

Hull Structure Supplement

1 Is the vessel free of any hull repairs unreported to class? (V)

Yes No N/A N/V

Guide to Inspection

Record a non-conformity if documents or visual evidence indicated that unauthorised hull repairs have been carried out.

The vessel's manager may engage a "Riding Crew" consisting of a qualified welder and fitters who carry out repairs and steel renewal at sea. The Riding Crew may be involved in welding fractures and replacing deck plate and hatch coaming in various locations, including cargo holds and ballast tanks. Many repairs carried out on voyages are not brought to the attention of the class society and are not always carried out in a professional way.

It is the responsibility of the shipowner to maintain and repair the vessel in periods between regular surveys. Moreover, the shipowner is required to inform the corresponding Classification Society as soon as any damage or defect which may affect conformance with Classification rules is discovered. There is no precise definition of what deficiencies are relevant in this respect. In general, these would be defects which diminish the structural capability of the hull, breach the watertight integrity of tanks or the hull, or impair redundancy or normal operation of a vessel's propulsion, steering, power generation, auxiliary machinery and associated systems. In case of doubt as to whether a particular deficiency warrants Class attention, shipowners should contact their Classification Society for clarification.

(Onboard Repairs - Compliance with Class and Statutory Requirements - A P&I Perspective, 2017)

2 Does the SMS include procedures for regular inspection of cargo holds, ballast tanks, void spaces, trunks, duct keel and cofferdams by the ship's personnel and are records maintained? (V)

Yes No N/A N/V

Guide to Inspection

Record of inspection, photo and/or video evidence of such inspection shall be available. Record a non-conformity:

1. When the inspection report is not available, or
2. When inspection report was not supported with photos and /or video evidence.

After every discharge and each cleaning, holds should be formally inspected by the Master or Chief Officer. The ballast tanks, void spaces, cofferdams and duct keel should be inspected at least annually. Ballast tanks and void spaces adjacent to grab or bulldozer's damage shall be inspected after completion of the discharge. This inspection should be recorded with photographs.

The inspection plan and records should at least cover the following:

- > Framing of the holds – damaged and 'tripped' brackets
- > Condition of bulkhead coatings on the holds
- > Condition of hatch covers, trackways, compression bars, channel drainage, hatch rubbers, cross, hatch drain valve and side cleats
- > Hatch and hold vents and watertight lids, including access hatch lids, rubber packing and closing cleats and dogs
- > Tank top, any damage
- > Condition of coating in ballast tanks, void space, cofferdam and duct keel
- > Condition of tank top double bottom or side tank access lid, condition and the fitting of the gaskets, condition of nuts
- > Condition of hold ladders, platforms and hand rails
- > Condition of hold piping, air vent and water ballast sounding lines, and piping protection brackets
- > Condition of bilge wells, including bilge covers, strum boxes, and bilge well valves, including non-return valves
- > Condition of bilge high-level alarms
- > Condition of lights and light fittings.

3 Where applicable, is the vessel provided with a Coating Technical File (CTF) and, has the file been updated?

Yes No N/A N/V

Guide to Inspection

The Coating Technical Files apply to ships of not less than 500 gross tonnage:

- > For which the building contract is placed on or after 1 July 2008
- > or in the absence of a building contract, the keels of which are laid, or which are at a similar stage of construction on or after 1 January 2009
- > or the delivery of which is on or after 1 July 2012.

All dedicated seawater ballast tanks arranged in ships and double-side skin spaces arranged in bulk carriers of 150 m in length and upwards shall be coated during construction in accordance with the PSPC and recorded in the coating technical file.

Specification of the coating system applied to the seawater ballast tanks and double-side skin spaces, record of the shipyard's and shipowner's coating work, detailed criteria for coating selection, job specifications, inspection, maintenance and repair shall be documented in the Coating Technical File, and the Coating Technical File shall be reviewed by the Administration or an organization recognized by the Administration.

New construction stage:

The Coating Technical File shall contain at least the following items relating to this Standard and shall be delivered by the shipyard at new ship construction stage:

1. Copy of Statement of Compliance or Type Approval Certificate.
2. Copy of Technical Data Sheet, including:
 - Product name and identification mark and/or number.
 - Materials, components and composition of the coating system, colours.
 - Minimum and maximum dry film thickness.
 - Application methods, tools and/or machines.
 - Condition of surface to be coated (de-rusting grade, cleanliness, profile, etc.); and
 - Environmental limitations (temperature and humidity).
3. Shipyard's work records of coating application, including:
 - Applied actual space and area (in square metres) of each compartment.
 - Applied coating system.
 - Time of coating, thickness, number of layers, etc.
 - Ambient condition during coating; and
 - Method of surface preparation.
4. Procedures for inspection and repair of coating system during ship construction.
5. Coating log issued by the coating inspector – stating that the coating was applied in accordance with the specifications to the satisfaction of the coating supplier representative and specifying deviations from the specifications (example of daily log and non-conformity report, see annex 2);
6. Shipyard's verified inspection report, including:
 - Completion date of inspection.
 - Result of inspection.
 - Remarks (if given); and
 - Inspector signature; and
7. Procedures for in-service maintenance and repair of coating system

Maintenance, repair and partial re-coating

Maintenance, repair and partial re-coating activities shall be recorded in the Coating Technical File in accordance with the relevant section of the Guidelines for Coating Maintenance and Repairs. If full re-coating is carried out, the items specified for new construction stage shall be recorded in the Coating Technical File.

The Coating Technical File shall be kept on board and maintained throughout the life of the ship

(PSPC for Dedicated Seawater Ballast tank in all Type of Ships and Double Skin Space of Bulk Carriers, 2013)

4 Is the enhanced survey report file adequately maintained and does the condition evaluation report confirm the fitness of the ship for its intended service for the next five years? (M)

- Yes No N/A N/V

Guide to Inspection

Record the tank coating condition in comment.

Bulk carriers and oil tankers shall have a survey report file and supporting documents complying with paragraphs 6.2 and 6.3 of annex A and annex B of resolution A.744(18) – Guidelines on the enhanced programme of inspections during surveys of bulk carriers and oil tankers.

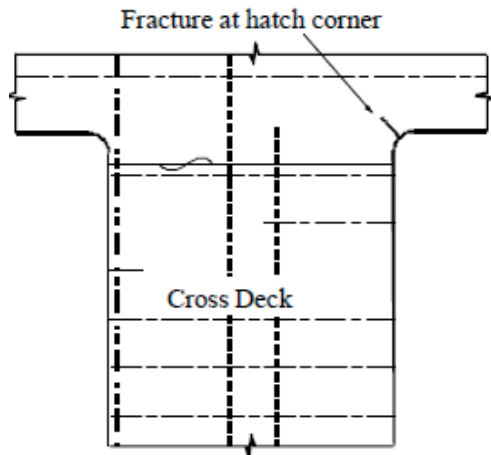
Note: refer to the requirements of survey report file and supporting documents for bulk carriers and oil tankers as referred to in paragraphs 6.2 and 6.3 of annex A/annex B, part A/part B, 2011 ESP Code.

(SOLAS 1974, 2014)

5 Are the main cargo hatch corners free of fractures?

- Yes No N/A N/V

Guide to Inspection

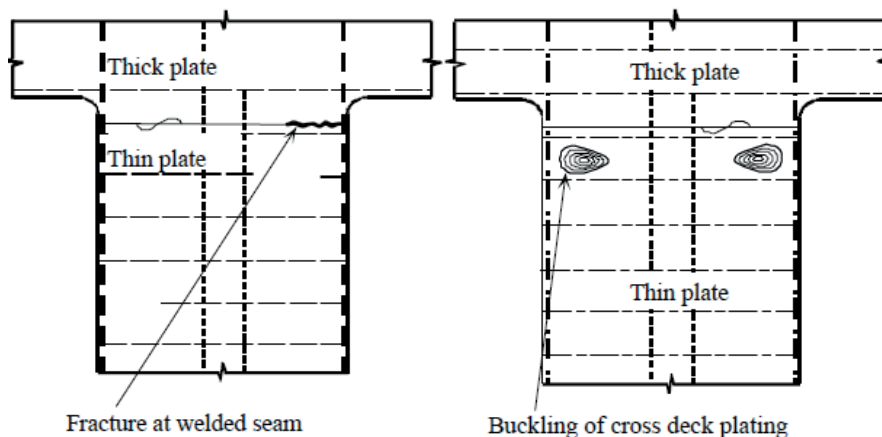


(Bulk Carriers – Guidelines for Surveys, Assessment and Repair of Hull Structures (IACS Rec 76, 2017))

6 Are the cross-deck plates free of any buckling and are the welded seams between thick plates and thin plates at the cross deck free of fractures?

- Yes No N/A N/V

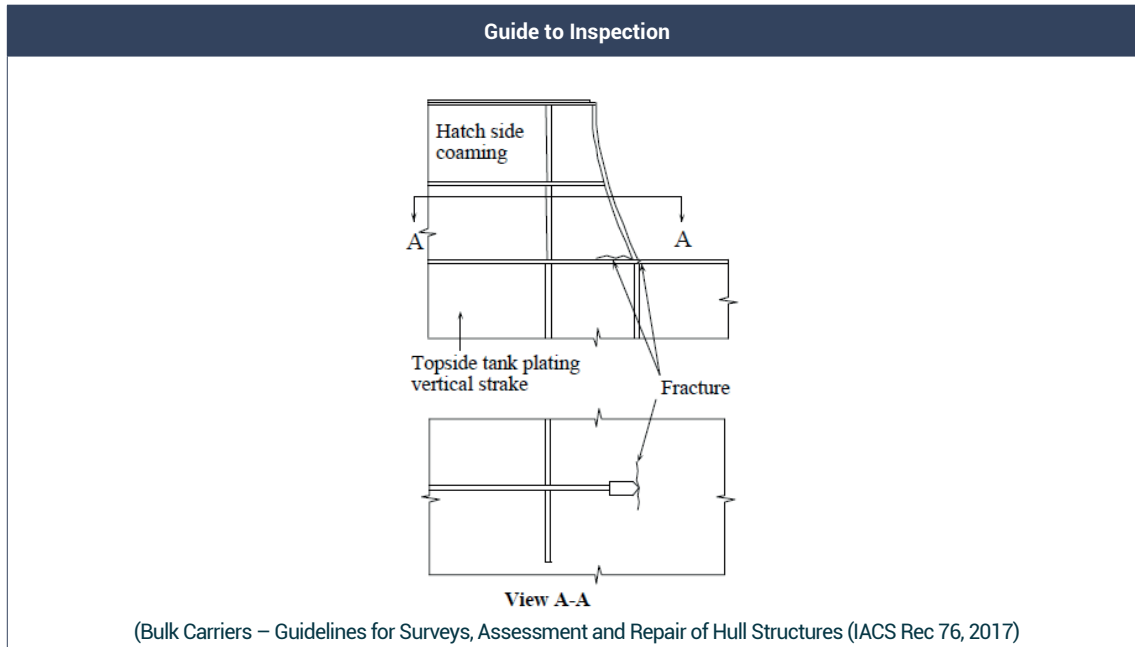
Guide to Inspection



(Bulk Carriers – Guidelines for Surveys, Assessment and Repair of Hull Structures (IACS Rec 76, 2017))

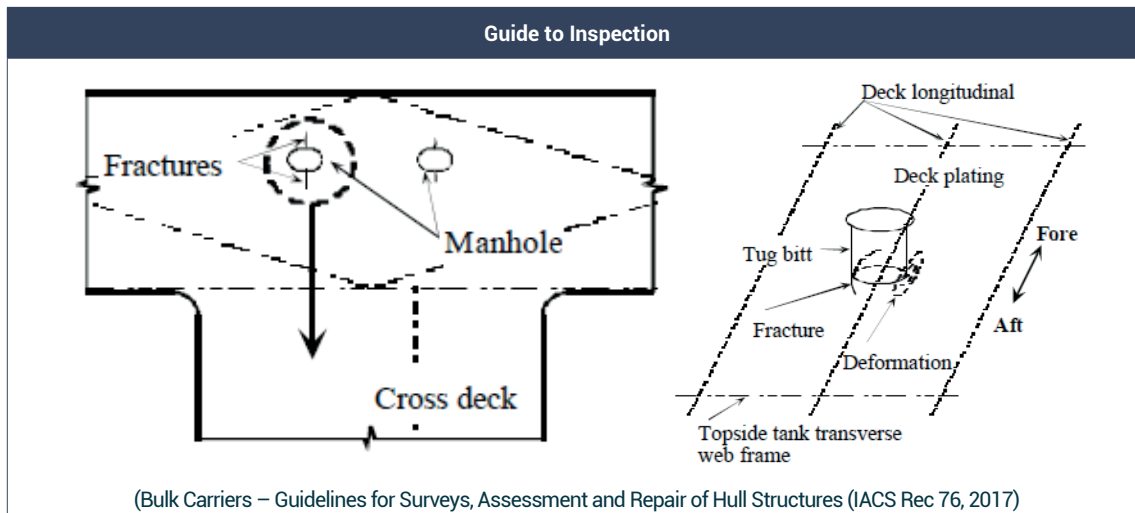
7 Are the toes of the longitudinal hatch coaming termination brackets, free of fractures?

- Yes No N/A N/V



8 Are deck plates free of fractures and deformations around the tug bitts and access manhole?

- Yes No N/A N/V



9 Are the hatch coamings and hatch end beams free of buckling, and are the hatch end beams at knuckle joints free of fractures?

- Yes No N/A N/V

Guide to Inspection

Regarding buckling of deck, refer to Example 2-b and 2-c.

Hatch end coaming
Buckling
Hatch end coaming stay
Stiffener
Hatch end beam
No buckling here in Example 2-b

Fracture
Hatch end beam
Knuckle joint

View A-A

(Bulk Carriers – Guidelines for Surveys, Assessment and Repair of Hull Structures (IACS Rec 76, 2017))

10 Are the hatch coaming top plates at the termination of rails for hatch covers, free of fractures?

- Yes No N/A N/V

Guide to Inspection

Rail for hatch cover
Hatch coaming top plate
Horizontal stiffener of hatch coaming top plate
Compression bar
Fracture

Opening for jack
Fractures

Sketch of damage
Rail for hatch cover
Compression bar
Starting point of fracture (See "Detail")
Fractures
Hatch side coaming

Detail
Welded joint
Fracture
Hatch coaming top plate

(Bulk Carriers – Guidelines for Surveys, Assessment and Repair of Hull Structures (IACS Rec 76, 2017))

11 Are the deck plates at pilot-ladder accesses of bulwarks, free of fractures?

- Yes No N/A N/V

Guide to Inspection

Sketch of damage

View A-A

(Bulk Carriers – Guidelines for Surveys, Assessment and Repair of Hull Structures (IACS Rec 76, 2017))

12 Are areas around the unstiffened lightening holes and manholes in wash bulkheads of tank tops, free of fractures?

- Yes No N/A N/V

Guide to Inspection

(Bulk Carriers – Guidelines for Surveys, Assessment and Repair of Hull Structures (IACS Rec 76, 2017))

13 Are the web plates of tank tops in the vicinity of the radiuses of opening, free of buckling?

- Yes No N/A N/V

Guide to Inspection

Areas of excessive corrosion, and subsequent buckling and/or

(Bulk Carriers – Guidelines for Surveys, Assessment and Repair of Hull Structures (IACS Rec 76, 2017))

14 Are the transverse webs of tank tops at sniped end of stiffener and at the slots free of fractures and buckling?

- Yes No N/A N/V

Guide to Inspection

(Bulk Carriers – Guidelines for Surveys, Assessment and Repair of Hull Structures (IACS Rec 76, 2017))

15 Are the lowest longitudinal at transverse web of tank tops frames free of fractures?

- Yes No N/A N/V

Guide to Inspection

(Bulk Carriers – Guidelines for Surveys, Assessment and Repair of Hull Structures (IACS Rec 76, 2017))

16 Are transverse brackets in the tank tops free of fractures?

- Yes No N/A N/V

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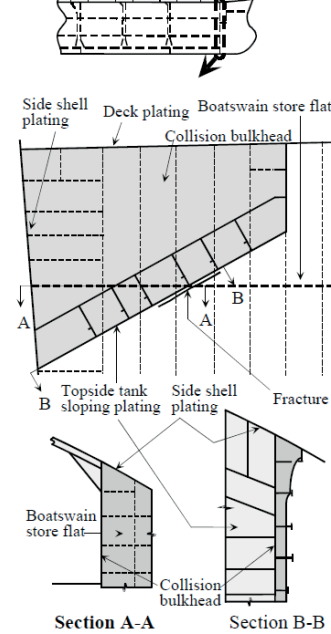
(Bulk Carriers – Guidelines for Surveys, Assessment and Repair of Hull Structures (IACS Rec 76, 2017))

17 Are the structures in the way of collision bulkhead at its intersection with the topside tank structure in the foremost cargo hold free of fractures?

- Yes No N/A N/V

Guide to Inspection

Sketch of damage

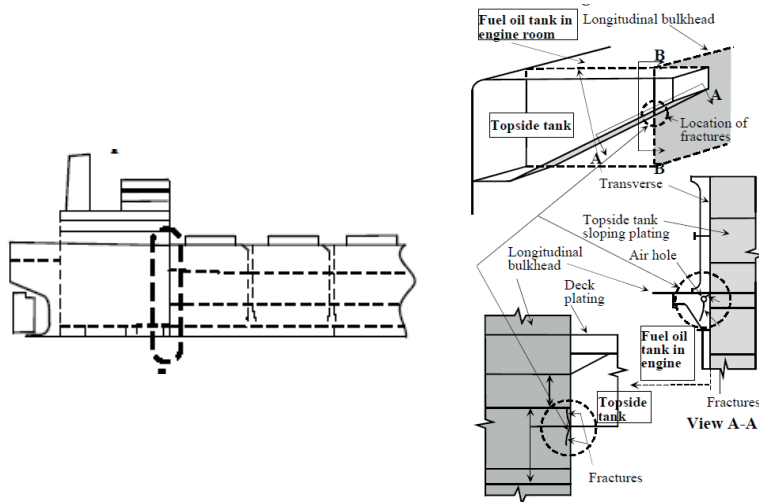


(Bulk Carriers – Guidelines for Surveys, Assessment and Repair of Hull Structures (IACS Rec 76, 2017))

18 Are the structures in the way of the engine room forward bulkhead at its intersection with the topside tank structure in the aftermost cargo hold free of fractures?

- Yes No N/A N/V

Guide to Inspection



(Bulk Carriers – Guidelines for Surveys, Assessment and Repair of Hull Structures (IACS Rec 76, 2017))

19 Are the brackets at the termination of the frame located in the cargo hold side structure free of fractures?

- Yes No N/A N/V

Guide to Inspection

Separate bracket configuration

(Bulk Carriers – Guidelines for Surveys, Assessment and Repair of Hull Structures (IACS Rec 76, 2017))

20 Are the side shell frames on the cargo hold side structure, at the bracket's toe, free of fractures?

- Yes No N/A N/V

Guide to Inspection

Separate bracket configuration

(Bulk Carriers – Guidelines for Surveys, Assessment and Repair of Hull Structures (IACS Rec 76, 2017))

21 Are the side shell frames/lower brackets and side shell plating near the hopper of the cargo hold side structure free of fractures?

- Yes No N/A N/V

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Fracture in side shell plating along side shell frame and hopper tank sloping plating

(Bulk Carriers – Guidelines for Surveys, Assessment and Repair of Hull Structures (IACS Rec 76, 2017))

22 Is the side shell plating of the cargo hold side structure free of deformation?

- Yes No N/A N/V

Guide to Inspection

Sketch of damage

Deformed side shell plating

(Bulk Carriers – Guidelines for Surveys, Assessment and Repair of Hull Structures (IACS Rec 76, 2017))

23

Is the side shell plating in the foremost cargo hold, free of buckling and fractures?

- Yes No N/A N/V

Guide to Inspection

Sketch of damage

(Bulk Carriers – Guidelines for Surveys, Assessment and Repair of Hull Structures (IACS Rec 76, 2017))

24

Are the supporting brackets in the way of the collision bulkhead, located in the fore most cargo hold, free of fractures?

- Yes No N/A N/V

Guide to Inspection

Sketch of damage

(Bulk Carriers – Guidelines for Surveys, Assessment and Repair of Hull Structures (IACS Rec 76, 2017))

25 Are the stool shelf plates of the transverse bulkheads in the cargo hold, at the weld connections free of fractures?

- Yes No N/A N/V

Guide to Inspection

The diagram illustrates the inspection points for stool shelf plates and shedder plates in a cargo hold. It shows a cross-section of the structure with labels for Bulkhead corrugation, Shelf plate, Fractures, Shedder plate, and Stool sloping plating. Arrows indicate the specific areas where fractures should be checked.

(Bulk Carriers – Guidelines for Surveys, Assessment and Repair of Hull Structures (IACS Rec 76, 2017))

26 Are the transverse bulkheads at the topside tank connection, in the cargo hold, free of fractures?

- Yes No N/A N/V

Guide to Inspection

The diagram illustrates the inspection points for transverse bulkheads at the topside tank connection. It shows a cross-section of the structure with labels for Fractures and Topside tank. Arrows indicate the specific areas where fractures should be checked.

(Bulk Carriers – Guidelines for Surveys, Assessment and Repair of Hull Structures (IACS Rec 76, 2017))

27 Are the vertical corrugations of transverse bulkheads in the cargo hold, free of indentation and buckling?

- Yes No N/A N/V

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(Bulk Carriers – Guidelines for Surveys, Assessment and Repair of Hull Structures (IACS Rec 76, 2017))

28 Are the corrugated bulkheads at the intersection of the shredder plates in the cargo holds, free of fractures?

- Yes No N/A N/V

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(Bulk Carriers – Guidelines for Surveys, Assessment and Repair of Hull Structures (IACS Rec 76, 2017))

29 Are the inner bottom plates (Tank top) in the cargo holds, free of fractures and buckling?

- Yes No N/A N/V

30 Are the double bottoms, side tanks, duct keel and void spaces, free from apparent structural defects?

- Yes No N/A N/V