/cs/DocumentLibrary/11/1395_sgpl0806%20Leaflet%202%20-%20Eye%20Disease.pdf)) contains a list of ocular pathology which renders potential recruits in-eligible for entry into the services. Additionally, intraocular transplants preclude entry.

b. If the examining doctor is in any doubt as to the candidate's acceptability, they are to seek the opinion of a Service consultant in ophthalmology and of SMO Service Entry at Institute of Naval Medicine.

0605. Colour Perception (CP)

a. There are 5 standards for colour perception graded as follows:

Standard	Test Specification
1	The correct recognition of coloured lights shown through the small paired apertures of the Holmes Wright lantern at LOW brightness at 6 metres distance in complete darkness.
2	The correct recognition of the first 17 plates of the ISHIHARA test (24 plate abridged Edition 1995 or later) shown at random sequence at a distance of 50 - 100 cm under standard fluorescent lighting supplied by an artificial daylight fluorescent lamp (British Standard 950:1967).
3	The correct recognition of coloured lights shown through the paired apertures on the Holmes Wright lantern at HIGH brightness at 6 metres distance in complete darkness.
4	The correct recognition of colours used in relevant trade situations, and assessed by simple tests with coloured wires, resistors, stationery tabs etc.
5	Unable to pass any of the above tests.

b. Colour perception should be tested on initial entry to the RN and when employment changes to a specialisation requiring a different colour perception standard. Non-Destructive Testing personnel require 5 yearly colour perception testing (European Aviation Standard for the Training and Qualification of NDT Personnel: EN4179). Otherwise repeat testing should only be undertaken for clinical reasons or where there is concern that the initial grading was incorrect.

c. Leaflet 6-05 gives instructions on how to conduct colour perception testing.

0606. Spectacles and Contact Lenses

There is in general no restriction on the wearing of spectacles or contact lenses (including onboard submarines) provided that the corrected standards of visual acuity are met. Contact lenses may not, however, be worn under General Service Respirators. Divers may wear contact lenses in accordance with BR 2806. Instructions on corrective spectacles and contact lens use by aircrew is outlined in AP1269A Lflt 5-14 Annex C. Those who may wear contact lenses and choose to do so must always have a pair of defence spectacles to wear as an alternative. Defence spectacles are provided from public funds if required for the efficient performance of duties, contact lenses are not.

0607. Use of Contact Lenses

a. Contact lenses may well provide advantages over spectacles enhancing peripheral vision and reducing reflection and aberration. They are also more compatible than spectacles with specialist equipment such as night vision goggles. Gas-permeable hard contact lenses cannot be recommended for military use as they cannot be worn on an extended wear basis should the need arise. Tinted lenses are also not permissible. The decision whether or not to wear contact lenses must remain with the individual. The individual must also be responsible for ensuring proper care of contact lenses. The vast majority of complications and ocular pathology arising from contact lens wear are associated with inadequate care of the contact lenses. Lenses must be of a soft type and are to be used on a daily wear basis but have the facility for extended wear if required. That is to say that in normal working they should be inserted at the start of the working day and removed before any periods of sleep but could be left in for an extended period should the operational need arise. The extended period should not be more than 7 days.

b. At all times a pair of spectacles of up to date prescription must be available to the individual. If either eye becomes red or painful the individual must remove both contact lenses and return to wearing his/her spectacles and report to a Medical care within 24 hours.

0608. Refraction

The eyesight standards in Leaflet 6-01 and Leaflet 6-02 set limits to the amount of refractive error allowed and it is essential that this is determined at the entry medical examination:

a. **Hypermetropia.** In a young person, considerable hypermetropia may be present without any apparent effect on either near or distance vision. If hypermetropia is suspected the individual should be referred to an optician for refraction.

b. **Myopia.** Short sight affects distance visual acuity and its presence is obvious. The candidate should be asked to provide a spectacle prescription that will show the degree of myopia present.

0609. Corneal Refractive Surgery

a. Corneal Refractive Surgery sometimes known as excimer laser treatment, for correction of myopia (short-sightedness) is becoming much more widespread and available on the high street. The procedure remains relatively new and, even drawing on world-wide experience, there is only limited evidence on the long term effects. There is the potential for disturbances of night vision in some individuals, particularly in the presence of glare. However, the following methods of surgical correction of myopia or hypermetropia are now considered compatible with service on an individual case by case basis for non-specialist employment groups.

(1) Photo reactive keratectomy (PRK).

(2) Laser epithelial keratomileusis (LASEK).

(3) Laser insitu keratomileusis (LASIK).

(4) Intrastromal corneal rings (ICRs) otherwise known as intrastromal corneal segments (ICSs).

Incisional refractive surgery such as radial keratotomy or astigmatic keratotomy is not acceptable for service.

b. The standards for new recruits are covered in JSP 950 Part 6 Chapter 7 (JSP 346 Chapter 3 Leaflet 2). Calculation of spherical equivalent (equivalent spherical error - ESE) is described in Leaflet 6-06.

c. Serving personnel who wish to have such treatment are to be informed that these procedures are not available from Service sources, and if carried out privately, could have an adverse effect on their future Service career by rendering them unfit for duty. It is also no currently acceptable for Aircrew and divers should be discussed with Head of Diving and Hyperbaric Medicine at INM.

d. Service personnel who have had corneal surgery (conventional or laser) carried out, may remain P2 but are to be referred to a Service consultant ophthalmologist for assessment. If their vision has deteriorated below the necessary standard for their branch they will require to be brought before a Naval Service Medical Board of Survey (NSMBOS).

0610. Changes in Eyesight During Service

a. Any serving personnel whose unaided vision in the better eye falls below the standards for branch or the minimum standards for service (6/60 correction greater than ±6.0 dioptres for personnel enlisted after 1 Jan 95 or maximum correction ±7.0 dioptres before 1 Jan 95) is to be referred for ophthalmic opinion and then to NSMBOS for determination of permanent medical category.

b. **Bridge Watchkeepers.** Officers with bridge watchkeeping responsibilities are required to remain within VA Standard II (corrected) and should be tested annually to ensure that this standard is maintained. Those with the following restrictions must be referred to a service consultant in ophthalmology and thence to NSMBOS to determine permanent medical category:

(1) Those whose VA cannot be corrected to VA II.

(2) Those who require greater than 6 dioptres correction to achieve VA II.

(3) Those whose uncorrected vision is worse than 6/60 in either eye.

c. **Aircrew.** Aircrew who are found for the first time to require corrective lenses are to be refracted and then referred to the Senior Medical Officer Aviation Medicine, Institute of Naval Medicine, for assessment of their flying medical category.

d. **Submarine Periscope Watchkeepers.** Submarine periscope watchkeepers whose correction is greater than ±3 dioptres (ie outside the range of periscope optical correction) are to be referred for an ophthalmic opinion and then to the Senior Medical Officer Submarines, Institute of Naval Medicine.

e. **Seaman Ratings.** Applicants for entry must meet Visual Standard II. However, Ratings for AB (AWW) / (AWT) / (S) Specialisation must achieve Visual Standard I in service.

f. **Royal Marines Officers and Other Ranks.** Royal Marines personnel specialising in Aircrew, bridge watchkeeping and other specialist duties must achieve the standards for that specialisation.

0611. Binocular Efficiency

Bifoveal fixation and perfect binocular functions are not essential requirements unless specified but a squint must be cosmetically acceptable. Limits to heterophoria where applicable are as follows:

Function	Efficiency	Applicable
Maddox rod at 6 metres	Esophoria 6 prism dioptres Exophoria 6 prism dioptres Hyperphoria 1 prism dioptre Hypophoria 1 prism dioptre	All RN RM Aircrews
Maddox rod at 33 cm	Esophoria 6 prism dioptres Exophoria 16 prism dioptres Hyperphoria 1 prism dioptre	
Other functions	Recovery on cover test must be rapid, convergence must be maintained at less than 10 cm, stereopsis must be present; anisometropia must not exceed 3.00 ESE.	

0612. Other Abnormalities of the Eyes or Visual System

Any abnormalities of the eye or visual system (congenital, traumatic or pathological) may be cause for rejection even though visual function is within the standard limits, a decision regarding visual fitness for duty must then be made by a Service consultant ophthalmologist.

0613. Annual Personal Weapon Test

The requirement to arm personnel for sentry duties and to be able to meet the PJHQ mandate that all personnel deploying to an operational theatre must be SA 80 trained requires most RN personnel to pass the Annual Personal Weapon Test (APWT). To fire an SA80 rifle effectively the user must be able to independently close the LEFT eye. As part of the Entry Medical the Armed Forces Career Office Medical Examiners (AFCO MEs) are to test for the ability to close the LEFT eye independently. Except for Chaplains those unable to do so are unfit for entry.

0614. Holders of a DVLA Gp 2 Licence

a. DVLA have updated the standards for Gp 2 licensing as of April 2012. This requires testing to 6/7.5 which is not normally available on current SNELLENS Charts. Until the MoD has access to new charts, those who need definition between 6/6 and 6/9 should be sent to a civilian optician for testing.

b. The current DVLA standards for new Gp 2 drivers are below:

VISUAL DISORDERS	GROUP 1 ENTITLEMENT ODL - CAR, M/CYCLE	GROUP 2 ENTITLEMENT VOC - LGV/PCV
	Must be able to meet the above prescribed standard for reading a number plate. In addition, the visual acuity (with the aid of glasses or contact lenses if worn) must be at least 6/12 (0.5 decimal) with both eyes open, or in the only eye if monocular.	Drivers must have a visual acuity, using corrective lenses if necessary, of at least 6/7.5 (0.8 decimal) in the better eye and at least 6/12 (0.5 decimal) in the other eye. The uncorrected acuity in each eye must be at least 3/60. Where glasses are worn to meet the minimum standards, they should have a corrective power < +8 dioptres. It is also necessary for all drivers of Group 2 vehicles to be able to meet the prescribed and relevant Group 1 visual acuity requirements

c. Current drivers do not automatically require re-testing until their licence is due to be re-issued. However, should their vision fall out-with the requirements at any routine medical (PULHHEEMS etc) they should cease GP 2 driving and report the change to the DVLA Medical authorities.