

ASSEMBLY - 18th session  
Agenda item 13

RESOLUTION A.746(18)  
adopted on 4 November 1993

SURVEY GUIDELINES UNDER THE HARMONIZED SYSTEM OF SURVEY  
AND CERTIFICATION

THE ASSEMBLY,

RECALLING Article 15(j) of the Convention on the International Maritime Organization concerning the functions of the Assembly in relation to regulations and guidelines concerning maritime safety and the prevention and control of marine pollution from ships,

RECALLING ALSO that the International Conference on the Harmonized System of Survey and Certification, 1988 (the 1988 HSSC Conference) adopted the Protocol of 1988 relating to the International Convention for the Safety of Life at Sea, 1974 (1988 SOLAS Protocol) and the Protocol of 1988 relating to the International Convention on Load Lines, 1966 (the 1988 Load Line Protocol), which introduce, inter alia, the harmonized system of survey and certification under the International Convention for the Safety of Life at Sea, 1974 (the 1974 SOLAS Convention) and the International Convention on Load Lines, 1966 (the 1966 Load Line Convention),

RECALLING FURTHER that, by resolution MEPC.39(29), amendments have been adopted to introduce the harmonized system of survey and certification under the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the 1978 Protocol relating thereto (MARPOL 73/78) and that these amendments will enter into force at the same time as the 1988 SOLAS Protocol and the 1988 Load Line Protocol (the 1988 SOLAS and 1988 Load Line Protocols),

RECOGNIZING that, by the resolutions given below, amendments that will also enter into force at the same time as the 1988 SOLAS and 1988 Load Line Protocols, have been adopted to introduce the harmonized system of survey and certification under the following instruments:

- .1 the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code) by resolutions MEPC.40(29) and MSC.16(58),
- .2 the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (IGC Code) by resolution MSC.17(58),
- .3 the Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (BCH Code) by resolutions MEPC.41(29) and MSC.18(58),

RECOGNIZING ALSO that Guidelines on surveys required by the 1974 SOLAS Convention, as modified by the 1978 Protocol relating thereto, the IBC Code and the IGC Code were adopted by the Assembly under resolution A.560(14) and that Guidelines for surveys under MARPOL 73/78, Annexes I and II, were adopted by the Marine Environment Protection Committee under resolutions MEPC.11(18) and MEPC.25(23) respectively,

RECOGNIZING FURTHER that the above guidelines should be revised to take account of the harmonized system of survey and certification and the opportunity taken to otherwise improve their requirements,

HAVING considered the recommendations made by the Maritime Safety Committee at its sixty-second session and the Marine Environment Protection Committee at its thirty-fourth session,

1. ADOPTS the Survey Guidelines under the Harmonized System of Survey and Certification, set out in the Annex to the present resolution;
2. AGREES that, in respect of the harmonized system of survey and certification, these guidelines replace the guidelines adopted by resolution A.560(14) and resolutions MEPC.11(18) and MEPC.25(23);
3. INVITES Governments carrying out surveys required by the harmonized system of survey and certification to follow the annexed guidelines;
4. REQUESTS the Maritime Safety Committee and the Marine Environment Protection Committee to keep the guidelines under review for their further improvement.

## ANNEX

### SURVEY GUIDELINES UNDER THE HARMONIZED SYSTEM OF SURVEY AND CERTIFICATION

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## 1 INTRODUCTION

1.1 These guidelines supersede the guidelines adopted by resolutions A.560(14), MEPC.25(23) and MEPC.11(18) and take account of the Harmonized System of Survey and Certification in the following instruments:

- International Convention for the Safety of Life at Sea, 1974 (SOLAS 1974), as modified by its 1988 Protocol (SOLAS 74/88)
- International Convention on Load Lines, 1966 (LLC 1966), as modified by its 1988 Protocol (LLC 66/88)
- International Convention for the Prevention of Pollution from Ships, 1973 and of the Protocol of 1978 relating thereto (MARPOL 73/78), as amended by resolution MEPC.39(29) (MARPOL 73/78/90)
- International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code), as amended by resolutions MEPC.40(29) and MSC.16(58) (IBC Code 83/90)
- International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (IGC Code), as amended by resolution MSC.17(58) (IGC Code 83/90)
- Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (BCH Code), as amended by resolutions MEPC.41(29) and MSC.18(58) (BCH Code 85/90).

1.2 The harmonized system, a diagrammatic arrangement of which is given in the appendix, provides for:

- .1 a one-year standard interval between surveys, based on initial, annual, intermediate, periodical and renewal surveys, as appropriate;
- .2 a scheme for providing the necessary flexibility for the execution of each survey with the provision that:
  - the renewal survey may be completed within 3 months before the expiry date of the existing certificate with no loss of its period of validity;
  - a "time window" of 6 months - from 3 months before to 3 months after the anniversary date of the certificate for annual, intermediate and periodical surveys;
- .3 a maximum period of validity of five years for all certificates for cargo ships;
- .4 a maximum period of validity of 12 months for the Passenger Ship Safety Certificate;
- .5 a system for the extension of certificates limited to three months enables a ship to complete its voyage, or one month for ships engaged on short voyages;
- .6 when an extension has been granted, the period of validity of the new certificate starts from the expiry date of the existing certificate before its extension;
- .7 a flexible system for inspection of the outside of the ship's bottom on the following conditions:
  - a minimum of two inspections during any five-year period;
  - the interval between any two such inspections shall not exceed 36 months;
- .8 a provision for a Cargo Ship Safety Certificate under SOLAS 74/88, as an alternative to separate Cargo Ship Safety Construction, Cargo Ship Safety Equipment and Cargo Ship Safety Radio Certificates;
- .9 a flexible system concerning the frequency and the period of validity of certificates, provided that the minimum pattern of surveys is maintained.

1.3 In implementing the harmonized system, the following principal changes have been made to the survey and certification requirements of SOLAS 74/88:

- .1 unscheduled inspections are no longer included and annual surveys are mandatory for cargo ships;
- .2 intervals between the periodical surveys of equipment covered by the Cargo Ship Safety Equipment Certificate are alternatively at intervals of two and three years instead of two years;
- .3 intermediate surveys are required for all ships under the Cargo Ship Safety Construction Certificate;
- .4 inspection of the outside of the ship's bottom are required for all cargo ships;
- .5 intermediate surveys for the Cargo Ship Safety Construction Certificate are held within three months of either the second or third anniversary date;
- .6 all cargo ship certificates may be issued for any period of validity up to and including five years;
- .7 there is provision for a Cargo Ship Safety Certificate;
- .8 the extension provisions have been reduced from five months to three months to enable a ship to complete its voyage and the extension for one month for a period of grace is limited to ships engaged on short voyages.

1.4 With regard to LLC 66/88, the principal changes to the requirements for survey and certification are the introduction of similar extension provisions (see 1.3.8) and linking of the period of validity of the new certificate to the expiry date of the previous certificate (see 1.2.6).

1.5 With MARPOL 73/78/90 and the IBC Code 83/90, the IGC Code 83/90 and the BCH Code 85/90, the main changes are the linking of the period of validity of the new certificate to the expiry date of the previous certificate (see 1.2.6), the holding of the intermediate survey within three months of the second or third anniversary date and the introduction of the same extension provisions (see 1.3.8).

## 2 TYPES OF SURVEY

The types of surveys used in the harmonized system are as follows:

- (I) 2.1 An initial survey is a complete inspection before a ship is put into service of all the items relating to a particular certificate to ensure that the relevant requirements are complied with and that these items are satisfactory for the service for which the ship is intended.
- (P) 2.2 A periodical survey is an inspection of the items relating to the particular certificate to ensure that they are in a satisfactory condition and fit for the service for which the ship is intended.
- (R) 2.3 A renewal survey is the same as a periodical survey but also leads to the issue of a new certificate.
- (In) 2.4 An intermediate survey is an inspection of specified items relevant to the particular certificate to ensure that they are in a satisfactory condition and fit for the service for which the ship is intended.
- (A) 2.5 An annual survey is a general inspection of the items relating to the particular certificate to ensure that they have been maintained and remain satisfactory for the service for which the ship is intended.
- (B) 2.6 An inspection of the outside of the ship's bottom is an inspection of the underwater part of the ship and related items to ensure that they are in a satisfactory condition and fit for the service for which the ship is intended.
- (Ad) 2.7 An additional survey is an inspection, either general or partial according to the circumstances, to be made after a repair resulting from investigations or whenever any important repairs or renewals are made.
- 2.8 List of types of surveys in conventions and codes.
  - (I) 2.8.1 Initial surveys

SOLAS 74/88, Chapter I, regulation 7(a)(i)

" 8(a)(i)

" 9(a)(i)

" 10(a)(i)

LLC 66/88, article 14(1)(a)

MARPOL 73/78/90, Annex I, regulation 4(1)(a)

MARPOL 73/78/90, Annex II, regulation 10(1)(a)

IBC Code 83/90, regulation 1.5.2.1.1

IGC Code 83/90, regulation 1.5.2.1.1

BCH Code 85/90, regulation 1.6.2.1.1

(P) 2.8.2 Periodical surveys

SOLAS 74/88, chapter I, regulation 8(a)(iii)

" 9(a)(iii)

(R) 2.8.3 Renewal surveys

SOLAS 74/88, chapter I, regulation 7(a)(ii)

" 8(a)(ii)

" 9(a)(ii)

" 10(a)(ii)

LLC 66/88 article 14(1)(b)

MARPOL 73/78/90, Annex I, regulation 4(1)(b)

MARPOL 73/78/90, Annex II, regulation 10(1)(b)

IBC Code 83/90, regulation 1.5.2.1.2

IGC Code 83/90, regulation 1.5.2.1.2

BCH Code 85/90, regulation 1.6.2.1.2

(In) 2.8.4 Intermediate surveys

SOLAS 74/88, chapter I, regulation 10(a)(iii)

MARPOL 73/78/90, Annex I, regulation 4(1)(c)

MARPOL 73/78/90, Annex II, regulation 10(1)(c)

IBC Code 83/90, regulation 1.5.2.1.3

IGC Code 83/90, regulation 1.5.2.1.3

BCH Code 85/90, regulation 1.6.2.1.3

(A) 2.8.5 Annual surveys

SOLAS 74/88, chapter I, regulation 8(a)(iv)

" 10(a)(iv)

LLC 66/88, article 14(1)(c)

MARPOL 73/78/90, Annex I, regulation 4(1)(d)

MARPOL 73/78/90, Annex II, regulation 10(1)(d)

IBC Code 83/90, regulation 1.5.2.1.4

IGC Code 83/90, regulation 1.5.2.1.4

BCH Code 85/90, regulation 1.6.2.1.4

(B) 2.8.6 Inspection of the outside of the ship's bottom

SOLAS 74/88, chapter I, regulation 10(a)(v)

(Ad) 2.8.7 Additional surveys

SOLAS 74/88, chapter I, regulation 7(a)(iii)

" 8(a)(v)

" 9(a)(iv)

" 10(a)(vi)

MARPOL 73/78/90, Annex I, regulation 4(1)(e)

MARPOL 73/78/90, Annex II, regulation 10(1)(e)

IBC Code 83/90, regulation 1.5.2.1.5

IGC Code 83/90, regulation 1.5.2.1.5

BCH Code 85/90, regulation 1.6.2.1.5

### 3 APPLICATION AND ARRANGEMENT OF THE GUIDELINES

3.1 The guidelines provide a general framework upon which Administrations will be able to base their arrangements for carrying out surveys, it is recognized that survey provisions contained in the Guidelines are not necessarily applicable to all types and sizes of ship.

3.2 Whilst the guidelines are intended to cover instruments listed in 1.1, they should be applied, as appropriate, to drilling rigs and other platforms covered by MARPOL 73/78/90 Ax.I R.21.

3.3 A description of the various types of survey is given in section 4 and, as shown on the contents page, this is followed by the detailed requirements for the various surveys for each of the certificates.

3.4 When appropriate, the detailed requirements for the various surveys contain a section that is applicable to all cargo ships followed by a section that only applies to oil tankers.

3.5 Whilst the Convention or Code references are included, when possible, it should be noted that, in general, it has not been possible to indicate where there are differing requirements dependent upon the ship's year of build. Consequently, care should be taken in applying specific requirements, particularly where there have been amendments that are only applicable to ships built after a certain date.

3.6 Although part of the requirements for the Cargo Ship Safety Construction Certificate, a separate section is provided for inspection of the outside of the ship's bottom.

3.7 SOLAS 74/88 R.I/12(v) provides for a Cargo Ship Safety Certificate to be issued as an alternative to the Cargo Ship Safety Equipment Certificate, the Cargo Ship Safety Construction Certificate and the Cargo Ship Safety Radio Certificate. Consequently, the surveys for the issue and renewal of the Cargo Ship Safety Certificate should be in accordance with the certificates it replaces and, similarly, the surveys for the annual and intermediate should be the same as those required for the replaced certificates and the appropriate sections of the Cargo Ship Safety Certificate endorsed accordingly.

3.8 On the left hand side of each item to be surveyed may be found two letters in brackets, the first indicating the certificate to which the survey relates, as follows:

- (E) for the Cargo Ship Safety Equipment Certificate;
- (C) for the Cargo Ship Safety Construction Certificate;
- (R) for the Cargo Ship Safety Radio Certificate;
- (L) for the International Load Line Certificate;
- (O) for the International Oil Pollution Prevention Certificate;
- (N) for the International Pollution Prevention Certificate for Carriage of Noxious Liquid Substances in Bulk;
- (D) for the International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk or the Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk;
- (G) for the International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk.
- (P) for the Passenger Ship Safety Certificate;

and the second for the type of survey, as follows:

- (I) for the initial survey;
- (A) for the annual survey;
- (In) for the intermediate survey;
- (P) for the periodical survey;
- (R) for the renewal survey;



(B) for inspection of the outside of the ship's bottom;

(Ad) for additional survey.

Consequently, for example, "(EI)", "(OIn)" and "(PR)" indicate the initial survey for the Cargo Ship Safety Equipment Certificate, the intermediate survey for the International Oil Pollution Prevention Certificate and the renewal survey for the Passenger Ship Safety Certificate respectively.

3.9 The amplification of various terms and conditions are given in section 15.

#### 4 DESCRIPTION OF THE VARIOUS TYPES OF SURVEY

##### (I) 4.1 Initial surveys

###### 4.1.1 Frequency

4.1.1.1 The initial survey, as required by the relevant regulations (see 2.8.1), should be held before the ship is put in service and the appropriate certificate is issued for the first time.

###### 4.1.2 General

4.1.2.1 The initial survey before the ship is put into service should include a complete inspection, with tests when necessary, of the structure, machinery and equipment to ensure that the requirements relevant to the particular certificate are complied with and that the structure, machinery and equipment are fit for the service for which the ship is intended.

4.1.2.2 The initial survey should consist of:

- .1 an examination of the plans, diagrams, specifications, calculations and other technical documentation to verify that the structure, machinery and equipment comply with the requirements relevant to the particular certificate;
- .2 an inspection of the structure, machinery and equipment to ensure that the materials, scantlings, construction and arrangements, as appropriate, are in accordance with the approved plans, diagrams, specifications, calculations and other technical documentation and that the workmanship and installation are in all respects satisfactory;
- .3 a check that all the certificates, record books, operating manuals and other instructions and documentation specified in the requirements relevant to the particular certificate have been placed on board the ship.

###### 4.1.3 Examination of plans and designs

4.1.3.1 An application for an initial survey should be accompanied by plans and designs referred to in sections 5, 6 and 8 to 14, as appropriate, together with:

- .1 the particulars of the ship;
- .2 any exemptions sought;
- .3 any special conditions.

##### (A) 4.2 Annual surveys

###### 4.2.1 Frequency

4.2.1.1 The annual survey, as required by the relevant regulations (see 2.8.5) and as shown diagrammatically in the appendix, should be held within three months before or after each anniversary date of the certificate.

###### 4.2.2 General

4.2.2.1 An annual survey should enable the Administration to verify that the condition of the ship, its machinery and equipment is being maintained in accordance with the relevant requirements.

4.2.2.2 In general, the scope of the annual survey should be as follows:

- .1 it should consist of certificate examination, of a visual examination of a sufficient extent of the ship and its equipment and of certain tests to confirm that their condition is being properly maintained;
- .2 it should also include a visual examination to confirm that no unapproved modifications have been made to the ship and its equipment;
- .3 the content of each annual survey is given in the respective guidelines. The thoroughness and stringency of the survey should depend upon the condition of the ship and its equipment;
- .4 should any doubt arise as to the maintenance of the condition of the ship or its equipment, further examination and testing should be conducted as considered necessary.

4.2.3 Where an annual survey has not been carried out within the due dates, reference should be made to 15.6.

(In) 4.3 Intermediate surveys

4.3.1 Frequency

4.3.1.1 The intermediate survey, as required by the relevant regulations (see 2.8.4) and as shown diagrammatically in the appendix, should be held within three months before or after the second anniversary date or within three months before or after the third anniversary date of the appropriate certificate and should take the place of one of the annual surveys.

4.3.2 General

4.3.2.1 The intermediate survey should be an inspection of items relevant to the particular certificate to ensure that they are in a satisfactory condition and are fit for the service for which the ship is intended.

4.3.2.2 When specifying items of hull and machinery for detailed examination, due account should be taken of any continuous survey schemes that may be applied by classification societies.

4.3.2.3 Where an intermediate survey has not been carried out within the due dates, reference should be made to 15.6.

(P) 4.4 Periodical surveys

4.4.1 Frequency

4.4.1.1 The periodical survey, as required by the relevant regulations (see 2.8.2) and as shown diagrammatically in the appendix, should be held within three months before or after the second anniversary date or within three months before or after the third anniversary date in the case of the cargo ship safety equipment certificate and should take the place of one of the annual surveys and within three months before or after each anniversary date in the case of the cargo ship safety radio certificate.

4.4.2 General

4.4.2.1 The periodical survey should consist of an inspection, with tests when necessary, of the equipment to ensure that requirements relevant to the particular certificate are complied with and that they are in a satisfactory condition and are fit for the service for which the ship is intended.

4.4.2.2 The periodical survey should also consist of a check that all the certificates, record books, operating manuals and other instructions and documentation specified in the requirements relevant to the particular certificate are on board the ship.

4.4.2.3 Where a periodical survey has not been carried out within the due dates, reference should be made to 15.6.

(R) 4.5 Renewal surveys

4.5.1 Frequency

4.5.1.1 The renewal survey, as required by the relevant regulations (see 2.8.3) and as shown diagrammatically in the appendix, should be held before the appropriate certificate is renewed.

4.5.2 General

4.5.2.1 The renewal survey should consist of an inspection, with tests when necessary, of the structure, machinery and equipment to ensure that the requirements relevant to the particular certificate are complied with and that they are in a satisfactory condition and are fit for the service for which the ship is intended.

4.5.2.2 The renewal survey should also consist of a check that all the certificates, record books, operating manuals and other instructions and documentation specified in the requirements relevant to the particular certificate are on board the ship.

(B) 4.6 Inspections of the outside of the ship's bottom of cargo ships

4.6.1 Frequency

4.6.1.1 There should be a minimum of two inspections of the outside of the ship's bottom during any five year period (see 15.7), except where SOLAS 74/88 R.I/14(e) or (f) is applicable. Where the Cargo Ship Safety Construction Certificate has been extended under SOLAS 74/88 R.I/14(e) or (f), this five year period may be extended to coincide with the extended period of validity of the certificate. In all cases the interval between any two such inspections should not exceed 36 months.

4.6.2 General

4.6.2.1 The inspection of the outside of the ship's bottom and the survey of related items (see 15.1) should include an inspection to ensure that they are in a satisfactory condition and fit for the service for which the ship is intended.

4.6.2.2 Inspections of the outside of the ship's bottom should normally be carried out with the ship in a dry dock. However, consideration may be given to alternate inspections being carried out with the ship afloat. Special consideration should be given before ships of 15 years of age and over are permitted to have such surveys afloat. Inspections with the ship afloat should only be carried out when the conditions are satisfactory and the proper equipment and suitably trained staff are available.

4.6.3 Where an inspection of the ships bottom has not been carried out before the due dates reference should be made to 15.6.

(Ad) 4.7 Additional surveys

4.7.1 Whenever an accident occurs to a ship or a defect is discovered which affects the safety or integrity of the ship or the efficiency or completeness of its equipment, the master or owner should make a report at the earliest opportunity to the Administration, the nominated surveyor or recognized organization responsible for issuing the relevant certificate. The Administration, the nominated surveyor or recognized organization responsible for issuing the relevant certificate should then initiate an investigation to determine whether a survey, as required by the regulations applicable to the particular certificate, is necessary. This additional survey, which may be general or partial according to the circumstances, should be such to ensure that the repairs and any renewals have been effectively made and that the ship and its equipment continue to be fit for the service for which the ship is intended.

4.8 Completion of surveys

4.8.1 If a survey shows that the condition of the ship or its equipment is unsatisfactory, the officer of the Administration, nominated surveyor or recognized organization should be guided by the requirements of SOLAS 74/88 R.I/6(c), MARPOL 73/78/90 Ax.I R.4(3)(d), MARPOL 73/78/90 Ax.II R.10(2)(c), the IBC Code 83/90 R.1.5.1.3, the IGC Code 83/90 R.1.5.1.3 and the BCH Code 85/90 R.1.6.1.3. These instruments require that corrective action be taken immediately and the Administration notified in due course. In cases where the corrective action has not been undertaken the relevant certificate should be withdrawn and the

Administration notified immediately. If the ship is in the port of another Party, the appropriate authorities of the port State also notified immediately.

4.8.2 Although LLC 66/88 does not contain specific requirements, if a load line survey shows the condition of the ship or its equipment is unsatisfactory, the officer of the Administration, nominated surveyor or recognized organization should, nevertheless, be guided by 4.8.1.

(E) 5 GUIDELINES FOR SURVEYS FOR THE CARGO SHIP SAFETY EQUIPMENT CERTIFICATE

(E) 5.1 Initial surveys - see 4.1.

(E) 5.1.1 For the life-saving appliances and the other equipment of cargo ships the examination of plans and designs should consist of:

(E) 5.1.1.1 examining the plans for the fire pumps, fire mains, hydrants, hoses and nozzles and the international shore connection (SOLAS 74/88 Rs.II-2/4 and 19);

(E) 5.1.1.2 checking the provision and specification of the fire extinguishers and the fireman's outfits (SOLAS 74/88 Rs.II-2/6 and 17);

(E) 5.1.1.3 examining the plans for the fire extinguishing and special arrangements in the machinery spaces (SOLAS 74/88 Rs.II-2/7 and 11);

(E) 5.1.1.4 checking the provision of a fixed fire detection and fire alarm system for periodically unattended machinery spaces (SOLAS 74/88 Rs.II-2/13 and 14);

(E) 5.1.1.5 examining the arrangements for oil fuel, lubricating oil and other flammable oils (SOLAS 74/88 R.II-2/15);

(E) 5.1.1.6 examining the plans for the fire protection arrangements in cargo spaces (SOLAS 74/88 R.II-2/53);

(E) 5.1.1.7 examining the plans for the special arrangements for the carriage of dangerous goods, when appropriate, including water supplies, electrical equipment and wiring, fire detection, bilge pumping and personnel protection (SOLAS 74/88 R.II-2/54);

(E) 5.1.1.8 examining the provision and disposition of the survival craft and rescue boats (SOLAS 74/88 Rs.III/11 to 15 and 26);

(E) 5.1.1.9 examining the design of the survival craft, including their equipment, launching and recovery appliances and embarkation and launching arrangements (SOLAS 74/88 Rs.III/26, 27, 28, 29, 36, 38 to 46 and 48);

(E) 5.1.1.10 examining the design of the rescue boats, including their equipment and launching and recovery appliances and arrangements (SOLAS 74/88 Rs.III/16, 26, 47 and 48);

(E) 5.1.1.11 examining the provision, specification and stowage of two-way VHF radiotelephone apparatus and radar transponders. (SOLAS 74/88 R.III/6);

(E) 5.1.1.12 examining the provision, specification and stowage of the distress flares and the line-throwing appliance and the provision of on-board communications equipment and the general alarm system (SOLAS 74/88 Rs.III/6, 17, 35, 49 and 50);

(E) 5.1.1.13 examining the provision, specification and stowage of the lifebuoys, including those fitted with self-igniting lights, self-activating smoke signals and buoyant lines, lifejackets, immersion suits and thermal protective aids (SOLAS 74/88 Rs.III/7, 27 and 31 to 37);

(E) 5.1.1.14 examining the plans for the lighting of the muster and embarkation stations and the alleyways, stairways and exits giving access to the muster and embarkation stations, including the supply from the emergency source of power (SOLAS 74/88 R.II-1/43 and III/11);

- (EI) 5.1.1.15 examining the plans for the positioning of, and the specification for, the navigation lights, shapes and sound signalling equipment (International Regulations for Preventing Collisions at Sea in force Rs.20 to 24, 27 to 30 and 33);
- (EI) 5.1.1.16 checking the provision and specification of the daylight signalling lamp and, as appropriate, the magnetic compass, gyro compass, radar installation, automatic radar plotting aid, echo-sounding device, speed and distance indicator, rudder angle indicator, propeller rate of revolution indicator, variable pitch propeller pitch and operational mode indicator, rate-of-turn indicator, radio direction finding apparatus and radio homing device (SOLAS 74/88 Rs.V/11 and 12);
- (EI) 5.1.1.17 checking the provision and specification of the pilot ladders and hoists/pilot transfer arrangements (SOLAS 74/88 R.V/17).
- (EI) 5.1.2 For the examination of plans and designs of the life-saving appliances and the other equipment of cargo ships the additional requirements for oil tankers should consist of:
  - (EI) 5.1.2.1 examining the plans for the cargo tank protection (SOLAS 74/88 Rs.II-2/60 to 62);
  - (EI) 5.1.2.2 examining the plans for protection of the cargo pump rooms (SOLAS 74/88 Rs.II-2/63).
- (EI) 5.1.3 For the life-saving appliances and the other equipment of cargo ships the survey during construction and after installation should consist of:
  - (EI) 5.1.3.1 examining the fire pumps and fire main and the disposition of the hydrants, hoses and nozzles and the international shore connection and checking that each fire pump, including the emergency fire pump, can be operated separately so that two jets of water are produced simultaneously from different hydrants at any part of the ship whilst the required pressure is maintained in the fire main; (SOLAS 74/88 Rs.II-2/4 and 19);
  - (EI) 5.1.3.2 examining the provision and disposition of the fire extinguishers and the fireman's outfits (SOLAS 74/88 Rs.II-2/6 and 17);
  - (EI) 5.1.3.3 examining the fixed fire fighting system for the machinery and cargo spaces, as appropriate, and confirming that the installation tests have been satisfactorily completed and that its means of operation are clearly marked (SOLAS 74/88 Rs.II-2/7 and 53);
  - (EI) 5.1.3.4 examining the fire extinguishing and special arrangements in the machinery spaces and confirming, as far as practicable and as appropriate, the operation of the remote means of control provided for the opening and closing of the skylights, the release of smoke, the closure of the funnel and ventilation openings, the closure of power operated and other doors, the stopping of ventilation and boiler forced and induced draft fans and the stopping of oil fuel and other pumps that discharge flammable liquids (SOLAS 74/88 Rs.II-2/7 and 11);
  - (EI) 5.1.3.5 examining any fire detection and alarm system and confirming that installation tests have been satisfactorily completed (SOLAS 74/88 Rs.II-2/11, 13 14, 53 and 54);
  - (EI) 5.1.3.6 examining the arrangements for oil fuel, lubricating oil and other flammable oils and confirming, as far as practicable and as appropriate, the operation of the remote means of closing the valves on the tanks that contain oil fuel, lubricating oil and other flammable oils (SOLAS 74/88 R.II-2/15);
  - (EI) 5.1.3.7 examining the fire protection arrangements in cargo spaces and confirming, as far as practicable and as appropriate, the operation of the means for closing the various openings (SOLAS 74/88 R.II-2/53);
  - (EI) 5.1.3.8 examining, when appropriate, the special arrangements for carrying dangerous goods, including checking the electrical equipment and wiring and boundary insulation, the provision of protective clothing and portable appliances and the testing of the water supply, bilge pumping and any water spray system (SOLAS 74/88 R.II-2/54);
  - (EI) 5.1.3.9 checking the provision and disposition of the survival craft and rescue boats (SOLAS 74/88 Rs.III/11 to 15 and 26);

- (EI) 5.1.3.10 examining each survival craft, including its equipment (SOLAS 74/88 Rs.III/26, 27, 33, 34, 36 and 38 to 46);
  
- (EI) 5.1.3.11 examining the embarkation arrangements for each survival craft and the testing of each launching appliance, including overload tests, tests to establish the lowering speed and the lowering of each survival craft to the water with the ship at its lightest sea-going draught, checking the recovery of each lifeboat (SOLAS 74/88 Rs.III/11, 12, 13, 15, 26 and 48);
  
- (EI) 5.1.3.12 examining each rescue boat, including its equipment (SOLAS 74/88 Rs.III/26, 34 and 47);
  
- (EI) 5.1.3.13 examining the embarkation and recovery arrangements for each rescue boat and testing each launching and recovery appliance, including overload tests, tests to establish the lowering and recovery speeds and ensuring that each rescue boat can be lowered to the water and recovered with the ship at its lightest sea-going draught (SOLAS 74/88 Rs.III/14, 16, 26 and 48);
  
- (EI) 5.1.3.14 testing that the engine of the rescue boat(s) and of each lifeboat, when so fitted, start satisfactorily and operate both ahead and astern;
  
- (EI) 5.1.3.15 confirming that there are posters or signs in the vicinity of survival craft and their launching stations (SOLAS 74/88 R.III/9);
  
- (EI) 5.1.3.16 examining the provision and stowage and checking the operation of portable on-board communications equipment, if provided, and two-way VHF radiotelephone apparatus and radar transponders (SOLAS 74/88 R.III/6);
  
- (EI) 5.1.3.17 examining the provision and stowage of the distress flares and the line-throwing appliance, checking the provision and operation of fixed on-board communications equipment, if provided, and testing the means of operation of the general alarm system (SOLAS 74/88 R.III/6);
  
- (EI) 5.1.3.18 examining the provision, disposition and stowage of the lifebuoys, including those fitted with self-igniting lights, self-activating smoke signals and buoyant lines, lifejackets, immersion suits and thermal protective aids (SOLAS 74/88 Rs.III/7, 27 and 31 to 37);
  
- (EI) 5.1.3.19 checking the lighting of the muster and embarkation stations and the alleyways, stairways and exits giving access to the muster and embarkation stations, including when supplied from the emergency source of power (SOLAS 74/88 Rs.II-1/43 and III/11);
  
- (EI) 5.1.3.20 examining the provision and positioning and checking the operation of, as appropriate, the navigation lights, shapes and sound signalling equipment (International Regulations for Preventing Collisions at Sea in force, Rs.20 to 24, 27 to 30 and 33);
  
- (EI) 5.1.3.21 checking the provision and specification of a daylight signalling lamp (SOLAS 74/88 R.V/11);
  
- (EI) 5.1.3.22 checking that the minimum safe distances from the steering and standard magnetic compasses for all electrical equipment are complied with and, as appropriate, the provision and operation of the following (SOLAS 74/88 R.V/12):
  - 5.1.3.22.1 the magnetic compass, including examining the siting, movement, azimuth reading devices and illumination;
  - 5.1.3.22.2 echo sounder, including examining the display for good access, viewing and lighting;
  - 5.1.3.22.3 radio direction finder, including examining the voice and signalling arrangement between the receiver and the bridge;
  - 5.1.3.22.4 radio homing device;
  - 5.1.3.22.5 gyro compass, including examining the alignment of the master and all repeaters;

- 5.1.3.22.6 radar, including examining the waveguide and cable runs for routing and protection and the display unit confirming lighting, plotting facilities, correct operation of all controls, functions and the true-motion facility if provided;
- 5.1.3.22.7 automatic radar plotting aid (ARPA) including examining the performance using the appropriate test facilities;
- 5.1.3.22.8 speed and distance indicator;
- 5.1.3.22.9 rudder angle indicator;
- 5.1.3.22.10 propeller rate of revolution indicator;
- 5.1.3.22.11 variable propeller pitch and operational mode indicator;
- 5.1.3.22.12 rate-of-turn indicator;
- (EI) 5.1.3.23 checking the provision and, as appropriate, the deployment or operation of the pilot ladders and hoists/pilot transfer arrangements (SOLAS 74/88 R.V/17).
- (EI) 5.1.4 For the life-saving appliances and the other equipment of cargo ships for the additional requirements for oil tankers the survey during construction and after installation should consist of:
  - (EI) 5.1.4.1 checking the deck foam system, including the supplies of foam concentrate, and testing that the minimum number of jets of water at the required pressure in the fire main is obtained, see (EI) 5.1.3.1, when the system is in operation (SOLAS 74/88 R.II-2/61).
  - (EI) 5.1.4.2 examining the inert gas system (SOLAS 74/88 R.II-2/62) and in particular:
    - (EI) 5.1.4.2.1 examining externally for any sign of gas or effluent leakage;
    - (EI) 5.1.4.2.2 confirming the proper operation of both inert gas blowers;
    - (EI) 5.1.4.2.3 observing the operation of the scrubber-room ventilation system;
    - (EI) 5.1.4.2.4 checking the deck water seal for automatic filling and draining;
    - (EI) 5.1.4.2.5 examining the operation of all remotely operated or automatically controlled valves and, in particular, the flue gas isolating valves;
    - (EI) 5.1.4.2.6 observing a test of the interlocking feature of soot blowers;
    - (EI) 5.1.4.2.7 observing that the gas pressure regulating valve automatically closes when the inert gas blowers are secured;
    - (EI) 5.1.4.2.8 checking, as far as practicable, the following alarms and safety devices of the inert gas system using simulated conditions where necessary:
      - (EI) 5.1.4.2.8.1 high oxygen content of gas in the inert gas main;
      - (EI) 5.1.4.2.8.2 low gas pressure in the inert gas main;
      - (EI) 5.1.4.2.8.3 low pressure in the supply to the deck water seal;
      - (EI) 5.1.4.2.8.4 high temperature of gas in the inert gas main;
      - (EI) 5.1.4.2.8.5 low water pressure or low water-flow rate;
      - (EI) 5.1.4.2.8.6 accuracy of portable and fixed oxygen-measuring equipment by means of calibration gas;
      - (EI) 5.1.4.2.8.7 high water level in the scrubber;
      - (EI) 5.1.4.2.8.8 failure of the inert gas blowers;

- (EI) 5.1.4.2.8.9 failure of the power supply to the automatic control system for the gas regulating valve and to the instrumentation for continuous indication and permanent recording of pressure and oxygen content in the inert gas main;
- (EI) 5.1.4.2.8.10 high pressure of gas in the inert gas main;
- (EI) 5.1.4.2.9 checking the proper operation of the inert gas system on completion of the checks listed above;
- (EI) 5.1.4.3 examining the fixed fire fighting system for the cargo pump room, confirming that the installation tests have been satisfactorily completed and that its means of operation are clearly marked (SOLAS 74/88 Rs.II-2/7 and 63) and, when appropriate, checking the operation of the remote means for closing the various openings.
- (EI) 5.1.5 For the life-saving appliances and the other equipment of cargo ships the check that the required documentation has been placed on board should consist of:
  - (EI) 5.1.5.1 confirming that the fire control plans are permanently exhibited or, alternatively, emergency booklets have been provided and that a duplicate of the plans or the emergency booklet are available in a prominently marked enclosure external to the ship's deckhouse (SOLAS 74/88 R.II-2/20);
  - (EI) 5.1.5.2 confirming that emergency instructions are available for each person on board, that the muster list is posted in conspicuous places and they are in a language understood by the persons on board (SOLAS 74/88 Rs.III/8 and 53);
  - (EI) 5.1.5.3 confirming that the training manual for the life- saving appliances has been provided (SOLAS 74/88 R.III/51);
  - (EI) 5.1.5.4 confirming that the instructions for on-board maintenance of the life-saving appliances have been provided (SOLAS 74/88 R.III/52);
  - (EI) 5.1.5.5 confirming that a table or curve of residual deviations for the magnetic compass and, as appropriate, fixed corrections for the radio direction finder have been provided, and that a diagram of the radar installations shadow sectors is displayed (SOLAS 74/88 R.V/12);
  - (EI) 5.1.5.6 checking that operational and, where appropriate, maintenance manuals for all navigational equipment are provided (SOLAS 74/88 R.V/12);
  - (EI) 5.1.5.7 checking that the charts and nautical publications necessary for the intended voyage are available and have been up-dated (SOLAS 74/88 R.V/20);
  - (EI) 5.1.5.8 checking that the International Code of Signals is available where the ship is required to carry a radio installation (SOLAS 74/88 R.V/21);
- (EI) 5.1.6 For the life-saving appliances and the other equipment of cargo ships for the additional requirements for oil tankers the check that the required documentation has been placed on board should consist of:
  - (EI) 5.1.6.1 confirming, when appropriate, that the instruction manuals for the inert gas system have been provided (SOLAS 74/88 R.II-2/60).
- (EI) 5.1.7 For the life-saving appliances and the other equipment of cargo ships the completion of the initial survey should consist of:
  - (EI) 5.1.7.1 after a satisfactory survey, the Cargo Ship Safety Equipment Certificate and its associated Record of Equipment (Form E) should be issued.
- (EA) 5.2 Annual surveys - see 4.2
- (EA) 5.2.1 For the life-saving appliances and the other equipment of cargo ships the examination of current certificates and other records should consist of:



- (EA) 5.2.1.1 checking the validity, as appropriate, of the Cargo Ship Safety Equipment Certificate, the Cargo Ship Safety Radio Certificate and the Cargo Ship Safety Construction Certificate or the Cargo Ship Safety Certificate;
- (EA) 5.2.1.2 checking the validity of the International Load Line Certificate or International Load Line Exemption Certificate;
- (EA) 5.2.1.3 checking the validity of the International Oil Pollution Prevention Certificate;
- (EA) 5.2.1.4 checking the certificates of class, if the ship is classed with a classification society;
- (EA) 5.2.1.5 checking, when appropriate, the validity of the International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk or the Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk;
- (EA) 5.2.1.6 checking, when appropriate, the validity of the International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk;
- (EA) 5.2.1.7 checking, when appropriate, the validity of the International Pollution Prevention Certificate for the Carriage of Noxious Liquid Substances in Bulk;
- (EA) 5.2.1.8 checking that the ship's complement complies with the Minimum Safe Manning Document (SOLAS 74/88 R.V/13(b));
- (EA) 5.2.1.9 checking that the master, officers and ratings are certificated as required by the STCW Convention;
- (EA) 5.2.1.10 checking whether any new equipment has been fitted and, if so, confirm that it has been approved before installation and that any changes are reflected in the appropriate certificate;
- (EA) 5.2.1.11 confirming that the fire control plans are permanently exhibited or, alternatively, emergency booklets have been provided and that a duplicate of the plans or the emergency booklet are available in a prominently marked enclosure external to the ship's deckhouse (SOLAS 74/88 R.II-2/20);
- (EA) 5.2.1.12 checking whether any fire has occurred on board necessitating the operation of the fixed fire-extinguishing systems or the portable fire extinguishers since the last survey;
- (EA) 5.2.1.13 checking, when appropriate, that the ship is provided with a document indicating compliance with the special requirements for carrying dangerous goods (SOLAS 74/88 R.II-2/54(3));
- (EA) 5.2.1.14 confirming, when appropriate, that there is a special list, manifest or stowage plan for the carriage of dangerous goods (SOLAS 74/88 R.VII/5(3));
- (EA) 5.2.1.15 confirming, when appropriate, that the instruction manuals for the inert gas system have been provided and checking from the records of the pressure and oxygen content that the inert gas system is being operated correctly (SOLAS 74/88 R.II-2/60);
- (EA) 5.2.1.16 checking that log-book entries are being made (SOLAS 74/88 Rs.III/18 and 19) and in particular:
  - (EA) 5.2.1.16.1 the date when the last full muster of the crew for boat and fire drill took place;
  - (EA) 5.2.1.16.2 the records indicating that the lifeboat equipment was examined at that time and found to be complete;
  - (EA) 5.2.1.16.3 the last occasion when the lifeboats were swung out and when each one was lowered into the water;
  - (EA) 5.2.1.16.4 the records indicating that crew members have received the appropriate onboard training;
- (EA) 5.2.1.17 confirming that the training manual for the life- saving appliances is on board (SOLAS 74/88 R.III/51);

- (EA) 5.2.1.18 confirming that the instructions for on-board maintenance of the life-saving appliances are on board (SOLAS 74/88 R.III/52);
- (EA) 5.2.1.19 confirming that a table or curve of residual deviations for the magnetic compass and fixed corrections for the radio direction finder have been provided, and that a diagram of the radar installations shadow sectors is displayed (SOLAS 74/88 R.V/12);
- (EA) 5.2.1.20 checking that operational and, where appropriate, maintenance manuals for all navigational equipment are provided (SOLAS 74/88 R.V/12);
- (EA) 5.2.1.21 checking that the compass deviation book is properly maintained and that a calibration record for the radio direction finder has been kept (SOLAS 74/88 R.V/12);
- (EA) 5.2.1.22 checking that the charts and nautical publications necessary for the intended voyage are available and have been up-dated (SOLAS 74/88 R.V/20).
- (EA) 5.2.2 For the life-saving appliances and the other equipment of cargo ships the annual survey should consist of:
  - (EA) 5.2.2.1 examining the fire pumps, fire main, hydrants, hoses and nozzles and the international shore connection and checking that each fire pump, including the emergency fire pump, can be operated separately so that two jets of water are produced simultaneously from different hydrants at any part of the ship whilst the required pressure is maintained in the fire main; (SOLAS 74/88 Rs.II-2/4 and 19);
  - (EA) 5.2.2.2 checking the provision and randomly examining the condition of the portable and non-portable fire extinguishers (SOLAS 74/88 R.II-2/6);
  - (EA) 5.2.2.3 confirming that the firemen's outfits are complete and in good condition and that the cylinders, including the spare cylinders, of any required self-contained breathing apparatus are suitably charged (SOLAS 74/88 R.II-2/17);
  - (EA) 5.2.2.4 examining the fixed fire fighting system for the machinery and cargo spaces, as appropriate, and confirming that its means of operation is clearly marked (SOLAS 74/88 Rs.II-2/7 and 53);
  - (EA) 5.2.2.5 examining the fire extinguishing and special arrangements in the machinery spaces and confirming, as far as practicable and as appropriate, the operation of the remote means of control provided for the opening and closing of the skylights, the release of smoke, the closure of the funnel and ventilation openings, the closure of power operated and other doors, the stopping of ventilation and boiler forced and induced draft fans and the stopping of oil fuel and other pumps that discharge flammable liquids (SOLAS 74/88 Rs.II-2/7 and 11);
  - (EA) 5.2.2.6 examining, as far as possible, and testing, as feasible, any fire detection and alarm system (SOLAS 74/88 Rs.II-2/11, 13, 14, 53 and 54);
  - (EA) 5.2.2.7 examining the arrangements for oil fuel, lubricating oil and other flammable oils and confirming, as far as practicable and as appropriate, the operation of the remote means of closing the valves on the tanks that contain oil fuel, lubricating oil and other flammable oils (SOLAS 74/88 R.II-2/15);
  - (EA) 5.2.2.8 examining the fire protection arrangements in cargo spaces and confirming, as far as practicable and as appropriate, the operation of the means of control provided for closing the various openings (SOLAS 74/88 R.II-2/53);
  - (EA) 5.2.2.9 examining, when appropriate, the special arrangements for carrying dangerous goods, including checking the electrical equipment and wiring and boundary insulation and the provision of protective clothing and portable appliances and the testing of the water supply, bilge pumping and any water spray system (SOLAS 74/88 R.II-2/54);
  - (EA) 5.2.2.10 checking that emergency instructions are available for each person on board and that copies of the suitably up-dated muster list are posted in conspicuous places and that they are in a

language understood by all persons on board and confirming that there are posters or signs in the vicinity of survival craft and their launching stations (SOLAS 74/88 Rs.III/8, 9 and 53);

- (EA) 5.2.2.11 examining each survival craft, including its equipment and, when fitted, the on-load release and hydrostatic lock and, for inflatable liferafts, the hydrostatic release unit and float-free arrangements. Checking that the hand-held flares are not out of date (SOLAS 74/88 Rs.III/26, 27, 33, 34, 36 and 38 to 46);
- (EA) 5.2.2.12 examining the embarkation arrangements and launching appliances for each survival craft. Each lifeboat should be lowered to the embarkation position or, if the stowage position is the embarkation position, lowered a short distance and, if practicable, one of the survival craft should be lowered to the water. The operation of the launching appliances for davit launched liferafts should be demonstrated (SOLAS 74/88 Rs.III/11, 12, 13, 15, 26 and 48);
- (EA) 5.2.2.13 examining each rescue boat, including its equipment (SOLAS 74/88 Rs.III/26, 34 and 47);
- (EA) 5.2.2.14 examining the embarkation and recovery arrangements for each rescue boat. If practicable, the rescue boat(s) should be lowered to the water and its recovery demonstrated (SOLAS 74/88 Rs.III/14, 16, 26 and 48);
- (EA) 5.2.2.15 testing that the engine of the rescue boat(s) and of each lifeboat, when so fitted, start satisfactorily and operate both ahead and astern;
- (EA) 5.2.2.16 examining and checking the operation of two-way VHF radiotelephone apparatus and radar transponders (SOLAS 74/88 R.III/6);
- (EA) 5.2.2.17 examining the line-throwing appliance and checking that its rockets and the ship's distress signals are not out of date, and examining and checking the operation of on-board communications equipment and the general alarm system (SOLAS 74/88 Rs.III/6, 17, 35, 49 and 50);
- (EA) 5.2.2.18 examining the stowage of the lifejackets, immersion suits thermal protective aids, randomly checking their condition and checking lifejackets for the presence and condition of whistles, retro-reflective material and lights (SOLAS 74/88 Rs.III/7, 27, 32, 33 and 34);
- (EA) 5.2.2.19 examining the lifebuoys, including those fitted with self-igniting lights, self-activating smoke signals and buoyant lines, and checking their disposition and that the smoke signals are not out of date (SOLAS 74/88 Rs.III/7, 27 and 31);
- (EA) 5.2.2.20 checking the lighting of the muster and embarkation stations and the alleyways, stairways and exits giving access to the muster and embarkation stations, including when supplied from the emergency source of power (SOLAS 74/88 Rs.II-1/42 or 43 and III/11);
- (EA) 5.2.2.21 checking that the required the navigation lights, shapes and sound signalling equipment are in order (International Regulations for Preventing Collisions at Sea in force, Rs.20 to 24, 27 to 30 and 33);
- (EA) 5.2.2.22 checking that the daylight signalling lamp and, as appropriate, the magnetic compass, gyro compass, radar installation, automatic radar plotting aid, echo-sounding device, speed and distance indicator, rudder angle indicator, propeller rate of revolution indicator, variable pitch propeller pitch and operational mode indicator,  
  
rate-of-turn indicator, radio direction finding apparatus and radio homing device are in working order. Items that cannot be checked with the ship in port should be verified from records (SOLAS 74/88 Rs.V/11 and 12);
- (EA) 5.2.2.23 checking, as appropriate, the deployment or operation of the pilot ladders and hoists/pilot transfer arrangements and that they are in good condition (SOLAS 74/88 R.V/17).
- (EA) 5.2.3 For the life-saving appliances and the other equipment of cargo ships for the additional requirements for oil tankers the annual survey should consist of:

- (EA) 5.2.3.1 checking the deck foam system, including the supplies of foam concentrate and testing that the minimum number of jets of water at the required pressure in the fire main is obtained, see 5.2.2.1 when the system is in operation (SOLAS 74/88 R.II-2/61);
- (EA) 5.2.3.2 examining the inert gas system (SOLAS 74/88 R.II-2/62) and in particular:
  - (EA) 5.2.3.2.1 examining externally for any sign of gas or effluent leakage;
  - (EA) 5.2.3.2.2 confirming the proper operation of both inert gas blowers;
  - (EA) 5.2.3.2.3 observing the operation of the scrubber-room ventilation system;
  - (EA) 5.2.3.2.4 checking the deck water seal for automatic filling and draining;
  - (EA) 5.2.3.2.5 examining the operation of all remotely operated or automatically controlled valves and, in particular, the flue gas isolating valves;
  - (EA) 5.2.3.2.6 observing a test of the interlocking feature of soot blowers;
  - (EA) 5.2.3.2.7 observing that the gas pressure regulating valve automatically closes when the inert gas blowers are secured;
  - (EA) 5.2.3.2.8 checking, as far as practicable, the following alarms and safety devices of the inert gas system using simulated conditions where necessary:
    - (EA) 5.2.3.2.8.1 high oxygen content of gas in the inert gas main;
    - (EA) 5.2.3.2.8.2 low gas pressure in the inert gas main;
    - (EA) 5.2.3.2.8.3 low pressure in the supply to the deck water seal;
    - (EA) 5.2.3.2.8.4 high temperature of gas in the inert gas main;
    - (EA) 5.2.3.2.8.5 low water pressure or low water-flow rate;
    - (EA) 5.2.3.2.8.6 accuracy of portable and fixed oxygen-measuring equipment by means of calibration gas;
    - (EA) 5.2.3.2.8.7 high water level in the scrubber;
    - (EA) 5.2.3.2.8.8 failure of the inert gas blowers;
    - (EA) 5.2.3.2.8.9 failure of the power supply to the automatic control system for the gas regulating valve and to the instrumentation for continuous indication and permanent recording of pressure and oxygen content in the inert gas main;
    - (EA) 5.2.3.2.8.10 high pressure of gas in the inert gas main;
  - (EA) 5.2.3.3 checking, when practicable, the proper operation of the inert gas system on completion of the checks listed above (SOLAS 74/88 R.II-2/62);
  - (EA) 5.2.3.4 examining the fixed fire fighting system for the cargo pump rooms, (SOLAS 74/88 Rs.II-2/7 and 63) and confirming, as far as practicable and when appropriate, the operation of the remote means for closing the various openings.
- (EA) 5.2.4 For the life-saving appliances and the other equipment of cargo ships the completion of the annual survey should consist of:
  - (EA) 5.2.4.1 after a satisfactory survey, the Cargo Ship Safety Equipment Certificate should be endorsed;
  - (EA) 5.2.4.2 if a survey shows that the condition of a ship or its equipment is unsatisfactory, see 4.8.
- (EP) 5.3 Periodical surveys - see 4.4

- (EP) 5.3.1 For the life-saving appliances and the other equipment of cargo ships the examination of current certificates and other records should consist of:
  - (EP) 5.3.1.1 the provisions of (EA) 5.2.1.
- (EP) 5.3.2 For the life-saving appliances and the other equipment of cargo ships the periodical survey should consist of:
  - (EP) 5.3.2.1 the provisions of (EA) 5.2.2;
  - (EP) 5.3.2.2 confirming during the examination of the fixed fire fighting system for the machinery and cargo spaces that, as appropriate, any foam compounds and the CO<sub>2</sub> capacity have been checked and that the distribution pipework has been proved clear (SOLAS 74/88 Rs.II-2/7 and 53);
  - (EP) 5.3.2.3 testing the operation of the remote means of control provided for the opening and closing of the skylights, the release of smoke, the closure of the funnel and ventilation openings, the closure of power operated and other doors, the stopping of ventilation and boiler forced and induced draft fans and the stopping of oil fuel and other pumps that discharge flammable liquids (SOLAS 74/88 Rs.II-2/7 and 11);
  - (EP) 5.3.2.4 testing any fire detection and alarm system (SOLAS 74/88 Rs.II-2/11, 13 14, 53 and 54);
  - (EP) 5.3.2.5 testing the operation of the remote means of closing the valves on the tanks that contain oil fuel, lubricating oil and other flammable oils (SOLAS 74/88 R.II-2/15);
  - (EP) 5.3.2.6 testing the operation of the means of control provided for closing the various openings for the cargo spaces (SOLAS 74/88 R.II-2/53).
- (EP) 5.3.3 For the life-saving appliances and the other equipment for the additional requirements for oil tankers the periodical survey should consist of:
  - (EP) 5.3.3.1 the provisions of (EA) 5.2.3;
  - (EP) 5.3.3.2 confirming during the examination of the fixed fire fighting system for the cargo pump rooms that, as appropriate, any foam compounds have been checked and that the distribution pipework has been proved clear (SOLAS 74/88 Rs.II-2/7 and 63) and checking the operation of the remote means for closing the various openings.
- (EP) 5.3.4 For the life-saving appliances and the other equipment of cargo ships the completion of the periodical survey should consist of:
  - (EP) 5.3.4.1 after a satisfactory survey, the cargo Ship Safety Equipment Certificate should be endorsed;
  - (EP) 5.3.4.2 if a survey shows that the condition of a ship or its equipment is unsatisfactory, see 4.8.
- (ER) 5.4 Renewal surveys - see 4.5
  - (ER) 5.4.1 For the life-saving appliances and the other equipment of cargo ships the examination of current certificates and other records should consist of:
    - (ER) 5.4.1.1 the provisions of (EA) 5.2.1, except for the validity of the Cargo Ship Safety Equipment Certificate.
  - (ER) 5.4.2 For the life-saving appliances and other equipment of cargo ships the renewal survey should consist of:
    - (ER) 5.4.2.1 the provisions of (EP) 5.3.2.
  - (ER) 5.4.3 For the life-saving appliances and the other equipment for the additional requirements for oil tankers the renewal survey should consist of:
    - (ER) 5.4.3.1 the provisions of (EP) 5.3.3;

- (ER) 5.4.3.2 examining the deck water seal for the inert gas system internally and checking the condition of the non-return valve (SOLAS 74/88 R.II-2/62).
- (ER) 5.4.4 For the life-saving appliances and the other equipment of cargo ships the completion of the renewal survey should consist of:
  - (ER) 5.4.4.1 after a satisfactory survey, the cargo Ship Safety Equipment Certificate should be issued.
- (C) 6 GUIDELINES FOR SURVEYS FOR THE CARGO SHIP SAFETY CONSTRUCTION CERTIFICATE
- (CI) 6.1 Initial surveys - see 4.1.
- (CI) 6.1.1 For the hull, machinery and equipment of cargo ships the examination of plans and designs should consist of:
  - (CI) 6.1.1.1 examining the plans for the hull (SOLAS 74/88 Rs.II-1/11, 14, 18 and 19);
  - (CI) 6.1.1.2 examining the plans for the bilge pumping (SOLAS 74/88 R.II-1/21);
  - (CI) 6.1.1.3 examining the stability information and the damage control plans (SOLAS 74/88 Rs.II-1/22 and 23-1);
  - (CI) 6.1.1.4 examining the plans for the machinery installation (SOLAS 74/88 Rs.II-1/26 to 36);
  - (CI) 6.1.1.5 examining the plans for the electrical installation (SOLAS 74/88 Rs.II-1/40, 41, 43, 44 and 45);
  - (CI) 6.1.1.6 examining the plans for the periodically unattended machinery spaces (SOLAS 74/88 Rs.II-1/46 to 53);
  - (CI) 6.1.1.7 examining the plans for the structural fire protection, including the means of escape and the arrangements for gaseous fuel for domestic purposes (SOLAS 74/88 Rs.II-2/42 to 53).
- (CI) 6.1.2 For the hull, machinery and equipment of cargo ships the examination of plans and designs the additional requirements for oil tankers, chemical tankers and gas carriers should consist of:
  - (CI) 6.1.2.1 examining the plans for the steering gear (SOLAS 74/88 R.II-1/29);
  - (CI) 6.1.2.2 examining the plans for the electrical installation (SOLAS 74/88 R.II-1/45);
  - (CI) 6.1.2.3 examining the plans for the structural fire protection (SOLAS 74/88 Rs.II-2/55 to 58);
  - (CI) 6.1.2.4 examining the plans for the cargo tank venting, cargo tank purging and gas-freeing and other ventilation arrangements (SOLAS 74/88 R.II-2/59).
- (CI) 6.1.3 For the hull, machinery and equipment of cargo ships the survey during construction and after installation should consist of:
  - (CI) 6.1.3.1 confirming that the collision bulkhead is watertight up to the freeboard deck, that the valves fitted on the pipes piercing the collision bulkhead are operable from above the freeboard deck and that there are no doors, manholes, ventilation ducts or any other openings (SOLAS 74/88 R.II-1/11);
  - (CI) 6.1.3.2 confirming that bulkheads separating both ends of the machinery space from the cargo and other spaces are watertight up to the freeboard deck (SOLAS 74/88 R.II-1/14);
  - (CI) 6.1.3.3 confirming that each watertight door has been tested (SOLAS 74/88 R.II-1/18);
  - (CI) 6.1.3.4 confirming that the arrangements for operating any watertight doors are generally in accordance with the requirements for passenger ships and carrying out similar tests, see (PI) 14.1.2.5 to (PI) 14.1.2.7 (SOLAS 74/88 R.II-1/15);
  - (CI) 6.1.3.5 confirming by a hose or flooding test the watertightness of watertight decks and trunks, tunnels and ventilators (SOLAS 74/88 R.II-1/19);

- (CI) 6.1.3.6 confirming that each bilge pump and the bilge pumping system provided for each watertight compartment is working efficiently (SOLAS 74/88 R.II-1/21);
- (CI) 6.1.3.7 confirming that the drainage system of enclosed cargo spaces situated on the freeboard deck is working efficiently (SOLAS 74/88 R.II-1/21);
- (CI) 6.1.3.8 conducting an inclining test, when this is required (SOLAS 74/88 R.II-1/22);
- (CI) 6.1.3.9 confirming that the machinery, boilers and other pressure vessels, associated piping systems and fittings are installed and protected as to reduce to a minimum any danger to persons on board, due regard being given to moving parts, hot surfaces and other hazards (SOLAS 74/88 R.II-1/26);
- (CI) 6.1.3.10 confirming that the normal operation of the propulsion machinery can be sustained or restored even though one of the essential auxiliaries becomes inoperative (SOLAS 74/88 R.II-1/26);
- (CI) 6.1.3.11 confirming that means are provided so that the machinery can be brought into operation from the dead ship condition without external aid (SOLAS 74/88 R.II-1/26);
- (CI) 6.1.3.12 confirming that the boilers, all parts of the machinery, all steam, hydraulic, pneumatic and other systems and their associated fittings which are under internal pressure have been subjected to the appropriate tests, including a pressure test as may be specified in the requirements of the Administration or the classification societies (SOLAS 74/88 R.II-1/26);
- (CI) 6.1.3.13 confirming that means is provided to ensure that the safe speed is not exceeded where there is the risk of machinery overspeeding (SOLAS 74/88 R.II-1/27);
- (CI) 6.1.3.14 confirming that, where practicable, means are provided to protect against overpressure in the parts of main, auxiliary and other machinery that are subject to internal pressure and may be subject to dangerous overpressure (SOLAS 74/88 R.II-1/27);
- (CI) 6.1.3.15 confirming that, when required, crankcase explosion relief devices are fitted to internal combustion engines and that they are arranged so as to minimize the possibility of injury to personnel (SOLAS 74/88 R.II-1/27);
- (CI) 6.1.3.16 confirming that main turbine propulsion machinery and, where applicable, main internal combustion propulsion machinery and auxiliary machinery are provided with automatic shut-off arrangements in the case of failures, such as lubricating oil supply failure, which could rapidly lead to a complete breakdown, serious damage or explosion (SOLAS 74/88 R.II-1/27);
- (CI) 6.1.3.17 confirming and recording the ability of the machinery to reverse the direction of the thrust of the propeller in sufficient time and to bring the ship to rest within a reasonable distance, including the effectiveness of any supplementary means of manoeuvring or stopping the ship (SOLAS 74/88 R.II-1/28);
- (CI) 6.1.3.18 confirming that the main and auxiliary steering gear are so arranged that the failure of one of them does not render the other inoperative (SOLAS 74/88 R.II-1/29);
- (CI) 6.1.3.19 confirming that, where appropriate, essential components of the steering gear are permanently lubricated or provided with lubrication fittings (SOLAS 74/88 R.II-1/29);
- (CI) 6.1.3.20 confirming that relief valves are fitted to any part of a steering gear hydraulic system which can be isolated and in which pressure can be generated from the power source or from external forces and that these relief valves are set to a pressure not exceeding the design pressure (SOLAS 74/88 R.II-1/29);
- (CI) 6.1.3.21 confirming that the main steering gear is capable of steering the ship at maximum ahead service speed and is capable of putting the rudder over from 35° on one side to 35° on the other side with the ship at its deepest seagoing draught and running ahead at maximum ahead service speed and, under the same conditions, from 35° on either side to 30° on the other side in not more than 28 s (SOLAS 74/88 R.II-1/29);

- (CI) 6.1.3.22 confirming that the auxiliary steering gear is capable of steering the ship at navigable speed and of being brought speedily into action in an emergency and that it is capable of putting the rudder over from 15° on one side to 15° on the other side in not more than 60 s with the ship at its deepest seagoing draught and running ahead at one half of the maximum ahead service speed or 7 knots, whichever is the greater (SOLAS 74/88 R.II-1/29);
- (CI) 6.1.3.23 confirming that the main and auxiliary steering gear power units restart automatically when power is restored after a power failure, that they are capable of being brought into operation from a position on the navigating bridge and that, in the event of a power failure to any one of the steering gear power units, an audible and visual alarm is given on the navigating bridge (SOLAS 74/88 R.II-1/29);
- (CI) 6.1.3.24 confirming that, where the main steering gear comprises two or more identical power units and an auxiliary steering gear is not fitted, a defect can be isolated so that steering capability can be maintained or speedily regained after a single failure in its piping system or in one of the power units (SOLAS 74/88 R.II-1/29);
- (CI) 6.1.3.25 confirming that the control systems for the main steering gear from both the navigating bridge and the steering gear compartment are operating satisfactorily (SOLAS 74/88 R.II-1/29);
- (CI) 6.1.3.26 confirming that, where the main steering gear comprises two or more identical power units and an auxiliary steering gear is not fitted, the two independent control systems from the navigating bridge are operating satisfactorily (SOLAS 74/88 R.II-1/29);
- (CI) 6.1.3.27 confirming that the control system for the auxiliary steering gear in the steering gear compartment and, if this gear is power operated, from the navigating bridge are operating satisfactorily and that the latter is independent of the control system for the main steering gear (SOLAS 74/88 R.II-1/29);
- (CI) 6.1.3.28 confirming that the control system for any main and auxiliary steering gear control system operable from the navigating bridge is capable of being brought into operation from a position on the navigating bridge, that means are provided in the steering gear compartment for disconnecting it from the steering gear that it serves and that an audible and visual alarm is given on the navigating bridge in the event of a failure of electrical power supply (SOLAS 74/88 R.II-1/29);
- (CI) 6.1.3.29 confirming that the electric power circuits and steering gear control systems, together with their associated components, cables and pipes, are separated, as far as practicable, throughout their length (SOLAS 74/88 R.II-1/29);
- (CI) 6.1.3.30 confirming that the means of communication between the bridge and the steering gear compartment is operating satisfactorily and that, with ships having emergency steering positions, a telephone or other means of communication for relaying heading information and supplying visual compass readings to the emergency steering position are provided (SOLAS 74/88 R.II-1/29 and V/12);
- (CI) 6.1.3.31 confirming that the angular position of the rudder is indicated independently of the steering control system on the navigating bridge if the main steering gear is power-operated and that this angular position is given in the steering gear compartment (SOLAS 74/88 R.II-1/29);
- (CI) 6.1.3.32 confirming that with a hydraulic power-operated steering gear the audible and visual low-level alarms on the navigating bridge and in the machinery space for each hydraulic fluid reservoir are operating satisfactorily and that at least one power actuating system including the reservoir can be recharged from a position within the steering gear compartment by means of a fixed storage tank (to which a contents gauge is fitted) with fixed piping (SOLAS 74/88 R.II-1/29);
- (CI) 6.1.3.33 confirming that the steering gear compartment is readily accessible, that it is separated, as far as practicable, from machinery spaces and is provided with suitable arrangements to ensure working access to steering gear machinery and controls under safe conditions (SOLAS 74/88 R.II-1/29);



- (CI) 6.1.3.34 confirming that with electric and electro-hydraulic steering gear the means for indicating on the navigating bridge and at a main machinery control position that the motors are running and that the overload alarm and alarm for the loss of a phase in a three phase supply located at the main machinery control position are operating satisfactorily (SOLAS 74/88 R.II-1/30);
- (CI) 6.1.3.35 confirming that the main and auxiliary machinery essential for propulsion and the safety of the ship are provided with the effective means for its operation and control (SOLAS 74/88 R.II-1/31);
- (CI) 6.1.3.36 confirming that appropriate means are provided where it is intended that the propulsion machinery should be remotely controlled from the navigating bridge (SOLAS 74/88 R.II-1/31);
- (CI) 6.1.3.37 confirming that arrangements to operate main and other machinery from a machinery control room are satisfactory (SOLAS 74/88 R.II-1/31);
- (CI) 6.1.3.38 confirming that, in general, means are provided for manually overriding automatic controls and that a failure does not prevent the use of the manual override (SOLAS 74/88 R.II-1/31);
- (CI) 6.1.3.39 confirming that oil-fired and exhaust gas boilers, unfired steam generators, steam pipe systems and air pressure systems are fitted with the appropriate safety features (SOLAS 74/88 R.II-1/32, 33 and 34);
- (CI) 6.1.3.40 confirming the operation of the ventilation for the machinery spaces (SOLAS 74/88 R.II-1/35);
- (CI) 6.1.3.41 confirming that the measures to prevent noise in machinery spaces are effective (SOLAS 74/88 R.II-1/36);
- (CI) 6.1.3.42 confirming that the engine room telegraph giving visual indication of the orders and answers both in the machinery space and on the navigating bridge is operating satisfactorily (SOLAS 74/88, R.II-1/37);
- (CI) 6.1.3.43 confirming that the second means of communication between the navigation bridge and machinery space is also operating satisfactorily and that appropriate means are provided to any other positions from which the engines are controlled (SOLAS 74/88 R.II-1/37);
- (CI) 6.1.3.44 confirming that the engineer's alarm is clearly audible in the engineers' accommodation (SOLAS 74/88 R.II-1/38);
- (CI) 6.1.3.45 confirming that precautions, taken to prevent any oil that may escape under pressure from any pump, filter or heater from coming into contact with heated surfaces, are efficient;
- (CI) 6.1.3.46 confirming that the means of ascertaining the amount of oil contained in any oil tank are in good working condition;
- (CI) 6.1.3.47 confirming that the devices provided to prevent overpressure in any oil tank or in any part of the oil system, including the filling pipes, are in good working condition;
- (CI) 6.1.3.48 confirming that forepeak tanks are not intended for carriage of oil fuel, lubrication oil and other flammable oils;
- (CI) 6.1.3.49 confirming that the electrical installations, including the main source of power and lighting systems, are installed in accordance with the approved plans (SOLAS 74/88 R.II-1/40 and 41);
- (CI) 6.1.3.50 confirming that a self-contained emergency source of electrical power has been provided and that the appropriate systems are satisfactorily supplied (SOLAS 74/88 R.II-1/43);
- (CI) 6.1.3.51 confirming that starting arrangements of each emergency generating set are satisfactory (SOLAS 74/88 R.II-1/44);

- (CI) 6.1.3.52 confirming that precautions have been provided against shock, fire and other hazards of electrical origin (SOLAS 74/88 R.II-1/45);
- (CI) 6.1.3.53 confirming that the arrangements for periodically unattended machinery spaces are satisfactory (SOLAS 74/88 Rs.II-1/46 to 53) and in particular:
  - (CI) 6.1.3.53.1 checking the fire precautions and testing alarms, as appropriate;
  - (CI) 6.1.3.53.2 checking the means for the protection against flooding;
  - (CI) 6.1.3.53.3 checking the means to control the propulsion from the navigating bridge;
  - (CI) 6.1.3.53.4 ensuring that a means of vocal communication between the main machinery control room or its control position, as appropriate, and the navigating bridge and engineer officer's accommodation is provided and is effective;
  - (CI) 6.1.3.53.5 checking that an alarm system is provided with random testing of functions;
  - (CI) 6.1.3.53.6 checking that means are provided to automatically shut down machinery or boiler operations in the event of serious malfunction and testing the alarms;
  - (CI) 6.1.3.53.7 ensuring that special requirements for the machinery, boiler and electrical installations, as appropriate, are provided;
- (CI) 6.1.3.54 confirming that all aspects of the structural fire protection, including the ventilation systems, are installed in accordance with the approved plans, testing the operation of the means of closing the main inlets and outlets of all ventilation systems and proving that the power ventilation is capable of being stopped from outside the space served (SOLAS 74/88 Rs.II-2/42 to 44, 46 to 50 and 52);
- (CI) 6.1.3.55 confirming that stairways and ladders are so arranged to provide a means of escape from all accommodation spaces and from spaces in which the crew is normally employed, other than machinery spaces, to the open deck and thence to the lifeboats and liferafts (SOLAS 74/88 R.II-2/45) and in particular that:
  - (CI) 6.1.3.55.1 at all levels of accommodation there are provided at least two widely separated means of escape from each restricted space or group of spaces;
  - (CI) 6.1.3.55.2 below the lowest open deck the main means of escape is a stairway (the second being a trunk or a stairway);
  - (CI) 6.1.3.55.3 above the lowest open deck the means of escape are stairways or doors to an open deck or a combination of them;
  - (CI) 6.1.3.55.4 the radiotelegraph station has direct access to the open deck or is provided with two means of access or egress, one of which is a porthole or window of sufficient size;
- (CI) 6.1.3.56 confirming that two widely separated means of escape and, when appropriate, a fire shelter from the lower part of the space, are provided from each machinery space of Category A and that suitable escape routes are provided from other machinery spaces (SOLAS 74/88 R.II-2/45);
- (CI) 6.1.3.57 examining the arrangements for gaseous fuel for domestic purposes (SOLAS 74/88 R.II-2/51).
- (CI) 6.1.4 For the hull, machinery and equipment of cargo ships for the additional requirements for oil tankers the survey during construction and after installation should consist of:
  - (CI) 6.1.4.1 confirming, when appropriate, that the main steering gear comprises the necessary two or more identical power units and the requisite arrangements to regain steering capability in the event of the prescribed single failure (SOLAS 74/88 R.II-1/29);
  - (CI) 6.1.4.2 confirming that a hull return system of distribution and earthed distribution system are not used (SOLAS 74/88 R.II-1/45);

- (CI) 6.1.4.3 confirming that all aspects of the location of spaces and the structural fire protection, including the special arrangements when the ship is a combination carrier, are in accordance with the approved plans (SOLAS 74/88 Rs.II-2/55 to 58);
- (CI) 6.1.4.4 confirming that permanent approved gastight lighting enclosures for illuminating cargo pump rooms, having adequate strength and not impairing the integrity and gastightness of the bulkheads or decks, are fitted in bulkheads and decks separating cargo pump rooms and other spaces;
- (CI) 6.1.4.5 confirming that all aspects of the cargo tank venting, cargo tank purging and gas -freeing and other ventilation arrangements are in accordance with the approved plans (SOLAS 74/88 R.II-2/59).
- (CI) 6.1.5 For the hull, machinery and equipment of cargo ships for the additional requirements for chemical tankers and gas carriers the survey during construction and after installation should consist of:
  - (CI) 6.1.5.1 the provisions of (CI) 6.1.4.1.
- (CI) 6.1.6 For the hull, machinery and equipment of cargo ships the check that the required documentation has been placed on board should consist of:
  - (CI) 6.1.6.1 confirming that the stability information and the damage control plans have been provided (SOLAS 74/88 Rs.II-1/22 and 23-1);
  - (CI) 6.1.6.2 confirming that the manoeuvring booklet has been provided and that the manoeuvring information has been displayed on the navigating bridge (SOLAS 74/88 R.II-1/28).
- (CI) 6.1.7 For the hull, machinery and equipment of cargo ships the completion of the initial survey should consist of:
  - (CI) 6.1.7.1 after a satisfactory survey, the Cargo Ship Safety Construction Certificate should be issued.
- (CA) 6.2 Annual surveys - see 4.2.
- (CA) 6.2.1 For the hull, machinery and equipment of cargo ships the examination of current certificates and other records should consist of:
  - (CA) 6.2.1.1 checking the validity, as appropriate, of the Cargo Ship Safety Equipment Certificate, the Cargo Ship Safety Radio Certificate and the Cargo Ship Safety Construction Certificate or the Cargo Ship Safety Certificate;
  - (CA) 6.2.1.2 checking the validity of the International Load Line Certificate or International Load Line Exemption Certificate;
  - (CA) 6.2.1.3 checking the validity of the International Oil Pollution Prevention Certificate;
  - (CA) 6.2.1.4 checking the certificates of class, if the ship is classed with a classification society;
  - (CA) 6.2.1.5 checking, when appropriate, the validity of the International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk or the Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk;
  - (CA) 6.2.1.6 checking, when appropriate, the validity of the International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk;
  - (CA) 6.2.1.7 checking, when appropriate, the validity of the International Pollution Prevention Certificate for the Carriage of Noxious Liquid Substances in Bulk;
  - (CA) 6.2.1.8 checking that the ship's complement complies with the Minimum Safe Manning Document (SOLAS 74/88 R.V/13(b));

- (CA) 6.2.1.9 checking that the master, officers and ratings are certificated as required by the STCW Convention;
- (CA) 6.2.1.10 checking whether any new equipment has been fitted and, if so, confirm that it has been approved before installation and that any changes are reflected in the appropriate certificate;
- (CA) 6.2.1.11 confirming that the stability information and the damage control plans are on board (SOLAS 74/88 Rs.II-1/22 and 23-1);
- (CA) 6.2.1.12 confirming that the manoeuvring booklet is on board and that the manoeuvring information is displayed on the navigating bridge (SOLAS 74/88 R.II-1/28);
- (CA) 6.2.1.13 checking by the log book entries that the testing and the emergency drills of the steering gear have been carried out (SOLAS 74/88 R.V/19);
- (CA) 6.2.1.14 checking that the routine surveys of the boilers and other pressure vessels, as determined by the Administration, have been carried out as required and that safety devices, such as the boiler safety valves, have been tested;
- (CA) 6.2.1.15 checking that, as appropriate, the hull and machinery has been presented for survey in accordance with the continuous survey scheme approved by the Administration or a classification society;
- (CA) 6.2.1.16 confirming, when appropriate, that a complete file of the enhanced survey reports and the Condition Evaluation Report are on board\*.
- (CA) 6.2.2 For the hull\*\*, machinery and equipment of cargo ships the annual survey should consist of:
  - (CA) 6.2.2.1 examining, in general and as far as can be seen, the hull and its closing appliances;
  - (CA) 6.2.2.2 examining the anchoring and mooring equipment as far as can be seen;
  - (CA) 6.2.2.3 examining the collision and the other watertight bulkheads as far as can be seen (SOLAS 74/88 Rs.II-1/11 and 14);
  - (CA) 6.2.2.4 examining and testing (locally and remotely) all the watertight doors in watertight bulkheads (SOLAS 74/88 R.II-1/18);
  - (CA) 6.2.2.5 examining each bilge pump and confirming that the bilge pumping system for each watertight compartment is satisfactory (SOLAS 74/88 R.II-1/21);
  - (CA) 6.2.2.6 confirming that the drainage from enclosed cargo spaces situated on the freeboard deck is satisfactory (SOLAS 74/88 R.II-1/21);
- \* See the Guidelines on the Enhanced Programme of Inspections During Surveys of Bulk Carriers and Oil Tankers (resolution A.744(18)).
- \*\* See also the Guidelines on the Enhanced Programme of Inspections During Surveys of Bulk Carriers (resolution A.744(18), annex A).
- (CA) 6.2.2.7 confirming that the machinery, boilers and other pressure vessels, associated piping systems and fittings are installed and protected as to reduce to a minimum any danger to persons on board, due regard being given to moving parts, hot surfaces and other hazards (SOLAS 74/88 Rs.II-1/26, 32, 33 and 34);
- (CA) 6.2.2.8 confirming that the normal operation of the propulsion machinery can be sustained or restored even though one of the essential auxiliaries becomes inoperative (SOLAS 74/88 R.II-1/26);
- (CA) 6.2.2.9 confirming that means are provided so that the machinery can be brought into operation from the dead ship condition without external aid (SOLAS 74/88 R.II-1/26);
- (CA) 6.2.2.10 carrying out a general examination of the machinery, the boilers, all steam, hydraulic, pneumatic and other systems and their associated fittings to see whether they are being

properly maintained and with particular attention to the fire and explosion hazards (SOLAS 74/88 Rs.II-1/26 and 27);

- (CA) 6.2.2.11 examining and testing the operation of main and auxiliary steering arrangements, including their associated equipment and control systems (SOLAS 74/88 R.II-1/29);
- (CA) 6.2.2.12 confirming that the means of communication between the navigation bridge and steering gear compartment and the means of indicating the angular position of the rudder are operating satisfactorily (SOLAS 74/88 R.II-1/29);
- (CA) 6.2.2.13 confirming that with ships having emergency steering positions there are means of relaying heading information and, when appropriate, supply visual compass readings to the emergency steering position (SOLAS 74/88 Rs.II-1/29 and V/12);
- (CA) 6.2.2.14 confirming that the various alarms required for hydraulic power-operated, electric and electro-hydraulic steering gears are operating satisfactorily and that the re-charging arrangements for hydraulic power-operated steering gears are being maintained (SOLAS 74/88 Rs.II-1/29 and 30);
- (CA) 6.2.2.15 examining the means for the operation of the main and auxiliary machinery essential for propulsion and the safety of the ship, including, when applicable, the means of remotely controlling the propulsion machinery from the navigating bridge and the arrangements to operate the main and other machinery from a machinery control room (SOLAS 74/88 R.II-1/31);
- (CA) 6.2.2.16 confirming the operation of the ventilation for the machinery spaces (SOLAS 74/88 R.II-1/35);
- (CA) 6.2.2.17 confirming that the measures to prevent noise in machinery spaces are effective (SOLAS 74/88 R.II-1/36);
- (CA) 6.2.2.18 confirming that the engine room telegraph, the second means of communication between the navigation bridge and the machinery space and the means of communication with any other positions from which the engines are controlled are operating satisfactorily (SOLAS 74/88 R.II-1/37);
- (CA) 6.2.2.19 confirming that the engineer's alarm is clearly audible in the engineers' accommodation (SOLAS 74/88 R.II-1/38);
- (CA) 6.2.2.20 examining, as far as practicable, visually and in operation, the electrical installations, including the main source of power and the lighting systems (SOLAS 74/88 Rs.II-1/40 and 41);
- (CA) 6.2.2.21 confirming, as far as practicable, the operation of the emergency source(s) of electrical power including their starting arrangements, the systems supplied and, when appropriate, their automatic operation (SOLAS 74/88 Rs.II-1/43 and 44);
- (CA) 6.2.2.22 examining, in general, that the precautions provided against shock, fire and other hazards of electrical origin are being maintained (SOLAS 74/88 R.II-1/45);
- (CA) 6.2.2.23 examining the arrangements for periodically unattended machinery spaces (SOLAS 74/88 Rs.II-1/46 to 53) and, in particular, the random testing of alarm, automatic and shutdown functions;
- (CA) 6.2.2.24 confirming, as far as practicable, that no changes have been made in the structural fire protection, examining any manual and automatic fire doors and proving their operation, testing the means of closing the main inlets and outlets of all ventilation systems and testing the means of stopping power ventilation systems from outside the space served (SOLAS 74/88 Rs.II-2/42 to 44, 46 to 50 and 52);
- (CA) 6.2.2.25 confirming that the means of escape from accommodation, machinery and other spaces are satisfactory (SOLAS 74/88 R.II-2/45);

- (CA) 6.2.2.26 examining the arrangements for gaseous fuel for domestic purposes (SOLAS 74/88 R.II-2/51);
- (CA) 6.2.2.27 examining visually the condition of any expansion joints in sea water systems.
- (CA) 6.2.3 For the hull\*, machinery and equipment of cargo ships for the additional requirements for oil tankers the annual survey should consist of:
  - (CA) 6.2.3.1 confirming, when appropriate, that the requisite arrangements to regain steering capability in the event of the prescribed single failure are being maintained (SOLAS 74/88 R.II-1/29);
  - (CA) 6.2.3.2 examining the cargo tank openings, including gaskets, covers, coamings and screens;
  - (CA) 6.2.3.3 examining the cargo tank pressure/vacuum valves and devices to prevent the passage of flame;
  - (CA) 6.2.3.4 examining the devices to prevent the passage of flame on vents to all bunker, oily-ballast and oily-slop tanks and void spaces, as far as practicable;
- \* See also the Guidelines on the Enhanced Programme of Inspections During Surveys of Oil Tankers (resolution A.744(18), annex B).
- (CA) 6.2.3.5 examining the cargo tank venting, cargo tank purging and gas-freeing and other ventilation systems (SOLAS 74/88 R.II-2/59);
- (CA) 6.2.3.6 examining the cargo, crude oil washing, ballast and stripping systems both on deck and in the cargo pump rooms and the bunker system on deck;
- (CA) 6.2.3.7 confirming that all electrical equipment in dangerous zones is suitable for such locations, is in good condition and is being properly maintained;
- (CA) 6.2.3.8 confirming that potential sources of ignition in or near the cargo pump room are eliminated, such as loose gear, combustible materials, etc., that there are no signs of undue leakage and that access ladders are in good condition;
- (CA) 6.2.3.9 examining all pump room bulkheads for signs of oil leakage or fractures and, in particular, the sealing arrangements of all penetrations of cargo pump room bulkheads;
- (CA) 6.2.3.10 examining, as far as practicable, the cargo, bilge, ballast and stripping pumps for undue gland seal leakage, verification of proper operation of electrical and mechanical remote operating and shutdown devices and operation of cargo pump room bilge system, and checking that pump foundations are intact;
- (CA) 6.2.3.11 confirming that the pump room ventilation system is operational, ducting intact, dampers are operational and screens clean;
- (CA) 6.2.3.12 verifying that installed pressure gauges on cargo discharge lines and level indicator systems are operational.
- (CA) 6.2.4 For the hull, machinery and equipment of cargo ships for the additional requirements for chemical tankers and gas carriers the annual survey should consist of:
  - (CA) 6.2.4.1 the provisions of (CA) 6.2.3.1.
- (CA) 6.2.5 For the hull, machinery and equipment of cargo ships the completion of the annual survey should consist of:
  - (CA) 6.2.5.1 after a satisfactory survey, the Cargo Ship Safety Construction Certificate should be endorsed;
  - (CA) 6.2.5.2 if a survey shows that the condition of a ship or its equipment is unsatisfactory, see 4.8.
- (CIn) 6.3 Intermediate surveys - see 4.3

- (CIn) 6.3.1 For the hull, machinery and equipment of cargo ships the examination of current certificates and other records should consist of:
  - (CIn) 6.3.1.1 the provisions of (CA) 6.2.1.
- (CIn) 6.3.2 For the hull, machinery and equipment of cargo ships the intermediate survey should consist of:
  - (CIn) 6.3.2.1 the provisions of (CA) 6.2.2;
  - (CIn) 6.3.2.2 for ships over 5 years of age, an internal examination of representative spaces used for water ballast;
  - (CIn) 6.3.2.3 for ships over 10 years of age, other than ships engaged in the carriage of dry cargoes only, an internal examination of selected cargo spaces;
  - (CIn) 6.3.2.4 for ships over 15 years of age, engaged in the carriage of dry cargoes only, an internal examination of selected cargo spaces.
- (CIn) 6.3.3 For the hull, machinery and equipment of cargo ships for the additional requirements for oil tankers the intermediate survey should consist of:
  - (CIn) 6.3.3.1 the provisions of (CA) 6.2.3;
  - (CIn) 6.3.3.2 should there be any doubt as to its condition when examining the various piping systems, the piping may be required to be pressure tested, gauged or both. Particular attention is to be paid to repairs such as welded doublers;
  - (CIn) 6.3.3.3 for ships over ten years of age an internal examination of selected cargo spaces;
  - (CIn) 6.3.3.4 testing the insulation resistance of electrical circuits in dangerous zones such as cargo pump rooms and areas adjacent to cargo tanks but in cases where a proper record of testing is maintained consideration should be given to accepting recent readings.
- (CIn) 6.3.4 For the hull, machinery and equipment of cargo ships for the additional requirements for chemical tankers and gas carriers the intermediate survey should consist of:
  - (CIn) 6.3.4.1 the provisions of (CA) 6.2.3.1.
- (CIn) 6.3.5 For the hull, machinery and equipment of cargo ships the completion of the intermediate survey should consist of:
  - (CIn) 6.3.5.1 after a satisfactory survey, the Cargo Ship Safety Construction Certificate should be endorsed;
  - (CIn) 6.3.5.2 if a survey shows that the condition of a ship or its equipment is unsatisfactory, see 4.8.
- (CR) 6.4 Renewal surveys - see 4.5
  - (CR) 6.4.1 For the hull, machinery and equipment of cargo ships the examination of current certificates and other records should consist of:
    - (CR) 6.4.1.1 the provisions of (CA) 6.2.1, except for the validity of the Cargo Ship Safety Construction Certificate.
  - (CR) 6.4.2 For the hull, machinery and equipment of cargo ships the renewal survey should consist of:
    - (CR) 6.4.2.1 the provisions of (CIn) 6.3.2;
    - (CR) 6.4.2.2 examination of sea valves and their connections to the hull;
    - (CR) 6.4.2.3 examination of anchoring and mooring equipment for which purpose the anchors should be lowered and raised using the windlass.
  - (CR) 6.4.3 For the hull, machinery and equipment of cargo ships for the additional requirements for oil tankers the renewal survey should consist of:

- (CR) 6.4.3.1 the provisions of (CIn) 6.3.3.
- (CR) 6.4.4 For the hull, machinery and equipment of cargo ships for the additional requirements for chemical tankers and gas carriers the renewal survey should consist of:
- (CR) 6.4.4.1 the provisions of (CA) 6.2.3.1.
- (CR) 6.4.5 For the hull, machinery and equipment of cargo ships the completion of the renewal survey should consist of:
- (CR) 6.4.5.1 after a satisfactory survey, the Cargo Ship Safety Construction Certificate should be issued.
- (B) 7 GUIDELINES FOR THE INSPECTION OF THE OUTSIDE OF THE SHIP'S BOTTOM OF CARGO SHIPS

- (CB) 7.1 For the inspection of the outside of the ship's bottom of cargo ships the inspection should consist of:
- (CB) 7.1.1 examination of the ship's shell including bottom and bow plating, keel, bilge keels, stem, stern frame and rudder;
- (CB) 7.1.2 noting the clearances measured in the rudder bearings;
- (CB) 7.1.3 examination of the propeller and shaft seals, as far as practicable;
- (CB) 7.1.4 noting the clearance measured in the propeller shafts, as far as practicable;
- (CB) 7.1.5 examination of sea chests and strainers;
- (CB) 7.1.6 the survey of related items inspected at the same time (see 15.1).
- (CB) 7.2 For the inspection of the outside of the ship's bottom of cargo ships the completion of the inspection should consist of:
- (CB) 7.2.1 after a satisfactory survey, the Cargo Ship Safety Construction Certificate should be endorsed;
- (CB) 7.2.2 if a survey shows that the condition of a ship or its equipment is unsatisfactory, see 4.8.
- (R) 8 GUIDELINES FOR SURVEYS FOR THE CARGO SHIP SAFETY RADIO CERTIFICATE

Prior to undertaking the survey it will be necessary to establish whether the ship is complying with the requirements of SOLAS 1974, as amended by the 1988 GMDSS amendments or SOLAS 1974 as amended in 1981 and 1983. Guidelines for the survey of GMDSS ships are given in section 8a, those for non-GMDSS ships in section 8b. All ships constructed on or after 1 February 1995 should comply with the requirements of SOLAS 74/88 as amended by the 1988 GMDSS amendments. Unless otherwise stated, all references to regulations in SOLAS Chapter IV for section 8a relate to the text in force on and after 1 February 1992, references to regulations in SOLAS chapter IV for section 8b relate to the text in force prior to 1 February 1992.

The radio survey should always be performed by a fully qualified radio surveyor, who has adequate knowledge of the IMO's relevant Conventions, particularly SOLAS and associated performance standards, and the appropriate ITU Radio Regulations.

The radio survey should be carried out using suitable test equipment capable of performing all the relevant measurements required by these guidelines.

- (R) 8a GMDSS SHIPS
- (RI) 8a.1 Initial surveys - see 4.1
- (RI) 8a.1.1 For the radio installations, including those used in life-saving appliances, of cargo ships the examination of plans and designs should consist of:
- (RI) 8a.1.1.1 establishing the sea areas declared for operation, the equipment installed to fulfil the functional requirements for the sea areas of operation, the methods adopted to ensure the



availability of the functional requirements and the arrangements for supply of an emergency source of energy (if any) (SOLAS 74/88 Rs. II-1/43 and IV/1 to 15);

- (RI) 8a.1.1.2 establishing which radio equipment is to be surveyed and, if duplication of equipment is used as a means of ensuring the availability of the functional requirements, establishing which is the "basic equipment" and which the "duplicated equipment" (SOLAS 74/88 R.IV/15) (Additional radiocommunications equipment provided other than for SOLAS compliance should be noted);
- (RI) 8a.1.1.3 confirming all SOLAS equipment complies with appropriate performance standards not inferior to those adopted by IMO (SOLAS 74/88 R.IV/14);
- (RI) 8a.1.1.4 examining the plans for the provision and positioning of the radio installation including sources of energy and antennas (SOLAS 74/88 Rs.II-1/43, IV/6 and 14);
- (RI) 8a.1.1.5 examining the plans for the provision and positioning of the radio life-saving appliances (SOLAS 74/88 R.III/6).
- (RI) 8a.1.2 For the radio installations, including radio life-saving appliances, of cargo ships the survey during construction and after installation should consist of:
  - (RI) 8a.1.2.1 examining the position, physical and electromagnetic protection and illumination of each radio installation (SOLAS 74/88 R.IV/6);
  - (RI) 8a.1.2.2 confirming the provision of equipment for the radio installation with due regard to the declared sea areas in which the ship will trade and the declared means of maintaining availability of functional requirements (SOLAS 74/88 Rs.III/6, IV/7 to 11, 14 and 15);
  - (RI) 8a.1.2.3 confirming the ability to initiate the transmission of ship-to-shore distress alerts by at least two separate and independent means, each using a different radiocommunication service, from the position from which the ship is normally navigated (SOLAS 74/88 Rs.IV/4, 7 to 11);
  - (RI) 8a.1.2.4 examining all antennas, including:
    - (RI) 8a.1.2.4.1 visually checking all antennas, including INMARSAT antennas, and feeders for satisfactory siting and absence of defects (SOLAS 74/88 R.IV/14);
    - (RI) 8a.1.2.4.2 checking insulation and safety of all antennas;
  - (RI) 8a.1.2.5 examining the reserve source of energy, including:
    - (RI) 8a.1.2.5.1 checking there is sufficient capacity to operate the basic or duplicated equipment for 1 hour or 6 hours, as appropriate (SOLAS 74/88 R.IV/13);
    - (RI) 8a.1.2.5.2 and if the reserve source of energy is a battery:
      - (RI) 8a.1.2.5.2.1 checking its siting and installation (SOLAS 74/88 R.IV/13);
      - (RI) 8a.1.2.5.2.2 where appropriate, checking its condition by specific gravity measurement or voltage measurement;
      - (RI) 8a.1.2.5.2.3 with the battery off charge, and the maximum required radio installation load connected to the reserve source of energy, checking the battery voltage and discharge current;
      - (RI) 8a.1.2.5.2.4 checking that the charger(s) are capable of re-charging the reserve battery within 10 hours (SOLAS 74/88 R.IV/13);
  - (RI) 8a.1.2.6 examining the VHF transceiver(s), including:
    - (RI) 8a.1.2.6.1 checking for operation on channels 6, 13 and 16 (SOLAS 74/88 Rs.IV/7 and 14);

- (RI) 8a.1.2.6.2 checking frequency tolerance, transmission line quality and radio frequency power output (SOLAS 74/88 R.IV/14);
- (RI) 8a.1.2.6.3 checking for correct operation of all controls including priority of control units (SOLAS 74/88 R.IV/14);
- (RI) 8a.1.2.6.4 checking that the equipment operates from the main, emergency (if provided) and reserve sources of energy (SOLAS 74/88 R.IV/13);
- (RI) 8a.1.2.6.5 checking the operation of the VHF control unit(s) or portable VHF equipment provided for navigational safety (SOLAS 74/88 R.IV/6);
- (RI) 8a.1.2.6.6 checking for correct operation by on-air contact with a coast station or other ship;
- (RI) 8a.1.2.7 examining the VHF DSC controller and channel 70 DSC watch receiver, including:
  - (RI) 8a.1.2.7.1 performing an off-air check confirming the correct Maritime Mobile Service Identity is programmed in the equipment (SOLAS 74/88 R.IV/14);
  - (RI) 8a.1.2.7.2 checking for correct transmission by means of a routine or test call to a coast station, other ship, on-board duplicate equipment or special test equipment;
  - (RI) 8a.1.2.7.3 checking for correct reception by means of a routine or test call from a coast station, other ship, on-board duplicate equipment or special test equipment;
  - (RI) 8a.1.2.7.4 checking the audibility of the VHF/DSC alarm;
  - (RI) 8a.1.2.7.5 checking that the equipment operates from the main, emergency (if provided) and reserve sources of energy (SOLAS 74/88 R.IV/13);
- (RI) 8a.1.2.8 examining the MF/HF radiotelephone equipment, including:
  - (RI) 8a.1.2.8.1 checking that the equipment operates from the main, emergency (if provided) and reserve sources of energy (SOLAS 74/88 R.IV/13);
  - (RI) 8a.1.2.8.2 checking the antenna tuning in all appropriate bands;
  - (RI) 8a.1.2.8.3 checking the equipment is within frequency tolerance on all appropriate bands (SOLAS 74/88 R.IV/14);
  - (RI) 8a.1.2.8.4 checking for correct operation by contact with a coast station and/or measuring transmission line quality and radio frequency output;
  - (RI) 8a.1.2.8.5 checking receiver performance by monitoring known stations on all appropriate bands;
  - (RI) 8a.1.2.8.6 if control units are provided outside the navigating bridge, checking the control unit on the bridge has first priority for the purpose of initiating distress alerts (SOLAS 74/88 Rs.IV/9, 10, 11 and 14);
  - (RI) 8a.1.2.8.7 checking the correct operation of the radiotelephone alarm signal generating device on a frequency other than 2,182 kHz;
- (RI) 8a.1.2.9 examining the HF radiotelex equipment, including:
  - (RI) 8a.1.2.9.1 checking that the equipment operates from the main, emergency (if provided) and reserve sources of energy (SOLAS 74/88 R.IV/13);
  - (RI) 8a.1.2.9.2 confirming that the correct selective calling number is programmed in the equipment;
  - (RI) 8a.1.2.9.3 checking correct operation by inspection of recent hard copy or by a test with a coast radio station (SOLAS 74/88 Rs.IV/10 and 11);
- (RI) 8a.1.2.10 examining the MF/HF DSC controller(s), including:

- (RI) 8a.1.2.10.1 checking that the equipment operates from the main, emergency (if provided) and reserve sources of energy (SOLAS 74/88 R.IV/13);
- (RI) 8a.1.2.10.2 confirming that the correct Maritime Mobile Service Identity is programmed in the equipment;
- (RI) 8a.1.2.10.3 checking the off-air self test programme;
- (RI) 8a.1.2.10.4 checking operation by means of a test call on MF and/or HF to a coast radio station if the rules of the berth permit the use of MF/HF transmissions (SOLAS 74/88 Rs.IV/9, 10 and 11);
- (RI) 8a.1.2.10.5 checking the audibility of the MF/HF DSC alarm;
- (RI) 8a.1.2.11 examining the MF/HF DSC watch receiver(s), including:
  - (RI) 8a.1.2.11.1 confirming that only distress and safety DSC frequencies are being monitored (SOLAS 74/88 Rs.IV/9 to 12);
  - (RI) 8a.1.2.11.2 checking that a continuous watch is being maintained whilst keying MF/HF radio transmitters (SOLAS 74/88 R.IV/12);
  - (RI) 8a.1.2.11.3 checking for correct operation by means of a test call from a coast station or other ship;
- (RI) 8a.1.2.12 examining the radiotelephone distress frequency watch receiver (SOLAS Rs.IV/7 and 14), including:
  - (RI) 8a.1.2.12.1 checking the mute/demute function;
  - (RI) 8a.1.2.12.2 checking receiver sensitivity against known stations;
  - (RI) 8a.1.2.12.3 checking the audibility of the loudspeaker;
- (RI) 8a.1.2.13 examining the INMARSAT Ship Earth Station(s), including:
  - (RI) 8a.1.2.13.1 checking that the equipment operates from the main, emergency (if provided) and reserve sources of energy, and that where an uninterrupted supply of information from the ship's navigational or other equipment is required ensuring such information remains available in the event of failure of the ship's main or emergency source of electrical power. (SOLAS 74/88 Rs.IV/13 and 14);
  - (RI) 8a.1.2.13.2 checking the distress function by means of an approved test procedure where possible (SOLAS 74/88 Rs. IV/10, 12 and 14);
  - (RI) 8a.1.2.13.3 checking for correct operation by inspection of recent hard copy or by test call;
- (RI) 8a.1.2.14 if appropriate, examining the NAVTEX equipment (SOLAS 74/88 Rs.IV/7, 12 and 14), including:
  - (RI) 8a.1.2.14.1 checking for correct operation by monitoring incoming messages or inspecting recent hard copy;
  - (RI) 8a.1.2.14.2 running the self-test programme if provided;
- (RI) 8a.1.2.15 examining the Enhanced Group Call equipment (SOLAS 74/88 Rs.IV/7 and 14), including:
  - (RI) 8a.1.2.15.1 checking for correct operation and area by monitoring incoming messages or by inspecting recent hard copy;
  - (RI) 8a.1.2.15.2 running the self-test programme if provided;
- (RI) 8a.1.2.16 if appropriate, examining the radio equipment for receipt of maritime safety information by HF NBDP (SOLAS 74/88 Rs.IV/7, 12

and 14) including:

(RI) 8a.1.2.16.1 checking for correct operation by monitoring incoming messages or inspecting recent hard copy;

(RI) 8a.1.2.16.2 running the self-test programme if provided;

(RI) 8a.1.2.17 examining the 406 MHz satellite EPIRB (SOLAS 74/88 Rs.IV/7 and 14), including:

(RI) 8a.1.2.17.1 checking position and mounting for float free operation;

(RI) 8a.1.2.17.2 carrying out visual inspection for defects;

(RI) 8a.1.2.17.3 carrying out the self-test routine;

(RI) 8a.1.2.17.4 checking that the EPIRB ID is clearly marked on the outside of the equipment and, where possible, decoding the EPIRB identity number confirming it is correct;

(RI) 8a.1.2.17.5 checking the battery expiry date;

(RI) 8a.1.2.17.6 if provided, checking the hydrostatic release and its expiry date;

(RI) 8a.1.2.18 examining the INMARSAT 1.6 GHz satellite EPIRB (SOLAS 74/88 Rs.IV/7 and 14);

(To be developed in due course when operational experience has been gained with this new equipment)

(RI) 8a.1.2.19 examining the VHF DSC EPIRB (SOLAS 74/88 Rs.IV/8 and 14);

(To be developed in due course when operational experience has been gained with this new equipment)

(RI) 8a.1.2.20 examining the two-way VHF radiotelephone apparatus (SOLAS 74/88 R.III/6), including:

(RI) 8a.1.2.20.1 checking for correct operation on Channel 16 and one other by testing with another fixed or portable VHF installation (SOLAS 74/88 R.IV/14);

(RI) 8a.1.2.20.2 checking the battery charging arrangements where re-chargeable batteries are used (SOLAS 74/88 R.IV/14);

(RI) 8a.1.2.20.3 checking the expiry date of primary batteries where used (SOLAS 74/88 R.IV/14);

(RI) 8a.1.2.20.4 where appropriate, checking any fixed installation provided in a survival craft (SOLAS 74/88 R.IV/14);

(RI) 8a.1.2.21 examining the radar transponder(s) (SOLAS 74/88 Rs.III/6, IV/7 and 14), including:

(RI) 8a.1.2.21.1 checking the position and mounting;

(RI) 8a.1.2.21.2 monitoring response on ship's 9 GHz radar;

(RI) 8a.1.2.21.3 checking the battery expiry date;

(RI) 8a.1.2.22 examining the test equipment and spares carried to ensure carriage is adequate in accordance with the sea areas in which the ship trades and the declared options for maintaining availability of the functional requirements (SOLAS 74/88 R.IV/15).

(RI) 8a.1.3 For the radio installations, including those used in life-saving appliances, the check that documentation, etc., has been placed on board should consist of:

(RI) 8a.1.3.1 checking for a valid radio licence issued by the flag Administration (ITU RR Art.24);

- (RI) 8a.1.3.2 checking the radio operator's certificates of competence (SOLAS 74/88 R.IV/16 and ITU RR Art.56);
- (RI) 8a.1.3.3 checking the radio record (log) (SOLAS 74/88 R.IV/17 and ITU RR App.11);
- (RI) 8a.1.3.4 checking the carriage of up-to-date ITU publications (ITU RR App.11);
- (RI) 8a.1.3.5 checking the carriage of operating manuals for all equipment (SOLAS 74/88 R.IV/15);
- (RI) 8a.1.3.6 checking the carriage of service manuals for all equipment when at-sea maintenance is the declared option (SOLAS 74/88 R.IV/15).
- (RI) 8a.1.4 For the radio installations, including those used in life-saving appliances, of cargo ships the completion of the initial survey should consist of:
  - (RI) 8a.1.4.1 the surveyor preparing and forwarding a report of survey, indicating clearly the organisation he represents, to the relevant authorities detailing results of the survey and recording omissions and deficiencies who, if satisfied, should issue a Cargo Ship Safety Radio Certificate and the associated Record of Equipment (form R).
- (RP) 8a.2 Periodical surveys - see 4.4
- (RP) 8a.2.1 For radio installations, including radio life-saving appliances, on cargo ships the examination of current certificates and other records should consist of:
  - (RP) 8a.2.1.1 checking the validity, as appropriate, of the Cargo Ship Safety Equipment Certificate, the Cargo Ship Safety Radio Certificate and the Cargo Ship Safety Construction Certificate or the Cargo Ship Safety Certificate;
  - (RP) 8a.2.1.2 checking the validity of the International Load Line Certificate or International Load Line Exemption Certificate;
  - (RP) 8a.2.1.3 checking the validity of the International Oil Pollution Prevention Certificate;
  - (RP) 8a.2.1.4 checking the certificates of class, if the ship is classed with a classification society;
  - (RP) 8a.2.1.5 checking, where appropriate, the validity of the International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk or the Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk;
  - (RP) 8a.2.1.6 checking, when appropriate, the validity of the International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk;
  - (RP) 8a.2.1.7 checking, when appropriate, the validity of the International Pollution Prevention Certificate for the Carriage of Noxious Liquid Substances in Bulk;
  - (RP) 8a.2.1.8 checking that the ship's complement complies with the Minimum Safe Manning Document (SOLAS 74/88 R.V/13(b));
  - (RP) 8a.2.1.9 checking that the master, officers and ratings are certificated as required by the STCW Convention;
  - (RP) 8a.2.1.10 confirming that any new equipment has been properly approved before installation and that no changes have been made such as would affect the validity of the certificate;
  - (RP) 8a.2.1.11 confirming that a record has been kept in the period since the last survey to the satisfaction of the Administration and as required by the Radio Regulations (SOLAS 74/88 R.IV/17);
  - (RP) 8a.2.1.12 checking documentary evidence that the actual capacity of the battery has been proved in port within the last 12 months (SOLAS 74/88 R.IV/13);
  - (RP) 8a.2.1.13 confirming that the provisions of (RI) 8a.1.3 have been met.

- (RP) 8a.2.2 For the radio installations, including those used in life-saving appliances, of cargo ships the periodical survey should consist of:
  - (RP) 8a.2.2.1 the provisions of (RI) 8a.1.2.
- (RP) 8a.2.3 For the radio installations, including those used in life-saving appliances, of cargo ships the completion of the periodical survey should consist of:
  - (RP) 8a.2.3.1 after a satisfactory survey, the Cargo Ship Safety Radio Certificate should be endorsed;
  - (RP) 8a.2.3.2 if a survey shows that the condition of a ship or its equipment is unsatisfactory, see 4.8.
- (RR) 8a.3 Renewal surveys - see 4.5
  - (RR) 8a.3.1 For the radio installations, including those used in life-saving appliances, of cargo ships the examination of current certificates and other records should consist of:
    - (RR) 8a.3.1.1 the provisions of (RP) 8a.2.1, except for the validity of the Cargo Ship Safety Radio Certificate.
  - (RR) 8a.3.2 For the radio installations, including those used in life-saving appliances, of cargo ships the renewal survey should consist of:
    - (RR) 8a.3.2.1 the provisions of (RI) 8a.1.2.
  - (RR) 8a.3.3 For the radio installations, including those used in life-saving appliances, of cargo ships the completion of the renewal survey should consist of:
    - (RR) 8a.3.3.1 after a satisfactory survey, the Cargo Ship Safety Radio Certificate should be issued as per the provisions of (RI) 8a.1.4.
- (R) 8b Non-GMDSS SHIPS
  - (RI) 8b.1 Initial surveys, see 4.1
    - (RI) 8b.1.1 For the radio installations, including those used in life-saving appliances, of cargo ships the examination of plans and designs should consist of:
      - (RI) 8b.1.1.1 establishing whether the ship's SOLAS tonnage requires the ship to be fitted with a radiotelegraph installation or a radiotelephone installation (SOLAS 74/88 text in force prior to 1 February 1992 Rs.IV/3, 4 and 5);
      - (RI) 8b.1.1.2 examining the plans for the provision and positioning of the radio installation including sources of energy and antennas (SOLAS 74/88 R.II-1/42 or SOLAS 74/88 text in force prior to 1 February 1992 Rs.IV/9 and 16);
      - (RI) 8b.1.1.3 examining the plans for the provision and positioning of the radio life-saving appliances (SOLAS 74/88 R.III/6).
    - (RI) 8b.1.2 For the radio installations, including radio life-saving appliances, on cargo ships the survey during construction and after installation should consist of the appropriate parts of the following requirements:
      - (RI) 8b.1.2.1 checking that the provision, position and protection of the radio installation is satisfactory, confirming that the ship's name and call sign are clearly displayed near the radio installation (SOLAS 74/88 text in force prior to 1 February 1992 Rs.IV/9 and 15);
      - (RI) 8b.1.2.2 examining all antennas, (SOLAS 74/88 text in force prior to 1 February 1992 Rs.IV/10 and 15) including:
        - (RI) 8b.1.2.2.1 performing a visual inspection of all antennas, feeders and protection against whipping;
        - (RI) 8b.1.2.2.2 checking insulation and safety;

- (RI) 8b.1.2.3 examining the reserve source of energy (SOLAS 74/88 text in force prior to 1 February 1992 Rs.IV/10 and 16), in particular, where batteries are used to provide the reserve source of energy, including:
  - (RI) 8b.1.2.3.1 checking the capacity of the reserve battery is sufficient to supply power for 6 hours (SOLAS 74/88 text in force prior to 1 February 1992 Rs IV/10 and 16);
  - (RI) 8b.1.2.3.2 making a visual check of batteries, charger(s), fuses and cabling;
  - (RI) 8b.1.2.3.3 checking the condition of the battery by means of a specific gravity test or voltage check, as appropriate;
  - (RI) 8b.1.2.3.4 with the battery off-charge and the maximum required load connected to the reserve supply, checking the battery voltage and current;
- (RI) 8b.1.2.4 examining the main transmitter (radiotelegraph) (SOLAS 74/88 text in force prior to 1 February 1992 R.IV/10), including:
  - (RI) 8b.1.2.4.1 checking the transmitter tunes on 500 kHz and on two working frequencies on main and reserve antennas;
  - (RI) 8b.1.2.4.2 checking the equipment is within frequency tolerance;
  - (RI) 8b.1.2.4.3 measuring the antenna current on 500 kHz on A2H and antenna height and calculating the range against the footnote to SOLAS 74/88 text in force prior to 1 February 1992 R.IV/10(g-1);
- (RI) 8b.1.2.5 examining the transmitter (radiotelephone) (SOLAS 74/88 text in force prior to 1 February 1992 R.IV/16), including:
  - (RI) 8b.1.2.5.1 checking the transmitter tunes on 2,182 kHz and at least one working frequency with adequate power output;
  - (RI) 8b.1.2.5.2 checking the equipment is within frequency tolerance;
  - (RI) 8b.1.2.5.3 checking modulation by means of a test, if possible, with a coast station;
  - (RI) 8b.1.2.5.4 checking the operation of the alarm signal generating device on a frequency other than 2,182 kHz using a suitable artificial antenna;
  - (RI) 8b.1.2.5.5 checking the card of instructions for the radiotelephone distress procedure;
- (RI) 8b.1.2.6 examining the reserve transmitter (radiotelegraph) (SOLAS 74/88 text in force prior to 1 February 1992 R.IV/10), in particular:
  - (RI) 8b.1.2.6.1 confirming the transmitter is operational from the reserve source of supply;
  - (RI) 8b.1.2.6.2 checking tuning on 500 kHz on A2H on both main and reserve antennas;
  - (RI) 8b.1.2.6.3 checking main antenna current and height and calculating range against the footnote to SOLAS 74/88 text in force prior to 1 February 1992 R.IV/10(g-1);
  - (RI) 8b.1.2.6.4 checking the equipment is within frequency tolerance;
- (RI) 8b.1.2.7 examining the automatic radiotelegraph alarm signal keying device (SOLAS 74/88 text in force prior to 1 February 1992 R.IV/10), including:
  - (RI) 8b.1.2.7.1 checking that the automatic keying device keys both main and reserve transmitters;
  - (RI) 8b.1.2.7.2 checking the timing of the automatic alarm signal;
  - (RI) 8b.1.2.7.3 if provided, checking that the device is programmed for the correct callsign;

- (RI) 8b.1.2.8 examining the radiotelegraph auto alarm (SOLAS 74/88 text in force prior to 1 February 1992 R.IV/11), including:
  - (RI) 8b.1.2.8.1 checking the correct operation using the built-in tester;
  - (RI) 8b.1.2.8.2 checking the receiver sensitivity against known stations;
  - (RI) 8b.1.2.8.3 checking the operation of the alarm bells in the bridge, radio room and radio officer's cabin;
- (RI) 8b.1.2.9 examining the Main and Reserve Receivers (SOLAS 74/88 text in force prior to 1 February 1992 Rs.IV/10 and 16), including:
  - (RI) 8b.1.2.9.1 checking the reserve receiver operates from the reserve source of energy;
  - (RI) 8b.1.2.9.2 checking the sensitivity of the receivers against known coast stations;
  - (RI) 8b.1.2.9.3 checking all controls for correct operation;
- (RI) 8b.1.2.10 examining the radiotelephone distress frequency watch receiver (SOLAS 74/88 text in force prior to 1 February 1992 Rs.IV/10 and 16), including:
  - (RI) 8b.1.2.10.1 checking the operation of the mute/demute;
  - (RI) 8b.1.2.10.2 checking the sensitivity of the receiver against known coast stations;
  - (RI) 8b.1.2.10.3 checking the audibility of the loudspeaker;
- (RI) 8b.1.2.11 examining the VHF radiotelephone installation (SOLAS 74/88 text in force prior to 1 February 1992 Rs.IV/4-1 and 17), including:
  - (RI) 8b.1.2.11.1 checking frequency tolerance, transmission line quality and radio frequency power output;
  - (RI) 8b.1.2.11.2 checking operation from a reserve source of energy;
  - (RI) 8b.1.2.11.3 checking the correct operation of all controls;
  - (RI) 8b.1.2.11.4 checking correct operation on channel 16 by testing with a coast station, other ship or other on-board VHF;
  - (RI) 8b.1.2.11.5 checking one VHF is controllable from the navigating bridge;
- (RI) 8b.1.2.12 examining the NAVTEX equipment, see (RI) 8a.1.2.14;
- (RI) 8b.1.2.13 examining the satellite EPIRB(s), see (RI) 8a.1.2.17 and/or 18;
- (RI) 8b.1.2.14 examining the two-way VHF radiotelephone apparatus (SOLAS 74/88 R.III/6), including:
  - (RI) 8b.1.2.14.1 checking for correct operation on channel 16 and one other by testing with another fixed or portable VHF installation (SOLAS 74/88 R.IV/14);
  - (RI) 8b.1.2.14.2 checking the battery charging arrangements where re-chargeable batteries are used (SOLAS 74/88 R.IV/14);
  - (RI) 8b.1.2.14.3 checking the expiry date of primary batteries where used (SOLAS 74/88 R.IV/14);
  - (RI) 8b.1.2.14.4 where appropriate, checking any fixed installation provided in a survival craft (SOLAS 74/88 R.IV/14);
- (RI) 8b.1.2.15 examining the radar transponder(s) (SOLAS 74/88 Rs.III/6, IV/7 and 14), including:
  - (RI) 8b.1.2.15.1 checking the position and mounting;
  - (RI) 8b.1.2.15.2 monitoring response on ship's 9 GHz radar;



- (RI) 8b.1.2.15.3 checking the battery expiry date;
- (RI) 8b.1.2.16 examining the provision of tools and spares (SOLAS 74/88 text in force prior to 1 February 1992 Rs.IV/9 and 16).
- (RI) 8b.1.3 For the radio installations, including those used in life-saving appliances, the check that certificates, etc., have been placed on board should consist of:
  - (RI) 8b.1.3.1 checking for a valid radio licence issued by the flag administration (ITU RR Art.24);
  - (RI) 8b.1.3.2 checking the radio operators' certificates of competence (ITU RR Art.55);
  - (RI) 8b.1.3.3 checking the radio log (SOLAS 74/88 text in force prior to 1 February 1992 R.IV/19 and ITU RR App.11);
  - (RI) 8b.1.3.4 checking the carriage of up-to-date ITU publications (ITU RR App.11);
  - (RI) 8b.1.3.5 checking the carriage of operating manuals for all equipment.
- (RI) 8b.1.4 For the radio installations, including those used in life-saving appliances, of cargo ships the completion of the initial survey should consist of:
  - (RI) 8b.1.4.1 the surveyor preparing and forwarding a report of survey, indicating clearly the organisation he represents, to the relevant authorities detailing results of the survey and recording omissions and deficiencies who, if satisfied, should issue a Cargo Ship Safety Radio Certificate and the associated Record of Equipment (Form R).
- (RP) 8b.2 Periodical surveys - see 4.4
- (RP) 8b.2.1 For radio installations, including radio Life Saving Appliances, on cargo ships the examination of current certificates and other records should consist of:
  - (RP) 8b.2.1.1 checking the validity, as appropriate, of the Cargo Ship Safety Equipment Certificate, the Cargo Ship Safety Radio Certificate and the Cargo Ship Safety Construction Certificate or the Cargo Ship Safety Certificate;
  - (RP) 8b.2.1.2 checking the validity of the International Load Line Certificate or International Load Line Exemption Certificate;
  - (RP) 8b.2.1.3 checking the validity of the International Oil Pollution Prevention Certificate;
  - (RP) 8b.2.1.4 checking the certificates of class, if the ship is classed with a classification society;
  - (RP) 8b.2.1.5 checking, where appropriate, the validity of the International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk or the Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk;
  - (RP) 8b.2.1.6 checking, when appropriate, the validity of the International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk;
  - (RP) 8b.2.1.7 checking, when appropriate, the validity of the International Pollution Prevention Certificate for the Carriage of Noxious Liquid Substances in Bulk;
  - (RP) 8b.2.1.8 checking that the ship's complement complies with the Minimum Safe Manning Document (SOLAS 74/88 R.V/13(b));
  - (RP) 8b.2.1.9 checking that the master, officers and ratings are certificated as required by the STCW Convention;
  - (RP) 8b.2.1.10 confirming that any new equipment has been properly approved before installation and that no changes have been made such as would affect the validity of the certificate;

- (RP) 8b.2.1.11 confirming that a log has been kept in the period since the last survey to the satisfaction of the Administration and as required by the Radio Regulations (SOLAS 74/88 text in force prior to 1 February 1992 R.IV/19);
- (RP) 8b.2.1.12 confirming that the provisions of (RI) 8b.1.3 have been met.
- (RP) 8b.2.2 For the radio installations, including those used in life-saving appliances, of cargo ships the periodical survey should consist of:
  - (RP) 8b.2.2.1 the provisions of (RI) 8b.1.2.
- (RP) 8b.2.3 For the radio installations, including those used in life-saving appliances, of cargo ships the completion of the periodical survey should consist of:
  - (RP) 8b.2.3.1 after a satisfactory survey, the Cargo Ship Safety Radio Certificate should be endorsed;
  - (RP) 8b.2.3.2 if a survey shows that the condition of a ship or its equipment is unsatisfactory, see 4.8.
- (RR) 8b.3 Renewal surveys - see 4.5
- (RR) 8b.3.1 For the radio installations, including those used in life-saving appliances, of cargo ships the examination of current certificates and other records should consist of:
  - (RR) 8b.3.1.1 the provisions of (RP) 8b.2.1, except for the validity of the Cargo Ship Safety Radio Certificate.
- (RR) 8b.3.2 For the radio installations, including those used in life-saving appliances, of cargo ships the renewal survey should consist of:
  - (RR) 8b.3.2.1 the provisions of (RI) 8b.1.2.
- (RR) 8b.3.3 For the radio installations, including those used in life-saving appliances, of cargo ships the completion of the renewal survey should consist of:
  - (RR) 8b.3.3.1 after a satisfactory survey, the Cargo Ship Safety Radio Certificate should be issued as per the provisions of (RI) 8b.1.4.
- (L) 9 GUIDELINES FOR SURVEYS FOR THE INTERNATIONAL LOAD LINE CERTIFICATE OR INTERNATIONAL LOAD LINE EXEMPTION CERTIFICATE
- (L) 9.1 Initial surveys - see 4.1
- (L) 9.1.1 For the load line the examination of plans and designs should consist of:
  - (L) 9.1.1.1 examining the structural strength at the draft corresponding to the assigned freeboard (LLC 66/88 R.1);
  - (L) 9.1.1.2 examining the intact stability and, where applicable, the damaged stability information and the loading and ballasting information that is to be supplied to the master (LLC 66/88 R.10);
  - (L) 9.1.1.3 determining the freeboard, including specifying and the consideration of the conditions of assignment for the freeboard (LLC 66/88 Rs.11 to 45).
- (L) 9.1.2 For the load line the survey during construction and after installation should consist of:
  - (L) 9.1.2.1 checking that, as far as its strength, the ship has been constructed in accordance with the approved plans (LLC 66/88 R.1);
  - (L) 9.1.2.2 confirming that the deck line and load line mark are properly positioned (LLC 66/88 Rs.4 to 9);
  - (L) 9.1.2.3 examining the superstructure end bulkheads and the openings therein (LLC 66/88 Rs.11 and 12);
  - (L) 9.1.2.4 examining the means of securing the weathertightness of cargo hatchways, other hatchways and other openings on the freeboard and superstructure decks (LLC 66/88 Rs. 13 to 18);

- (LI) 9.1.2.5 examining the ventilators and air pipes, including their coamings and closing appliances (LLC 66/88 Rs.19 and 20);
- (LI) 9.1.2.6 examining the watertight integrity of the closures to any openings in the ship's side below the freeboard deck (LLC 66/88 R.21);
- (LI) 9.1.2.7 examining the scuppers, inlets and discharges (LLC 66/88 R.22);
- (LI) 9.1.2.8 examining the side scuttles and deadlights (LLC 66/88 R.23);
- (LI) 9.1.2.9 examining the bulwarks including the provision of freeing ports, special attention being given to any freeing ports fitted with shutters (LLC 66/88 R.24);
- (LI) 9.1.2.10 examining the guardrails, gangways, walkways and other means provided for the protection of the crew and for gaining access to and from crew's quarters and working spaces (LLC 66/88 R.25);
- (LI) 9.1.2.11 examining, when applicable, the special requirements for ships permitted to sail with reduced freeboards (LLC 66/88 R.26);
- (LI) 9.1.2.12 checking, when applicable, of the fittings and appliances for timber deck cargoes (LLC 66/88 Rs.42 to 45).
- (LI) 9.1.3 For the load line the check that certificates, etc., have been placed on board should consist of:
  - (LI) 9.1.3.1 checking that the loading and ballasting information has been supplied to the master (LLC 66/88 R.10).
- (LI) 9.1.4 For the load line the completion of the initial survey should consist of:
  - (LI) 9.1.4.1 after a satisfactory survey, the International Load Line Certificate or International Load Line Exemption Certificate should be issued.
- (LA) 9.2 Annual surveys - see 4.2
- (LA) 9.2.1 For the load line the examination of current certificates and other records should consist of:
  - (LA) 9.2.1.1 checking the validity, as appropriate, of the Cargo Ship Safety Equipment Certificate, the Cargo Ship Safety Radio Certificate and the Cargo Ship Safety Construction Certificate or the Cargo Ship Safety Certificate;
  - (LA) 9.2.1.2 checking the validity of the International Load Line Certificate or International Load Line Exemption Certificate;
  - (LA) 9.2.1.3 checking the validity of the International Oil Pollution Prevention Certificate;
  - (LA) 9.2.1.4 checking the certificate of class, if the ship is classed with a classification society;
  - (LA) 9.2.1.5 checking, when appropriate, the validity of the International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk or the Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk;
  - (LA) 9.2.1.6 checking, when appropriate, the validity of the International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk;
  - (LA) 9.2.1.7 checking, when appropriate, the validity of the International Pollution Prevention Certificate for the Carriage of Noxious Liquid Substances in Bulk;
  - (LA) 9.2.1.8 checking that the ship's complement complies with the Minimum Safe Manning Document (SOLAS 74/88 R.V/13(b));
  - (LA) 9.2.1.9 checking that the master, officers and ratings are certificated as required by the STCW Convention;

- (LA) 9.2.1.10 checking whether any new equipment has been fitted and, if so, confirm that it has been approved before installation and that any changes are reflected in the appropriate certificate;
- (LA) 9.2.1.11 checking that the stability and, where applicable, the loading and ballasting information is available (LLC 66/88 R.10).
- (LA) 9.2.2 For the load line the annual survey should consist of:
  - (LA) 9.2.2.1 checking, in general, that there has been no deterioration in the strength of the hull (LLC 66/88 R.1);
  - (LA) 9.2.2.2 checking of the positions of the deck line and load line which, if necessary, are to be re-marked and re-painted (LLC 66/88 Rs.4 to 9);
  - (LA) 9.2.2.3 checking that no alterations have been made to the hull or superstructures that would affect the calculations determining the position of the load lines (LLC 66/88 Rs.11 to 45);
  - (LA) 9.2.2.4 examining the superstructure end bulkheads and the openings therein (LLC 66/88 Rs.11 and 12);
  - (LA) 9.2.2.5 examining the means of securing the weathertightness of cargo hatchways, other hatchways and other openings on the freeboard and superstructure decks (LLC 66/88 Rs. 13 to 18);
  - (LA) 9.2.2.6 examining the ventilators and air pipes, including their coamings and closing appliances (LLC 66/88 Rs.19 and 20);
  - (LA) 9.2.2.7 examining the watertight integrity of the closures to any openings in the ship's side below the freeboard deck (LLC 66/88 R.21);
  - (LA) 9.2.2.8 examining the scuppers, inlets and discharges (LLC 66/88 R.22);
  - (LA) 9.2.2.9 examining the side scuttles and deadlights (LLC 66/88 R.23);
  - (LA) 9.2.2.10 examining the bulwarks including the provision of freeing ports, special attention being given to any freeing ports fitted with shutters (LLC 66/88 R.24);
  - (LA) 9.2.2.11 examining the guardrails, gangways, walkways and other means provided for the protection of the crew and for gaining access to and from crew's quarters and working spaces (LLC 66/88 R.25);
  - (LA) 9.2.2.12 examining, when applicable, the special requirements for ships permitted to sail with reduced freeboards (LLC 66/88 R.26);
  - (LA) 9.2.2.13 checking, when applicable, the fittings and appliances for timber deck cargoes (LLC 66/88 Rs.42 to 45).
- (LA) 9.2.3 For the load line the completion of the annual survey should consist of:
  - (LA) 9.2.3.1 after a satisfactory survey, the International Load Line Certificate or International Load Line Exemption Certificate should be endorsed;
  - (LA) 9.2.3.2 if a survey shows that the condition of a ship or its equipment is unsatisfactory, see 4.8.
- (LR) 9.3 Renewal surveys - see 4.5
  - (LR) 9.3.1 For the load line the examination of current certificates and other records should consist of:
    - (LR) 9.3.1.1 the provisions of (LA) 9.2.1, except for the validity of the International Load Line Certificate or International Load Line Exemption Certificate.
  - (LR) 9.3.2 For the load line the renewal survey should consist of:
    - (LR) 9.3.2.1 the provisions of (LA) 9.2.2;

- (LR) 9.3.2.2 examining the hull to ensure that its strength is sufficient for the draft corresponding to the freeboard assigned (LLC 66/88 R.1).
- (LR) 9.3.3 For the load line the completion of the renewal survey should consist of:
  - (LR) 9.3.3.1 after a satisfactory survey, the International Load Line Certificate or International Load Line Exemption Certificate should be issued.
- (O) 10 GUIDELINES FOR SURVEYS FOR THE INTERNATIONAL OIL POLLUTION PREVENTION CERTIFICATE
- (OI) 10.1 Initial surveys - see 4.1
  - (OI) 10.1.1 For oil pollution prevention the examination of plans and designs should consist of:
    - (OI) 10.1.1.1 examining the arrangements for the control of the discharge of oil and examining the plans and designs of the oil discharge monitoring and control system and oily-water separating and oil filtering equipment (MARPOL 73/78/90 Ax.I Rs.9 and 16);
    - (OI) 10.1.1.2 examining the arrangements for operation in special areas (MARPOL 73/78/90 Ax.I R.10);
    - (OI) 10.1.1.3 examining the arrangements for the segregation of oil and water ballast and the carriage of oil in the forepeak tanks (MARPOL 73/78/90 Ax.I R.14);
    - (OI) 10.1.1.4 examining the sludge tank and standard discharge arrangements (MARPOL 73/78/90 Ax.I Rs.17 and 19).
  - (OI) 10.1.2 For the oil pollution prevention for the additional requirements for oil tankers the examination of plans and designs should consist of:
    - (OI) 10.1.2.1 examining the arrangements for the control of the discharge of oil and for the retention of oil on board (MARPOL 73/78/90 Ax.I Rs.9 and 15);
    - (OI) 10.1.2.2 examining the arrangements for operation in special areas (MARPOL 73/78/90 Ax.I R.10);
    - (OI) 10.1.2.3 examining the arrangements for the segregated ballast tanks, checking their capacity and ascertaining whether the draft and trim conditions will be met (MARPOL 73/78/90 Ax.I R.13);
    - (OI) 10.1.2.4 examining for the arrangements for crude oil washing, including shadow diagrams and the Operations and Equipment Manual, checking that an inert gas system is to be fitted (MARPOL 73/78/90 Ax.I Rs.13 and 13B);
    - (OI) 10.1.2.5 examining, as appropriate, the arrangements for the prevention of oil pollution in the event of collision or stranding (MARPOL 73/78/90 Ax.I R.13F);
    - (OI) 10.1.2.6 examining the protective location of the segregated ballast spaces and the arrangements for minimising pollution due to side and bottom damages (MARPOL 73/78/90 Ax.I Rs.13E and 22 to 25);
    - (OI) 10.1.2.7 examining the pumping, piping and discharge arrangements (MARPOL 73/78/90 Ax.I R.18);
    - (OI) 10.1.2.8 examining the shipboard oil pollution emergency plan (MARPOL 73/78/90 Ax.I R.26).
  - (OI) 10.1.3 For the oil pollution prevention the survey during construction and after installation should consist of:
    - (OI) 10.1.3.1 confirming the satisfactory installation and operation of, as appropriate, the oily-water separating equipment or the oily-water separating equipment fitted with either an oil discharge monitoring and control system (including the operation of the automatic and manual operation of the means provided to stop the

discharge of effluent) or oil filtering equipment (including the satisfactory operation of the alarm) or other installation (MARPOL 73/78/90 Ax.I Rs.9 and 16);

- (OI) 10.1.3.2 confirming, when applicable, that the oil content meter and its recording device are operable and that there is a sufficient supply of consumables for the recording device on board (MARPOL 73/78/90 Ax.I Rs.9 and 16);
- (OI) 10.1.3.3 testing, where fitted, the automatic stopping device required for discharges in Special Areas (MARPOL 73/78/90 Ax.I R.10);
- (OI) 10.1.3.4 confirming the segregation of the oil fuel and water ballast system (MARPOL 73/78/90 Ax.I R.14);
- (OI) 10.1.3.5 confirming that the oily residue (sludge) tank and its discharge arrangements are satisfactory and, when the size of the sludge tank is approved on the basis of such installations, confirming the satisfactory operation of homogenizers, sludge incinerators or other recognised means for the control of sludge (MARPOL 73/78/90 Ax.I R.17);
- (OI) 10.1.3.6 confirming the provision of the standard discharge connection (MARPOL 73/78/90 Ax.I R.19).
- (OI) 10.1.4 For the oil pollution prevention for the additional requirements for oil tankers the survey during construction and after installation should consist of:
  - (OI) 10.1.4.1 confirming that the arrangements of slop tanks or cargo tanks designated as slop tanks and associated piping systems are satisfactory (MARPOL 73/78/90 Ax.I Rs.9 and 15);
  - (OI) 10.1.4.2 confirming the satisfactory installation and operation of the oil discharge monitoring and control system, including any audible or visual alarms, the automatic and manual means to stop the discharge of effluent, the starting interlock and the accuracy of the flow meter (MARPOL 73/78/90 Ax.I Rs.9 and 15);
  - (OI) 10.1.4.3 confirming that the oil content meter and its recording device are operable and that there is a sufficient supply of consumables for the recording device on board (MARPOL 73/78/90 Ax.I Rs.9 and 15);
  - (OI) 10.1.4.4 confirming that the approved oil/water interface detectors are on board and are operational (MARPOL 73/78/90 Ax.I Rs.9 and 15);
  - (OI) 10.1.4.5 confirming that the arrangements of pumps, pipes and valves are in accordance with the requirements for segregated ballast systems and that there are no cross-connections between the cargo and segregated ballast systems (MARPOL 73/78/90 Ax.I R.13);
  - (OI) 10.1.4.6 where a portable spool piece is provided for the emergency discharge of segregated ballast by connecting the segregated ballast system to a cargo pump, confirming that non-return valves are fitted on the segregated ballast connections and that the spool piece is mounted in a conspicuous position in the pump room with a permanent notice restricting its use (MARPOL 73/78/90 Ax.I R.13);
  - (OI) 10.1.4.7 testing ballast pipelines that pass through cargo tanks and those cargo pipelines that pass through ballast tanks to ensure there is no cross contamination (MARPOL 73/78/90 Ax.I R.13);
  - (OI) 10.1.4.8 confirming that the crude oil washing system is installed in accordance with the approved plans (MARPOL 73/78/90 Ax.I R.13B) and, in particular:
    - (OI) 10.1.4.8.1 examining crude oil washing piping, pumps, valves and deck mounted washing machines for signs of leakage and to check that all anchoring devices for crude oil washing piping are intact and secure;
    - (OI) 10.1.4.8.2 carrying out pressure testing of the crude oil washing system to 1.5 times the working pressure;

- (OI) 10.1.4.8.3 confirming in those cases where drive units are not integral with the tank washing machines, that the number of operational drive units specified in the Manual are on board;
- (OI) 10.1.4.8.4 checking that, when fitted, steam heaters for water washing can be properly isolated during crude oil washing operations, either by double shut-off valves or by clearly identifiable blanks;
- (OI) 10.1.4.8.5 checking that the prescribed means of communications between the deck watchkeeper and the cargo control position is operational;
- (OI) 10.1.4.8.6 confirming that an overpressure relief device (or other approved arrangement) is fitted to the pumps supplying the crude oil washing system;
- (OI) 10.1.4.8.7 verifying that flexible hoses for supply of oil to the washing machines on combination carriers are of an approved type, are properly stored and are in good condition;
- (OI) 10.1.4.9 verifying the effectiveness of the crude oil washing system (MARPOL 73/78/90 Ax.I R.13B) and, in particular:
  - (OI) 10.1.4.9.1 checking tanks containing departure and/or arrival ballast water, as applicable, to confirm the effectiveness of the cleaning and stripping;
  - (OI) 10.1.4.9.2 checking that the crude oil washing machines are operable and to observe the proper operation of the washing machines by means of the movement indicators and/or sound patterns or other approved methods;
  - (OI) 10.1.4.9.3 checking the effectiveness of the stripping system in appropriate cargo tanks by observing the monitoring equipment and by hand-dipping or other approved means;
  - (OI) 10.1.4.9.4 verifying by internal tank inspection after crude oil washing that the installation and operational procedures laid down in the Operations and Equipment Manual are satisfactory;
- (OI) 10.1.4.10 confirming that, where there is a crude oil washing system, an inert gas system has been installed and tested in accordance with the requirements of SOLAS 74/88 (see (EI) 5.1.4.2);
- (OI) 10.1.4.11 confirming, as appropriate, that the arrangements for the prevention of oil pollution in the event of collision or stranding are in accordance with the approved plans (MARPOL 73/78/90 Ax.I R.13F);
- (OI) 10.1.4.12 confirming that the piping systems associated with the discharge of dirty ballast water or oil-contaminated water are satisfactory (MARPOL 73/78/90 Ax.I R.18);
- (OI) 10.1.4.13 confirming that the observation and discharge control positions for visually observing the discharge of oil-contaminated water, including the testing of the communication system between the two positions are satisfactory (MARPOL 73/78/90 Ax.I R.18);
- (OI) 10.1.4.14 confirming that the means of draining cargo pumps and cargo lines, including the provision of a stripping device and the connections for pumping to the slop or cargo tanks or ashore are satisfactory (MARPOL 73/78/90 Ax.I R.18);
- (OI) 10.1.4.15 confirming that the arrangements for the part flow system, where fitted, are satisfactory (MARPOL 73/78/90 Ax.I R.18);
- (OI) 10.1.4.16 confirming that closing devices installed in the cargo transfer system and cargo piping as appropriate are satisfactory (MARPOL 73/78/90 Ax.I R.24);
- (OI) 10.1.4.17 confirming that the subdivision and stability arrangements, in addition to the provision of 10.1.4.16, to prevent progressive flooding are satisfactory (MARPOL 73/78/90 Ax.I R.24).

- (OI) 10.1.5 For the oil pollution prevention the check that the documentation has been placed on board cargo ships should consist of:
  - (OI) 10.1.5.1 confirming that certificates for type approval of oil pollution prevention equipment, such as oily-water separating equipment, oil filtering equipment, process units, oil content meters are available (MARPOL 73/78/90 Ax.I R.16);
  - (OI) 10.1.5.2 confirming that the Oil Record Book (Part I) has been provided (MARPOL 73/78/90 Ax I R.20).
- (OI) 10.1.6 For the oil pollution prevention the check that the documentation has been placed on board oil tankers should additionally consist of:
  - (OI) 10.1.6.1 confirming that, if applicable, a Dedicated Clean Ballast Tank Operation Manual has been provided (MARPOL 73/78/90 Ax.I R.13A);
  - (OI) 10.1.6.2 confirming that, if applicable, a Crude Oil Washing Operations and Equipment Manual has been provided (MARPOL 73/78/90 Ax.I R.13B);
  - (OI) 10.1.6.3 confirming that an operations manual for the oil discharge monitoring and control system has been provided (MARPOL 73/78/90 Ax.I R.15);
  - (OI) 10.1.6.4 confirming that the certificates for the type approval of oil pollution prevention equipment, such as oily-water separating equipment, oil filtering equipment, process units, oil content meters, oil/water interface detectors have been provided (MARPOL 73/78/90 Ax.I Rs.15 and 16);
  - (OI) 10.1.6.5 confirming that an Oil Record Book (Part II) has been provided (MARPOL 73/78/90 Ax.I R.20);
  - (OI) 10.1.6.6 confirming that the instructions for the operation of the part flow system have been provided or included in the ship's cargo and ballast handling manuals (MARPOL 73/78/90 Ax.I R. 18(6)(e));
  - (OI) 10.1.6.7 confirming that the information and data concerning the loading and damage stability has been provided (MARPOL 73/78/90 Ax.I R.25);
  - (OI) 10.1.6.8 confirming that the shipboard oil pollution emergency plan has been provided (MARPOL Ax.I R.26).
- (OI) 10.1.7 For the oil pollution prevention the completion of initial survey should consist of:
  - (OI) 10.1.7.1 after satisfactory survey, the International Oil Pollution Prevention Certificate should be issued.
- (OA) 10.2 Annual surveys - see 4.2
  - (OA) 10.2.1 For the oil pollution prevention the examination of current certificates and other records should consist of:
    - (OA) 10.2.1.1 checking the validity, as appropriate, of the Cargo Ship Safety Equipment Certificate, the Cargo Ship Safety Radio Certificate and the Cargo Ship Safety Construction Certificate or the Cargo Ship Safety Certificate;
    - (OA) 10.2.1.2 checking the validity of the International Load Line Certificate or International Load Line Exemption Certificate;
    - (OA) 10.2.1.3 checking the validity of the International Oil Pollution Prevention Certificate;
    - (OA) 10.2.1.4 checking the certificates of class, if the ship is classed with a classification society;
    - (OA) 10.2.1.5 checking, when appropriate, the validity of the International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk or the Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk;



- (OA) 10.2.1.6 checking, when appropriate, the validity of the International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk;
- (OA) 10.2.1.7 checking, when appropriate, the validity of the International Pollution Prevention Certificate for the Carriage of Noxious Liquid Substances in Bulk;
- (OA) 10.2.1.8 checking that the ship's complement complies with the Minimum Safe Manning Document (SOLAS 74/88 R.V/13(b));
- (OA) 10.2.1.9 checking that the master, officers and ratings are certificated as required by the STCW Convention;
- (OA) 10.2.1.10 checking whether any new equipment has been fitted and, if so, confirm that it has been approved before installation and that any changes are reflected in the appropriate certificate;
- (OA) 10.2.1.11 checking from the certificates for the type approval of the oil pollution prevention equipment, such as the oily-water separating equipment, oil filtering equipment, process units, oil content meters and oil/water interface detectors and sighting the records of the various oil discharge monitoring equipment, as applicable (MARPOL 73/78/90 Ax.I R.16);
- (OA) 10.2.1.12 checking whether the appropriate entries have been made in Part I of the Oil Record Book (MARPOL 73/78/90 Ax.I R.20).
- (OA) 10.2.2 For the oil pollution prevention the examination of current certificates and other records for oil tankers should additionally consist of:
  - (OA) 10.2.2.1 confirming that the approved Dedicated Clean Ballast Tank Operation Manual, and/or the approved Operations and Equipment Manual for the Crude Oil Washing Systems, as appropriate, is/are on board (MARPOL 73/78/90 Ax.I Rs.13A and 13B);
  - (OA) 10.2.2.2 confirming that, when appropriate, the approved operational procedures for existing oil tankers having special ballast arrangements are on board (MARPOL 73/78/90 Ax.I R.13D);
  - (OA) 10.2.2.3 confirming, when appropriate, that a complete file of the enhanced survey reports and Condition Evaluation Report are on board (MARPOL 73/78, Annex I, regulation 13G);
  - (OA) 10.2.2.4 confirming that the operations manual for the oil discharge monitoring and control system, is on board (MARPOL 73/78/90 Ax.I R.15);
  - (OA) 10.2.2.5 checking whether the appropriate entries have been made in Part II of the Oil Record Book (MARPOL 73/78/90 Ax.I R.20);
  - (OA) 10.2.2.6 confirming that the loading and stability information in an approved form, where applicable, is on board (MARPOL 73/78/90 Ax.I R.25).
  - (OA) 10.2.2.7 confirming that the oil pollution emergency plan is on board (MARPOL 73/78/90 Ax.I R.26).
- (OA) 10.2.3 For the oil pollution prevention the annual survey should consist of:
  - (OA) 10.2.3.1 examining externally the oily-water separating equipment or oil filtering equipment or process unit, where fitted, and confirming, as far as practicable, their satisfactory operation including, when appropriate, testing the alarm for the oil filtering equipment (MARPOL 73/78/90 Ax.I Rs.9 and 16);
  - (OA) 10.2.3.2 examining externally the oil discharge monitoring and control system and confirming, as far as practicable, its satisfactory operation, including, where possible, the automatic and manual operation of the means provided to stop the discharge of effluent, observing that indicators and recording devices in the monitor are operable and verifying that a sufficient supply of consumables for the recorders are on board (MARPOL 73/78/90 Ax.I Rs.9 and 16);

- (OA) 10.2.3.3 testing, where fitted, the automatic stopping device required for discharge in special areas (MARPOL 73/78/90 Ax.I R.10);
- (OA) 10.2.3.4 confirming the segregation of oil fuel and water ballast systems (MARPOL 73/78/90 Ax.I R.14);
- (OA) 10.2.3.5 checking that the arrangement of oily residue (sludge) tank and its discharge arrangements are satisfactory and confirming that, where applicable, homogenizers, sludge incinerators or other recognised means for the control of sludge are satisfactory (MARPOL 73/78/90 Ax.I R.17);
- (OA) 10.2.3.6 confirming that a standard discharge connection is provided (MARPOL 73/78/90 Ax.I R.19).
- (OA) 10.2.4 For oil pollution prevention the annual survey of the additional requirements for oil tankers should consist of:
  - (OA) 10.2.4.1 examining the oil discharge monitoring and control system and its associated equipment (MARPOL 73/78/90 Ax.I Rs.9 and 15) and, in particular:
    - (OA) 10.2.4.1.1 examining externally the system and equipment;
    - (OA) 10.2.4.1.2 confirming, as far as practicable, the satisfactory operation of the oil discharge monitoring and control system including the oil content meter and, where applicable, the automatic and manual means provided to stop the discharge of effluent and the starting interlock;
    - (OA) 10.2.4.1.3 observing that indicators and recording devices are operable and verifying that sufficient supply of consumables for the recorders are on board;
    - (OA) 10.2.4.1.4 testing, as far as practicable, any audible or visual alarms fitted to the oil discharge monitoring and control system;
  - (OA) 10.2.4.2 examining, as far as practicable, the oil/water interface detectors (MARPOL 73/78/90 Ax.I Rs.9 and 15);
  - (OA) 10.2.4.3 confirming that no cross connections have been fitted between the cargo and segregated ballast systems (MARPOL 73/78/90 Ax.I R.13);
  - (OA) 10.2.4.4 where a portable spool piece is provided for the emergency discharge of segregated ballast by connecting the segregated ballast system to a cargo pump, confirming that non-return valves are fitted on the segregated ballast connections and that the spool piece is mounted in a conspicuous position in the pump room with a permanent notice restricting its use (MARPOL 73/78/90 Ax.I R.13);
  - (OA) 10.2.4.5 confirming by sighting that there has been no contamination with oil in the segregated ballast tanks (MARPOL 73/78/90 Ax.I R.13);
  - (OA) 10.2.4.6 confirming, as far as practicable, that the dedicated clean ballast tank arrangement remains satisfactory (MARPOL 73/78/90 Ax.I R.13A);
  - (OA) 10.2.4.7 confirming by sighting that there has been no contamination with oil in the dedicated clean ballast tanks (MARPOL 73/78/90 Ax.I R.13A);
  - (OA) 10.2.4.8 confirming, as far as practicable, that the crude oil washing system remains satisfactory (MARPOL 73/78/90 Ax.I R.13B) and in particular:
    - (OA) 10.2.4.8.1 examining externally the crude oil washing piping, pumps, valves and deck mounted washing machines for signs of leakage and checking that all anchoring devices for crude oil washing piping are intact and secure;

- (OA) 10.2.4.8.2 confirming, in those cases where drive units are not integral with the tank cleaning machines, that the number of operational drive units as specified in the Manual are on board;
- (OA) 10.2.4.8.3 checking that, when fitted, steam heaters for water washing can be properly isolated during crude oil washing operations, either by double shut-off valves or clearly identifiable blanks;
- (OA) 10.2.4.8.4 checking that the prescribed means of communications between the deck watchkeeper and the cargo control position is operational;
- (OA) 10.2.4.8.5 confirming that an overpressure relief device (or other approved arrangement) is fitted to the pumps supplying the crude oil washing systems;
- (OA) 10.2.4.8.6 confirming that flexible hoses for supply of oil to the washing machines on combination carriers, are of an approved type, are properly stored and are in good condition;
- (OA) 10.2.4.9 verifying, as far as practicable, the effectiveness of the crude oil washing system (MARPOL 73/78/90 Ax.I R.13B) and, in particular:
  - (OA) 10.2.4.9.1 checking tanks containing departure and/or arrival ballast water, as applicable, to confirm the effectiveness of the cleaning and stripping;
  - (OA) 10.2.4.9.2 checking, as far as practicable, that the crude oil washing machines are operable and, when the survey is carried out during crude oil washing operations, observing the proper operation of the washing machines by means of the movement indicators and/or sound patterns or other approved methods;
  - (OA) 10.2.4.9.3 checking, as far as practicable, the effectiveness of the stripping system in appropriate cargo tanks by observing the monitoring equipment and by hand-dipping or other approved means;
- (OA) 10.2.4.10 confirming that on those existing tankers operating with special ballast arrangements, the arrangements are as approved and are satisfactory (MARPOL 73/78/90 Ax.I R.13D);
- (OA) 10.2.4.11 confirming, as appropriate and as practicable, that the arrangements for the prevention of oil pollution in the event of collision or stranding are approved and are satisfactory (MARPOL 73/78/90 Ax.I Rs.13F and 13G)\*;
- (OA) 10.2.4.12 examining the piping systems associated with the discharge of dirty or oil-contaminated water including the part flow system, if fitted (MARPOL 73/78/90 Ax.I R.18);
- (OA) 10.2.4.13 testing the communication system between the observation and discharge control positions (MARPOL 73/78/90 Ax.I R.18);
- (OA) 10.2.4.14 examining the means of draining cargo pumps and cargo lines, including the stripping device and the connections for pumping to the slop or cargo tanks or ashore (MARPOL 73/78/90 Ax.I R.18).
- (OA) 10.2.5 For the oil pollution prevention the completion of the annual survey should consist of:
  - (OA) 10.2.5.1 after a satisfactory survey, the International Oil Pollution Prevention Certificate should be endorsed;
  - (OA) 10.2.5.2 if a survey shows that the condition of a ship or its equipment is unsatisfactory, see 4.8.
- (OIn) 10.3 Intermediate surveys - see 4.3
- (OIn) 10.3.1 For the oil pollution prevention the examination of current certificates and other records should consist of:
  - (OIn) 10.3.1.1 the provisions of (OA) 10.2.1.

- (OIn) 10.3.2 For the oil pollution prevention the examination of current certificates and other records for oil tankers should additionally consist of:
- (OIn) 10.3.2.1 the provisions of (OA) 10.2.2.
- (OIn) 10.3.3 For oil pollution prevention the intermediate survey should consist of:
- (OIn) 10.3.3.1 the provisions of (OA) 10.2.3;
- (OIn) 10.3.3.2 examining the oily-water separating equipment or oil filtering equipment or process unit, where fitted, including associated pumps, piping and fittings for wear and corrosion (MARPOL 73/78/90 Ax.I Rs.9 and 16);
- \* See also the Guidelines on the Enhanced Programme of Inspections During Surveys of Oil Tankers (resolution A.744(18), annex B).
- (OIn) 10.3.3.3 examining the oil content meter (15 ppm alarm and bilge monitor) for obvious defects, deterioration or damage and checking the record of calibration of the meter when done in accordance with the manufacturer's operation and instruction manual (MARPOL 73/78/90 Ax.I Rs.9 and 16).
- (OIn) 10.3.4 For oil pollution prevention the intermediate survey of the additional requirements for oil tankers should consist of:
- (OIn) 10.3.4.1 the provisions of (OA) 10.2.4;
- (OIn) 10.3.4.2 examining the oil discharge monitoring and control system and the oil content meter for obvious defects, deterioration or damage, and to check the record or calibration of the meter when done in accordance with the manufacturer's operation and instruction manual (MARPOL 73/78/90 Ax.I Rs.9 and 15);
- (OIn) 10.3.4.3 confirming the satisfactory operation of the oil/water interface detectors (MARPOL 73/78/90 Ax.I Rs.9 and 15);
- (OIn) 10.3.4.4 for the crude oil washing system (MARPOL 73/78/90 Ax.I R.13B):
- (OIn) 10.3.4.4.1 examining the crude oil washing piping outside the cargo tanks. If upon examination there is any doubt as to its condition, the piping may be required to be pressure tested, gauged or both. Particular attention should be paid to any repairs such as welded doublers;
- (OIn) 10.3.4.4.2 confirming the satisfactory operation of the isolation valves to steam heaters for washing water, when fitted;
- (OIn) 10.3.4.4.3 examining at least two selected cargo tanks for the express purpose of verifying the continued effectiveness of the installed crude oil washing and stripping systems. If the tank cannot be gas-freed for the safe entry of the surveyor, an internal examination should not be conducted. In this case this examination may be conducted in conjunction with the internal examination of cargo tanks required in (CIn) 6.3.3.3;
- (OIn) 10.3.4.5 examining the manual and/or remote operation of the individual tank valves (or other similar closing devices) to be kept closed at sea (MARPOL 73/78/90 Ax.I R.24).
- (OIn) 10.3.5 For the oil pollution prevention the completion of the intermediate survey should consist of:
- (OIn) 10.3.5.1 after a satisfactory survey, the International Oil Pollution Prevention Certificate should be endorsed;
- (OIn) 10.3.5.2 if a survey shows that the condition of a ship or its equipment is unsatisfactory, see 4.8.
- (OR) 10.4 Renewal surveys - see 4.5

- (OR) 10.4.1 For the oil pollution prevention the examination of current certificates and other records should consist of:
  - (OR) 10.4.1.1 the provisions of (OA) 10.2.1, except for the validity of the International Oil Pollution Prevention Certificate.
- (OR) 10.4.2 For the oil pollution prevention the examination of current certificates and other records for tankers should additionally consist of:
  - (OR) 10.4.2.1 the provisions of (OA) 10.2.2.
- (OR) 10.4.3 For oil pollution prevention the renewal survey should consist of:
  - (OR) 10.4.3.1 the provisions of (OIn) 10.3.3;
  - (OR) 10.4.3.2 confirming, if necessary by simulated test or equivalent, the satisfactory operation of the oily-water separating equipment or oil filtering equipment (MARPOL 73/78/90 Ax.I Rs.9 and 16);
  - (OR) 10.4.3.3 confirming, if necessary by simulated test or equivalent, the satisfactory operation of the oil discharge monitoring and control system including where practicable the automatic and manual operation of the means provided to stop the discharge of effluent (MARPOL 73/78/90 Ax.I Rs.9 and 16);
  - (OR) 10.4.3.4 confirming the satisfactory operation of the alarm for the oil filtering system (MARPOL 73/78/90 Ax.I Rs.9 and 16);
  - (OR) 10.4.3.5 confirming the satisfactory operation of homogenizers, sludge incinerators or other recognized means for the control of sludge when the size of oily residue (sludge) tank is approved on the basis of such installations (MARPOL 73/78/90 Ax.I R.17).
- (OR) 10.4.4 For oil pollution prevention the renewal survey of the additional requirements for oil tankers should consist of:
  - (OR) 10.4.4.1 the provisions of (OIn) 10.3.4;
  - (OR) 10.4.4.2 confirming that the arrangements of slop tanks or cargo tanks designated as slop tanks and associated piping systems are satisfactory (MARPOL 73/78/90 Ax.I Rs.9 and 15);
  - (OR) 10.4.4.3 confirming, if necessary by simulated test or equivalent, the satisfactory operation of the oil discharge monitoring and control system and its associated equipment, including the oil/water interface detectors (MARPOL 73/78/90 Ax.I Rs.9 and 15);
  - (OR) 10.4.4.4 confirming that the arrangements of pumps, pipes and valves are in accordance with the requirements for SBT systems (MARPOL 73/78/90 Ax.I R.13);
  - (OR) 10.4.4.5 confirming that the arrangements of pumps, pipes and valves are in accordance with the Revised Specifications for Oil Tankers with Dedicated Clean Ballast Tanks (MARPOL 73/78/90 Ax.I R.13A);
  - (OR) 10.4.4.6 confirming that the crude oil washing system is in accordance with the requirements for such systems (MARPOL 73/78/90 Ax.I R.13A) and, in particular:
    - (OR) 10.4.4.6.1 carrying out pressure testing of the crude oil washing system to at least the working pressure;
    - (OR) 10.4.4.6.2 examining the cargo tanks for the express purpose of verifying the continued effectiveness of the installed crude oil washing and stripping systems;
    - (OR) 10.4.4.6.3 examining internally, when fitted, the isolation valves for any steam heaters;
  - (OR) 10.4.4.7 verifying, by internal tank inspection or by another alternative method acceptable to the Administration, the effectiveness of the crude oil washing system. If the tank cannot be

gas-freed for the safe entry of the surveyor, an internal inspection should not be conducted. An acceptable alternative would be satisfactory results during the surveys required by (OA) 10.2.4.9 (MARPOL 73/78/90 Ax.I R.13B);

- (OR) 10.4.4.8 confirming that there is no leakage from those ballast pipelines passing through cargo tanks and those cargo pipelines passing through ballast tanks (MARPOL 73/78/90 Ax.I Rs.13, 13A and 13B);
- (OR) 10.4.4.9 confirming that the pumping, piping and discharge arrangements are satisfactory (MARPOL 73/78/90 Ax.I R.18) and, in particular:
  - (OR) 10.4.4.9.1 confirming that the piping systems associated with the discharge of dirty ballast water or oil contaminated water are satisfactory;
  - (OR) 10.4.4.9.2 confirming that the means of draining cargo pumps and cargo lines, including the stripping device and the connections for pumping to the slop or cargo tanks or ashore are satisfactory;
  - (OR) 10.4.4.9.3 confirming that the arrangements for the part flow system, where fitted, are satisfactory;
  - (OR) 10.4.4.10 confirming that closing devices installed in the cargo transfer system and cargo piping as appropriate are satisfactory (MARPOL 73/78/90 Ax.I R.24);
  - (OR) 10.4.4.11 confirming, as appropriate and as practicable, that the arrangements for the prevention of oil pollution in the event of collision or stranding are satisfactory (MARPOL 73/78/90 Ax.I Rs.13F and 13G).
- (OR) 10.4.5 For the oil pollution prevention the completion of the renewal survey should consist of:
  - (OR) 10.4.5.1 after a satisfactory survey, the International Oil Pollution Prevention Certificate should be issued.
- (N) 11 GUIDELINES FOR SURVEYS FOR THE INTERNATIONAL POLLUTION PREVENTION CERTIFICATE FOR THE CARRIAGE OF NOXIOUS SUBSTANCES IN BULK
  - (NI) 11.1 Initial surveys - see 4.1
    - (NI) 11.1.1 For the carriage of noxious liquid substances in bulk the examination of plans and designs (as applicable to the cargoes the ship is to be certified to carry) should consist of:
      - (NI) 11.1.1.1 drawing up the list of Annex II (appendix II) substances it is proposed the ship will be certified to carry (MARPOL 73/78/90 Ax.II R.11 or R.12A);
      - (NI) 11.1.1.2 examining the pumping system (MARPOL 73/78/90 Ax.II R.5A);
      - (NI) 11.1.1.3 examining the stripping system (MARPOL 73/78/90 Ax.II R.5A);
      - (NI) 11.1.1.4 examining the tank washing system and equipment (MARPOL 73/78/90 Ax.II P & A Standards);
      - (NI) 11.1.1.5 examining the underwater discharge arrangements (MARPOL 73/78/90 Ax.II P & A Standards);
      - (NI) 11.1.1.6 examining the ventilation equipment for residue removal (MARPOL 73/78/90 Ax.II P & A Standards);
      - (NI) 11.1.1.7 examining the heating system for solidifying and high viscosity substances (MARPOL 73/78/90 Ax.II P & A Standards);
      - (NI) 11.1.1.8 examining the Procedures and Arrangements Manual (including cargo carriage requirements to meet Annex II regulations) (MARPOL 73/78/90 Ax.II P & A Standards).

- (NI) 11.1.2 For the carriage of noxious liquid substances in bulk the survey during construction and after installation (as applicable to the cargoes the ship is to be certified to carry) should consist of:
  - (NI) 11.1.2.1 confirming that the pumping and stripping systems are satisfactory and that portable pipes or bends in sufficient number, if required, are on board (MARPOL 73/78/90 Ax.II R.5A);
  - (NI) 11.1.2.2 conducting the water test for assessing the stripping quantity (MARPOL 73/78/90 Ax.II R.5A and P & A Standards App.A);
  - (NI) 11.1.2.3 confirming that the tank washing machines provided on board are in working order, are those described in the Procedures and Arrangements Manual and are installed in accordance with the approved plans (MARPOL 73/78/90 Ax.II P & A Standards);
  - (NI) 11.1.2.4 confirming that the wash water heating system, if required, is installed in accordance with the approved plans (MARPOL 73/78/90 Ax.II P & A Standards);
  - (NI) 11.1.2.5 confirming that the number and position of tank cleaning openings for portable machines are in accordance with the approved plans (MARPOL 73/78/90 Ax.II P & A Standards);
  - (NI) 11.1.2.6 confirming that the underwater discharge outlet(s) are in accordance with the approved plans (MARPOL 73/78/90 Ax.II P & A Standards);
  - (NI) 11.1.2.7 confirming that means are provided in the common discharge piping to isolate openings provided above the waterline (MARPOL 73/78/90 Ax.II P & A Standards);
  - (NI) 11.1.2.8 verifying by actual test that the discharge rate of the pumps, where a variable rate type is used, can be controlled as specified in the Procedures and Arrangements Manual (MARPOL 73/78/90 Ax.II P & A Standards);
  - (NI) 11.1.2.9 verifying that means for restricting the discharge flow of fixed rate pumps to the specified rates have been fitted (MARPOL 73/78/90 Ax.II P & A Standards);
  - (NI) 11.1.2.10 confirming the satisfactory operation of the recording device, as fitted, and verifying by an actual flow test that it has an accuracy of +/- 15% or better (MARPOL 73/78/90 Ax.II P & A Standards);
  - (NI) 11.1.2.11 confirming that the ventilation equipment for residue removal is installed in accordance with the approved plan and is in working order and that the pressure in the driving medium for portable fans for ventilation equipment for residue removal can be achieved to give the required fan capacity (MARPOL 73/78/90 Ax.II P & A Standards);
  - (NI) 11.1.2.12 confirming that the heating system for solidifying and high viscosity substances is installed in accordance with the approved plan (MARPOL 73/78/90 Ax.II P & A Standards).
- (NI) 11.1.3 For the carriage of noxious liquid substances in bulk the check that the required documentation has been placed on board cargo ships (as applicable to the cargoes the ship is to be certified to carry) should consist of:
  - (NI) 11.1.3.1 confirming that the Procedures and Arrangements Manual has been provided (MARPOL 73/78/90 Ax.II Rs.5, 5A and 8);
  - (NI) 11.1.3.2 confirming that the Cargo Record Book has been provided (MARPOL 73/78/90 Ax.II R.9);
  - (NI) 11.1.3.3 confirming that the oil discharge monitor is certified for oil-like substances as may be listed on the Oil Pollution Prevention Certificate (MARPOL 73/78/90 Ax.II R.14).
- (NI) 11.1.4 For the carriage of noxious liquid substances in bulk the completion of initial survey should consist of:
  - (NI) 11.1.4.1 after satisfactory survey, the International Certificate for the Carriage of Noxious Liquid Substances in Bulk should be issued.
- (NA) 11.2 Annual surveys - see 4.2

- (NA) 11.2.1 For the carriage of noxious liquid substances in bulk the examination of current certificates and other records should consist of:
- (NA) 11.2.1.1 checking the validity, as appropriate, of the Cargo Ship Safety Equipment Certificate, the Cargo Ship Safety Radio Certificate and the Cargo Ship Safety Construction Certificate or the Cargo Ship Safety Certificate;
  - (NA) 11.2.1.2 checking the validity of the International Load Line Certificate or International Load Line Exemption Certificate;
  - (NA) 11.2.1.3 checking the validity of the International Oil Pollution Prevention Certificate;
  - (NA) 11.2.1.4 checking the certificates of class, if the ship is classed with a classification society;
  - (NA) 11.2.1.5 checking, when appropriate, the validity of the International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk;
  - (NA) 11.2.1.6 checking the validity of the International Pollution Prevention Certificate for the Carriage of Noxious Liquid Substances in Bulk;
  - (NA) 11.2.1.7 checking that the ship's complement complies with the Minimum Safe Manning Document (SOLAS 74/88 R.V/13(b));
  - (NA) 11.2.1.8 checking that the master, officers and ratings are certificated as required by the STCW Convention;
  - (NA) 11.2.1.9 checking whether any new equipment has been fitted and, if so, confirm that it has been approved before installation and that any changes are reflected in the appropriate certificate;
  - (NA) 11.2.1.10 confirming that the Procedures and Arrangements Manual is on board (MARPOL 73/78/90 Ax.II Rs.5, 5A and 8);
  - (NA) 11.2.1.11 confirming that the Cargo Record Book is being correctly used (MARPOL 73/78/90 Ax.II R.9);
  - (NA) 11.2.1.12 confirming that the oil discharge monitor is certified for oil-like substances as may be listed on the Oil Pollution Prevention Certificate (MARPOL 73/78/90 Ax.II R.14);
  - (NA) 11.2.1.13 sighting the records of the recording device, as fitted, when category B cargoes are carried (MARPOL 73/78/90 Ax.II P & A Standards).
- (NA) 11.2.2 For the carriage of noxious liquid substances in bulk the annual survey should consist of:
- (NA) 11.2.2.1 examining externally and confirming that the pumping and piping systems, including a stripping system if fitted, and associated equipment remain as approved (MARPOL 73/78/90 Ax.II R.5A);
  - (NA) 11.2.2.2 examining externally the tank washing piping and confirming that the type, capacity, number, and arrangement of the tank washing machines are as approved (MARPOL 73/78/90 Ax.II P & A Standards);
  - (NA) 11.2.2.3 examining externally the wash water heating system (MARPOL 73/78/90 Ax.II P & A Standards);
  - (NA) 11.2.2.4 examining externally, as far as practicable, the underwater discharge arrangements (MARPOL 73/78/90 Ax.II P & A Standards);
  - (NA) 11.2.2.5 confirming that the means of controlling the rate of discharge of the residue is as approved (MARPOL 73/78/90 Ax.II P & A Standards);



- (NA) 11.2.2.6 confirming that the flow rate indicating device is operable (MARPOL 73/78/90 Ax.II P & A Standards);
- (NA) 11.2.2.7 confirming that the ventilation equipment for residue removal is as approved (MARPOL 73/78/90 Ax.II P & A Standards);
- (NA) 11.2.2.8 examining externally, as far as is accessible, the heating system required for solidifying and high viscosity substances (MARPOL 73/78/90 Ax.II P & A Standards);
- (NA) 11.2.2.9 confirming that any cargo tank high-level alarms are operable;
- (NA) 11.2.2.10 examining any additional requirements listed on the International Certificate for the Carriage of Noxious Liquids in Bulk.
- (NA) 11.2.3 For the carriage of noxious liquid substances in bulk the completion of annual survey should consist of:
  - (NA) 11.2.3.1 after satisfactory survey, the International Certificate for the Carriage of Noxious Liquid Substances in Bulk should be endorsed;
  - (NA) 11.2.3.2 if a survey shows that the condition of a ship or its equipment is unsatisfactory, see 4.8.
- (NIn) 11.3 Intermediate surveys - see 4.3
- (NIn) 11.3.1 For the carriage of noxious liquid substances in bulk the examination of current certificates and other records should consist of:
  - (NIn) 11.3.1.1 the provisions of (NA) 11.2.1.
- (NIn) 11.3.2 For the carriage of noxious liquid substances in bulk the intermediate survey should consist of:
  - (NIn) 11.3.2.1 the provisions of (NA) 11.2.2;
  - (NIn) 11.3.2.2 verifying from the cargo record book that the pumping and stripping arrangements have been emptying the tanks efficiently and are all in working order (MARPOL 73/78/90 Ax.II R.5A and 9);
  - (NIn) 11.3.2.3 confirming, if possible, that the discharge outlet(s) are in good condition (MARPOL 73/78/90 Ax.II P & A Standards);
  - (NIn) 11.3.2.4 confirming the satisfactory operation of the recording device, as fitted, and verifying by an actual flow test that it has an accuracy of +/- 15% or better (MARPOL 73/78/90 Ax.II P & A Standards);
  - (NIn) 11.3.2.5 confirming that the ventilation equipment for residue removal is satisfactory and that the pressure in the driving medium for portable fans for ventilation equipment for residue removal can be achieved to give the required fan capacity (MARPOL 73/78/90 Ax.II P & A Standards).
- (NIn) 11.3.3 For the carriage of noxious liquid substances in bulk the completion of intermediate survey should consist of:
  - (NIn) 11.3.3.1 after satisfactory survey, the International Certificate for the Carriage of Noxious Liquid Substances in Bulk should be endorsed;
  - (NIn) 11.3.3.2 if a survey shows that the condition of a ship or its equipment is unsatisfactory, see 4.8.
- (NR) 11.4 Renewal surveys - see 4.4
- (NR) 11.4.1 For the carriage of noxious liquid substances in bulk the examination of current certificates and other records should consist of:
  - (NR) 11.4.1.1 the provisions of (NA) 11.2.1, except for the validity of the International Certificate for the Carriage of Noxious Liquid Substances in Bulk.

- (NR) 11.4.2 For the carriage of noxious liquid substances in bulk the renewal survey should consist of:
  - (NR) 11.4.2.1 the provisions of (NIn) 11.3.2;
  - (NR) 11.4.2.2 confirming that the pumping and stripping systems are satisfactory and that portable pipes or bends in sufficient number, if required, are on board (MARPOL 73/78/90 Ax.II R.5A);
  - (NR) 11.4.2.3 conducting the water test for assessing the stripping quantity (MARPOL 73/78/90 Ax.II R.5A and P & A Standards App.A);
  - (NR) 11.4.2.4 confirming that the tank washing machines provided on board are in working order, are those described in the Procedures and Arrangements Manual and are installed in accordance with the approved plans (MARPOL 73/78/90 Ax.II P & A Standards);
  - (NR) 11.4.2.5 confirming that the wash water heating system, if required, is installed in accordance with the approved plans (MARPOL 73/78/90 Ax.II P & A Standards);
  - (NR) 11.4.2.6 confirming that the number and position of tank cleaning openings for portable machines are in accordance with the approved plans (MARPOL 73/78/90 Ax.II P & A Standards);
  - (NR) 11.4.2.7 confirming that the underwater discharge outlet(s) are in good condition and are in accordance with the approved plans (MARPOL 73/78/90 Ax.II P & A Standards);
  - (NR) 11.4.2.8 confirming that means are provided in the common discharge piping to isolate openings provided above the waterline (MARPOL 73/78/90 Ax.II P & A Standards);
  - (NR) 11.4.2.9 verifying by actual test that the discharge rate of the pumps, where a variable rate type is used, can be controlled as specified in the Procedures and Arrangements Manual (MARPOL 73/78/90 Ax.II P & A Standards);
  - (NR) 11.4.2.10 verifying that means for restricting the discharge flow of fixed rate pumps to the specified rates are still fitted (MARPOL 73/78/90 Ax.II P & A Standards);
  - (NR) 11.4.2.11 confirming that the ventilation equipment for residue removal is installed in accordance with the approved plan and is in working order (MARPOL 73/78/90 Ax.II P & A Standards);
  - (NR) 11.4.2.12 confirming that the heating system for solidifying and high viscosity substances is installed in accordance with the approved plan (MARPOL 73/78/90 Ax.II P & A Standards).
- (NR) 11.4.3 For the carriage of noxious liquid substances in bulk the completion of renewal survey should consist of:
  - (NR) 11.4.3.1 after satisfactory survey, the International Certificate for the Carriage of Noxious Liquid Substances in Bulk should be issued.
- (D) 12 GUIDELINES FOR THE SURVEYS FOR THE INTERNATIONAL CERTIFICATE OF FITNESS FOR THE CARRIAGE OF DANGEROUS CHEMICALS IN BULK AND THE CERTIFICATE OF FITNESS FOR THE CARRIAGE OF DANGEROUS CHEMICALS IN BULK
  - (DI) 12.1 Initial surveys - see 4.1
    - (DI) 12.1.1 For compliance with the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk the examination of plans and designs of the structure, equipment, fittings, arrangements and materials should consist of:
      - (DI) 12.1.1.1 determining the products that it is intended that the ship will be permitted to carry and noting the corresponding minimum special requirements (IBC Code 83/90, Chapter 17) and any other special requirements (IBC Code 83/90, Chapter 15);
      - (DI) 12.1.1.2 examining the plans for the ship type, location of the cargo tanks, cargo containment, materials of construction, cargo temperature control, cargo tank vent systems, environmental control, electrical installations, fire protection and fire extinction,

instrumentation and the provision, specification and stowage of the equipment for personnel protection (IBC Code 83/90, Chapters 2, 4, 6, 7, 8, 9, 10, 11, 13 and 14);

- (DI) 12.1.1.3 examining the plans for the freeboard and intact stability, discharges below the bulkhead deck and survival capability (IBC Code 83/90, Chapter 2);
- (DI) 12.1.1.4 examining the plans for the ship arrangements (IBC Code 83/90, Chapter 3);
- (DI) 12.1.1.5 examining the plans for the cargo transfer (IBC Code 83/90, Chapter 5);
- (DI) 12.1.1.6 examining the plans for the mechanical ventilation in the cargo area (IBC Code 83/90, Chapter 12);
- (DI) 12.1.1.7 the provisions of (NI) 11.1.1.
- (DI) 12.1.2 For compliance with the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk the survey during construction and after installation of the structure, equipment, fittings, arrangements and materials should consist of:
  - (DI) 12.1.2.1 confirming that tanks containing cargo or residues of cargo are suitably segregated from accommodation, service and machinery spaces and from drinking water and stores for human consumption, that cargo piping does not pass through any accommodation, service or machinery space other than cargo pump rooms or pump rooms and that cargoes are not to be carried in either the fore or the aft peak tank (IBC Code 83/90, Chapter 3);
  - (DI) 12.1.2.2 examining the air intakes and openings into the accommodation, service and machinery spaces in relation to the cargo piping and vent systems and their entrances, air inlets and openings in relation to the cargo area (IBC Code 83/90, Chapter 3);
  - (DI) 12.1.2.3 examining the arrangements of the cargo pump rooms (IBC Code 83/90, Chapter 3);
  - (DI) 12.1.2.4 examining the accesses to spaces in the cargo area (IBC Code 83/90, Chapter 3);
  - (DI) 12.1.2.5 examining the bilge and ballast arrangements and confirming that pumps and pipelines are identified (IBC Code 83/90, Chapter 3);
  - (DI) 12.1.2.6 examining, when applicable, the bow or stern loading and unloading arrangements with particular reference to the air inlets and entrances to the accommodation, machinery and service spaces, the electrical equipment, fire-fighting arrangements and means of communication and testing the remote shut down for the cargo pumps (IBC Code 83/90, Chapter 3);
  - (DI) 12.1.2.7 confirming that the cargo tank types are arranged and installed in accordance with the approved plans, internally examining the cargo tanks, water ballast tanks and other spaces in the cargo area and pressure testing the boundaries (IBC Code 83/90, Chapter 4);
  - (DI) 12.1.2.8 examining the cargo transfer arrangements and confirming that any hoses are suitable for their intended purpose (IBC Code 83/90, Chapter 5);
  - (DI) 12.1.2.9 examining and testing any cargo heating and cooling systems (IBC Code 83/90, Chapter 7);
  - (DI) 12.1.2.10 confirming that the cargo tank vent systems have been installed in accordance with the approved plans (IBC Code 83/90, Chapter 8);
  - (DI) 12.1.2.11 confirming that high-level alarms, or overflow control systems or spill valves or other equivalent means provided to control possible liquid rising in the venting system, are operating satisfactorily (IBC Code 83/90, Chapter 8);
  - (DI) 12.1.2.12 confirming that suitable provision is made for drainage of vent lines and that no shut-off valves or other means of stoppage, including spectacle or blank flanges, are fitted either to the individual vents or to the header, if the vents are combined or either above or below pressure/vacuum relief valves with closed vent systems (IBC Code 83/90, Chapter 8);
  - (DI) 12.1.2.13 examining the location of the vent outlets in respect of the height above the weather deck or the fore and aft gangway, from the nearest air intakes or openings to accommodation,

service and machinery spaces and ignition sources and confirming that any high velocity vents are of the approved type (IBC Code 83/90, Chapter 8);

- (DI) 12.1.2.14 examining the arrangements for the environmental control, including the means of storing or generating and drying an inert gas (IBC Code 83/90, Chapter 9);
- (DI) 12.1.2.15 examining the electrical installations and confirming that, when appropriate, special materials have used and that the electrical equipment installed in hazardous locations, as permitted, is certified by a recognised authority for the cargoes to be carried (IBC Code 83/90, Chapter 10);
- (DI) 12.1.2.16 confirming that independent cargo tanks are electrically bonded to the hull and that all gasketed cargo pipe joints and hose connections are electrically bonded (IBC Code 83/90, Chapter 10);
- (DI) 12.1.2.17 examining the arrangements for the fire protection and fire extinction (IBC Code 83/90, Chapter 11);
- (DI) 12.1.2.18 examining the fixed fire fighting system for the cargo pump room and confirming that the installation tests have been satisfactorily completed and that its means of operation are clearly marked (IBC Code 83/90, Chapter 11);
- (DI) 12.1.2.19 checking the deck foam system for the cargo area, including the supplies of foam concentrate, and testing that the minimum number of jets of water at the required pressure in the fire main is obtained, see 5.1.3.1, when the system is in operation (IBC Code 83/90, Chapter 11);
- (DI) 12.1.2.20 confirming that suitable portable fire extinguishing equipment for the cargoes to be carried is provided in the cargo area (IBC Code 83/90, Chapter 11);
- (DI) 12.1.2.21 examining, and confirming the satisfactory operation of, the arrangements for the mechanical ventilation of spaces in the cargo area normally entered during cargo handling operations (IBC Code 83/90, Chapter 12) and checking in particular that:
  - (DI) 12.1.2.21.1 it may be controlled from outside the space;
  - (DI) 12.1.2.21.2 warning notices concerning its use have been posted;
  - (DI) 12.1.2.21.3 it is of the extraction type, with extraction from below the floor plates, unless the space houses motors driving cargo pumps when it should be of the positive pressure type;
  - (DI) 12.1.2.21.4 the ducting does not pass through accommodation, machinery and service spaces and that the exhaust ducts are clear of the ventilation inlets and openings to such spaces;
  - (DI) 12.1.2.21.5 the electric motors driving ventilation fans are positioned outside the ventilation ducts and the ventilation fans and the ducts, in way of the fans only, are of non-sparking construction in hazardous locations;
- (DI) 12.1.2.22 examining, and confirming the satisfactory operation of, the arrangements for the mechanical ventilation of spaces normally entered other than those covered by (DI) 12.1.2.21 (IBC Code 83/90, Chapter 12);
- (DI) 12.1.2.23 confirming that double bottoms, cofferdams, duct keels, pipe tunnels, hold spaces and other spaces where cargo may accumulate are capable of being efficiently ventilated to ensure a safe environment when entry into the space is necessary and that, when appropriate, permanent ducting is provided and any ventilation fans comply with 12.2.21.5 (IBC Code 83/90, Chapter 12);
- (DI) 12.1.2.24 examining the intrinsically safe systems and circuits used for measurement, monitoring, control and communication purposes in all hazardous locations (IBC Code 83/90, Chapter 13);
- (DI) 12.1.2.25 checking the provision of equipment for personnel protection (IBC Code 83/90, Chapter 14) and in particular that:

- (DI) 12.1.2.25.1 suitable protective clothing is available for the crew engaged in loading and discharging operations and that suitable storage is provided;
- (DI) 12.1.2.25.2 the required safety equipment and associated breathing apparatus and air supplies and, when appropriate, emergency-escape respiratory and eye protection are provided and are properly stowed;
- (DI) 12.1.2.25.3 medical first-aid equipment, including stretchers and oxygen resuscitation equipment are provided;
- (DI) 12.1.2.25.4 arrangements have been made for the antidotes for the cargoes actually carried to be on board;
- (DI) 12.1.2.25.5 decontamination arrangements and eyewashes are operational;
- (DI) 12.1.2.25.6 the required gas detection instruments are on board and that arrangements have been made for the supply of the appropriate vapour detection tubes;
- (DI) 12.1.2.25.7 the stowage for cargo samples is satisfactory;
- (DI) 12.1.2.26 the provisions of (NI) 11.1.2.
- (DI) 12.1.3 For compliance with the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk the check that all the required documentation has been placed on board the ship should consist of:
  - (DI) 12.1.3.1 confirming that a loading and stability information booklet, containing details of typical service and ballast conditions, provisions for evaluating other conditions of loading, a summary of the ship's survival capabilities and sufficient information to ensure that the ship is loaded and operated in a safe and seaworthy manner is available on board (IBC Code 83/90, Chapter 2);
  - (DI) 12.1.3.2 confirming that damage survival capability information is supplied on the basis of loading information for all anticipated conditions of loading and variations in draught and trim (IBC Code 83/90, Chapter 2);
  - (DI) 12.1.3.3 confirming that a table giving the filling ratios for the cargo tanks at various densities has been provided (IBC Code 83/90, Chapter 16);
  - (DI) 12.1.3.4 confirming that a copy of the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk, or the equivalent national regulations, has been provided (IBC Code 83/90, Chapter 16);
  - (DI) 12.1.3.5 confirming that information relating to the chemical and physical properties of the products to be carried has been provided together with the measures to be taken in an accident have been provided (IBC Code 83/90, Chapter 16);
  - (DI) 12.1.3.6 confirming that a manual covering procedures for cargo transfer, tank cleaning, gas freeing, ballasting, etc., has been provided (IBC Code 83/90, Chapter 16);
  - (DI) 12.1.3.7 the provisions of (NI) 11.1.3.
- (DI) 12.1.4 For compliance with the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk the completion of the initial survey should consist of:
  - (DI) 12.1.4.1 after a satisfactory survey the International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk should be issued.
- (DA) 12.2 Annual surveys - see 4.2
- (DA) 12.2.1 For compliance with the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk and the Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk the examination of current certificates and other records should consist of:

- (DA) 12.2.1.1 checking the validity, as appropriate, of the Cargo Ship Safety Equipment Certificate, the Cargo Ship Safety Radio Certificate and the Cargo Ship Safety Construction Certificate or the Cargo Ship Safety Certificate;
- (DA) 12.2.1.2 checking the validity of the International Load Line Certificate or International Load Line Exemption Certificate;
- (DA) 12.2.1.3 checking the validity of the International Oil Pollution Prevention Certificate;
- (DA) 12.2.1.4 checking the certificates of class, if the ship is classed with a classification society;
- (DA) 12.2.1.5 checking, when appropriate, the validity of the International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk or the Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk;
- (DA) 12.2.1.6 checking that the ship's complement complies with the Minimum Safe Manning Document (SOLAS 74/88, R.V/13(b));
- (DA) 12.2.1.7 checking that the master, officers and ratings are certificated as required by the STCW Convention;
- (DA) 12.2.1.8 checking whether any new equipment has been fitted and, if so, confirm that it has been approved before installation and that any changes are reflected in the appropriate certificate;
- (DA) 12.2.1.9 confirming that the loading and stability information booklet, containing details of typical service and ballast conditions, provisions for evaluating other conditions of loading, a summary of the ship's survival capabilities and sufficient information to ensure that the ship is loaded and operated in a safe and seaworthy manner is available on board (IBC Code 83/90, Chapter 2) (No BCH Code 85/90 reference);
- (DA) 12.2.1.10 confirming that damage survival capability information is supplied on the basis of loading information for all anticipated conditions of loading and variations in draught and trim (IBC Code 83/90, Chapter 2) (No BCH Code 85/90 reference);
- (DA) 12.2.1.11 confirming that a table giving the filling ratios for the cargo tanks at various densities has been provided (IBC Code 83/90, Chapter 16) (BCH Code 85/90, Chapter IIIG);
- (DA) 12.2.1.12 confirming that a copy of the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk or the Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk, or the equivalent national regulations, has been provided (IBC Code 83/90, Chapter 16) (BCH Code 85/90, Chapter V);
- (DA) 12.2.1.13 confirming that information relating to the chemical and physical properties of the products to be carried has been provided together with the measures to be taken in an accident have been provided (IBC Code 83/90, Chapter 16) (BCH Code 85/90, Chapter V);
- (DA) 12.2.1.14 confirming that a manual covering procedures for cargo transfer, tank cleaning, gas freeing, ballasting, etc., has been provided (IBC Code 83/90, Chapter 16) (BCH Code 85/90, Chapter V);
- (DA) 12.2.1.15 confirming that the Procedures and Arrangements Manual is on board (IBC Code 83/90, Chapter 16A) (BCH Code 85/90, Chapter VA);
- (DA) 12.2.1.16 confirming that the Cargo Record Book is being correctly used (MARPOL 73/78/90, Annex II, regulation 9);
- (DA) 12.2.1.17 confirming that the oil discharge monitor is certified for oil-like substances as may be listed on the Oil Pollution Prevention Certificate (MARPOL 73/78/90, Annex II, regulation 14);
- (DA) 12.2.1.18 sighting the records of the recording device, as fitted, when category B cargoes are carried (MARPOL 73/78/90, Annex II, P & A Standards).

- (DA) 12.2.2 For compliance with the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk and the Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk the annual survey of the structure, equipment, fittings, arrangements and materials should consist of:
- (DA) 12.2.2.1 confirming that wheelhouse doors and windows, sidescuttles and windows in superstructure and deckhouse ends facing the cargo area are in a satisfactory condition (IBC Code 83/90, Chapter 3) (BCH Code 85/90, Chapter IIC);
  - (DA) 12.2.2.2 confirming that potential sources of ignition in or near the cargo pump room are eliminated, such as loose gear, combustible materials, etc., that there are no signs of undue leakage and that access ladders are in a satisfactory condition (IBC Code 83/90, Chapter 3) (BCH Code 85/90, Chapter IIC);
  - (DA) 12.2.2.3 confirming that removable pipe lengths or other approved equipment necessary for cargo separation are available in the pump room and are in a satisfactory condition (IBC Code 83/90, Chapter 3) (BCH Code 85/90, Chapter IIC);
  - (DA) 12.2.2.4 examining all pump room bulkheads for signs of cargo leakage or fractures and, in particular, the sealing arrangements of all penetrations of pump room bulkheads (IBC Code 83/90, Chapter 3) (BCH Code 85/90, Chapter IIC);
  - (DA) 12.2.2.5 confirming that the remote operation of the cargo pump bilge system is satisfactory (IBC Code 83/90, Chapter 3) (BCH Code 85/90, Chapter IIC);
  - (DA) 12.2.2.6 examining the bilge and ballast arrangements and confirming that pumps and pipelines are identified (IBC Code 83/90, Chapter 3) (No BCH Code 85/90 reference);
  - (DA) 12.2.2.7 confirming, when applicable, that the bow or stern loading and unloading arrangements are in order and testing the means of communication and the remote shut down for the cargo pumps (IBC Code 83/90, Chapter 3) (No BCH Code 85/90 reference);
  - (DA) 12.2.2.8 examining the cargo transfer arrangements and confirming that any hoses are suitable for their intended purpose (IBC Code 83/90, Chapter 5) (BCH Code 85/90, Chapter IID);
  - (DA) 12.2.2.9 examining, when applicable, the cargo heating or cooling systems, including any sampling arrangements, and confirming that the means for measuring the temperature and associated alarms are operating satisfactorily (IBC Code 83/90, Chapter 7) (BCH Code 85/90, Chapter IIF);
  - (DA) 12.2.2.10 examining, as far as practicable, the cargo tank vent system, including the pressure/vacuum valves and devices to prevent the passage of flame (IBC Code 83/90, Chapter 8) (BCH Code 85/90, Chapter IIE);
  - (DA) 12.2.2.11 examining the gauging devices, high-level alarms and valves associated with overflow control (IBC Code 83/90, Chapter 8) (BCH Code 85/90, Chapter IIE);
  - (DA) 12.2.2.12 confirming that arrangements for sufficient gas to be carried or generated to compensate for normal losses and that the means provided for monitoring ullage spaces are satisfactory (IBC Code 83/90, Chapter 9) (BCH Code 85/90, Chapter IIH);
  - (DA) 12.2.2.13 confirming that arrangements are made for sufficient medium to be carried where drying agents are used on air inlets to cargo tanks (IBC Code 83/90, Chapter 9) (BCH Code 85/90, Chapter IIH);
  - (DA) 12.2.2.14 confirming that all electrical equipment in dangerous zones is suitable for such locations, is in satisfactory condition and has been properly maintained (IBC Code 83/90, Chapter 10) (BCH Code 85/90, Chapter IIIB);
  - (DA) 12.2.2.15 examining the fixed fire-fighting system for the cargo pump room and the deck foam system for the cargo area and confirming that their means of operation are clearly marked (IBC Code 83/90, Chapter 11) (BCH Code 85/90, Chapter IIIE);

- (DA) 12.2.2.16 confirming that the condition of the portable fire extinguishing equipment for the cargoes to be carried in the cargo area is satisfactory (IBC Code 83/90, Chapter 11) (BCH Code 85/90, Chapter III E);
- (DA) 12.2.2.17 examining, as far as practicable, and confirming the satisfactory operation of, the arrangements for the ventilation of spaces normally entered during cargo handling operations and other spaces in the cargo area (IBC Code 83/90, Chapter 12) (BCH Code 85/90, Chapter III A);
- (DA) 12.2.2.18 confirming, as far as practicable, that the intrinsically safe systems and circuits used for measurement, monitoring, control and communication purposes in all hazardous locations are being properly maintained (IBC Code 83/90, Chapter 13) (BCH Code 85/90, Chapter III C);
- (DA) 12.2.2.19 examining the equipment for personnel protection (IBC Code 83/90, Chapter 14) (BCH Code 85/90, Chapter III F) and in particular that:
  - (DA) 12.2.2.19.1 the protective clothing for crew engaged in loading and discharging operations and its stowage is in a satisfactory condition;
  - (DA) 12.2.2.19.2 the required safety equipment and associated breathing apparatus and associated air supplies and, when appropriate, emergency-escape respiratory and eye protection are in a satisfactory condition and are properly stowed;
  - (DA) 12.2.2.19.3 medical first-aid equipment, including stretchers and oxygen resuscitation equipment are in a satisfactory condition;
  - (DA) 12.2.2.19.4 arrangements have been made for the antidotes for the cargoes actually carried to be on board;
  - (DA) 12.2.2.19.5 decontamination arrangements and eyewashes are operational;
  - (DA) 12.2.2.19.6 the required gas detection instruments are on board and that arrangements have been made for the supply of the appropriate vapour detection tubes;
  - (DA) 12.2.2.19.7 the arrangements for the stowage of cargo samples are satisfactory;
- (DA) 12.2.2.20 the provisions of (NA) 11.2.2.
- (DA) 12.2.3 For compliance with the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk and the Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk the completion of the annual survey should consist of:
  - (DA) 12.2.3.1 after a satisfactory survey the International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk or the Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk should be endorsed;
  - (DA) 12.2.3.2 if a survey shows that the condition of a ship or its equipment is unsatisfactory - see 4.8.
- (DIn) 12.3 Intermediate surveys - see 4.3
- (DIn) 12.3.1 For compliance with the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk and the Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk the examination of current certificates and other records should consist of:
  - (DIn) 12.3.1.1 the provisions of (DA) 12.2.1.
- (DIn) 12.3.2 For compliance with the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk and the Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk the intermediate survey of the structure, equipment, fittings, arrangements and materials should consist of:
  - (DIn) 12.3.2.1 the provisions of (DA) 12.2.2;



- (DIn) 12.3.2.2 examination of vent line drainage arrangements (IBC Code 83/90, Chapter 8) (BCH Code 85/90, Chapter IIE);
- (DIn) 12.3.2.3 confirmation, where applicable, that pipelines and independent cargo tanks are electrically bonded to the hull (IBC Code 83/90, Chapter 10) (BCH Code 85/90, Chapter IIIB);
- (DIn) 12.3.2.4 generally examining the electrical equipment and cables in dangerous zones such as cargo pump rooms and areas adjacent to cargo tanks to check for defective equipment, fixtures and wiring. The insulation resistance of the circuits should be tested and in cases where a proper record of testing is maintained, consideration should be given to accepting recent readings (IBC Code 83/90, Chapter 10) (BCH Code 85/90, Chapter IIIB);
- (DIn) 12.3.2.5 confirmation that spares are provided for cargo area mechanical ventilation fans (IBC Code 83/90, Chapter 12) (BCH Code 85/90, Chapter IIIA);
- (DIn) 12.3.2.6 the provisions of (NIn) 11.3.2.
- (DIn) 12.3.3 For compliance with the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk and the Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk the completion of the intermediate survey should consist of:
  - (DIn) 12.3.3.1 after a satisfactory survey the International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk or the Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk should be endorsed;
  - (DIn) 12.3.3.2 if a survey shows that the condition of a ship or its equipment is unsatisfactory - see 4.8.
- (DR) 12.4 Renewal surveys - see 4.4
- (DR) 12.4.1 For compliance with the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk and the Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk the examination of current certificates and other records should consist of:
  - (DR) 12.4.1.1 the provisions of (DA) 12.2.1, except the International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk or the Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk.
- (DR) 12.4.2 For compliance with the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk and the Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk the renewal survey of the structure, equipment, fittings, arrangements and materials should consist of:
  - (DR) 12.4.2.1 the provisions of (DIn) 12.3.3.
- (DR) 12.4.3 For compliance with the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk and the Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk the completion of the renewal survey should consist of:
  - (DR) 12.4.3.1 after a satisfactory survey the International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk or the Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk should be issued.
- (G) 13 GUIDELINES FOR SURVEYS FOR THE INTERNATIONAL CERTIFICATE OF FITNESS FOR THE CARRIAGE OF LIQUEFIED GASES IN BULK
- (GI) 13.1 Initial surveys - see 4.1.
- (GI) 13.1.1 For compliance with the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk the examination of plans and designs of the structure, equipment, fittings, arrangements and materials should consist of:
  - (GI) 13.1.1.1 determining the products that it is intended that the ship will be permitted to carry and noting the corresponding minimum special requirements (IGC Code 83/90, Chapter 19);

- (GI) 13.1.1.2 examining the plans for the ship type, cargo containment, control of vapour space within the cargo tanks, vapour detection, gauging, personnel protection, filling limits for cargo tanks and other special requirements (IGC Code 83/90, Chapters 2, 4, 6, 13, 14, 15, and 17);
- (GI) 13.1.1.3 examining the plans for the freeboard and intact stability, discharges below the bulkhead deck and survival capability (IGC Code 83/90, Chapter 2);
- (GI) 13.1.1.4 examining the plans for the ship arrangements (IGC Code 83/90, Chapter 3);
- (GI) 13.1.1.5 examining the plans for the process pressure vessels and liquid, vapour and pressure piping systems (IGC Code 83/90, Chapters 5 and 6);
- (GI) 13.1.1.6 examining the plans for the cargo pressure/temperature control (IGC Code 83/90, Chapter 7);
- (GI) 13.1.1.7 examining the plans for the cargo tank ventilation systems (IGC Code 83/90, Chapter 8);
- (GI) 13.1.1.8 examining the plans for the environmental control (IGC Code 83/90, Chapter 9);
- (GI) 13.1.1.9 examining the plans for the electrical installations (IGC Code 83/90, Chapter 10);
- (GI) 13.1.1.10 examining the plans for the fire protection and fire extinction (IGC Code 83/90, Chapter 11);
- (GI) 13.1.1.11 examining the plans for the mechanical ventilation in the cargo area (IGC Code 83/90, Chapter 12);
- (GI) 13.1.1.12 examining the plans for the instrumentation (gauging, gas detection) (IGC Code 83/90, Chapter 13);
- (GI) 13.1.1.13 examining, when applicable, the plans for the use of cargo as fuel (IGC Code 83/90, Chapter 16).
- (GI) 13.1.2 For compliance with the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk the survey during construction and after installation of the structure, equipment, fittings, arrangements and materials should consist of:
  - (GI) 13.1.2.1 confirming that the segregation in the cargo area and the arrangement of the accommodation, service and machinery spaces are in accordance with the approved plans (IGC Code 83/90, Chapter 3);
  - (GI) 13.1.2.2 examining the arrangements of the cargo pump rooms and cargo compressor rooms (IGC Code 83/90, Chapter 3);
  - (GI) 13.1.2.3 confirming that the manually operated emergency shutdown system together with the automatic shutdown of the cargo pumps and compressors are satisfactory (IGC Code 83/90, Chapter 3);
  - (GI) 13.1.2.4 examining the arrangement of the cargo control room (IGC Code 83/90, Chapter 3);
  - (GI) 13.1.2.5 examining the accesses to spaces in the cargo area (IGC Code 83/90, Chapter 3);
  - (GI) 13.1.2.6 confirming the arrangements for the air locks (IGC Code 83/90, Chapter 3);
  - (GI) 13.1.2.7 examining the bilge, ballast and oil fuel arrangements (IGC Code 83/90, Chapter 3);
  - (GI) 13.1.2.8 examining, when applicable, the bow or stern loading and unloading arrangements with particular reference to the air inlets and entrances to the accommodation, machinery and service spaces, the electrical equipment, fire-fighting arrangements and means of communication between the cargo control room and the shore location (IGC Code 83/90, Chapter 3);
  - (GI) 13.1.2.9 confirming that the cargo tanks are arranged and installed in accordance with the approved plans, internally examining the cargo tanks, water ballast tanks and other spaces in the cargo area,

ensuring that the appropriate non-destructive and pressure testing are carried out (IGC Code 83/90, Chapter 4);

- (GI) 13.1.2.10 examining the cargo and process piping, including the expansion arrangements, insulation from the hull structure, pressure relief and drainage arrangements and carrying out a leak detection test (IGC Code 83/90, Chapter 5);
- (GI) 13.1.2.11 confirming that the cargo system valving arrangements are in accordance with the approved plans (IGC Code 83/90, Chapter 5);
- (GI) 13.1.2.12 confirming that any liquid and vapour hoses are suitable for their intended purpose (IGC Code 83/90, Chapter 5);
- (GI) 13.1.2.13 examining the arrangements for the cargo pressure/temperature control including, when fitted, any refrigeration system and confirming that any associated alarms are satisfactory (IGC Code 83/90, Chapter 7);
- (GI) 13.1.2.14 confirming that the cargo tank vent systems, including, when appropriate, any additional pressure relieving system for liquid level control and vacuum pressure systems, have been installed in accordance with the approved plans (IGC Code 83/90, Chapter 8);
- (GI) 13.1.2.15 examining the arrangements for the environmental control, including the means of storing or generating and drying an inert gas (IGC Code 83/90, Chapter 9);
- (GI) 13.1.2.16 examining the electrical installations with particular reference to the certified safe type equipment fitted in gas-dangerous spaces and zones (IGC Code 83/90, Chapter 10);
- (GI) 13.1.2.17 examining the arrangements for the fire protection and fire extinction (IGC Code 83/90, Chapter 11);
- (GI) 13.1.2.18 examining the fixed fire-fighting system for the cargo pump room and confirming that the installation tests have been satisfactorily completed and that its means of operation is clearly marked (IGC Code 83/90, Chapter 11);
- (GI) 13.1.2.19 examining the fire water main with particular reference to the provision of hydrants and isolation arrangements, checking that the two jets of water reach all areas of the cargo and containment area at the required pressure and testing the remote means of starting one main fire pump (IGC Code 83/90, Chapter 11);
- (GI) 13.1.2.20 examining and testing the water spray system for cooling, fire protection and crew protection and confirming that its means of operation is clearly marked (IGC Code 83/90, Chapter 11);
- (GI) 13.1.2.21 examining the dry chemical powder fire-extinguishing system for the cargo area, seeing that the fixed piping has been properly installed and has been proved clear and confirming that its means of operation is clearly marked (IGC Code 83/90, Chapter 11);
- (GI) 13.1.2.22 examining the fixed installation for the gas-dangerous spaces and confirming that the installation tests have been satisfactorily completed and that its means of operation is clearly marked (IGC Code 83/90, Chapter 11);
- (GI) 13.1.2.23 confirming the provision and examining the disposition of the fireman's outfits (IGC Code 83/90, Chapter 11);
- (GI) 13.1.2.24 examining, and confirming the satisfactory operation of, the arrangements for the mechanical ventilation of spaces in the cargo area normally entered during cargo handling operations (IGC Code 83/90, Chapter 12) and checking in particular that:
  - (GI) 13.1.2.24.1 it may be controlled from outside the space;
  - (GI) 13.1.2.24.2 warning notices concerning its use have been posted;
  - (GI) 13.1.2.24.3 is fixed and is of the negative pressure type, permitting extraction from either the upper or lower parts of the space or from both the upper and lower parts when appropriate, for cargo compressor and pump rooms and for cargo control rooms when considered to be gas-dangerous spaces;

- (GI) 13.1.2.24.4 is of the positive pressure type for spaces containing electric motors driving cargo compressors or pumps and other gas-safe spaces within the cargo area, except those containing inert gas generators;
- (GI) 13.1.2.24.5 exhaust ducts are clear of the ventilation inlets and openings to accommodation spaces, service spaces, control stations and other gas-safe spaces;
- (GI) 13.1.2.24.6 intakes are arranged to minimize the recycling or hazardous vapours;
- (GI) 13.1.2.24.7 ducts from gas-dangerous spaces are not led through accommodation, service and machinery spaces and control stations, except when 13.1.2.29 applies;
- (GI) 13.1.2.24.8 the electric motors driving ventilation fans are positioned outside the ventilation ducts when the carriage of flammable products is intended and the ventilation fans and the ducts, in way of the fans only, are of non-sparking construction in gas-dangerous spaces;
- (GI) 13.1.2.25 examining, and confirming the satisfactory operation of, the arrangements for the mechanical ventilation of spaces normally entered other than those covered by 13.1.2.23 (IGC Code 83/90, Chapter 12);
- (GI) 13.1.2.26 examining, and testing as appropriate, the liquid level indicators, overflow control, pressure gauges, high pressure and, when applicable, low pressure alarms, and temperature indicating devices for the cargo tanks (IGC Code 83/90, Chapter 13);
- (GI) 13.1.2.27 examining, and testing as appropriate, the gas detection equipment (IGC Code 83/90, Chapter 13);
- (GI) 13.1.2.28 confirming that two sets of portable gas detection equipment suitable for the cargoes to be carried and a suitable instrument for measuring oxygen levels have been provided (IGC Code 83/90, Chapter 13);
- (GI) 13.1.2.29 checking the provision of equipment for personnel protection (IGC Code 83/90, Chapter 14) and in particular that:
  - (GI) 13.1.2.29.1 two complete sets of safety equipment each permitting personnel to enter and work in a gas-filled space are provided and are properly stowed;
  - (GI) 13.1.2.29.2 the requisite supply of compressed air is provided and examining, when applicable, the arrangements for any special air compressor and low-pressure air line system;
  - (GI) 13.1.2.29.3 medical first-aid equipment, including stretchers and oxygen resuscitation equipment and antidotes, when available, for the products to be carried are provided;
  - (GI) 13.1.2.29.4 respiratory and eye protection suitable for emergency escape purposes are provided;
  - (GI) 13.1.2.29.5 decontamination arrangements and eyewashes are operational;
  - (GI) 13.1.2.29.6 when applicable, personnel are protected against the effects of a major cargo release by a special suitably designed and equipped space within the accommodation area;
  - (GI) 13.1.2.29.7 when applicable, the cargo control room is of the gas-safe type;
- (GI) 13.1.2.30 examining, when applicable, the arrangements for the use of cargo as fuel and testing that the gas supply to the machinery space is cut off should the exhaust ventilation not be functioning correctly and that the master gas fuel valve may be remotely closed from within the machinery space (IGC Code 83/90, Chapter 16).
- (GI) 13.1.3 For compliance with the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk the check that all the required documentation has been placed on board the ship should consist of:
  - (GI) 13.1.3.1 confirming that a loading and stability information booklet, containing details of typical service and ballast conditions, provisions for evaluating other conditions of loading, a summary of the ship's survival capabilities and sufficient information to ensure that the ship is loaded and operated in a safe and seaworthy manner is available on board (IGC Code 83/90, Chapter 2);

- (GI) 13.1.3.2 confirming that damage survival capability information is supplied on the basis of loading information for all anticipated conditions of loading and variations in draught and trim (IGC Code 83/90, Chapter 2);
- (GI) 13.1.3.3 confirming that necessary information for the safe carriage of the products to be carried has been provided (IGC Code 83/90, Chapter 18);
- (GI) 13.1.3.4 confirming that a copy of the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk, or the equivalent national regulations, has been provided (IGC Code 83/90, Chapter 18).
- (GI) 13.1.4 For compliance with the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk the completion of the initial survey should consist of:
- (GI) 13.1.4.1 after a satisfactory survey the International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk should be issued.
- (GA) 13.2 Annual surveys - see 4.2.
- (GA) 13.2.1 For compliance with the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk the examination of current certificates and other records should consist of:
- (GA) 13.2.1.1 checking the validity, as appropriate, of the Cargo Ship Safety Equipment Certificate, the Cargo Ship Safety Radio Certificate and the Cargo Ship Safety Construction Certificate or the Cargo Ship Safety Certificate;
- (GA) 13.2.1.2 checking the validity of the International Load Line Certificate or International Load Line Exemption Certificate;
- (GA) 13.2.1.3 checking the validity of the International Oil Pollution Prevention Certificate;
- (GA) 13.2.1.4 checking the certificates of class, if the ship is classed with a classification society;
- (GA) 13.2.1.5 checking the validity of the International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk;
- (GA) 13.2.1.6 checking that the ship's complement complies with the Minimum Safe Manning Document (SOLAS 74/88 R.V/13(b));
- (GA) 13.2.1.7 checking that the master, officers and ratings are certificated as required by the STCW Convention;
- (GA) 13.2.1.8 checking whether any new equipment has been fitted and, if so, confirm that it has been approved before installation and that any changes are reflected in the appropriate certificate;
- (GA) 13.2.1.9 confirming that the loading and stability information booklet, containing details of typical service and ballast conditions, provisions for evaluating other conditions of loading, a summary of the ship's survival capabilities and sufficient information to ensure that the ship is loaded and operated in a safe and seaworthy manner is available on board (IGC Code 83/90, Chapter 2);
- (GA) 13.2.1.10 confirming that damage survival capability information is supplied on the basis of loading information for all anticipated conditions of loading and variations in draught and trim (IGC Code 83/90, Chapter 2);
- (GA) 13.2.1.11 confirming that necessary information for the safe carriage of the products to be carried has been provided (IGC Code 83/90, Chapter 18);
- (GA) 13.2.1.12 confirming that a copy of the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk, or the equivalent national regulations, has been provided (IGC Code 83/90, Chapter 18).
- (GA) 13.2.2 For compliance with the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk the annual survey of the structure, equipment, fittings, arrangements and materials should consist of:

- (GA) 13.2.2.1 confirming that any special arrangements to survive conditions of damage are in order (IGC Code 83/90, Chapter 2);
- (GA) 13.2.2.2 confirming that the wheelhouse doors and windows, sidescuttles and windows in superstructure and deckhouse ends in the cargo area are in a satisfactory condition (IGC Code 83/90, Chapter 3);
- (GA) 13.2.2.3 examining the cargo pump rooms and cargo compressor rooms (IGC Code 83/90, Chapter 3);
- (GA) 13.2.2.4 confirming that the manually operated emergency shutdown system together with the automatic shutdown of the cargo pumps and compressors are satisfactory (IGC Code 83/90, Chapter 3);
- (GA) 13.2.2.5 examining the cargo control room (IGC Code 83/90, Chapter 3);
- (GA) 13.2.2.6 examining the gas detection arrangements for cargo control rooms and the measures taken to exclude ignition sources where such spaces are not gas-safe (IGC Code 83/90, Chapter 3);
- (GA) 13.2.2.7 confirming the arrangements for the air locks are being properly maintained (IGC Code 83/90, Chapter 3);
- (GA) 13.2.2.8 examining, as far as practicable, the bilge, ballast and oil fuel arrangements (IGC Code 83/90, Chapter 3);
- (GA) 13.2.2.9 examining, when applicable, the bow or stern loading and unloading arrangements with particular reference to the electrical equipment, fire-fighting arrangements and means of communication between the cargo control room and the shore location (IGC Code 83/90, Chapter 3);
- (GA) 13.2.2.10 confirming that the sealing arrangements at the gas domes are satisfactory (IGC Code 83/90, Chapter 4);
- (GA) 13.2.2.11 confirming that portable or fixed drip trays or deck insulation for cargo leakage is in order (IGC Code 83/90, Chapter 4);
- (GA) 13.2.2.12 examining the cargo and process piping, including the expansion arrangements, insulation from the hull structure, pressure relief and drainage arrangements (IGC Code 83/90, Chapter 5);
- (GA) 13.2.2.13 confirming that the cargo tank and interbarrier space pressure and relief valves, including safety systems and alarms, are satisfactory (IGC Code 83/90, Chapter 5);
- (GA) 13.2.2.14 confirming that any liquid and vapour hoses are suitable for their intended purpose (IGC Code 83/90, Chapter 5);
- (GA) 13.2.2.15 examining the arrangements for the cargo pressure/temperature control including, when fitted, any refrigeration system and confirming that any associated alarms are satisfactory (IGC Code 83/90, Chapter 7);
- (GA) 13.2.2.16 examining the cargo, bunker, ballast and vent piping systems, including vent masts and protective screens, as far as practicable (IGC Code 83/90, Chapter 8);
- (GA) 13.2.2.17 confirming that arrangements are made for sufficient inert gas to be carried to compensate for normal losses and that means are provided for monitoring the spaces (IGC Code 83/90, Chapter 9);
- (GA) 13.2.2.18 confirming that any air drying system and any interbarrier and hold space purging inert gas system are satisfactory (IGC Code 83/90, Chapter 9);
- (GA) 13.2.2.19 confirming that electrical equipment in gas-dangerous spaces and zones is in a satisfactory condition and is being properly maintained (IGC Code 83/90, Chapter 10);
- (GA) 13.2.2.20 examining the arrangements for the fire protection and fire extinction and testing the remote means of starting one main fire pump (IGC Code 83/90, Chapter 11);
- (GA) 13.2.2.21 examining the fixed fire-fighting system for the cargo pump room and confirming that its means of operation is clearly marked (IGC Code 83/90, Chapter 11);

- (GA) 13.2.2.22 examining the water spray system for cooling, fire protection and crew protection and confirming that its means of operation is clearly marked (IGC Code 83/90, Chapter 11);
- (GA) 13.2.2.23 examining the dry chemical powder fire-extinguishing system for the cargo area and confirming that its means of operation is clearly marked (IGC Code 83/90, Chapter 11);
- (GA) 13.2.2.24 examining the fixed installation for the gas-dangerous spaces and confirming its means of operation is clearly marked (IGC Code 83/90, Chapter 11);
- (GA) 13.2.2.25 confirming the provision and examining the condition of the fireman's outfits (IGC Code 83/90, Chapter 11);
- (GA) 13.2.2.26 examining, as far as practicable, and confirming the satisfactory operation of, the arrangements for the mechanical ventilation of spaces in the cargo area normally entered during cargo handling operations (IGC Code 83/90, Chapter 12);
- (GA) 13.2.2.27 examining, and confirming the satisfactory operation of, the arrangements for the mechanical ventilation of spaces normally entered other than those covered by 13.1.2.24 (IGC Code 83/90, Chapter 12);
- (GA) 13.2.2.28 examining, and testing as appropriate and as far as practicable, the liquid level indicators, overflow control, pressure gauges, high pressure and, when applicable, low pressure alarms, and temperature indicating devices for the cargo tanks (IGC Code 83/90, Chapter 13);
- (GA) 13.2.2.29 examining, and testing as appropriate, the gas detection equipment (IGC Code 83/90, Chapter 13);
- (GA) 13.2.2.30 confirming that two sets of portable gas detection equipment suitable for the cargoes to be carried and a suitable instrument for measuring oxygen levels have been provided (IGC Code 83/90, Chapter 13);
- (GA) 13.2.2.31 checking the provision of equipment for personnel protection (IGC Code 83/90, Chapter 14) and in particular that:
  - (GA) 13.2.2.31.1 two complete sets of safety equipment each permitting personnel to enter and work in a gas-filled space are provided and are properly stowed;
  - (GA) 13.2.2.31.2 the requisite supply of compressed air is provided and examining, when applicable, the arrangements for any special air compressor and low-pressure air line system;
  - (GA) 13.2.2.31.3 medical first-aid equipment, including stretchers and oxygen resuscitation equipment and antidotes, when available, for the products to be carried are provided;
  - (GA) 13.2.2.31.4 respiratory and eye protection suitable for emergency escape purposes are provided;
  - (GA) 13.2.2.31.5 decontamination arrangements and eyewashes are operational;
  - (GA) 13.2.2.31.6 examining, when applicable, the arrangements to protect personnel against the effects of a major cargo release by a special suitably designed and equipped space within the accommodation area;
- (GA) 13.2.2.32 examining, when applicable, the arrangements for the use of cargo as fuel and testing, as far as practicable, that the gas supply to the machinery space is cut off should the exhaust ventilation not be functioning correctly and that master gas fuel valve may be remotely closed from within the machinery space (IGC Code 83/90, Chapter 16).
- (GA) 13.2.3 For compliance with the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk the completion of the annual survey should consist of:
  - (GA) 13.2.3.1 after a satisfactory survey the International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk should be endorsed;
  - (GA) 13.2.3.2 if a survey shows that the condition of a ship or its equipment is unsatisfactory - see 4.8.
- (GIn) 13.3 Intermediate surveys - see 4.3.

- (GIn) 13.3.1 For compliance with the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk the examination of current certificates and other records should consist of:
  - (GIn) 13.3.1.1 the provisions of (GA) 13.2.1.
  - (GIn) 13.3.2 For compliance with the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk the intermediate survey of the structure, equipment, fittings, arrangements and materials should consist of:
    - (GIn) 13.3.2.1 the provisions of (GA) 13.2.2;
    - (GIn) 13.3.2.2 confirming, where applicable, that pipelines and independent cargo tanks are electrically bonded to the hull (IGC Code 83/90, Chapter 10);
    - (GIn) 13.3.2.3 generally examining the electrical equipment and cables in dangerous zones such as cargo pump rooms and areas adjacent to cargo tanks to check for defective equipment, fixtures and wiring. The insulation resistance of the circuits should be tested and in cases where a proper record of testing is maintained consideration should be given to accepting recent readings (IGC Code 83/90, Chapter 10);
    - (GIn) 13.3.2.4 confirming that spares are provided for cargo area mechanical ventilation fans (IGC Code 83/90, Chapter 12);
    - (GIn) 13.3.2.5 confirming that the heating arrangements, if any, for steel structures are satisfactory.
  - (GIn) 13.3.3 For compliance with the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk the completion of the intermediate survey should consist of:
    - (GIn) 13.3.3.1 after a satisfactory survey the International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk should be endorsed;
    - (GIn) 13.3.3.2 if a survey shows that the condition of a ship or its equipment is unsatisfactory - see 4.8.
- (GR) 13.4 Renewal surveys - see 4.4.
  - (GR) 13.4.1 For compliance with the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk the examination of current certificates and other records should consist of:
    - (GR) 13.4.1.1 the provisions of 13.2.1, except the International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk.
  - (GR) 13.4.2 For compliance with the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk the renewal survey of the structure, equipment, fittings, arrangements and materials should consist of:
    - (GR) 13.4.2.1 the provisions of (GIn) 13.3.3;
    - (GR) 13.4.2.2 examining the insulation and means of support of the cargo tanks and confirming that the secondary barrier remains effective (IGC Code 83/90, Chapter 4).
  - (GR) 13.4.3 For compliance with the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk the completion of the renewal survey should consist of:
    - (GR) 13.4.3.1 after a satisfactory survey the International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk should be issued.
- (P) 14 GUIDELINES FOR SURVEYS FOR THE PASSENGER SHIP SAFETY CERTIFICATE
  - (PI) 14.1 Initial surveys - see 4.1.
    - (PI) 14.1.1 For the hull, machinery and equipment of passenger ships the examination of plans and designs should consist of:
      - (PI) 14.1.1.1 examining the subdivision and stability (SOLAS 74/88 Rs.II-1/4 to 8, 13 and 16);
      - (PI) 14.1.1.2 examining the ballasting arrangements (SOLAS 74/88 R.II-1/9);



- (PI) 14.1.1.3 examining the arrangement of the bulkheads, their construction and the openings therein, including the disposition and means of operation of the watertight doors (SOLAS 74/88 Rs.II-1/10, 14, and 15);
- (PI) 14.1.1.4 examining the arrangement of the double bottoms (SOLAS 74/88 R.II-1/12);
- (PI) 14.1.1.5 examining the arrangements for the openings in the shell plating below the margin line, the construction of the watertight doors, sidescuttles, watertight decks, trunks, etc., and the watertight integrity above the margin line (SOLAS 74/88 Rs.II-1/17, 18, 19 and 20);
- (PI) 14.1.1.6 examining the plans for the bilge pumping (SOLAS 74/88 Rs.II-1/21 and 39);
- (PI) 14.1.1.7 examining, when appropriate, the means of indicating the status of any bow doors and the leakage therefrom (SOLAS 74/88 R.II-1/23-2);
- (PI) 14.1.1.8 examining the plans for the machinery installation (SOLAS 74/88 Rs.II-1/26 to 36 and 54);
- (PI) 14.1.1.9 examining the plans for the electrical installation (SOLAS 74/88 Rs.II-1/39, 40, 41, 42, 44 and 45);
- (PI) 14.1.1.10 checking, when appropriate, the provision of supplementary emergency lighting (SOLAS 74/88 R.II-1/42-1);
- (PI) 14.1.1.11 examining the plans for the fire pumps, fire mains, hydrants, hoses and nozzles and the international shore connection (SOLAS 74/88 R.II-1/39 and Rs.II-2/4 and 19);
- (PI) 14.1.1.12 checking the provision and specification of the fire extinguishers and the fireman's outfits (SOLAS 74/88 Rs.II-2/6 and 17);
- (PI) 14.1.1.13 examining the plans for the fire extinguishing and special arrangements in the machinery spaces (SOLAS 74/88 R.II-1/39 and Rs.II-2/7 and 11);
- (PI) 14.1.1.14 examining the arrangements for oil fuel, lubricating oil and other flammable oils (SOLAS 74/88 R.II-2/15);
- (PI) 14.1.1.15 examining the plans for the structural fire protection, including the means of escape (SOLAS 74/88 Rs.II-2/23 to 36);
- (PI) 14.1.1.16 examining the plans for the protection of special category spaces and other cargo spaces (SOLAS 74/88 Rs.II-2/37, 38 and 39);
- (PI) 14.1.1.17 examining the plans for the fixed fire detection and alarm system, the crew alarm and the public address system or other effective means of communication (SOLAS 74/88 R.II-2/40);
- (PI) 14.1.1.18 examining the plans for the special arrangements for the carriage of dangerous goods, when appropriate, including water supplies, electrical equipment and wiring, fire detection, bilge pumping and personnel protection (SOLAS 74/88 Rs.II-2/41 and 54);
- (PI) 14.1.1.19 examining the provision and disposition of the survival craft and rescue boats and the arrangements for mustering passengers (SOLAS 74/88 Rs.III/11 to 16, 20 and 24);
- (PI) 14.1.1.20 examining the design of the survival craft, including their equipment, launching and recovery appliances and embarkation and launching arrangements (SOLAS 74/88 Rs.III/20 to 24, 36, 38 to 44 and 48);
- (PI) 14.1.1.21 examining the design of the rescue boats, including their equipment and launching and recovery appliances and arrangements (SOLAS 74/88 Rs.III/16, 20, 47 and 48);
- (PI) 14.1.1.22 examining the provision, specification and stowage of two-way VHF radiotelephone apparatus and radar transponders (SOLAS 74/88 R.III/6);
- (PI) 14.1.1.23 examining the provision, specification and stowage of the distress flares and the line-throwing appliance and the provision of on-board communications equipment and the general alarm system (SOLAS 74/88 Rs.III/6, 17, 35, 49 and 50);

- (PI) 14.1.1.24 examining the provision, specification and stowage of the lifebuoys, including those fitted with self-igniting lights, self-activating smoke signals and buoyant lines, lifejackets, immersion suits and thermal protective aids (SOLAS 74/88 Rs.III/7, 21 and 31 to 37);
- (PI) 14.1.1.25 examining the plans for the lighting of the muster and embarkation stations and the alleyways, stairways and exits giving access to the muster and embarkation stations, including the supply from the emergency source of power (SOLAS 74/88 Rs.II-1/42 and III/11);
- (PI) 14.1.1.26 examining the plans for the positioning of, and the specification for, the navigation lights, shapes and sound signalling equipment (International Regulations for Preventing Collisions at Sea in force Rs.20 to 24, 27 to 30 and 33);
- (PI) 14.1.1.27 checking the provision and specification of the daylight signalling lamp and, as appropriate, the magnetic compass, gyro compass, radar installation, automatic radar plotting aid, echo-sounding device, speed and distance indicator, rudder angle indicator, propeller rate of revolution indicator, variable pitch propeller pitch and operational mode indicator, rate-of-turn indicator, radio direction finding apparatus and radio homing device (SOLAS 74/88 Rs.V/11 and 12);
- (PI) 14.1.1.28 checking the provision and specification of the pilot ladders and hoists/pilot transfer arrangements (SOLAS 74/88 R.V/17);

**Note: 14.1.1.29 to 14.1.1.33 apply to GMDSS ships and 14.1.1.33 to 14.1.1.34 applies to non-GMDSS ships.**

- (PI) 14.1.1.29 establishing the sea areas declared for operation, the equipment installed to fulfil the functional requirements for the sea areas of operation, the methods adopted to ensure the availability of the functional requirements and the arrangements for supply of an emergency source of energy (if any) (SOLAS 74/88 Rs. II-1/42 and IV/1 to 15);
- (PI) 14.1.1.30 establishing which radio equipment is to be surveyed and, if duplication of equipment is used as a means of ensuring the availability of the functional requirements, establishing which is the "basic equipment" and which the "duplicated equipment" (SOLAS 74/88 R.IV/15) (Additional radiocommunications equipment provided other than for SOLAS compliance should be noted);
- (PI) 14.1.1.31 confirming all SOLAS equipment complies with appropriate performance standards not inferior to those adopted by IMO (SOLAS 74/88 R.IV/14);
- (PI) 14.1.1.32 examining the plans for the provision and positioning of the radio installation including sources of energy and antennas. (SOLAS 74/88 Rs.II-1/42, IV/6 and 14);
- (PI) 14.1.1.33 examining the plans for the provision and positioning of the radio life-saving appliances (SOLAS 74/88 R.III/6);
- (PI) 14.1.1.34 examining the plans for the provision and positioning of the radiotelegraph installation including sources of energy and antennas (SOLAS 74/88 text in force prior to 1 February 1992) R.IV/9 and 16).
- (PI) 14.1.2 For the hull, machinery and equipment of passenger ships the survey during construction and after installation should consist of:
  - (PI) 14.1.2.1 examining the outside of the ship's bottom, including the bottom and bow plating, keel, bilge keels, stem, stern frame, the rudder, sea chests and strainers (SOLAS 74/88 R.I/7(b)(i));
  - (PI) 14.1.2.2 confirming the arrangements for the subdivision, including the ship's stability in the damaged condition, and checking the subdivision load lines (SOLAS 74/88 Rs.II-1/4 to 8, 13 and 16);
  - (PI) 14.1.2.3 checking the ballasting arrangements (SOLAS 74/88 R.II-1/9);
  - (PI) 14.1.2.4 confirming the arrangement of the bulkheads, their construction and the openings therein, confirming that the collision bulkhead is watertight up to the freeboard deck, that the valves fitted on the pipes piercing the collision bulkhead are operable from above the freeboard deck and that there are no doors, manholes, ventilation ducts or any other openings, confirming that the other bulkheads, as required for the ship's subdivision, are watertight up to the bulkhead deck and confirming the construction of the watertight doors and that they have been tested (SOLAS 74/88 Rs.II-1/10, 14, 15 and 18);

- (PI) 14.1.2.5 confirming that the watertight integrity has been maintained where pipes, scuppers, etc., pass through sub-division watertight bulkheads (SOLAS 74/88 R.II-1/15);
- (PI) 14.1.2.6 confirming that a diagram is provided on the navigating bridge showing the location of the watertight doors together with indicators showing whether the doors are open or closed and confirming that the watertight doors and their means of operation have been installed in accordance with the approved plans (SOLAS 74/88 R.II-1/15);
- (PI) 14.1.2.7 testing the operation of the watertight doors both from the navigating bridge in the event of an emergency and locally at the door itself (SOLAS 74/88 R.II-1/15) and, in particular, that:
  - 14.1.2.7.1 they are operable locally from each side of the bulkhead;
  - 14.1.2.7.2 provided with devices giving an indication of whether the door is open or closed at all remote operating positions;
  - 14.1.2.7.3 provided with an audible alarm that is distinct from any other alarm in the area and, when appropriate, an intermittent visual signal;
  - 14.1.2.7.4 control handles are provided on each side of the bulkhead so that a person may hold both handles in the open position and pass safely through the watertight door without accidentally setting the power closing mechanism into operation;
- (PI) 14.1.2.8 confirming that the watertight doors and their indicating devices are operable in the event of a failure of the main and emergency sources of power (SOLAS 74/88 R.II-1/15);
- (PI) 14.1.2.9 checking, when appropriate, any watertight doors, that are not required to be closed remotely, fitted in watertight bulkheads dividing 'tween deck spaces and confirming that a notice is affixed concerning their closure (SOLAS 74/88 R.II-1/15);
- (PI) 14.1.2.10 confirming that a notice is affixed to any portable plates on bulkheads in machinery spaces concerning their closure and, if appropriate, testing any power operated watertight door fitted in lieu (SOLAS 74/88 R.II-1/15);
- (PI) 14.1.2.11 confirming the arrangements for closing sidescuttles and their deadlights, also scuppers, sanitary discharges and similar openings and other inlets and discharges in the shell plating below the margin line (SOLAS 74/88 R.II-1/17);
- (PI) 14.1.2.12 confirming that valves for closing the main and auxiliary sea inlets and discharges in the machinery spaces are readily accessible and indicators showing the status of the valves are provided (SOLAS 74/88 R.II-1/17);
- (PI) 14.1.2.13 confirming that gangway, cargo and coaling ports fitted below the margin line may be effectively closed and that the inboard end of any ash or rubbish chutes are fitted with an effective cover (SOLAS 74/88 R.II-1/17);
- (PI) 14.1.2.14 confirming by a hose or flooding test the watertightness of watertight decks and trunks, tunnels and ventilators (SOLAS 74/88 R.II-1/19);
- (PI) 14.1.2.15 confirming the arrangements to maintain the watertight integrity above the margin line (SOLAS 74/88 R.II-1/20);
- (PI) 14.1.2.16 confirming the arrangements for the bilge pumping and that each bilge pump and the bilge pumping system provided for each watertight compartment is working efficiently (SOLAS 74/88 R.II-1/21);
- (PI) 14.1.2.17 confirming that the drainage system of enclosed cargo spaces situated on the freeboard deck is working efficiently (SOLAS 74/88 R.II-1/21);
- (PI) 14.1.2.18 conducting an inclining test (SOLAS 74/88 R.II-1/22);
- (PI) 14.1.2.19 checking, when appropriate, the means of indicating the status of any bow doors and any leakage therefrom (SOLAS 74/88 R.II-1/23-2);

- (PI) 14.1.2.20 confirming that the machinery, boilers and other pressure vessels, associated piping systems and fittings are installed and protected as to reduce to a minimum any danger to persons on board, due regard being given to moving parts, hot surfaces and other hazards (SOLAS 74/88 R.II-1/26);
- (PI) 14.1.2.21 confirming that the normal operation of the propulsion machinery can be sustained or restored even though one of the essential auxiliaries becomes inoperative (SOLAS 74/88 R.II-1/26);
- (PI) 14.1.2.22 confirming that means are provided so that the machinery can be brought into operation from the dead ship condition without external aid (SOLAS 74/88 R.II-1/26);
- (PI) 14.1.2.23 confirming that the boilers, all parts of the machinery, all steam, hydraulic, pneumatic and other systems and their associated fittings which are under internal pressure have been subjected to the appropriate tests, including a pressure test (SOLAS 74/88 R.II-1/26);
- (PI) 14.1.2.24 confirming that means is provided to ensure that the safe speed is not exceeded where there is the risk of machinery overspeeding (SOLAS 74/88 R.II-1/27);
- (PI) 14.1.2.25 confirming that, where practicable, means are provided to protect against overpressure in the parts of main, auxiliary and other machinery that are subject to internal pressure and may be subject to dangerous overpressure (SOLAS 74/88 R.II-1/27);
- (PI) 14.1.2.26 confirming that, when required, crankcase explosion relief devices are fitted to internal combustion engines and that they are arranged so as to minimise the possibility of injury to personnel (SOLAS 74/88 R.II-1/27);
- (PI) 14.1.2.27 confirming that main turbine propulsion machinery and, where applicable, main internal combustion propulsion machinery and auxiliary machinery are provided with automatic shut-off arrangements in the case of failures, such as lubricating oil supply failure, which could rapidly lead to a complete breakdown, serious damage or explosion (SOLAS 74/88 R.II-1/27);
- (PI) 14.1.2.28 confirming and recording the ability of the machinery to reverse the direction of the thrust of the propeller in sufficient time and to bring the ship to rest within a reasonable distance, including the effectiveness of any supplementary means of manoeuvring or stopping the ship (SOLAS 74/88 R.II- 1/28);
- (PI) 14.1.2.29 confirming that the main and auxiliary steering gear are so arranged that the failure of one of them does not render the other inoperative (SOLAS 74/88 R.II-1/29);
- (PI) 14.1.2.30 confirming that, where appropriate, essential components of the steering gear are permanently lubricated or provided with lubrication fittings (SOLAS 74/88 R.II-1/29);
- (PI) 14.1.2.31 confirming that relief valves are fitted to any part of a steering gear hydraulic system which can be isolated and in which pressure can be generated from the power source or from external forces and that these relief valves are set to a pressure not exceeding the design pressure (SOLAS 74/88 R.II-1/29);
- (PI) 14.1.2.32 confirming that the main steering gear is capable of steering the ship at maximum ahead service speed and is capable of putting the rudder over from 35 deg on one side to 35 deg on the other side with the ship at its deepest seagoing draught and running ahead at maximum ahead service speed and, under the same conditions, from 35 deg on either side to 30 deg on the other side in not more than 28 seconds (SOLAS 74/88 R.II-1/29);
- (PI) 14.1.2.33 confirming that the auxiliary steering gear is capable of steering the ship at navigable speed and of being brought speedily into action in an emergency and that it is capable of putting the rudder over from 15 deg on one side to 15 deg on the other side in not more than 60 seconds with the ship at its deepest seagoing draught and running ahead at one half of the maximum ahead service speed or 7 knots, whichever is the greater (SOLAS 74/88 R.II-1/29);
- (PI) 14.1.2.34 confirming that the main or auxiliary steering gear power units restart automatically when power is restored after a power failure, that they are capable of being brought into operation from a position on the navigating bridge and that, in the event of a power failure to any one of the steering gear power units, an audible and visual alarm is given on the navigating bridge (SOLAS 74/88 R.II-1/29);

- (PI) 14.1.2.35 confirming that, where the main steering gear comprises two or more identical power units and an auxiliary steering gear is not fitted, a defect can be isolated so that steering capability can be maintained or speedily regained after a single failure in its piping system or in one of the power units (SOLAS 74/88 R.II-1/29);
- (PI) 14.1.2.36 confirming that the control systems for the main steering gear from both the navigating bridge and the steering gear compartment are operating satisfactorily (SOLAS 74/88 R.II-1/29);
- (PI) 14.1.2.37 confirming that, where the main steering gear comprises two or more identical power units and an auxiliary steering gear is not fitted, the two independent control systems from the navigating bridge are operating satisfactorily (SOLAS 74/88 R.II-1/29);
- (PI) 14.1.2.38 confirming that the control system for the auxiliary steering gear in the steering gear compartment and, if this gear is power operated, from the navigating bridge are operating satisfactorily and that the latter is independent of the control system for the main steering gear (SOLAS 74/88 R.II-1/29);
- (PI) 14.1.2.39 confirming that the control system for any main and auxiliary steering gear control system operable from the navigating bridge is capable of being brought into operation from a position on the navigating bridge, that means are provided in the steering gear compartment for disconnecting it from the steering gear that it serves and that an audible and visual alarm is given on the navigating bridge in the event of a failure of electrical power supply (SOLAS 74/88 R.II-1/29);
- (PI) 14.1.2.40 confirming that the electric power circuits and steering gear control system, together with their associated components, cables and pipes, are separated, as far as practicable, throughout their length (SOLAS 74/88 R.II-1/29);
- (PI) 14.1.2.41 confirming that the means of communication between the bridge and the steering gear is operating satisfactorily and that, with ships having emergency steering positions, a telephone or other means of communication for relaying heading information and supplying visual compass readings to the emergency steering position are provided (SOLAS 74/88 Rs.II-1/29 and V/12);
- (PI) 14.1.2.42 confirming that the angular position of the rudder is indicated independently of the steering control system on the navigating bridge if the main steering gear is power-operated and that this angular position is given in the steering gear compartment (SOLAS 74/88 R.II-1/29, Chapter V, R.5/12);
- (PI) 14.1.2.43 confirming that with a hydraulic power-operated steering gear the audible and visual low-level alarms on the navigating bridge and in the machinery space for each hydraulic fluid reservoir are operating satisfactorily and that at least one power actuating system including the reservoir can be recharged from a position within the steering gear compartment by means of a fixed storage tank to which a contents gauge is fitted with fixed piping (SOLAS 74/88 R.II-1/29);
- (PI) 14.1.2.44 confirming that the steering gear compartment is readily accessible, that it is separated, as far as practicable, from machinery spaces and is provided with suitable arrangements to ensure working access to steering gear machinery and controls under safe conditions (SOLAS 74/88 R.II-1/29);
- (PI) 14.1.2.45 confirming that with electric and electro-hydraulic steering gear the means for indicating on the navigating bridge and at a main machinery control position that the motors are running and that the overload alarm and alarm for the loss of a phase in a three phase supply located at the main machinery control position are operating satisfactorily (SOLAS 74/88 R.II-1/30);
- (PI) 14.1.2.46 confirming that the main and auxiliary machinery essential for propulsion and the safety of the ship are provided with the effective means for its operation and control (SOLAS 74/88 R.II-1/31);
- (PI) 14.1.2.47 confirming that appropriate means are provided where it is intended that the propulsion machinery should be remotely controlled from the navigating bridge (SOLAS 74/88 R.II-1/31);
- (PI) 14.1.2.48 confirming that arrangements to operate main and other machinery from a machinery control room are satisfactory (SOLAS 74/88 R.II-1/31);
- (PI) 14.1.2.49 confirming that, in general, means are provided for manually overriding automatic controls and that a failure does not prevent the use of the manual override (SOLAS 74/88 R.II-1/31);

- (PI) 14.1.2.50 confirming that oil-fired and exhaust gas boilers, unfired steam generators, steam pipe systems and air pressure systems are fitted with the appropriate safety features (SOLAS 74/88 Rs.II-1/32, 33 and 34);
- (PI) 14.1.2.51 confirming the operation of the ventilation for the machinery spaces (SOLAS 74/88 R.II-1/35);
- (PI) 14.1.2.52 confirming that the measures to prevent noise in machinery spaces are effective (SOLAS 74/88 R.II-1/36);
- (PI) 14.1.2.53 confirming that the engine room telegraph giving visual indication of the orders and answers both in the machinery space and on the navigating bridge is operating satisfactorily (SOLAS 74/88, regulation II-1/37);
- (PI) 14.1.2.54 confirming that the second means of communication between the navigation bridge and machinery space is also operating satisfactorily and that appropriate means are provided to any other positions from which the engines are controlled (SOLAS 74/88, regulation II-1/37);
- (PI) 14.1.2.55 confirming that the engineer's alarm is clearly audible in the engineers' accommodation (SOLAS 74/88, regulation II-1/38);
- (PI) 14.1.2.56 confirming that precautions, taken to prevent any oil than may escape under pressure from any pump, filter or heater from coming into contact with heated surfaces, are efficient;
- (PI) 14.1.2.57 confirming that the means of ascertaining the amount of oil contained in any oil tank are in good working condition;
- (PI) 14.1.2.58 confirming that the devices provided to prevent overpressure in any oil tank or in any part of the oil system, including the filling pipes, are in good working condition;
- (PI) 14.1.2.59 confirming that forepeak tanks are not intended for carriage of oil fuel, lubrication oil and other flammable oils;
- (PI) 14.1.2.60 confirming that the electrical installations, including the main source of power and lighting systems, are installed in accordance with the approved plans (SOLAS 74/88 Rs.II-1/40 and 41);
- (PI) 14.1.2.61 confirming that a self-contained emergency source of electrical power has been provided and that the appropriate systems are satisfactorily supplied (SOLAS 74/88 R.II-1/42);
- (PI) 14.1.2.62 confirming that starting arrangements of each emergency generating set is satisfactory (SOLAS 74/88 R.II-1/44);
- (PI) 14.1.2.63 checking, when appropriate, the disposition of and testing the supplementary emergency lighting (SOLAS 74/88 R.II-1/42-1);
- (PI) 14.1.2.64 confirming that precautions have been provided against shock, fire and other hazards of electrical origin (SOLAS 74/88 R.II-1/45);
- (PI) 14.1.2.65 confirming, when appropriate, that the arrangements for the machinery spaces being periodically unattended are satisfactory (SOLAS 74/88 R.II-1/54);
- (PI) 14.1.2.66 examining the fire pumps and fire main and the disposition of the hydrants, hoses and nozzles and the international shore connection and checking that each fire pump, including the emergency fire pump, can be operated separately so that two jets of water are produced simultaneously from different hydrants at any part of the ship whilst the required pressure is maintained in the fire main (SOLAS 74/88 Rs.II-2/4 and 19);
- (PI) 14.1.2.67 examining the provision and disposition of the fire extinguishers and the fireman's outfits (SOLAS 74/88 Rs.II-2/6 and 17);
- (PI) 14.1.2.68 examining the fixed fire fighting system for the machinery and cargo spaces, as appropriate, and confirming that the installation tests have been satisfactorily completed and that its means of operation are clearly marked (SOLAS 74/88 Rs.II-2/7 and 53);
- (PI) 14.1.2.69 examining the fire extinguishing and special arrangements in the machinery spaces and confirming, as far as practicable and as appropriate, the operation of the remote means of control provided for the opening and closing of the skylights, the release of smoke, the closure of the

funnel and ventilation openings, the closure of power operated and other doors, the stopping of ventilation and boiler forced and induced draft fans and the stopping of oil fuel and other pumps that discharge flammable liquids (SOLAS 74/88 Rs.II-2/7 and 11);

- (PI) 14.1.2.70 examining the arrangements for oil fuel, lubricating oil and other flammable oils and confirming, as far as practicable and as appropriate, the operation of the remote means of closing the valves on the tanks that contain oil fuel, lubricating oil and other flammable oils (SOLAS 74/88 R.II-2/15);
- (PI) 14.1.2.71 examining any fire detection and alarm system and confirming that installation tests have been satisfactorily completed; (SOLAS 74/88 Rs.II-2/11, 12, 13, 14, 36 and 41);
- (PI) 14.1.2.72 confirming that all aspects of the installation of the structural fire protection, including the structure, fire integrity, protection of stairways and lifts, openings in 'A' and 'B' Class divisions, ventilation systems and windows and sidescuttles, and the use of combustible material are in accordance with the approved plans (SOLAS 74/88 Rs.II-2/23 to 35);
- (PI) 14.1.2.73 testing any manual and automatic fire doors, including the means of closing the openings in 'A' and 'B' Class divisions (SOLAS 74/88 Rs.II-2/30 and 31);
- (PI) 14.1.2.74 testing the means of closing the main inlets and outlets of all ventilation systems and proving that the power ventilation is capable of being stopped from outside the space served (SOLAS 74/88 R.II-2/32);
- (PI) 14.1.2.75 confirming that stairways and ladders are so arranged to provide a means of escape to the lifeboat and liferaft and liferaft embarkation deck from all passenger and crew spaces and from those spaces in which the crew is normally employed (SOLAS 74/88 R.II- 2/28) and in particular that:
  - (PI) 14.1.2.75.1 below the bulkhead deck there are two means of escape from each watertight compartment, one being independent of watertight doors;
  - (PI) 14.1.2.75.2 above the bulkhead deck two means of escape from each vertical zone or similar such area, one leading directly to a stairway forming a vertical escape;
  - (PI) 14.1.2.75.3 the radiotelegraph station, if provided, has direct access to the open deck or is provided with two means of access or egress, one of which is a porthole or window of sufficient size;
- (PI) 14.1.2.76 confirming that the means of escape from any special category spaces are generally in accordance with 14.1.2.75 (SOLAS 74/88 R.II-2/28);
- (PI) 14.1.2.77 confirming that in the machinery spaces there are two widely separated means of escape leading to the lifeboat and liferaft embarkation decks, including, when from a space below the bulkhead deck, a continuous fire shelter (SOLAS 74/88 R.II-2/28);
- (PI) 14.1.2.78 confirming the fire protection arrangements for special category spaces and other cargo spaces and testing, as appropriate, the operation of the means for closing the various openings (SOLAS 74/88 Rs.II-2/37, 38 and 39);
- (PI) 14.1.2.79 confirming and testing, as appropriate, the fixed fire detection and alarm system, the special alarm and the public address system or other effective means of communication (SOLAS 74/88 R.II-2/40);
- (PI) 14.1.2.80 examining, when appropriate, the special arrangements for carrying dangerous goods, including checking the electrical equipment and wiring and boundary insulation, the provision of protective clothing and portable appliances and the testing of the water supply, bilge pumping and any water spray system (SOLAS 74/88 Rs.II-2/41 and 54);
- (PI) 14.1.2.81 checking the provision and disposition of the survival craft and rescue boats and the arrangements for mustering passengers (SOLAS 74/88 Rs.III/11 to 16, 20 and 24);
- (PI) 14.1.2.82 examining each survival craft, including its equipment (SOLAS 74/88 Rs.III/20, 21, 33, 34, 36 and 38 to 44);
- (PI) 14.1.2.83 examining the embarkation arrangements for each survival craft and the testing of each launching appliance, including overload tests, tests to establish the lowering speed and the lowering of each

survival craft to the water with the ship at its lightest sea-going draught, checking the recovery of each lifeboat (SOLAS 74/88 Rs.III/11, 12, 13, 15, 20 and 48);

- (PI) 14.1.2.84 examining each rescue boat, including its equipment (SOLAS 74/88 Rs.III/20, 34 and 47);
- (PI) 14.1.2.85 examining the embarkation and recovery arrangements for each rescue boat and testing each launching and recovery appliances, including overload tests, tests to establish the lowering and recovery speeds and ensuring that each rescue boat can be lowered to the water and recovered with the ship at its lightest sea-going draught (SOLAS 74/88 Rs.III/14, 16, 20 and 48);
- (PI) 14.1.2.86 examining the arrangements for mustering passengers (SOLAS 74/88 R.III/24);
- (PI) 14.1.2.87 testing that the engine of the rescue boat(s) and of each lifeboat, when so fitted, start satisfactorily and operate both ahead and astern;
- (PI) 14.1.2.88 confirming that there are posters or signs in the vicinity of survival craft and their launching stations (SOLAS 74/88 R.III/9);
- (PI) 14.1.2.89 examining the provision and stowage and checking the operation of two-way VHF radiotelephone apparatus and radar transponders, (SOLAS 74/88 R.III/6);
- (PI) 14.1.2.90 examining the provision and stowage of the distress flares and the line-throwing appliance, checking the provision and operation of on-board communications equipment and testing the means of operation of the general alarm system (SOLAS 74/88 R.III/6);
- (PI) 14.1.2.91 examining the provision, disposition and stowage of the lifebuoys, including those fitted with self-igniting lights, self-activating smoke signals and buoyant lines, lifejackets, immersion suits and thermal protective aids (SOLAS 74/88 Rs.III/7, 21 and 31 to 37);
- (PI) 14.1.2.92 checking the lighting of the muster and embarkation stations and the alleyways, stairways and exits giving access to the muster and embarkation stations, including when supplied from the emergency source of power (SOLAS 74/88 Rs.II-1/42 and III/11);
- (PI) 14.1.2.93 examining the provision and positioning and checking the operation of, as appropriate, the navigation lights, shapes and sound signalling equipment (International Regulations for Preventing Collisions at Sea in force, Rs.20 to 24, 27 to 30 and 33);
- (PI) 14.1.2.94 checking the provision and specification of a daylight signalling lamp (SOLAS 74/88 R.V/11);
- (PI) 14.1.2.95 checking that the minimum safe distances from the steering and standard magnetic compasses for all electrical equipment are complied with and, as appropriate, the provision and operation of the following (SOLAS 74/88 R.V/12):
  - (PI) 14.1.2.95.1 the magnetic compass, including examining the siting, movement, azimuth reading devices and illumination;
  - (PI) 14.1.2.95.2 echo sounder, including examining the display for good access, viewing and lighting;
  - (PI) 14.1.2.95.3 radio direction finder, including examining the voice and signalling arrangement between the receiver and the bridge;
  - (PI) 14.1.2.95.4 radio homing device;
  - (PI) 14.1.2.95.5 gyro compass, including examining the alignment of the master and all repeaters;



- (PI) 14.1.2.95.6 radar, including examining the waveguide and cable runs for routing and protection and the display unit confirming lighting, plotting facilities, correct operation of all controls, functions and the true-motion facility if provided;
- (PI) 14.1.2.95.7 Automatic Radar Plotting Aid (ARPA) including examining the performance using the appropriate test facilities;
- (PI) 14.1.2.95.8 speed and distance indicator;
- (PI) 14.1.2.95.9 rudder angle indicator;
- (PI) 14.1.2.95.10 propeller rate of revolution indicator;
- (PI) 14.1.2.95.11 variable propeller pitch and operational mode indicator;
- (PI) 14.1.2.95.12 rate-of-turn indicator;
- (PI) 14.1.2.96 checking the provision and, as appropriate, the deployment or operation of the pilot ladders and hoists/pilot transfer arrangements (SOLAS 74/88 R.V/17);

**Note: 14.1.2.97 to 14.1.2.118 apply to all ships built after 1 February 1995 and to those ships built before that date to which the 1974 SOLAS Convention, as amended by the 1988 GMDSS amendments, is being applied. The survey of the radio installation, including those used in life-saving appliances, should always be carried out by a qualified radio surveyor who has necessary knowledge of the requirements the 1974 SOLAS Convention, the International Telecommunication Union's Radio Regulations and the associated performance standards for radio equipment. The radio survey should be carried out using suitable test equipment capable of performing all the relevant measurements required by these guidelines. On the satisfactory completion of the survey, the radio surveyor should forward a report of the survey, which should also state the organisation he represents, to the authorities responsible for the issue of the ship's Passenger Ship Safety Certificate.**

- (PI) 14.1.2.97 examining the position, physical and electromagnetic protection and illumination of each radio installation (SOLAS 74/88 R.IV/6);
- (PI) 14.1.2.98 confirming the provision of equipment for the radio installation with due regard to the declared sea areas in which the ship will trade and the declared means of maintaining availability of functional requirements (SOLAS 74/88 Rs.III/6, IV/7 to 11,14 and 15);
- (PI) 14.1.2.99 confirming the ability to initiate the transmission of ship-to-shore distress alerts by at least two separate and independent means, each using a different radiocommunication service, from the position from which the ship is normally navigated (SOLAS 74/88 Rs.IV/4,7 to 11);
- (PI) 14.1.2.100 examining all antennas, including:
  - (PI) 14.1.2.100.1 visually checking all antennas, including INMARSAT antennas, and feeders for satisfactory siting and absence of defects (SOLAS 74/88 R.IV/14);
  - (PI) 14.1.2.100.2 checking insulation and safety of all antennas;
- (PI) 14.1.2.101 examining the reserve source of energy, including:
  - (PI) 14.1.2.101.1 checking there is sufficient capacity to operate the basic or duplicated equipment for 1 hour or 6 hours, as appropriate (SOLAS 74/88 R.IV/13);
  - (PI) 14.1.2.101.2 and, if the reserve source of energy is a battery:
    - (PI) 14.1.2.101.2.1 checking its siting and installation (SOLAS 74/88 R.IV/13);
    - (PI) 14.1.2.101.2.2 where appropriate, checking its condition by specific gravity measurement or voltage measurement;
    - (PI) 14.1.2.101.2.3 with the battery off charge, and the maximum required radio installation load connected to the reserve source of energy, checking the battery voltage and discharge current;

- (PI) 14.1.2.101.2.4 checking that the charger(s) are capable of re-charging the reserve battery within 10 hours (SOLAS 74/88 R.IV/13);
- (PI) 14.1.2.102 examining the VHF transceiver(s), including:
  - (PI) 14.1.2.102.1 checking for operation on channels 6, 13 and 16 (SOLAS 74/88 Rs.IV/7 and 14);
  - (PI) 14.1.2.102.2 checking frequency tolerance, transmission line quality and radio frequency power output (SOLAS 74/88 R.IV/14);
  - (PI) 14.1.2.102.3 checking for correct operation of all controls including priority of control units (SOLAS 74/88 R.IV/14);
  - (PI) 14.1.2.102.4 checking that the equipment operates from the main, emergency (if provided) and reserve sources of energy (SOLAS 74/88 R.IV/13);
  - (PI) 14.1.2.102.5 checking the operation of the VHF control unit(s) or portable VHF equipment provided for navigational safety (SOLAS 74/88 R.IV/6);
  - (PI) 14.1.2.102.6 checking for correct operation by on-air contact with a coast station or other ship;
- (PI) 14.1.2.103 examining the VHF DSC controller and channel 70 DSC watch receiver, including:
  - (PI) 14.1.2.103.1 performing an off-air check confirming the correct Maritime Mobile Service Identity is programmed in the equipment (SOLAS 74/88 R.IV/14);
  - (PI) 14.1.2.103.2 checking for correct transmission by means of a routine or test call to a coast station, other ship, on-board duplicate equipment or special test equipment;
  - (PI) 14.1.2.103.3 checking for correct reception by means of a routine or test call from a coast station, other ship, on-board duplicate equipment or special test equipment;
  - (PI) 14.1.2.103.4 checking the audibility of the VHF/DSC alarm;
  - (PI) 14.1.2.103.5 checking that the equipment operates from the main, emergency (if provided) and reserve sources of energy (SOLAS 74/88 R.IV/13);
- (PI) 14.1.2.104 examining the MF/HF radiotelephone equipment, including:
  - (PI) 14.1.2.104.1 checking that the equipment operates from the main, emergency (if provided) and reserve sources of energy (SOLAS 74/88 R.IV/13);
  - (PI) 14.1.2.104.2 checking the antenna tuning in all appropriate bands;
  - (PI) 14.1.2.104.3 checking the equipment is within frequency tolerance on all appropriate bands (SOLAS 74/88 R.IV/14);
  - (PI) 14.1.2.104.4 checking for correct operation by contact with a coast station and/or measuring transmission line quality and radio frequency output;
  - (PI) 14.1.2.104.5 checking receiver performance by monitoring known stations on all appropriate bands;
  - (PI) 14.1.2.104.6 if control units are provided outside the navigating bridge, checking the control unit on the bridge has first priority for the purpose of initiating distress alerts (SOLAS 74/88 Rs.IV/9, 10, 11 and 14);
  - (PI) 14.1.2.104.7 checking the correct operation of the radiotelephone alarm signal generating device on a frequency other than 2182 kHz;
- (PI) 14.1.2.105 examining the HF radiotelex equipment, including:
  - (PI) 14.1.2.105.1 checking that the equipment operates from the main, emergency (if provided) and reserve sources of energy (SOLAS 74/88 R.IV/13);
  - (PI) 14.1.2.105.2 confirming that the correct selective calling number is programmed in the equipment;

- (PI) 14.1.2.105.3 checking correct operation by inspection of recent hard copy or by a test with a coast radio station (SOLAS 74/88 Rs.IV/10 and 11);
- (PI) 14.1.2.106 examining the MF/HF DSC controller(s), including:
  - (PI) 14.1.2.106.1 checking that the equipment operates from the main, emergency (if provided) and reserve sources of energy (SOLAS 74/88 R.IV/13);
  - (PI) 14.1.2.106.2 confirming that the correct Maritime Mobile Service Identity is programmed in the equipment;
  - (PI) 14.1.2.106.3 checking the off-air self test programme;
  - (PI) 14.1.2.106.4 checking operation by means of a test call on MF and/or HF to a coast radio station if the rules of the berth permit the use of MF/HF transmissions (SOLAS 74/88 Rs.IV/9 to 11);
  - (PI) 14.1.2.106.5 checking the audibility of the MF/HF DSC alarm;
- (PI) 14.1.2.107 examining the MF/HF DSC watch receiver(s), including:
  - (PI) 14.1.2.107.1 confirming that only distress and safety DSC frequencies are being monitored (SOLAS 74/88 Rs.IV/9 to 12);
  - (PI) 14.1.2.107.2 checking that a continuous watch is being maintained whilst keying MF/HF radio transmitters (SOLAS 74/88 R.IV/12);
  - (PI) 14.1.2.107.3 checking for correct operation by means of a test call from a coast station or other ship;
- (PI) 14.1.2.108 examining the radiotelephone distress frequency watch receiver (SOLAS Rs.IV/7 and 14), including:
  - (PI) 14.1.2.108.1 checking the mute/demute function;
  - (PI) 14.1.2.108.2 checking receiver sensitivity against known stations;
  - (PI) 14.1.2.108.3 checking the audibility of the loudspeaker;
- (PI) 14.1.2.109 examining the INMARSAT ship earth station(s), including:
  - (PI) 14.1.2.109.1 checking that the equipment operates from the main, emergency (if provided) and reserve sources of energy, and that where an uninterrupted supply of information from the ship's navigational or other equipment is required ensuring such information remains available in the event of failure of the ship's main or emergency source of electrical power. (SOLAS 74/88 Rs.IV/13 and 14);
  - (PI) 14.1.2.109.2 checking the distress function by means of an approved test procedure where possible (SOLAS 74/88 Rs. IV/10, 12 and 14);
  - (PI) 14.1.2.109.3 checking for correct operation by inspection of recent hard copy or by test call;
- (PI) 14.1.2.110 if appropriate, examining the NAVTEX equipment (SOLAS 74/88 Rs.IV/7, 12 and 14), including:
  - (PI) 14.1.2.110.1 checking for correct operation by monitoring incoming messages or inspecting recent hard copy;
  - (PI) 14.1.2.110.2 running the self-test programme if provided;
  - (PI) 14.1.2.111 examining the enhanced group call equipment (SOLAS 74/88 Rs.IV/7 and 14), including:
    - (PI) 14.1.2.111.1 checking for correct operation and area by monitoring incoming messages or by inspecting recent hard copy;
    - (PI) 14.1.2.111.2 running the self-test programme if provided;

- (PI) 14.1.2.112 if appropriate, examining the radio equipment for receipt of maritime safety information by HF NBDP (SOLAS 74/88 Rs.IV/7, 12 and 14) including:
  - (PI) 14.1.2.112.1 checking for correct operation by monitoring incoming messages or inspecting recent hard copy;
  - (PI) 14.1.2.112.2 running the self-test programme if provided;
- (PI) 14.1.2.113 examining the 406 MHz EPIRB (SOLAS 74/88 Rs.IV/7 and 14), including:
  - (PI) 14.1.2.113.1 checking position and mounting for float free operation;
  - (PI) 14.1.2.113.2 carrying out visual inspection for defects;
  - (PI) 14.1.2.113.3 carrying out the self-test routine;
  - (PI) 14.1.2.113.4 checking that the EPIRB ID is clearly marked on the outside of the equipment and, where possible, decoding the EPIRB identity number confirming it is correct;
  - (PI) 14.1.2.113.5 checking the battery expiry date;
  - (PI) 14.1.2.113.6 if provided, checking the hydrostatic release and its expiry date;
- (PI) 14.1.2.114 examining the INMARSAT 1.6 GHz satellite EPIRB (SOLAS 74/88 Rs.IV/7 and 14);  
(to be developed in due course when operational experience has been gained with this new equipment)
- (PI) 14.1.2.115 examining the VHF DSC EPIRB (SOLAS 74/88 Rs.IV/8 and 14);  
(to be developed in due course when operational experience has been gained with this new equipment)
- (PI) 14.1.2.116 examining the two-way VHF radiotelephone apparatus (SOLAS 74/88 R.III/6), including:
  - (PI) 14.1.2.116.1 checking for correct operation on channel 16 and one other by testing with another fixed or portable VHF installation (SOLAS 74/88 R.IV/14);
  - (PI) 14.1.2.116.2 checking the battery charging arrangements where re-chargeable batteries are used (SOLAS 74/88 R.IV/14);
  - (PI) 14.1.2.116.3 checking the expiry date of primary batteries where used (SOLAS 74/88 R.IV/14);
  - (PI) 14.1.2.116.4 where appropriate, checking any fixed installation provided in a survival craft (SOLAS 74/88 R.IV/14);
- (PI) 14.1.2.117 examining the radar transponder(s) (SOLAS 74/88 R.III/6 and Rs.IV/7 and 14), including:
  - (PI) 14.1.2.117.1 checking the position and mounting;
  - (PI) 14.1.2.117.2 monitoring response on ship's 9 GHz radar;
  - (PI) 14.1.2.117.3 checking the battery expiry date;
- (PI) 14.1.2.118 examining the test equipment and spares carried to ensure carriage is adequate in accordance with the sea areas in which the ship trades and the declared options for maintaining availability of the functional requirements (SOLAS 74/88 R.IV/15);

**Note: 14.1.2.119 to 14.1.2.134 apply to non-GMDSS ships. The survey of the radio installation, including those used in life-saving appliances, should always be carried out by a qualified radio surveyor who has necessary knowledge of the requirements the 1974 SOLAS Convention, the International Telecommunication Union's Radio Regulations and the associated performance standards for radio equipment. The radio survey should be carried out using suitable test equipment capable of performing all the relevant measurements required by these guidelines. On the satisfactory completion of**

**the survey, the radio surveyor should forward a report of the survey, which should also state the organisation he represents, to the authorities responsible for the issue of the ship's Passenger Ship Safety Certificate.**

- (PI) 14.1.2.119 checking that the provision, position and protection of the radio installation is satisfactory, confirming that the ship's name and call sign is clearly displayed near the radio installation (SOLAS 74/88 text in force prior to 1 February 1992 Rs.IV/9 and 15);
- (PI) 14.1.2.120 examining all antennas (SOLAS 74/88 text in force prior to 1 February 1992 Rs.IV/10 and 15) including:
  - (PI) 14.1.2.120.1 performing a visual inspection of all antennas, feeders and protection against whipping;
  - (PI) 14.1.2.120.2 checking insulation and safety;
- (PI) 14.1.2.121 examining the reserve source of energy (SOLAS 74/88 text in force prior to 1 February 1992 Rs.IV/10 and 16), in particular, where batteries are used to provide the reserve source of energy, including:
  - (PI) 14.1.2.121.1 checking the capacity of the reserve battery is sufficient to supply power for 6 hours (SOLAS 74/88 text in force prior to 1 February 1992 Rs IV/10 and 16);
  - (PI) 14.1.2.121.2 making a visual check of batteries, charger(s), fuses and cabling;
  - (PI) 14.1.2.121.3 checking the condition of the battery by means of a specific gravity test or voltage check, as appropriate;
  - (PI) 14.1.2.121.4 with the battery off-charge and the maximum required load connected to the reserve supply, checking the battery voltage and current;
- (PI) 14.1.2.122 examining the main transmitter (radiotelegraph) (SOLAS 74/88 text in force prior to 1 February 1992 R.IV/10), including:
  - (PI) 14.1.2.122.1 checking the transmitter tunes on 500 kHz and on two working frequencies on main and reserve antennas;
  - (PI) 14.1.2.122.2 checking the equipment is within frequency tolerance;
  - (PI) 14.1.2.122.3 measuring the antenna current on 500 kHz on A2H and antenna height and calculating the range against the footnote to SOLAS 74/88 text in force prior to 1 February 1992 R.IV/10(g-1);
- (PI) 14.1.2.123 examining the transmitter (radiotelephone) (SOLAS 74/88 text in force prior to 1 February 1992 R.IV/10), including:
  - (PI) 14.1.2.123.1 checking the transmitter tunes on 2,182 kHz;
  - (PI) 14.1.2.123.2 checking the equipment is within frequency tolerance;
  - (PI) 14.1.2.123.3 checking modulation by means of a test with a coast station;
  - (PI) 14.1.2.123.4 checking the operation of the alarm signal generating device using a suitable artificial antenna;
- (PI) 14.1.2.124 examining the reserve transmitter (radiotelegraph) (SOLAS 74/88 text in force prior to 1 February 1992 R.IV/10) and, in particular:
  - (PI) 14.1.2.124.1 confirming the transmitter is operational from the reserve source of supply;
  - (PI) 14.1.2.124.2 checking tuning on 500 kHz on A2H on both main and reserve antennas;
  - (PI) 14.1.2.124.3 checking main antenna current and height and calculating range against the footnote to SOLAS 74/88 text in force prior to 1 February 1992 R.IV/10(g-1);
  - (PI) 14.1.2.124.4 checking the equipment is within frequency tolerance;
- (PI) 14.1.2.125 examining the automatic radiotelegraph alarm signal keying device (SOLAS 74/88 text in force prior to 1 February 1992 R.IV/10), including:

- (PI) 14.1.2.125.1 checking that the automatic keying device keys both main and reserve transmitters;
- (PI) 14.1.2.125.2 checking the timing of the automatic alarm signal;
- (PI) 14.1.2.125.3 if provided, checking that the device is programmed for the correct call sign;
- (PI) 14.1.2.126 examining the radiotelegraph auto alarm, when provided (SOLAS 74/88 text in force prior to 1 February 1992 R.IV/11), including:
  - (PI) 14.1.2.126.1 checking the correct operation using the built-in tester;
  - (PI) 14.1.2.126.2 checking the receiver sensitivity against known stations;
  - (PI) 14.1.2.126.3 checking the operation of the alarm bells in the bridge, radio room and radio officer's cabin;
- (PI) 14.1.2.127 examining the main and reserve receivers (SOLAS 74/88 text in force prior to 1 February 1992 Rs.IV/10 and 16), including:
  - (PI) 14.1.2.127.1 checking the reserve receiver operates from the reserve source of energy;
  - (PI) 14.1.2.127.2 checking the sensitivity of the receivers against known coast stations;
  - (PI) 14.1.2.127.3 checking all controls for correct operation;
- (PI) 14.1.2.128 examining the radiotelephone distress frequency watch receiver (SOLAS 74/88 text in force prior to 1 February 1992 Rs.IV/10 and 16), including:
  - (PI) 14.1.2.128.1 checking the operation of the mute/demute;
  - (PI) 14.1.2.128.2 checking the sensitivity of the receiver against known coast stations;
  - (PI) 14.1.2.128.3 checking the audibility of the loudspeaker;
- (PI) 14.1.2.129 examining the VHF radiotelephone installation (SOLAS 74/88 text in force prior to 1 February 1992 Rs.IV/4-1 and 17), including:
  - (PI) 14.1.2.129.1 checking frequency tolerance transmission line quality and radio frequency power output;
  - (PI) 14.1.2.129.2 checking operation from a reserve source of energy;
  - (PI) 14.1.2.129.3 checking the correct operation of all controls;
  - (PI) 14.1.2.129.4 checking correct operation on channel 16 by testing with a coast station, other ship or other on-board VHF;
  - (PI) 14.1.2.129.5 checking one VHF is controllable from the navigating bridge;
- (PI) 14.1.2.130 examining the NAVTEX equipment, see (PI) 14.1.2.110;
- (PI) 14.1.2.131 examining the satellite EPIRB(s), see (PI) 14.1.2.113 and/or (PI) 14.1.2.114;
- (PI) 14.1.2.132 examining the two-way VHF radiotelephone apparatus (SOLAS 74/88 R.III/6), including:
  - (PI) 14.1.2.132.1 checking for correct operation on channel 16 and one other by testing with another fixed or portable VHF installation (SOLAS 74/88 R.IV/14);
  - (PI) 14.1.2.132.2 checking the battery charging arrangements where re-chargeable batteries are used (SOLAS 74/88 R.IV/14);
  - (PI) 14.1.2.132.3 checking the expiry date of primary batteries where used (SOLAS 74/88 R.IV/14);
  - (PI) 14.1.2.132.4 where appropriate, checking any fixed installation provided in a survival craft (SOLAS 74/88 R.IV/14);

- (PI) 14.1.2.133 examining the radar transponder(s) (SOLAS 74/88 Rs.III/6, IV/7 and 14), including:
- (PI) 14.1.2.133.1 checking the position and mounting;
- (PI) 14.1.2.133.2 monitoring response on ship's 9 GHz radar;
- (PI) 14.1.2.133.3 checking the battery expiry date;
- (PI) 14.1.2.134 examining the provision of tools and spares (SOLAS 74/88 text in force prior to 1 February 1992 R.IV/9).
- (PI) 14.1.3 For the hull, machinery and equipment of passenger ships the check that the required documentation has been placed on board should consist of:
- (PI) 14.1.3.1 confirming that the stability information and damage control plans have been provided (SOLAS 74/88 Rs.II- 1/22 and 23);
- (PI) 14.1.3.2 confirming that the manoeuvring booklet has been provided and that the manoeuvring information has been displayed on the navigating bridge (SOLAS 74/88 R.II-1/28);
- (PI) 14.1.3.3 confirming that the fire control plans are permanently exhibited or, alternatively, emergency booklets have been provided and that a duplicate of the plans or the emergency booklet are available in a prominently marked enclosure external to the ship's deckhouse (SOLAS 74/88 R.II-2/20);
- (PI) 14.1.3.4 confirming that emergency instructions are available for each person on board, that the muster list is posted in conspicuous places and they are in a language understood by the persons on board (SOLAS 74/88 Rs.III/8 and 53);
- (PI) 14.1.3.5 confirming that the training manual for the life-saving appliances has been provided (SOLAS 74/88 R.III/51);
- (PI) 14.1.3.6 confirming that the instructions for on-board maintenance of the life-saving appliances have been provided (SOLAS 74/88 R.III/52);
- (PI) 14.1.3.7 confirming that a table or curve of residual deviations for the magnetic compass and, as appropriate, fixed corrections for the radio direction finder have been provided, and that a diagram of the radar installations shadow sectors is displayed (SOLAS 74/88 R.V/12);
- (PI) 14.1.3.8 checking that operational and, where appropriate, maintenance manuals for all navigational equipment are provided (SOLAS 74/88 R.V/12);
- (PI) 14.1.3.9 checking that the charts and nautical publications necessary for the intended voyage are available and have been up-dated (SOLAS 74/88 R.V/20);
- (PI) 14.1.3.10 checking that the International Code of Signals is available where the ship is required to carry a radio installation (SOLAS 74/88 R.V/21);

**Note: 14.1.3.11 to 14.1.3.16 apply to GMDSS ships**

- (PI) 14.1.3.11 checking for a valid radio licence issued by the flag Administration (ITU RR Art.24);
- (PI) 14.1.3.12 checking the radio operator's certificates of competence (SOLAS 74/88 R.IV/16 and ITU RR Art.56);
- (PI) 14.1.3.13 checking the radio record (log) (SOLAS 74/88 R.IV/17 and ITU RR App.11);
- (PI) 14.1.3.14 checking the carriage of up-to-date ITU publications (ITU RR App.11);
- (PI) 14.1.3.15 checking the carriage of operating manuals for all equipment (SOLAS 74/88 R.IV/15);
- (PI) 14.1.3.16 checking the carriage of service manuals for all equipment when at-sea maintenance is the declared option (SOLAS 74/88 R.IV/15);

**Note: 14.1.3.17 to 14.1.3.21 apply to non-GMDSS ships**

- (PI) 14.1.3.17 checking for a valid radio licence issued by the flag Administration (ITU RR Art.24);

- (PI) 14.1.3.18 checking the radio operators' certificates of competence (ITU RR Art.55);
- (PI) 14.1.3.19 checking the radio log (SOLAS 74/88 text in force prior to 1 February 1992 R.IV/19 and ITU RR App.11);
- (PI) 14.1.3.20 checking the carriage of up-to-date ITU publications (ITU RR App.11);
- (PI) 14.1.3.21 checking the carriage of operating manuals for all equipment.
- (PI) 14.1.4 For the hull, machinery and equipment of passenger ships the completion of the initial survey should consist of:
- (PI) 14.1.4.1 after a satisfactory survey, the Passenger Ship Safety Certificate and its associated Record of Equipment (Form P) should be issued.
- (PR) 14.2 Renewal surveys - see 4.5
- (PR) 14.2.1 For the hull, machinery and equipment of passenger ships the examination of current certificates and other records should consist of:
- (PR) 14.2.1.1 checking the validity of the International Load Line Certificate or International Load Line Exemption Certificate;
- (PR) 14.2.1.2 checking the validity of the International Oil Pollution Prevention Certificate;
- (PR) 14.2.1.3 checking the certificates of class, if the ship is classed with a classification society;
- (PR) 14.2.1.4 checking, when appropriate, the validity of the International Pollution Prevention Certificate for the Carriage of Noxious Liquid Substances in Bulk;
- (PR) 14.2.1.5 checking that the ship's complement complies with the Minimum Safe Manning Document (SOLAS 74/88 R.V/13(b));
- (PR) 14.2.1.6 checking that the master, officers and ratings are certificated as required by the STCW Convention;
- (PR) 14.2.1.7 checking whether any new equipment has been fitted and, if so, confirm that it has been approved before installation and that any changes are reflected in the appropriate certificate;
- (PR) 14.2.1.8 checking that the routine surveys of the boilers and other pressure vessels, as determined by the Administration, have been carried out as required and that safety devices, such as the boiler safety valves, have been tested;
- (PR) 14.2.1.9 checking that, as appropriate, the hull and machinery has been presented for survey in accordance with the continuous survey scheme approved by the Administration or a classification society;
- (PR) 14.2.1.10 confirming that the opening and the closing and locking of sidescuttles positioned below the margin line are being recorded in the log book (SOLAS 74/88 R.II-1/17);
- (PR) 14.2.1.11 confirming that the closure of the cargo loading doors and the opening and closing of any doors at sea required for the operation of the ship or the embarking and disembarking of passengers are being recorded in the log book (SOLAS 74/88 R.II-1/20-1);
- (PR) 14.2.1.12 confirming that the stability information and damage control plans are readily available (SOLAS 74/88 Rs.II-1/22 and 23);
- (PR) 14.2.1.13 confirming from the log book entries that the openings required to be closed at sea are being kept closed and that the required drills and inspections of watertight doors, etc., are being carried out (SOLAS 74/88 Rs.II- 1/24 and 25);
- (PR) 14.2.1.14 confirming that the manoeuvring booklet is readily available and that the manoeuvring information is displayed on the navigating bridge (SOLAS 74/88 R.II-1/28);



- (PR) 14.2.1.15 confirming that the fire control plans are permanently exhibited or, alternatively, emergency booklets have been provided and that a duplicate of the plans or the emergency booklet are available in a prominently marked enclosure external to the ship's deckhouse (SOLAS 74/88 R.II-2/20);
- (PR) 14.2.1.16 checking whether any fire has occurred on board necessitating the operation of the fixed fire-extinguishing systems or the portable fire extinguishers since the last survey;
- (PR) 14.2.1.17 checking, when appropriate, that the ship is provided with a document indicating compliance with the special requirements for carrying dangerous goods (SOLAS 74/88 R.II-2/54);
- (PR) 14.2.1.18 confirming, when appropriate, that there is a special list, manifest or stowage plan for the carriage of dangerous goods (SOLAS 74/88 R.VII/5);
- (PR) 14.2.1.19 confirming that emergency instructions are available for each person on board, that the muster list is posted in conspicuous places and they are in a language understood by the persons on board (SOLAS 74/88 Rs.III/8 and 53);
- (PR) 14.2.1.20 checking that log-book entries are being made (SOLAS 74/88 Rs.III/18 and 19) and in particular:
  - (PR) 14.2.1.20.1 the date when the last full muster of the passengers and crew for boat and fire drill took place;
  - (PR) 14.2.1.20.2 the records indicating that the lifeboat equipment was examined at that time and found to be complete;
  - (PR) 14.2.1.20.3 the last occasion when the lifeboats were swung out and when each one was lowered into the water;
  - (PR) 14.2.1.20.4 the records indicating that crew members have received the appropriate onboard training;
- (PR) 14.2.1.21 confirming that the training manual for the life-saving appliances is on board (SOLAS 74/88 R.III/51);
- (PR) 14.2.1.22 confirming that the instructions for on-board maintenance of the life-saving appliances is on board (SOLAS 74/88 R.III/52);
- (PR) 14.2.1.23 checking by the log book entries that the testing and the emergency drills of the steering gear have been carried out (SOLAS 74/88 R.V/19);
- (PR) 14.2.1.24 confirming that a table or curve of residual deviations for the magnetic compass and, as appropriate, fixed corrections for the radio direction finder have been provided, and that a diagram of the radar installations shadow sectors is displayed (SOLAS 74/88 R.V/12);
- (PR) 14.2.1.25 checking that operational and, where appropriate, maintenance manuals for all navigational equipment are provided (SOLAS 74/88 R.V/12);
- (PR) 14.2.1.26 checking that the charts and nautical publications necessary for the intended voyage are available and have been up-dated (SOLAS 74/88 R.V/20);
- (PR) 14.2.1.27 checking that the compass deviation book is properly maintained and that a calibration record for the radio direction finder has been kept (SOLAS 74/88 R.V/12);

**Note: 14.2.1.28 to 14.1.1.30 apply to GMDSS ships.**

- (PR) 14.2.1.28 the provisions of 14.1.3.11 to 14.1.3.16;
- (PR) 14.2.1.29 confirming that a record has been kept in the period since the last survey to the satisfaction of the Administration and as required by the Radio Regulations (SOLAS 74/88 R.IV/17);
- (PR) 14.2.1.30 checking documentary evidence that the actual capacity of the battery has been proved in port within the last 12 months (SOLAS 74/88 R.IV/13);

**Note: 14.2.1.31 and 14.2.1.32 apply to non-GMDSS ships.**

- (PR) 14.2.1.31 the provisions of 14.1.3.17 to 14.1.3.21;
- (PR) 14.2.1.32 confirming that a log has been kept in the period since the last survey to the satisfaction of the Administration and as required by the Convention (SOLAS 74/88 text in force prior to 1 February 1992 R.IV/19).
- (PR) 14.2.2 For the hull, machinery and equipment of passenger ships the renewal survey should consist of:
  - (PR) 14.2.2.1 examining the outside of the ship's bottom, including the bottom and bow plating, keel, bilge keels, stem, stern frame, the rudder, sea chests and strainers, noting the clearance measured in the rudder bearings, examining the propeller and shaft seals, as far as practicable, and noting the clearance measured in the propeller shafts (SOLAS 74/88 R.I/7)(b)(ii));
  - (PR) 14.2.2.2 examining the arrangements for the subdivision, including the ship's stability in the damaged condition, and checking the subdivision load lines (SOLAS 74/88 Rs.II-1/4 to 8, 13 and 16);
  - (PR) 14.2.2.3 checking the ballasting arrangements (SOLAS 74/88 R.II-1/9);
  - (PR) 14.2.2.4 examining the collision and other watertight bulkheads required for the ship's subdivision (SOLAS 74/88 Rs.II-1/10, 14, 15 and 18);
  - (PR) 14.2.2.5 confirming that the watertight integrity has been maintained where pipes, scuppers, etc., pass through sub-division watertight bulkheads (SOLAS 74/88 R.II- 1/15);
  - (PR) 14.2.2.6 confirming that a diagram is provided on the navigating bridge showing the location of the watertight doors together with indicators showing whether the doors are open or closed (SOLAS 74/88 R.II-1/15);
  - (PR) 14.2.2.7 testing the operation of the watertight doors both from the navigating bridge in the event of an emergency and locally at the door itself (SOLAS 74/88 R.II-1/15) and, in particular, that:
    - (PR) 14.2.2.7.1 they are operable locally from each side of the bulkhead;
    - (PR) 14.2.2.7.2 provided with devices giving an indication of whether the door is open or closed at all remote operating positions;
    - (PR) 14.2.2.7.3 provided with an audible alarm that is distinct from any other alarm in the area and, when appropriate, an intermittent visual signal;
    - (PR) 14.2.2.7.4 control handles are provided on each side of the bulkhead so that a person may hold both handles in the open position and pass safely through the watertight door without accidentally setting the power closing mechanism into operation;
  - (PR) 14.2.2.8 confirming that the watertight doors and their indicating devices are operable in the event of a failure of the main and emergency sources of power (SOLAS 74/88 R.II-1/15);
  - (PR) 14.2.2.9 checking, when appropriate, any watertight doors, that are not required to be closed remotely, fitted in watertight bulkheads dividing 'tween deck spaces and confirming that a notice is affixed concerning their closure (SOLAS 74/88 R.II-1/15);
  - (PR) 14.2.2.10 confirming that a notice is affixed to any portable plates on bulkheads in machinery spaces concerning their closure and, if appropriate, testing any power operated watertight door fitted in lieu (SOLAS 74/88 R.II-1/15);
  - (PR) 14.2.2.11 examining the arrangements for closing sidescuttles and their deadlights, also scuppers, sanitary discharges and similar openings and other inlets and discharges in the shell plating below the margin line (SOLAS 74/88 R.II-1/17);
  - (PR) 14.2.2.12 confirming that valves for closing the main and auxiliary sea inlets and discharges in the machinery spaces are readily accessible and indicators showing the status of the valves are provided (SOLAS 74/88 R.II-1/17);

- (PR) 14.2.2.13 confirming that gangway, cargo and coaling ports fitted below the margin line may be effectively closed and that the inboard end of any ash or rubbish chutes are fitted with an effective cover (SOLAS 74/88 R.II- 1/17);
- (PR) 14.2.2.14 examining the arrangements to maintain the watertight integrity above the margin line (SOLAS 74/88 R.II-1/20);
- (PR) 14.2.2.15 examining the arrangements for the bilge pumping and confirming that each bilge pump and the bilge pumping system provided for each watertight compartment is working efficiently (SOLAS 74/88 R.II-1/21);
- (PR) 14.2.2.16 confirming that the drainage system of enclosed cargo spaces situated on the freeboard deck is working efficiently (SOLAS 74/88 R.II-1/21);
- (PR) 14.2.2.17 examining, when appropriate, the means of indicating the status of any bow doors and any leakage therefrom (SOLAS 74/88 R.II-1/23-2);
- (PR) 14.2.2.18 confirming that the machinery, boilers and other pressure vessels, associated piping systems and fittings are being maintained so as to reduce to a minimum any danger to persons on board, due regard being given to moving parts, hot surfaces and other hazards (SOLAS 74/88 R.II-1/26);
- (PR) 14.2.2.19 confirming that the normal operation of the propulsion machinery can be sustained or restored even though one of the essential auxiliaries becomes inoperative (SOLAS 74/88 R.II-1/26);
- (PR) 14.2.2.20 confirming that means are provided so that the machinery can be brought into operation from the dead ship condition without external aid (SOLAS 74/88 R.II-1/26);
- (PR) 14.2.2.21 examining, where practicable, the means provided to protect against overpressure in the parts of main, auxiliary and other machinery that are subject to internal pressure and may be subject to dangerous overpressure (SOLAS 74/88 R.II-1/27);
- (PR) 14.2.2.22 examining, when appropriate, the crankcase explosion relief devices fitted to internal combustion engines and confirming that they are arranged so as to minimise the possibility of injury to personnel (SOLAS 74/88 R.II-1/27);
- (PR) 14.2.2.23 confirming that the automatic shut-off arrangements fitted to the main turbine propulsion machinery and, where applicable, main internal combustion propulsion machinery and auxiliary machinery are being properly maintained (SOLAS 74/88 R.II-1/27);
- (PR) 14.2.2.24 confirming, as far as practicable, the ability of the machinery to reverse the direction of the thrust of the propeller in sufficient time, including the effectiveness of any supplementary means of manoeuvring or stopping the ship (SOLAS 74/88 R.II-1/28);
- (PR) 14.2.2.25 confirming that the main and auxiliary steering gear are being properly maintained, are arranged so that the failure of one does not render the other inoperative and that the auxiliary steering gear is capable of being brought speedily into action in an emergency (SOLAS 74/88 R.II-1/29);
- (PR) 14.2.2.26 confirming that, where appropriate, essential components of the steering gear are permanently lubricated or provided with lubrication fittings (SOLAS 74/88 R.II-1/29);
- (PR) 14.2.2.27 confirming that relief valves fitted to the steering gear hydraulic system which can be isolated and in which pressure can be generated from the power source or from external forces are being maintained and are set to a pressure not exceeding the design pressure (SOLAS 74/88 R.II-1/29);
- (PR) 14.2.2.28 confirming that the main or auxiliary steering gear power units restart automatically when power is restored after a power failure, that they are capable of being brought into operation from a position on the navigating bridge and that, in the event of a power failure to any one of the steering gear power units, an audible and visual alarm is given on the navigating bridge (SOLAS 74/88 R.II-1/29);

- (PR) 14.2.2.29 confirming that the control systems for the main steering gear from both the navigating bridge and the steering gear compartment are operating satisfactorily (SOLAS 74/88 R.II-1/29);
- (PR) 14.2.2.30 confirming that, where the main steering gear comprises two or more identical power units and an auxiliary steering gear is not fitted, the two independent control systems from the navigating bridge are operating satisfactorily (SOLAS 74/88 R.II-1/29);
- (PR) 14.2.2.31 confirming that the control system for the auxiliary steering gear in the steering gear compartment and, if this gear is power operated, from the navigating bridge are operating satisfactorily and that the latter is independent of the control system for the main steering gear (SOLAS 74/88 R.II-1/29);
- (PR) 14.2.2.32 confirming that an audible and visual alarm is given on the navigating bridge in the event of a failure of electrical power supply (SOLAS 74/88 R.II-1/29);
- (PR) 14.2.2.33 confirming that the means of communication between the bridge and the steering gear is operating satisfactorily and that, with ships having emergency steering positions, a telephone or other means of communication for relaying heading information and supplying visual compass readings to the emergency steering position are provided (SOLAS 74/88 Rs.II-1/29 and V/12);
- (PR) 14.2.2.34 confirming that the angular position of the rudder is indicated independently of the steering control system on the navigating bridge if the main steering gear is power-operated and that this angular position is given in the steering gear compartment (SOLAS 74/88 R.II-1/29, R.V/12);
- (PR) 14.2.2.35 confirming that with a hydraulic power-operated steering gear the audible and visual low-level alarms on the navigating bridge and in the machinery space for each hydraulic fluid reservoir are operating satisfactorily and that at least one power actuating system including the reservoir can be recharged from a position within the steering gear compartment by means of a fixed storage tank to which a contents gauge is fitted with fixed piping (SOLAS 74/88 R.II-1/29);
- (PR) 14.2.2.36 confirming that the steering gear compartment is readily accessible and is provided with suitable arrangements to ensure working access to steering gear machinery and controls under safe conditions (SOLAS 74/88 R.II-1/29);
- (PR) 14.2.2.37 confirming that with electric and electro-hydraulic steering gear the means for indicating on the navigating bridge and at a main machinery control position that the motors are running and, as far as practicable, that the overload alarm and alarm for the loss of a phase in a three phase supply located at the main machinery control position are operating satisfactorily (SOLAS 74/88 R.II-1/30);
- (PR) 14.2.2.38 confirming that the effective means of operation and control of the main and auxiliary machinery essential for propulsion and the safety of the ship are being maintained including, when appropriate, any means for remotely controlling the propulsion machinery from the navigating bridge (SOLAS 74/88 R.II-1/31);
- (PR) 14.2.2.39 confirming that arrangements to operate main and other machinery from a machinery control room are satisfactory (SOLAS 74/88 R.II-1/31);
- (PR) 14.2.2.40 confirming that the means provided for manually overriding automatic controls are being maintained and that a failure does not prevent the use of the manual override (SOLAS 74/88 R.II-1/31);
- (PR) 14.2.2.41 confirming that the appropriate safety features fitted to the oil-fired and exhaust gas boilers, unfired steam generators, steam pipe systems and air pressure systems are being maintained (SOLAS 74/88 Rs.II-1/32, 33 and 34);
- (PR) 14.2.2.42 confirming the operation of the ventilation for the machinery spaces (SOLAS 74/78 R.II-1/35);
- (PR) 14.2.2.43 confirming that the measures to prevent noise in machinery spaces are effective (SOLAS 74/78 R.II-1/36);

- (PR) 14.2.2.44 confirming that the engine room telegraph giving visual indication of the orders and answers both in the machinery space and on the navigating bridge is operating satisfactorily (SOLAS 74/88, R.II-1/37);
- (PR) 14.2.2.45 confirming that the second means of communication between the navigation bridge and machinery space is also operating satisfactorily, including any appropriate means provided to any other positions from which the engines are controlled (SOLAS 74/88, R.II-1/37);
- (PR) 14.2.2.46 confirming that the engineer's alarm is clearly audible in the engineers' accommodation (SOLAS 74/88, R.II-1/38);
- (PR) 14.2.2.47 confirming that precautions, taken to prevent any oil that may escape under pressure from any pump, filter or heater from coming into contact with heated surfaces, are efficient;
- (PR) 14.2.2.48 confirming that the means of ascertaining the amount of oil contained in any oil tank are in good working condition;
- (PR) 14.2.2.49 confirming that the devices provided to prevent overpressure in any oil tank or in any part of the oil system, including the filling pipes, are in good working condition;
- (PR) 14.2.2.50 confirming that the electrical installations, including the main source of power and lighting systems, are being maintained (SOLAS 74/88 Rs.II-1/40 and 41);
- (PR) 14.2.2.51 confirming that the self-contained emergency source of electrical power and its associated systems are operating satisfactorily (SOLAS 74/88 R.II-1/42);
- (PR) 14.2.2.52 confirming that starting arrangements of each emergency generating set is satisfactory (SOLAS 74/88 R.II-1/44);
- (PR) 14.2.2.53 checking, when appropriate, the disposition of and testing the supplementary emergency lighting (SOLAS 74/88 R.II-1/42-1);
- (PR) 14.2.2.54 confirming that precautions provided against shock, fire and other hazards of electrical origin are being maintained (SOLAS 74/88 R.II-1/45);
- (PR) 14.2.2.55 confirming, when appropriate, that the arrangements for the machinery spaces being periodically un- attended are satisfactory (SOLAS 74/88 R.II-1/54);
- (PR) 14.2.2.56 examining the fire pumps and fire main and the disposition of the hydrants, hoses and nozzles and the international shore connection and checking that each fire pump, including the emergency fire pump, can be operated separately so that two jets of water are produced simultaneously from different hydrants at any part of the ship whilst the required pressure is maintained in the fire main (SOLAS 74/88 Rs.II-2/4 and 19);
- (PR) 14.2.2.57 examining the provision and randomly examining the condition of the portable and non-portable fire extinguishers (SOLAS 74/88 R.II-2/6);
- (PR) 14.2.2.58 examining the fixed fire fighting system for the machinery and cargo spaces, as appropriate, and confirming that its means of operation are clearly marked (SOLAS 74/88 Rs.II-2/7 and 53);
- (PR) 14.2.2.59 examining the fire extinguishing and special arrangements in the machinery spaces and confirming, as far as practicable and as appropriate, the operation of the remote means of control provided for the opening and closing of the skylights, the release of smoke, the closure of the funnel and ventilation openings, the closure of power operated and other doors, the stopping of ventilation and boiler forced and induced draft fans and the stopping of oil fuel and other pumps that discharge flammable liquids (SOLAS 74/88 Rs.II-2/7 and 11);
- (PR) 14.2.2.60 examining the arrangements for oil fuel, lubricating oil and other flammable oils and confirming, as far as practicable and as appropriate, the operation of the remote means of closing the valves on the tanks that contain oil fuel, lubricating oil and other flammable oils (SOLAS 74/88 R.II-2/15);
- (PR) 14.2.2.61 examining and testing, as far as practicable, any fire detection and alarm system (SOLAS 74/88 Rs.II-2/11, 12, 13, 14, 36 and 41);

- (PR) 14.2.2.62 confirming that the fireman's outfits are complete and in good condition and that the cylinders, including the spare cylinders, of the self-contained breathing apparatus, are suitably charged (SOLAS 74/88 R.II- 2/17);
- (PR) 14.2.2.63 confirming, as far as practicable, that no changes have been made in the structural fire protection, including the structure, fire integrity, protection of stairways and lifts, openings in 'A' and 'B' Class divisions, ventilation systems and windows and sidescuttles, and the use of combustibile material (SOLAS 74/88 Rs.II-2/23 to 35);
- (PR) 14.2.2.64 examining and testing any manual and automatic fire doors including the means of closing the openings in 'A' and 'B' Class divisions (SOLAS 74/88 Rs.II-2/30 and 31);
- (PR) 14.2.2.65 examing and testing the main inlets and outlets of all ventilation systems and proving that the power ventilation is capable of being stopped from outside the space served (SOLAS 74/88 R.II-2/32);
- (PR) 14.2.2.66 confirming that the stairways and ladders arranged to provide a means of escape to the lifeboat and liferaft and liferaft embarkation deck from all passenger and crew spaces and from those spaces in which the crew is normally employed are being maintained (SOLAS 74/88 R.II-2/28);
- (PR) 14.2.2.67 confirming that the means of escape from any special category spaces are satisfactory (SOLAS 74/88 R.II-2/28);
- (PR) 14.2.2.68 confirming that means of escape from the machinery spaces are satisfactory (SOLAS 74/88 R.II-2/28);
- (PR) 14.2.2.69 examining the fire protection arrangements for special category spaces and other cargo spaces and testing, as far as practicable and as appropriate, the operation of the means for closing the various openings (SOLAS 74/88 Rs.II-2/37, 38 and 39);
- (PR) 14.2.2.70 examining and testing, as appropriate and as far as practicable, the fixed fire detection and alarm system, the special alarm and the public address system or other effective means of communication (SOLAS 74/88 R.II-2/40);
- (PR) 14.2.2.71 examining, when appropriate, the special arrangements for carrying dangerous goods, including checking the electrical equipment and wiring and boundary insulation, the provision of protective clothing and portable appliances and testing, as far as practicable, the water supply, bilge pumping and any water spray system (SOLAS 74/88 Rs.II-2/41 and 54);
- (PR) 14.2.2.72 checking that emergency instructions are available for each person on board, the muster list is posted in conspicuous places and there are signs or posters in the vicinity of survival craft and their launching stations (SOLAS 74/88 Rs.III/8, 9 and 53);
- (PR) 14.2.2.73 examining each survival craft, including its equipment and, when fitted, the on-load release and hydrostatic lock, and for inflatable liferafts the hydrostatic release unit and float-free arrangements. Checking that the hand held flares are not out of date (SOLAS 74/88 Rs.III/20, 21, 33, 34, 36 and 38 to 44);
- (PR) 14.2.2.74 examining the embarkation arrangements and launching appliances for each survival craft. Each lifeboat should be lowered to the embarkation position or, if the stowage position is the embarkation position, lowered a short distance and, if practicable, one of the survival craft should be lowered to the water. The operation of the launching appliances for davit launched liferafts should be demonstrated (SOLAS 74/88 Rs.III/11, 12, 13, 15, 20 and 48);
- (PR) 14.2.2.75 examining each rescue boat, including its equipment (SOLAS 74/88 Rs.III/20, 34 and 47);
- (PR) 14.2.2.76 examining the embarkation and recovery arrangements for each rescue boat. If practicable, the rescue boat(s) should be lowered to the water and its recovery demonstrated (SOLAS 74/88 Rs.III/14, 16, 20 and 48);
- (PR) 14.2.2.77 checking the arrangements for mustering passengers (SOLAS 74/88 R.III/24);

- (PR) 14.2.2.78 testing that the engine of the rescue boat(s) and of each lifeboat, when so fitted, start satisfactorily and operate both ahead and astern;
- (PR) 14.2.2.79 examining and checking the operation of two-way VHF radiotelephone apparatus and radar transponders (SOLAS 74/88 Rs.III/6, IV/7 and 14);
- (PR) 14.2.2.80 examining the line-throwing appliance and checking that its rockets and the ship's distress signals are not out of date, and examining and checking the operation of on-board communications equipment and the general alarm system (SOLAS 74/88 Rs.III/6, 17 and 35);
- (PR) 14.2.2.81 examining the provision, disposition and stowage of the lifebuoys, including those fitted with self-igniting lights, self-activating smoke signals and buoyant lines, lifejackets, immersion suits and thermal protective aids (SOLAS 74/88 Rs.III/7, 21 and 31 to 37);
- (PR) 14.2.2.82 checking the lighting of the muster and embarkation stations and the alleyways, stairways and exits giving access to the muster and embarkation stations, including when supplied from the emergency source of power (SOLAS 74/88 Rs.II-1/42 and III/11);
- (PR) 14.2.2.83 checking that the required navigation lights, shapes and sound signalling equipment are in order (International Regulations for Preventing Collisions at Sea in force, Rs.20 to 24, 27 to 30 and 33);
- (PR) 14.2.2.84 checking that the daylight signalling lamp and, as appropriate, the magnetic compass, gyro compass, radar installation, automatic radar plotting aid, echo-sounding device, speed and distance indicator, rudder angle indicator, propeller rate of revolution indicator, variable pitch propeller pitch and operational mode indicator, rate-of-turn indicator, radio direction finding apparatus and radio homing device are in working order. Items that cannot be checked with the ship in port should be verified from records (SOLAS 74/88 Rs.V/11 and 12);
- (PR) 14.2.2.85 checking, as appropriate, the deployment or operation of the pilot ladders and hoists/pilot transfer arrangements and that they are in a satisfactory condition (SOLAS 74/88 R.V/17);

**Note: 14.2.2.86 applies to all ships built after 1 February 1995 and to those ships built before that date to which the 1974 SOLAS Convention, as amended by the 1988 GMDSS amendments, is being applied. 14.2.2.87 applies to non-GMDSS ships. The survey of the radio installation, including those used in life-saving appliances, should always be carried out by a qualified radio surveyor who has necessary knowledge of the requirements the 1974 SOLAS Convention, the International Telecommunication Union's Radio Regulations and the associated performance standards for radio equipment. The radio survey should be carried out using suitable test equipment capable of performing all the relevant measurements required by these guidelines. On the satisfactory completion of the survey, the radio surveyor should forward a report of the survey, which should also state the organisation he represents, to the authorities responsible for the issue of the ship's Passenger Ship Safety Certificate.**

- (PR) 14.2.2.86 the provisions of 14.1.2.97 to 14.1.2.118;
- (PR) 14.2.2.87 the provisions of 14.1.2.119 to 14.1.2.134.
- (PR) 14.2.3 For the hull, machinery and equipment of passenger ships the completion of the renewal survey should consist of:
- (PR) 14.2.3.1 after a satisfactory survey, the Passenger Ship Safety Certificate and its associated Record of Equipment (Form P) should be issued.

## 15 AMPLIFICATION OF TERMS AND CONDITIONS

### 15.1 Definition of related items

Reference: SOLAS 74/88 R.I/10(b)(v).

Related items mean those items which may only be inspected when the ship is in dry dock or undergoing an in-water examination of the outside of its bottom. For oil tankers, chemical tankers and gas carriers,

this may mean that the ship has to be specially prepared by, for example, being cleaned and gas -freed. Then the survey of items such as the internal examination of cargo tanks, as referred to in (CI<sub>n</sub>) 6.3.2 and (CI<sub>n</sub>) 6.3.3 may be undertaken at the same time.

#### 15.2 Extending to 5 years a certificate issued for less than 5 years

References: SOLAS R.I/14(c), LLC 66/88 A.19(3), MARPOL 73/78/90 Ax.I R.8(3), MARPOL 73/78/90 Ax.II R.12(3), the IBC Code 83/90 R.1.5.6.3, the IGC Code 83/90 R.1.5.6.3 and the BCH Code 85/90 R.1.6.6.3.

Where a certificate has been issued for a period of less than 5 years, it is permissible under these regulations or article to extend the certificate so that its maximum period of validity is 5 years provided that the pattern of surveys for a certificate with a 5 year period of validity is maintained (see appendix). This means that, for example, if a request is made to extend a 2 year Cargo Ship Safety Equipment Certificate to 5 years, then a periodical and two further annual surveys, as detailed in SOLAS 74/88 R.I/8, would be required. Also, for example, if it was intended to extend a 4 year Cargo Ship Safety Construction Certificate to 5 years, then an additional annual survey would be required, as detailed in SOLAS 74/88 R.I/10. Where a certificate has been so extended, it is still permissible to also extend the certificate under SOLAS 74/88 Rs.I/14(e) and (f), LLC 66/88 As.19(5) and (6), MARPOL 73/78/90 Ax.I Rs.8(5) and (6), MARPOL 73/78/90 Ax.II Rs.12(5) and (6), the IBC Code 83/90 Rs.1.5.6.5 and 1.5.6.6, the IGC Code 83/90 Rs.1.5.6.5 and 1.5.6.6 and the BCH Code 85/90 Rs.1.6.6.5 and 1.6.6.6, when no additional surveys would be required but, of course, the new certificate issued after the renewal survey would date from the 5 year expiry of the existing certificate, in accordance with SOLAS 74/88 R.I/14(b)(ii), LLC 66/88 A.19(2)(b), MARPOL 73/78/90 Ax.I R.8(2)(b), MARPOL 73/78/90 Ax.II R.12(2)(b) of Annex II of MARPOL 73/78/90, the IBC Code 83/90 R.1.5.6.6.2, the IGC Code 83/90 R.1.5.6.2.2 and the BCH Code 85/90 R.1.6.6.2.2.

#### 15.3 Extending the period between inspections of the outside of the ship's bottom

Reference: SOLAS 74/88 R.I/10(a)(v).

This permits the period of 5 years in which two inspections of the ship's bottom are to be carried out to be extended when the cargo ship safety construction Certificate is extended under R.I/14(e) and (f). However, no extension should be permitted on the period of 36 months between any two such inspections. If the first ship's bottom inspection is carried out between 24 and 27 months then the 36 month limitation may prevent the certificate being extended by the periods permitted in R.I/14(e) and (f).

#### 15.4 Definition of short voyage

References: SOLAS 74/88 R.I/14(f), LLC 66/88 A.19(6), MARPOL 73/78/90 Ax.I R.8(6), MARPOL 73/78/90 Ax.II R.12(6), the IBC Code 83/90 R.1.5.6.6, the IGC Code 83/90 R.1.5.6.6 and the BCH Code 85/90 R.1.6.6.6.

For the purpose of these regulations or article, a "short voyage" means a voyage where neither the distance from the port in which the voyage begins and the final port of destination nor the return voyage exceeds 1,000 miles.

#### 15.5 Application of "special circumstances"

References: SOLAS 74/88 R.I/14(g), LLC 66/88 A.19(7), MARPOL 73/78/90 Ax.I R.8(7), MARPOL 73/78/90 Ax.II R.12(7), the IBC Code 83/90 R.1.5.6.7, the IGC Code 83/90 R.1.5.6.7 and the BCH Code 85/90 R.1.6.6.7.

The purpose of these regulations or article is to permit Administrations to waive the requirement that a certificate issued following a renewal survey that is completed after the expiry of the existing certificate should be dated from the expiry date of the existing certificate. The special circumstances when this could be permitted are where the ship has been laid-up or has been out of service for a considerable period because of a major repair or modification. Whilst the renewal survey would be as extensive as if the ship had continued in service, the Administration should consider whether additional surveys or examinations are required depending on how long the ship was out of service and the measures taken to protect the hull and machinery during this period. Where this regulation is invoked, it is reasonable to expect an examination of the outside of the ship's bottom to be held at the same time as the renewal survey when it would not be necessary to include any special requirements for cargo ships for the continued application of SOLAS 74/88 R.I/10(a)(v).

#### 15.6 Revalidation of certificates



References: SOLAS 74/88 R.I/14(i)(i), LLC 66/88 A.19(9)(a), MARPOL 73/78/88 Ax.I R.8(9)(a), MARPOL 73/78/90 Ax.II R.12(9)(a), the IBC Code 83/90 R.1.5.6.9.1, the IGC Code 83/90 R.1.5.6.9.1 and the BCH Code 85/90 R.1.6.6.9.1.

A certificate ceases to be valid if the periodical, intermediate or annual survey, as appropriate, or the inspection of the outside of the ship's bottom is not completed within the periods specified in the relevant regulation or article. The validity of the certificate should be restored by carrying out the appropriate survey which, in such circumstances, should consist of the requirements of the survey that was not carried out, but its thoroughness and stringency should have regard to the time this survey was allowed to lapse. The Administration concerned should then ascertain why the survey was allowed to lapse and to consider further action.

#### 15.7 Meaning of "any five-year period"

Reference: SOLAS 74/88 R.I/10(a)(v).

Any five-year period is the period starting from the completion of the inspection of the outside of the ship's bottom and it is not linked to the five year period of validity of the Cargo Ship Safety Construction Certificate. As the maximum interval between two such inspections is 36 months, should advantage be taken of this maximum interval then the next inspection must be held not more than 24 months after the first inspection.

#### 15.8 Surveys required after transfer of the ship to the flag of another State.

The certificates cease to be valid when a ship transfers to the flag of another State and it is required that the Government of the State to which the ship transfers shall not issue new certificates until it is fully satisfied that the ship is being properly maintained and that there have been no unauthorised changes made to the structure, machinery and equipment. When so requested, the Government of the State whose flag the ship was formally entitled to fly is obliged to forward, as soon as possible, to the new Administration copies of certificates carried by the ship before the transfer and, if available, copies of the relevant survey reports and records, such as record of safety equipment and conditions of assignment for load line. When fully satisfied by an inspection that the ship is being properly maintained and that there have been no unauthorised changes, in order to maintain the harmonization of the surveys the new Administration may give due recognition to initial and subsequent surveys carried out by, or on behalf of, the former Administration and issue new certificates having the same expiry date as the certificates that ceased to be valid because of the change of flag.

APPENDIX

THE HARMONIZED SYSTEM OF SURVEY AND CERTIFICATION

DIAGRAMMATIC ARRANGEMENT

Years	0	1	2	3	4	5	
Months	0	9 12 15	21 24 27	33 36 39	45 48 51	57 60	
PASSENGER		<u>R</u>	<u>R</u>	<u>R</u>	<u>R</u>	<u>R</u>	
SEC		<u>A</u>	<u>A or P</u>	<u>P or A</u>	<u>A</u>	<u>R</u>	
RADIO		<u>P</u>	<u>P</u>	<u>P</u>	<u>P</u>	<u>R</u>	
SAFCON		<u>A</u>	<u>A or I</u>	<u>I or A</u>	<u>A</u>	<u>R</u>	
IGC/GC			<u>A</u>	<u>A or I</u>	<u>I or A</u>	<u>A</u>	<u>R</u>
IBC/BCH			<u>A</u>	<u>A or I</u>	<u>I or A</u>	<u>A</u>	<u>R</u>
LOAD LINE			<u>A</u>	<u>A</u>	<u>A</u>	<u>A</u>	<u>R</u>
MARPOL A <sub>x</sub> I		<u>A</u>	<u>A or I</u>	<u>I or A</u>	<u>A</u>	<u>R</u>	
MARPOL A <sub>x</sub> II		<u>A</u>	<u>A or I</u>	<u>I or A</u>	<u>A</u>	<u>R</u>	

Code for types of survey:

- R - Renewal
- P - Periodical
- I - Intermediate
- A - Annual