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TP 11343 E

# **Medical Examination of Seafarers Physician's Guide**


**MARINE SAFETY DIRECTORATE  
TRANSPORT CANADA  
OTTAWA  
2001**



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## **1. Scope and Application**

### **1.1 Purpose**

- (1) The Guide sets out the administrative procedures for the issuance of medical certificates, the factors to be taken into account by physicians and registered nurses in conducting medical examinations, the physical requirements for seafarers to obtain a medical certificate and the tests to be used in establishing whether a seafarer meets these requirements.

### **1.2 Scope**

- (1) The application to seafarers of this standard for medical fitness is outlined in Division 8 of the *Crewing Regulations* (SOR/97-390, as amended from time to time), including exceptions of the application to certain seafarers.

### **1.3 Effective Date**

- (1) This edition of TP 11343 entered into force on the date of issue noted in the header.

### **1.4 Authority for this Guide**

- (1) The requirements for medical fitness of seafarers are set out in the *Crewing Regulations* (SOR/97-390) which are made pursuant to the *Canada Shipping Act* (R.S.C. 1985, c. s-9, as amended), in particular sections 110, 232, 338, and 562. The requirements for medical fitness are elaborated on in this Guide. The obligation to international agreements as to the medical fitness of seafarers derives from the accession by Canada to the International Maritime Organization's (IMO) *International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended in 1995* (STCW 95). The standards are affected by on-going work under Resolution 9 of STCW 95 as to the development of international standards of medical fitness of seafarers with the co-operation of the International Labour Organisation and the World Health Organisation. In addition, Canada has ratified the International Labour Organisation (ILO) Convention number 73, *Medical Examination (Seafarers) Convention, 1946*, which entered into force 17 August 1955.

### **1.5 Documents Replaced**

- (1) This edition of the Physician's Guide supersedes the previous edition dated 7 October 1997. The regulations referenced in the previous edition were the *Medical Examination of Seafarers Regulations*, which were repealed with the coming into force of the *Crewing Regulations* effective July 30, 1997.

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## 1.6 Interpretation

- (1) The *Crewing Regulations* provide interpretation of the meanings of the relevant terminology used in this Guide, including : “*designated physician*”, “*physician*”, “*seafarer*”, “*TP*”, and “*TP 11343*”.

## 2. Certification Responsibilities

### 2.1 Minister of Transport

- (1) Acting as the competent authority on behalf of Canada, the Minister of Transport continues to consult with the ship-owners’ and seafarers’ organisations concerned to give effect to Article 4 of the ILO Convention number 73, by setting out the nature of the medical examination to be made and the particulars to be included in the medical certificate.

### 2.2 Applicant

- (1) Division 8 of the *Crewing Regulations* describes the conditions of application for examination. It is the responsibility of the applicant to ensure that the application is made to the appropriate physician and that the necessary form has been used. For administrative purposes, designated physicians have been asked by Transport Canada to stock the appropriate form, but there may be occasions where a designated physician is not used, as permitted by Division 8 of the *Crewing Regulations*, and the applicant will then be required to obtain the appropriate form from a Marine Safety office at a local Transport Canada Centre (TCC), and present it to the physician.

### 2.3 Seafarer

- (1) The requirement for a medical certificate placed on a person intending to accept employment as a seafarer is explained in Division 8 of the *Crewing Regulations*.

### 2.4 Employer

- (1) The requirements placed on a person intending to employ a person as a seafarer are explained in Division 8 of the *Crewing Regulations*.

### 2.5 Physician

- (1) The intention of this Guide is to help the physician to reach decisions and not to provide a set of rigid standards. In addition, a seafarer’s inability to meet rigid standards at periodic assessments should not call for automatic rejection or for limited employment. On the other hand, a seafarer may show a progressive decline in ability to meet certain

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standards. Such a decline may lead the physician to determine that the employee may soon be unfit for the job. Division 8 of the *Crewing Regulations* identifies the required determinations to be made by the physician. The physician is cautioned to ensure that the applicant named in the medical examination report form is the same as the person being examined.

### **Physician's Determination of Fit with Limitations**

- (a) Medical Certificates may be issued with limitations entered by the examining physician, under Division 8 of the *Crewing Regulations*. In all such cases, the appropriate box in the "Physician's Assessment" part of the form should be checked. These limitations should be described in the same part and should be presented in one or more of the following manners:
  - (i) a date of expiry for the medical certificate, if it is to vary from the periods set out in Division 8 of the *Crewing Regulations*,
  - (ii) limitations to the seafarer's employment in such terms as:
    - (A) maximum duration of voyages,
    - (B) geographic limits of permissible voyages, or
    - (C) maximum time away from specified medical facilities.
- (b) Limitations may not be made in terms which limit the certificate holder's ability to fulfil all emergency tasks associated with the position occupied on board ship.

## **3. Certification Authorities**

### **3.1 Minister of Transport**

#### **List of Designated Physicians**

- (1) A list of Designated Physicians is maintained by the office of Marine Medical Certification, Transport Canada. Marine Safety offices have access to the list of Designated Physicians.
  - (a) A physician wishing to be included on the list of Designated Physicians should apply to the office of Marine Medical Certification, Transport Canada.
  - (b) Marine industry associations, groups, owners, employee organisations and Marine Safety surveyors are encouraged to nominate additional physicians who have conducted medical examinations of seafarers, who have experience, or are

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otherwise familiar with the rigours of working at sea. Nominations must only be made with the prior approval of the physician.

- (c) All nominations will be reviewed by the office of Marine Medical Certification, Transport Canada prior to receiving “Designated” status on behalf of the Minister.

### Other Medical Certificates

- (2) Division 8 of the *Crewing Regulations* provides that the Minister may direct the acceptance of a medical certificate in a different form.
  - (a) Further information on the alternate forms of the medical certificate accepted by the Minister, under Division 8 of the *Crewing Regulations*, can be obtained from the office of Marine Medical Certification, Transport Canada.

### Re-examination

- (3) Division 8 of the *Crewing Regulations* provides that the Minister may require the re-examination of a seafarer on appropriate grounds.

## 3.2 Physician

### Capacity to Conduct Medical Examination

- (1) Division 8 of the *Crewing Regulations* provides the physician with the authority to conduct a medical examination for the purpose of these regulations and according to the category of the medical, such as initial pre-employment, periodic, return-to-duty, or to obtain a marine certificate, as required by the circumstances.

### Medical Certificates

- (2) Division 8 of the *Crewing Regulations* provides the physician with the authority and responsibility to issue a medical certificate.

### Validity of a Medical Certificate

- (3) Division 8 of the *Crewing Regulations* provides the physician with the authority and responsibility to verify the period of validity of the medical certificate according to the age, if a marine certificate is held or not, and the state of health of the seafarer.



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### 3.3 Seafarer

#### Review of a Medical Certificate

- (1) Division 8 of the *Crewing Regulations* provides that a seafarer may apply for a review of a medical certificate issued under Division 8 under specific circumstances.

#### Appeal of a Reviewed Medical Certificate

- (2) Division 8 of the *Crewing Regulations* provides that a seafarer who requested a review of a medical certificate may appeal to the Minister for a further review of the case by an appeal board under specific circumstances.

#### Costs of Medical Examinations for Reviews and Appeals

- (3) Division 8 of the *Crewing Regulations* provides that the applicant seafarer bear the cost of the medical examination conducted as a result of a review requested by the seafarer or an appeal requested by the seafarer.

### 4. Administrative Instructions: Document and Data Control

#### 4.1 Confidentiality

- (1) All medical information is considered to be of a personal nature and should be given due protection except when requested by authorised individuals in the course of their duties.

#### 4.2 Combined Form - Application for Medical Examination and Certificate

- (1) The combined form for application for medical examination and the medical certificate is established by the Minister for use in accordance with the *Crewing Regulations* as form number 82-0662. This form is amended from time to time as required to meet changing administrative and regulatory requirements, and the most recent version of the form is titled "*Marine Medical Examination Report*".
- (2) Responsibility for completion of the sections of the form, and the destination of the parts of the form, is as follows. This form is a multiple-part form (currently two parts).
- (a) Applicants for a medical examination must complete the section expressly described as "To be completed by the Applicant", and the form thus completed is then given to the examining physician.
- (b) On completion of the medical examination to the standards outlined in this Guide, the examining physician issues the "Applicant" copy of the medical certificate to the applicant. The examining physician then ensures that the original Marine Safety copy of the medical certificate is mailed to:

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Marine Medical Certification (AARG/M)  
Transport Canada  
Place de Ville,  
Tower 'C', 6<sup>th</sup> Floor  
330 Sparks Street  
Ottawa, Ontario  
K1A 0N8

- (c) It is recommended that the examining physician make a copy of the Marine Safety copy for the physician's record-keeping purposes.
- (d) When the examining physician has made the assessment of "Unfit" (for duty) or placed limitations on a medical certificate, that physician shall forward all medical documents pertinent to the certification to the Director, Marine Medical Branch, Marine Safety, Tower C, 330 Sparks Street, Ottawa, Ontario, K1A 0N8. The documents should be marked "Medical Confidential - Protected B".

#### **4.3 Supply of Forms**

- (1) The form used in connection with the medical examination program is Transport Canada form number 82-0662, titled "*Marine Medical Examination Report*". Examining physicians purchase copies of this form from DataMark Systems, 1680 Woodward Drive, Suite 201, Ottawa, Ontario, K2C 3R7, telephone: (613) 228-2576, fax (613) 228-9976.

#### **4.4 Fees**

- (1) Fees for medical examinations and associated tests are the responsibility of the examinee, which may be payable or reimbursable by company or provincial health insurance programs.
- (2) In the case of re-examination as per Division 8 of the *Crewing Regulations*, the cost shall be borne by the requesting party.

### ***5. Recommendations and Factors to be Taken into Account in a Medical Examination***

#### **5.1 Recommendations**

- (1) Medical examinations are required before a certificate is issued under the *Marine Certification Regulations* and also at specified intervals to maintain the validity of certificates for use at sea under the *Crewing Regulations*. The intervals are set out in

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Division 8 of the *Crewing Regulations* as follows: every 2 years for a seafarer who holds a certificate and is at least 40 years of age; every 2 years for a seafarer who does not hold a certificate and is at least 60 years of age; and in all other cases, every 3 years. The interval may be shorter if specified by the physician or if the Minister requires a re-examination under Division 8 of the *Crewing Regulations*. It is recommended that a medical examination consists, at a minimum, of the following elements:

**Table 5-1**

Examination	Initial (Pre-employment and Marine Certification)	Periodic
Chest X-ray	Yes.	If clinically indicated.
Electrocardiogram	If clinically indicated.	If clinically indicated.
Dental examination	Dental history and assessment.	If clinically indicated.
Urinalysis*	Yes.	If clinically indicated.

(a) \* Not to be used for drug testing.

## 5.2 Factors to be Taken into Account

- (1) The intention of this section is to provide information that assists physicians in reaching appropriate decisions in respect of medical examinations of seafarers. The nature of the requirement for a medical examination requires the application of the physician's knowledge of the individual, the job, and the specific circumstances under which the job will be carried out. The paragraphs which follow deal with a variety of occupational groups and general environments. Within occupational groups, there may be found a variety of jobs, and within general environment descriptions a variety of specific environments. The following factors are relevant to assessing the fitness of a seafarer.

### Remoteness from Medical Assistance

- (a) Seagoing occupations may require a seafarer to be away from major medical facilities for several months at a time. Few ships carry medical officers; even in those ships that do, treatment resources are minimal. While at sea, ships are frequently more than several hours or days away from medical facilities, which provide more than minimal treatment resources.

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### **Shift Work**

- (b) On average, 40% of the positions on ships involve watchkeeping. Officers and crew work on either the lay-day watch system or the conventional watch system. The lay-day watch system requires the employee to be on duty for six hours and off duty for six hours (“six and six”), for 28 days of 12 hours work per day, followed by 28 days leave. The conventional watch system requires the individual to be on duty for four hours and off duty for eight hours (“four and eight”), for an eight-hour work day, 40-hour work week, plus weekends which are considered overtime. For the conventional watch system, seafarers could spend eight weeks or more at sea without a day off.

### **Minimal Privacy Conditions**

- (c) While at sea, seafarers frequently work long hours under uncomfortable weather conditions, rough seas and in comparatively close quarters isolation. Living conditions and meals aboard are generally good. There is, however, little privacy on board as the ship's crew members must share cabins and washrooms (two to four to a cabin averaging 3 m by 2.5 m in size). Crew cabins are usually on the lower decks and often have no portholes; therefore, have no natural light or fresh air. The ship's officers generally have private cabins on the upper decks but share washrooms, however, they sometimes are required to share two to a cabin.

### **Limited Outside Communications**

- (d) Further negative influences include working in isolated areas, reduced space and limited mobility due to the fact that one cannot leave the work site (the ship). Crew must be able to relate easily with fewer people, where interaction and team work is essential to the safe and successful operation of the vessel. There is frequent separation from family and friends and lack of contact with the outside world. Telephones are generally not available for personal use, except in emergencies.

### **Limited Recreational Activity**

- (e) Boredom between work periods is a major factor while at sea. There are reduced options for spending one's leisure time in the confines of a vessel. Crew must be self-reliant in making their own entertainment. Leisure activities consist of cards, games, reading, video films, hobbies, some radio, and, occasionally, television. Some of the larger ships are equipped with gymnasium equipment.

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### Mental and Physical Stressors


- (f) Mental stress results from isolation, boredom, lack of privacy, the constant background noise and vibration, the demands of the work and, in the case of search and rescue incidents or emergency situations, possibly witnessing severe human injury or death. Physical stress frequently results from maintaining balance in an environment where the platform is constantly rolling, frequently violently (in excess of 12 degrees port and starboard), pitching and pounding in high seas and bad weather; and from the actual physical demands required of working at sea including remaining standing while on watch for six hours at a time and frequently longer, depending upon the circumstances. Engine room personnel are frequently exposed to very uncomfortable heat, cold, high humidity levels, obnoxious odours and airborne contaminants, occasionally requiring the use of breathing apparatus. Cooks and stewards experience split shift work where the 8 or 12-hour days are spread over 12 to 15 hours, and peak periods of high energy activity while provisioning a vessel which may extend beyond normal hours of work.

### Presence of Hazards

- (g) Seagoing personnel are exposed to a variety of hazards, including wet, slippery and moving platforms; contact with chemicals, vapour fumes, harsh environmental conditions, noise, machinery and electricity; being struck by objects suspended overhead (for example, cargo pallets, swinging hooks); falling or being washed overboard; combating emergency situations such as retrieving objects which have broken loose from their lashings, fire on board, damage control, and abandoning ship. High noise levels (up to 160 dB) are normal in engine room and machinery spaces requiring the use of hearing protection, and these spaces are often cramped and confined and have no natural lighting.

### Emergency Drills and Emergency Response

- (h) Emergency duty exercises for a ship's complement are held during the training courses leading to qualification and during the drills which are held periodically on board ship. Persons requiring aids are at increased risk of breaking or losing them during an emergency situation. Some emergency escape routes involve climbing up vertical ladders through comparatively small exits. It could also mean abandoning ship in a lifeboat or life-raft or by jumping into freezing waters from a moving platform 12 metres in height, then swimming to a lifeboat or life-raft and climbing into it, lifting injured people from the water, all while wearing

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lifesaving equipment. Although emergency situations rarely occur, when one does occur, the crew has only one chance of successfully overcoming it.

- (i) All members of the complement are responsible for marine emergency duties. Emergency situations almost always occur during adverse weather conditions, at which time the forced ventilation is switched off and the lighting is reduced to emergency levels.
- (j) A ship is a unique work site. The complement is its own fire department, first aid attendants and lifeboat party. There is nowhere to escape in the event of a fire or other emergency. Quick and decisive emergency countermeasure procedures are the best way to avert a marine disaster. The entire ship's complement is a team which must rely on one another for survival. The size of ships' complements are steadily decreasing; therefore, each member of the complement may be required to compensate for the reduced numbers during emergencies. It occasionally happens that members of the complement are injured, thereby reducing the number of persons available to participate in emergency duties. This results in other individuals having to increase their physical responses to accomplish the outstanding tasks.


## **6. Physical Requirements**

### **6.1 General**

- (1) Whenever it seemed necessary, a description of the particular job has been included in this Guide, written in consultation with a physician who has observed the work being done and agreed to by an official of the employer who has personal experience of the work. These clauses also specify minimum standards for initial pre-employment and periodic medical examinations. The examining physician should read these descriptions before starting examinations, so as to be able to pay special attention to the body systems most relevant to particular occupations or core tasks.

### **6.2 Requirement for Mobility, Agility, and Strength**

- (1) All members of a ship's complement need to be able-bodied, agile and must be able to cope with the ship's movements which are frequently violent in rough weather. Therefore, there shall be no physical disability which could unduly limit balance, mobility, speed of movement or physical effort to climb through small hatches, up and down gangways, steep stairs and vertical ladders, while carrying heavy tools, equipment, or provisions, and to climb the ship's mast (up to 9 metres above the ship's deck) for maintenance. Must be able to negotiate door sills up to 70 cm in height. For Deck Department Personnel and Engine Department Personnel the work includes

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inspection of the ship's tanks by descending into such tanks by way of crawling through an opening of approximately 0.7 m by 0.5 m into a confined space having no natural ventilation or light. There should be no limitations of movement in the upper or lower limb joints greater than 30 percent and, as per Division 8 of the *Crewing Regulations*, the seafarer should be able to lift a mass of 22 kg, to permit the heavy physical work and lifting which will frequently be encountered during repairs or refit. Good balance can be determined by the applicant standing on one leg with eyes closed for 3 seconds or a Romberg and Romberg Tandem Test.

### 6.3 Participation in Emergency Drills and Emergency Response

- (1) All members of a ship's complement must be capable of participating in emergency countermeasures and drill activities, such as fire fighting, damage control and launching and handling of lifesaving equipment such as lifeboats and life-raft, among others. Every member of the complement must be able to hear and recognise the different emergency alarms and react quickly. These tasks could include handling fire hoses having a water pressure greater than 690 kPa during fire fighting, while wearing protective fire suits and breathing apparatus. The duties also include performing first aid, cardiopulmonary resuscitation (CPR) or carrying injured persons to safety on a stretcher, around obstructions, through smoke-filled areas, up vertical ladders, through escape hatches, to transfer the casualty.

### 6.4 Visual Acuity Requirements

- (1) Seafarers must have uncorrected vision of at least 6/60 in each eye, and corrected or uncorrected distant vision of at least 6/12 in each eye, and corrected or uncorrected near vision of N5 print size at a distance of 30 cm to 50 cm. Exceptions to the application of the visual acuity requirements to engineers and other categories of seafarers can be determined by reference to Division 8 of the *Crewing Regulations*.
- (a) For Deck Department Personnel these requirements are meant to ensure that there is sufficient visual acuity to permit the seafarer to:
- (i) plot courses accurately and recognise miniscule chart symbols.
  - (ii) use radar and other instruments accurately in low light conditions.
  - (iii) take bearings on distant objects to an accuracy of half a degree.
  - (iv) detect coloured signal lights at minimum legal ranges according to the *International Regulations for the Prevention of Collisions at Sea, 1972 with Canadian Modifications* as set out in Rule 22 of Schedule I of the *Collision Regulations*.

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- (v) identify objects close up or at a distance in varying weather conditions and visibility such as extreme wind, cold, fog, freezing spray, heavy seas, rain, glaring sun, at night, etc.
- (vi) adjust to day and night vision.
- (b) For Engine Department Personnel these requirements are meant to ensure that there is sufficient visual acuity to permit the seafarer to:
  - (i) read digital, analogue and level gauges and dials at close proximity.
  - (ii) visually detect fluid leaks, loose parts, engine malfunctions, fire, etc. in locations where lighting may be poor.
- (c) For Cooks and Stewards these requirements are meant to ensure that there is sufficient visual acuity to permit the seafarer to perform cooking, cleaning, and waiter duties, and to carry heavy loads safely throughout the ship.

## 6.5 Peripheral Vision Requirements

- (1) Seafarers must have the ability to see objects in the normal range of periphery, of 160 degrees horizontally and 135 degrees vertically, so as to avoid dangers from objects overhead, to the side, and close to the deck, and to permit the performance of regular and emergency duties.

## 6.6 Depth Perception Requirements

- (1) Seafarers must have normal depth perception, as determined by the FLY test or the WIRT stereoscopic test so as to avoid dangers and to permit the performance of regular and emergency duties.

## 6.7 Colour Vision Requirements

- (1) Some tasks require the ability to perceive colours accurately and some seafarers, therefore, must have colour vision depending on occupation on board ship. Exceptions to the applicability of the colour vision requirements to engineers and other categories of seafarers can be determined by reference to Division 8 of the *Crewing Regulations*. Pseudoisochromatic Plates make up the principal test of colour vision acceptable to Transport Canada.
  - (a) Deck Department Personnel must have sufficient colour vision to distinguish between white, red, green, and yellow navigation lights in accordance with the *International Regulations for the Prevention of Collisions at Sea, 1972 with Canadian Modifications* as set out in Rule 22 of Schedule I of the



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*Collision Regulations*, and be able to distinguish various shades of the above, for example, to identify the colour of an unlit buoy in the distance at dusk.

- (b) Engine Department Personnel must have sufficient colour vision to distinguish between red, yellow, green and white, and be able to distinguish miniscule number-coded or colour-coded wires for matching purposes.

## 6.8 Hearing Requirements

- (1) Seafarers must have hearing which is conversationally adequate in both ears and must be able to hear conversational voice communication at a distance of 3 metres and by radio and telephone; hearing aids are permitted to be worn by the applicant for the purpose of this determination. These requirements are also meant to ensure that the seafarer has sufficient hearing sensitivity to communicate verbally with reasonable facility in conditions which may include background noises greater than 85 dBA from machinery and radio interference so as to be able to carry out instructions quickly.
  - (a) For Deck Department Personnel these requirements are meant to ensure that the seafarer has sufficient hearing sensitivity to permit the seafarer to:
    - (i) recognise bells, whistles, sirens and alarms.
    - (ii) accurately distinguish and identify sounds and the direction from which they're coming (frequently simultaneous and from unexpected locations).
    - (iii) hear fog signals from whistles or bells up to a distance of two miles.
  - (b) For Engine Department Personnel these requirements are meant to ensure that the seafarer has sufficient hearing sensitivity to permit the seafarer to:
    - (i) detect and recognise normal or abnormal variations in machinery sounds.
    - (ii) recognise and distinguish warnings, such as general alarm, fire alarm, fire extinguishing (CO<sub>2</sub>, Halon) flooding alarms, water-tight door closure alarm, engine room control panel alarms and telephone ring.
  - (c) For Cooks and Stewards these requirements are meant to ensure that there is sufficient hearing sensitivity to permit the seafarer to distinguish between fire alarm, general alarm, cooking and washing signals, etc.

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## **7. Vision and Hearing Testing**

### **7.1 Colour Vision**

- (1) Transport Canada accepts the use of Test Plate Scores as the principal method of assessing colour vision. The use of colour test plates provides the most ready means of determining the ability to perceive colours accurately. The following test plates are to be used. A pass is obtained when the seafarer makes no more than the maximum number of errors associated with the type and edition of the particular test plates used, as stated in the table.

**Table 7-2**

<b>Test Plate Method and Allowable Errors</b>			
<b>Types of Plates (Pseudo-isochromatic)</b>	<b>Edition</b>	<b>Plates to be read</b>	<b>Maximum number of Errors allowed</b>
American Optical	15 plates(13375AO)	1-15 incl.	3
Ishihara	16 plates	1-8 incl.	1
Ishihara	24 plates	1-15 incl.	2
Ishihara	38 plates	1-21 incl.	3
American Optical HRR	24 plates (2nd. ed. AO)	1-6 incl.	0
Hardy-Rand-Rittler (Richmond Instruments)	24 plates (3 <sup>rd</sup> ed. RI)	1-6 incl.	0

### **Alternative Methods to Test Plate Scores**

- (2) In the case of failure in the Test Plate Scores method, Transport Canada accepts the following alternative methods for testing to the Colour Vision Standard, namely: Lantern Test Scores for Deck Department Personnel, and the Farnsworth D-15 Test for both Deck and Engine Department Personnel.

#### **Lantern Test Scores for Deck Department Personnel**

- (a) The practical job-related colour perception test is the colour lantern test administered by Transport Canada. The seafarer should be referred to the Regional Transport Canada Centre - Marine Safety office for further information.

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## 7.2 Hearing

- (1) At each examination the seafarer shall demonstrate, in a quiet room, the ability to hear a soft-whispered voice in each ear at a distance of two metres (six feet) from the physician, and an average conversational voice with both ears at three metres (nine feet) with the back turned to the physician. Seafarers who wear a hearing aid perform this test with the aid in place.
- (2) A seafarer experiencing difficulty with the routine whisper or the conversational voice tests shall be tested by pure tone audiometry administered by a qualified audiologist.
  - (a) The seafarer undergoing testing must not have been exposed to loud noises, those over 98 dB, for instance, for forty-eight hours prior to the test.
  - (b) An arithmetic mean for the frequencies 500 Hz, 1000 Hz, 2000 Hz, and 3000 Hz that exceeds 40 dB on the pure tone audiogram is indicative of a need for limitations to be noted on the medical certificate, including removal from noise exposure at greater than 85 dBA.