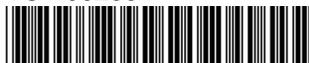




Medical Examination of Seafarers Physician's Guide



<p>Responsible Authority</p> <p>The Director, Marine Personnel Standards and Pilotage is responsible for this document, including any changes, corrections, or updates.</p>	<p>Approval</p> <hr/> <p>Director, Marine Personnel Standards and Pilotage Marine Safety</p>
--	---

Original Date Issued: October 2001

Date Revised: June 2007

© Her Majesty the Queen in Right of Canada, as represented by the Minister of Transport, 2000. All rights reserved. Unless otherwise stated, information in this publication may be reproduced freely, provided that Transport Canada, Marine Safety is credited as the source. **Important:** This publication is subject to periodical reviews and it is updated accordingly.

TP 11343E
(06/2007)

TC-1002354

INFORMATION DOCUMENT

Title	Medical Examination of Seafarers - Physician's Guide		
TP No.	11343 E	Revision	01
Originator	Marine Personnel Standards and Pilotage (AMSP)112 Kent St., 4 th floor	Telephone	(613) 990-2075
	Tower B, Place de Ville	Fax	(613) 990-1538
	Ottawa, Ontario K1A 0N5	E-mail	MarineSafety@tc.gc.ca
		URL	http://www.tc.gc.ca/MarineSafety

REVISIONS

Description	Issue Date	Revision No
All Chapters updated, to take into account the introduction of ILO/WHO Guidelines for conducting Pre-sea and Periodic Medical Fitness Examinations for Seafarers and the new Marine Personnel Regulations.	April 2007	01

TABLE OF CONTENTS

1.	SCOPE AND APPLICATION	1
1.1	Purpose	1
1.2	Scope	1
1.3	Effective Date	1
1.4	Authority	1
1.5	Documents Replaced.....	1
1.6	Interpretation	1
2.	CERTIFICATION RESPONSIBILITIES	2
2.1	Minister of Transport	2
2.2	Applicant	2
2.3	Seafarer.....	2
2.4	Employer	2
2.5	Physician or Nurse	2
3.	CERTIFICATION AUTHORITIES.....	4
3.1	Minister of Transport	4
3.2	Physician.....	5
3.3	Seafarer.....	5
4.	ADMINISTRATIVE INSTRUCTIONS: DOCUMENT AND DATA CONTROL	6
4.1	Confidentiality.....	6
4.2	Combined Form - Application for Medical Examination and Certificate.....	6
4.3	Supply of Forms	6
5.	FACTORS TO BE TAKEN INTO ACCOUNT IN A MEDICAL EXAMINATION	7
5.1	General.....	7
5.2	Factors to be taken into Account.....	7
6.	PHYSICAL REQUIREMENTS.....	11
6.1	General.....	11
6.2	Requirement for Mobility, Agility, and Strength.....	11
6.3	Participation in Emergency Drills and Emergency Response.....	11
6.4	Medical Examination Requirements common for all Seafarers	12
6.5	Visual Acuity Requirements	12
6.6	Peripheral Vision Requirements.....	13
6.7	Depth Perception Requirements.....	13
6.8	Colour Vision Requirements.....	13
6.9	Hearing Requirements.....	13
7.	VISION AND HEARING TESTING.....	15
7.1	Colour Vision.....	15
7.2	Hearing	15

1. SCOPE AND APPLICATION

1.1 PURPOSE

- 1.1.1 This Guide sets out the administrative procedures for the issuance of medical certificates and the factors to be taken into account by physicians and registered nurses in conducting medical examinations.

1.2 SCOPE

- 1.2.1 The application to seafarers of this standard is outlined in Part 2, Division 10 of the *Marine Personnel Regulations*, as amended from time to time, including exceptions of the application to certain seafarers.

1.3 EFFECTIVE DATE

- 1.3.1 This edition of TP-11343 will become effective on the date of coming into force of the *Marine Personnel Regulations*.

1.4 AUTHORITY

- 1.4.1 The requirements for medical fitness of seafarers are set out in the *Marine Personnel Regulations* made pursuant to the Canada Shipping Act 2001, section 100. 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*, (STCW Convention) as amended. The standards are affected by on-going work under Resolution 9 of STCW as to the development of international standards of medical fitness of seafarers with the co-operation of the *International Labour Organisation (ILO)* and the *World Health Organisation (WHO)*. In addition, Canada has ratified the ILO Convention number 73, *Medical Examination (Seafarers) Convention, 1946*, which entered into force 17 August 1955.

1.5 DOCUMENTS REPLACED

- 1.5.1 This edition of the Physician's Guide supersedes the previous edition dated 17 October 2001. The regulations referenced in the previous edition were the *Crewing Regulations*, which will be repealed with the coming into force of the *Marine Personnel Regulations*.

1.6 INTERPRETATION

- 1.6.1 The *Marine Personnel Regulations* provide interpretation of the meanings of the relevant terminology used in this Guide. The expressions "Marine Medical Examiner" and "Designated Physician" have the same meaning.

2. CERTIFICATION RESPONSIBILITIES

2.1 MINISTER OF TRANSPORT

- 2.11 Acting as the competent authority on behalf of Canada, the Minister of Transport continues to consult with the ship owners' and seafarers' organisations 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

- 2.2.1 The *Marine Personnel Regulations* describe 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 is used. For administrative purposes, Marine Medical Examiners have been asked by Transport Canada to stock the appropriate form, but there may be occasions, as permitted by the Regulations, where a registered nurse or a physician other than a Marine Medical Examiner will conduct the examination. The applicant will then be required to obtain the appropriate form from a Marine Safety office and present it to the nurse or physician.

2.3 SEAFARER

- 2.3.1 The requirement for a medical certificate placed on a person intending to accept employment as a seafarer is explained in part 2 of the *Marine Personnel Regulations*.

2.4 EMPLOYER

- 2.4.1 The requirements placed on a person intending to employ a person as a seafarer are explained in part 2 of the *Marine Personnel Regulations*.

2.5 PHYSICIAN OR NURSE

- 2.5.1 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 standards. Such a decline may lead the physician or nurse to determine that the employee may soon be unfit for the job. The ILO Guidelines for conducting examinations identify the required determinations to be made by the physician.
- 2.5.2 The physician or nurse 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

- 2.5.3 Medical Certificates may be issued with limitations; 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:
- (a) A date of expiry for the medical certificate, if it is to vary from the 2-year period set out in the Regulations.
 - (b) Limitations to the seafarer's employment in such terms as:
 - (i) maximum duration of voyages;
 - (ii) geographic limits of permissible voyages; or
 - (iii) maximum time away from specified medical facilities.
 - (c) Limitations may not be made in terms that limit the certificate holder's ability to fulfil emergency tasks associated with the position occupied on board ship.

3. CERTIFICATION AUTHORITIES

3.1 MINISTER OF TRANSPORT

List of Marine Medical Examiners

- 3.1.1 The office of Marine Medical Certification, Transport Canada, maintains a list of Marine Medical Examiners. This list is accessible on Internet (<http://www.tc.gc.ca/mme/>).
- (a) A physician wishing to be included on the list of Marine Medical Examiners 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 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

- 3.1.2 In compliance with the Maritime Labour Convention, the Minister may direct that a medical certificate in a form other than the form established by the Minister, attesting to a seafarer’s fitness for service at sea and issued by a marine industry association following a medical examination, be accepted for the purposes of the *Marine Personnel Regulations*. This provision does not exempt the physician conducting the examination from the requirement to provide a copy of the certificate and of the examination report to the Minister (The Marine Medical Certification, Transport Canada).
- (a) Further information on the alternate forms of the medical certificate accepted by the Minister can be obtained from the office of Marine Medical Certification, Transport Canada.

Re-examination

- 3.1.3 The *Marine Personnel Regulations* provide that the Minister may require the re-examination of a seafarer on appropriate grounds.

3.2 PHYSICIAN

Capacity to Conduct Medical Examination

- 3.2.1 The *Marine Personnel Regulations* provide the physician with the authority to conduct a medical examination for the purpose of these regulations and according to the category of the examination, such as initial pre-employment, periodic, return-to-duty, or to obtain a certificate of competency, as required by the circumstances.

Medical Certificates

- 3.2.2 The *Marine Personnel Regulations* provide the physician with the authority and responsibility to issue a medical certificate.

3.3 SEAFARER

Review of a Medical Certificate

- 3.3.1 The *Marine Personnel Regulations* provide that a seafarer may apply to the Minister for a review of a medical certificate.

Appeal of a Reviewed Medical Certificate

- 3.3.2 A seafarer who requested a review of a medical certificate may appeal to the Minister for a further review of the case by the Transportation Appeal Tribunal of Canada.

Costs of Medical Examinations

- 3.3.3 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.
- 3.3.4 The applicant seafarer is also responsible for the costs of the medical examination conducted as a result of a review or an appeal requested by the seafarer.

4. ADMINISTRATIVE INSTRUCTIONS: DOCUMENT AND DATA CONTROL

4.1 CONFIDENTIALITY

- 4.1.1 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

- 4.2.1 The combined form for application for medical examination and the medical certificate is established by the Minister for use in accordance with the *Marine Personnel 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”.

- 4.2.2 This form is in two parts; responsibility for completion of the sections and the destination of the parts is as follows:

- (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:

Marine Medical Certification (AARG/M)
Transport Canada, Place de Ville
Tower ‘C’, 6th 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 record-keeping purposes.
- (d) When the examining physician has made the assessment of “Unfit” or “deferred” 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

- 4.3.1 The forms may be obtained through Marine Safety or may be ordered directly from DataMark Systems, 1680 Woodward Drive, Suite 201, Ottawa, Ontario, K2C 3R7, telephone: (613) 228-2576; fax: (613) 228-9976.

5. FACTORS TO BE TAKEN INTO ACCOUNT IN A MEDICAL EXAMINATION

5.1 GENERAL

- 5.1.1 Only a Marine Medical Examiner may conduct a medical examination and issue a medical certificate in respect of a seafarer before a certificate of competency is issued under Part One of the *Marine Personnel Regulations*; thereafter, a new medical certificate is required every two years in order to keep the certificate of competency valid for use at sea.
- 5.1.2 Any physician may conduct a medical examination and issue a medical certificate in respect of a seafarer who does not require a certificate of competency to perform his duties on board; thereafter a new medical certificate is required every two years in order to maintain the seafarer's employability on a ship. Non-certificated seafarers employed on fishing vessels or on ships less than 200 tons that are not engaged in international voyages do not require a medical certificate.
- 5.1.3 If there is no Marine Medical Examiner within 200 km of the area of operation of a ship that is operating in waters under Canadian jurisdiction, or the seafarer's residence, any physician or registered nurse may conduct a medical examination and issue a medical certificate in respect of a seafarer, whether the seafarer requires a certificate of competency to perform his duties or not.
- 5.1.4 Taking into account the state of health of the seafarer, the physician or nurse conducting the medical examination may issue a medical certificate that specifies a shorter period of validity or defer the case to the Minister.

5.2 FACTORS TO BE TAKEN INTO ACCOUNT

- 5.2.1 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 that 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

- 5.2.2 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 that provide more than minimal treatment resources.

Shift Work

- 5.2.3 On average, 75% 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 can spend 3 months or more at sea without a day off.

Minimal Privacy Conditions

- 5.2.4 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 crewmembers 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

- 5.2.5 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

- 5.2.6 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.

Mental and Physical Stressors

- 5.2.7 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

- 5.2.8 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 and damage control. 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

- 5.2.9 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 lifesaving equipment. Although emergency situations rarely occur, when one does occur, the crew has only one chance of successfully overcoming it.
- 5.2.10 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.

5.2.11 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 is 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

- 6.1.1 The information in this section is to be used as a guide only, the ILO / WHO *Guidelines for Conducting Pre-sea and Periodic Medical Fitness Examinations for Seafarers* as amended from time to time remains the reference document and has precedence over this TP in case of divergence.
- 6.1.2 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

- 6.2.1 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 doorsills up to 70 cm in height. For Deck Department Personnel and Engine Department Personnel the work includes 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, the seafarer should be able to lift and carry a weight 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

- 6.3.1 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 MEDICAL EXAMINATION REQUIREMENTS COMMON FOR ALL SEAFARERS

6.4.1 Taking into consideration paragraphs 6.1 to 6.3, it is recommended that a medical examination include the following elements.

Table 6-1

EXAMINATION	INITIAL (PRE-EMPLOYMENT)	PERIODIC
Chest X-ray	Yes	If clinically indicated
Electrocardiogram	If clinically indicated, at the discretion of the physician	
Dental Examination	Dental history and assessment	If clinically indicated
Urinalysis *	Yes	If clinically indicated

* Not to be used for drug testing

6.5 VISUAL ACUITY REQUIREMENTS

6.5.1 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 10 of the *Marine Personnel 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 recognize minuscule 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*;
 - (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.

6.6 PERIPHERAL VISION REQUIREMENTS

- 6.6.1 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.

6.7 DEPTH PERCEPTION REQUIREMENTS

- 6.7.1 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.

6.8 COLOUR VISION REQUIREMENTS

- 6.8.1 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 10 of the *Marine Personnel 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 *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.

6.9 HEARING REQUIREMENTS

- 6.9.1 Seafarers must have hearing that is conversationally adequate in both ears and must be able to hear conversational voice communication at a distance of 3 meters 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) recognize 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 recognize normal or abnormal variations in machinery sounds;
 - (ii) recognize and distinguish warnings, such as general alarm, fire alarm, fire extinguishing fixed system alarms, watertight 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.

7. VISION AND HEARING TESTING

7.1 COLOUR VISION

7.1.1 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

Test Plate Method and Allowable Errors			
Types of Plates (Pseudo-isochromatic)	Edition	Plates to be read	Maximum number of Errors allowed
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 (2 nd . ed. AO)	1-6 incl.	0
Hardy-Rand-Rittler (Richmond Instruments)	24 plates (3 rd ed. RI)	1-6 incl.	0

Alternative Methods to Test Plate Scores

7.1.2 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

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

7.2 HEARING

7.1.4 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 meters from the physician, and an average conversational voice with both ears at three meters with the back turned to the physician. Seafarers who wear a hearing aid perform this test with the aid in place.

- 7.1.5 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.