

Subject

Bulk Carrier Safety: Water Level Detection & Alarm System and Dewatering Arrangements for dry spaces and ballast tanks.

# **ClassNK**

## ***Technical Information***

No. TEC-0587  
Date 17 June 2004

To whom it may concern

Existing bulk carriers are to comply with the requirements of SOLAS regulation XII/12 for Water Level Detection & Alarm System by the first periodical survey (Annual Survey / Intermediate Survey / Special Survey) after 1 July 2004, as previously informed by ClassNK Technical Information No. TEC-0537 and No. TEC-0538.

Also, existing bulk carriers are to comply with the requirements of SOLAS regulation XII/13 for Dewatering Arrangement for dry spaces and ballast tanks by the first Intermediate or Special Survey after 1 July 2004, but in no case later than 1 July 2007, as previously informed by ClassNK Technical Information No. TEC-0538.

You are kindly requested to arrange necessary preparations to comply with these requirements by the specified due date.

Please be advised that even if Annual or Intermediate Survey with a due window after 1 July 2004 is completed before 1 July 2004, these requirements are to be complied with at the completion of the survey. Also, even if Special Survey with a due date after 1 July 2004 is completed before 1 July 2004, these requirements are to be complied with at the completion of the survey.

In case the confirmation surveys for Water Level Detection & Alarm System and/or Dewatering Arrangement for dry spaces and ballast tanks are carried out after 1 July 2004, please take care of the followings.

#### Water Level Detection & Alarm System

The performance standards adopted on the seventy-seventh Maritime Safety Committee are to be applied. Accordingly, the system is to be a type being approved and to be supplied with electrical power from two independent electrical supplies. The survey procedures informed by ClassNK Technical Information TEC-0537, which is going to be superseded on 1 July 2004, will be amended as shown in the attached. As to the list of type-approved Water Level Detection & Alarm System, please refer to our web site.

[http://www.classnk.or.jp/hp/appr\\_list/mcd/Table4\\_7.pdf](http://www.classnk.or.jp/hp/appr_list/mcd/Table4_7.pdf)

(To be continued)

#### NOTES:

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#### Dewatering Arrangement for dry spaces and ballast tanks

The enclosures of electrical equipment for the dewatering systems installed in the spaces where the systems are to be provided with, are to provide protection to IP68 standard for a water head equal to the height of the space in which the electrical equipment is installed for a time duration of at least 24 hours. As to the survey procedure and samples of the Dewatering Arrangement for dry spaces and ballast tanks, please refer to Attachment.

For any questions about the above, please contact:

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Attachment:

1. Survey Procedures for Installation of water level detection and alarm system for cargo holds, forward spaces & ballast tanks
2. Water Level Detection and Alarm System Check List
3. Regulation 12 of SOLAS Chapter XII
4. Survey Procedures for Dewatering Arrangement for dry spaces and ballast tanks
5. Sample of Dewatering Arrangement for dry spaces and ballast tanks
6. Regulation 13 of SOLAS Chapter XII

Attachment 1. to  
ClassNK Technical Information No. TEC-0587

Survey Procedure for Installation of Water Level Detection and Alarm System  
(Confirmation Survey after 1 July 2004)

## 1. Application

### (1) Scope:

Bulk Carriers defined in NK Rule Part B (bulk carriers and ore carriers with a class notation of ESP) the keels of which were laid before 1 July 2004. The ships that the requirements are applicable to are identified by Note\* in Survey Status of individual ships. Ships during construction, the keels of which were/will be laid before 1 July 2004 are included.

\*Example of Note:

THE SHIP SHOULD COMPLY WITH THE FOLLOWING REQUIREMENTS OF BULK CARRIER SAFETY AS AMENDED.

- WATER LEVEL DETECTION AND ALARM SYSTEM BY THE FIRST PERIODICAL SURVEY (ANNUAL, INTERMEDIATE, SPECIAL) AFTER 1 JULY 2004. (SOLAS XII/12)

### (2) Implementation:

First periodical survey (Annual, Intermediate or Special Survey) after 1 July 2004.

## 2. Specific requirements

Water level detection and alarm system is to be located on the navigation bridge and be capable of detecting water ingress at all cargo holds and spaces and ballast tank forward of collision bulk head. In general, FPT, Bosn's Store, F'cle Space excluding chain lockers are considered as these spaces. The systems is to be a type being approved and to be supplied with electrical power from two independent supplies and failure of the primary electrical power supply is identified by an alarm.

## 3. Surveys

### (1) Plan Approval

Plan examination at Head Office is not required. Following plans are to be submitted to Survey Office for approval.

- (i) Arrangement of water level detection and alarm system
- (ii) Electrical wiring diagram
- (iii) A copy of type approval certificate

### (2) Confirmation Survey

Surveyors are to examine water level detection and alarm systems in line with the attached check list.

Attachment 2. to  
ClassNK Technical Information No. TEC-0587

Water Level Detection and Alarm System Check List  
(Confirmation Survey after 1 July 2004)

Cargo Holds

- In each cargo hold, the systems are to give alarms when the water level reaches the following (a) and (b) at the aft end of the cargo hold.
  - (a) A height of 0.5m above the inner bottom.
  - (b) A height not less than 15% of the depth of the cargo hold but not more than 2.0m.
- Detectors, electrical cables and any associated equipment installed in cargo holds are to be protected from damage by cargoes or cargo handling equipment.
- Water levels are to be detected at as close to the center line (within B/6m from center line), or at both the port and starboard sides of the cargo hold. B:Breadth of Ship
- Bilge alarms and water ingress detectors had already been provided in accordance with SOLAS Regulation 9 Chapter XII. In this case, the above water level detection system are not required in the cargo holds.

Other Spaces

- In any ballast tank forward of the collision bulk head, the system is to give an alarm when the liquid in the tank reaches a level not exceeding 10% of the tank capacity.
- In any dry or void space other than chain locker, any part of which extends forward of the foremost cargo hold and the volume of which exceeds 0.1% of the ship's maximum displacement volume, the system is to give an alarm at a water level of 0.1m above the deck.

General

- The system is a type being approved by ClassNK or by an organization deemed appropriate by ClassNK in accordance with the Resolution MSC. 145(77).
- The system is supplied with electrical power from two independent electrical supplies and failure of the primary electrical power supply is identified by an alarm.
- \* Where the system is approved subject to the carriage of limited kinds of cargoes, such limitation relating to cargoes are to be provided in the booklet for cargo operations.
- \* Manuals documented operating and maintenance procedures.
- The installation of the system is not to inhibit the use of any other sounding devices such as sounding pipe or other water level gauging device.
- The installation of the system is not to inhibit the water-tightness nor strength of hull structure.
- In case electric cables are not protected by steel pipes, cable penetration of bulkheads and deck is made by means of cable gland or boxes.
- Visible and audible alarms given by the water level detection and alarm systems are to be capable of identifying at the navigation bridge.
- The systems are to be installed at the location where they are accessible for survey, maintenance and repair. Any filtration arrangement, if fitted to the detectors, are to be capable of being cleaned before loading.
- Electric facilities in way of cargo holds are to be of certified intrinsically safe type. In case the

- ship does not carry flammable cargoes, intrinsically safe type is not required.
- Electric cables for water ingress alarm of intrinsically safe circuits are to be installed separately from cables for general circuits.
  - Override system for ballast tanks forward the collision bulkhead and water ballast holds: The alarm for each tank/hold is to be capable of stopping, and an override visual indication is to be given to the navigation bridge throughout deactivation of the water level detectors for the tanks/holds.
  - Electric cables on weather decks are adequately protected from mechanical damages.
  - Performance Test

\* Those are parts of conditions of type-approval by ClassNK, therefore a manual is to be supplied by the manufacture. The information relating to restrictions for kinds of cargoes, if any, are also to be contained in the manual.

Attachment 3. to  
ClassNK Technical Information No. TEC-0587

Regulation 12 of SOLAS Chapter XII

Regulation 12

Hold, ballast and dry space water level detectors  
(This regulation applies to bulk carriers regardless of their date of construction)

1. Bulk carriers shall be fitted with water level detectors:
  - (1) In each cargo hold, giving audible and visual alarms, one when the water level above the inner bottom in any hold reaches a height of 0.5m and another at a height not less than 15% of the depth of the cargo hold but not more than 2.0m. On bulk carriers to which regulation 9.2 applies, detectors with only the latter alarm need be installed. The water level detectors shall be fitted in the aft end of the cargo holds. For cargo holds which are used for water ballast, an alarm overriding device may be installed. The visual alarms shall clearly discriminate between the two different water levels detected in each hold:
  - (2) In any ballast tank forward of the collision bulkhead required by regulation II-1/11, giving an audible and visual alarm when the liquid in the tank reaches a level not exceeding 10% of the tank capacity. An alarm overriding device may be installed to be activated when the tank is in use: and
  - (3) In any dry or void space other than a chain cable locker, any part of which extends forward of the foremost cargo hold, giving an audible and visual alarm at a water level of 0.1m above the deck. Such alarms need not be provided in enclosed spaces the volume of which does not exceed 0.1% of the ship's maximum displacement volume.
2. The audible and visual alarms specified in paragraph 1 shall be located on the navigation bridge.
3. Bulk carriers constructed before 1 July 2004 shall comply with the requirements of this regulation not later than the date of the annual, intermediate or renewal survey of the ship to be carried out after 1 July 2004, whichever comes first.

Attachment 4. to  
ClassNK Technical Information No. TEC-0587

Survey Procedure for Dewatering Arrangements for dry spaces and ballast tanks  
(Confirmation Survey after 1 July 2004)

## 1. Application

### (1) Scope:

Bulk Carriers defined in NK Rule Part B (bulk carriers and ore carriers with a class notation of ESP) the keels of which were laid before 1 July 2004. The ships that the requirements are applicable to are identified by Note\* in Survey Status of individual ships. Ships during construction, the keels of which were/will be laid before 1 July 2004 are included.

\*Example of Note:

THE SHIP SHOULD COMPLY WITH THE FOLLOWING REQUIREMENTS OF BULK CARRIER SAFETY AS AMENDED.

- DEWATERING ARRANGEMENT FOR FORWARD DRY SPACES & BALLAST TANKS BY THE FIRST INTERMEDIATE OR SPECIAL SURVEY AFTER 1 JULY 2004 BUT NOT LATER THAN 1 JULY 2007. (SOLAS XII/13)

### (2) Implementation:

First Intermediate or Special Survey which comes earlier after 1 July 2004, but in no case later than 1 July 2007.

## 2. Specific Requirements

### (1) Dewatering arrangements:

Bilge or ballast systems are to be provided for draining and pumping the spaces specified in the following (i) and (ii). A gravity dewatering system is not permitted.

- (i) Ballast tanks forward of the collision bulkhead: Fore Peak Tank
- (ii) Dry or void spaces other than chain lockers, any part which extends forward of the foremost cargo hold and volume of which exceeds 0.1% of the ship's maximum displacement volume : Bosn's Store, F'cle Space

### (2) Remote control:

With respect to the provisions of the above 2-(1), the following components in bilge and ballast systems are to be capable being brought operation from the readily accessible enclosed space, the location of which is accessible from the navigation bridge or continuously manned propulsion machinery space without traversing exposed decks.

(To be continued)

- (i) Eductors and pumps for dewatering the spaces specified in the above 2-(1), which include driving water pumps for the eductors.
  - (ii) All valves in piping systems served for the devices specified in 2-(2)-(i), except those controlled kept in open/close position appropriately with locking devices at sea.
- (3) Capacity of the dewatering: Not applicable to existing bilge or ballast systems  
i.e. it is enough to modify existing water ballast system for FPT and eductors for forward spaces enable being operated from Navigation Bridge or Engine Control Room.
- (4) The enclosures of electrical equipment for the dewatering systems installed in the spaces where the systems are provided with, are to provide protection to IP68 standard for a water head equal to the height space in which the electrical equipment is installed for a time duration of at least 24 hours.
3. Survey
- (1) Plan Approval:  
When existing water ballast system for FPT and/or eductors for forward spaces are modified to enable to be operated from Navigation Bridge, Engine Control Room or Ballast Control Room, the plan examinations at Head Office are not required. Following plans are to be submitted to Survey Office for approval.
- (i) Arrangement plan of Dewatering Arrangement for dry spaces and ballast tanks
  - (ii) Electric wiring diagram
  - (iii) A copy of certificate for electric wiring diagram
- (2) Confirmation Survey:  
Surveyor is to confirm that the components which should be capable of being brought into operation from Engine Control Room, Navigation Bridge or Ballast Control Room etc., are to be modified adequately.



Attachment 5. to  
ClassNK Technical Information No. TEC-0587

Sample of Dewatering Arrangements for dry spaces and ballast tanks

**(Remote pump control system in F.P.T.)**

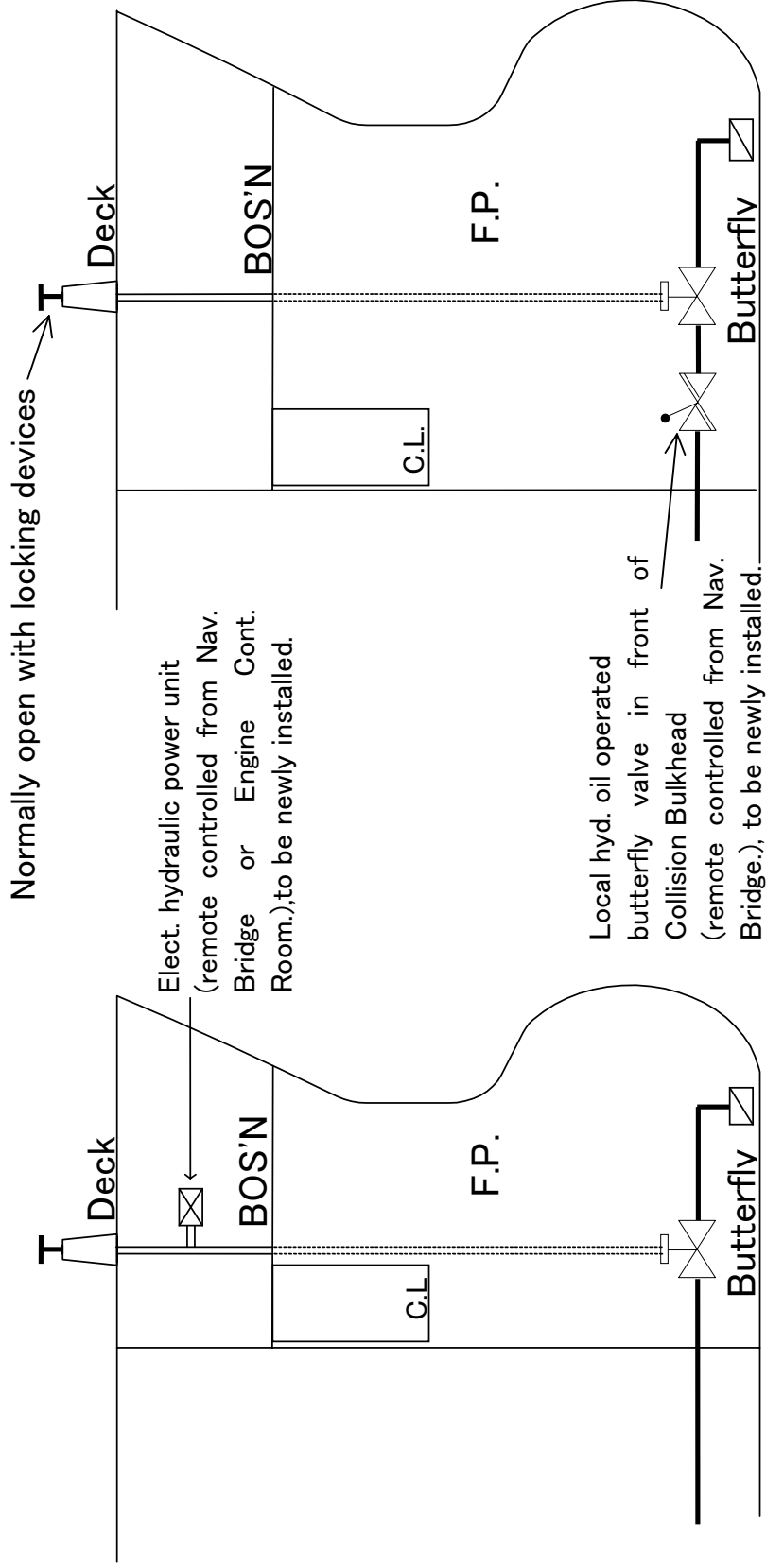


FIG.5-1-1

FIG.5-1-2

(Remote pump control system in BOS'N STORE)

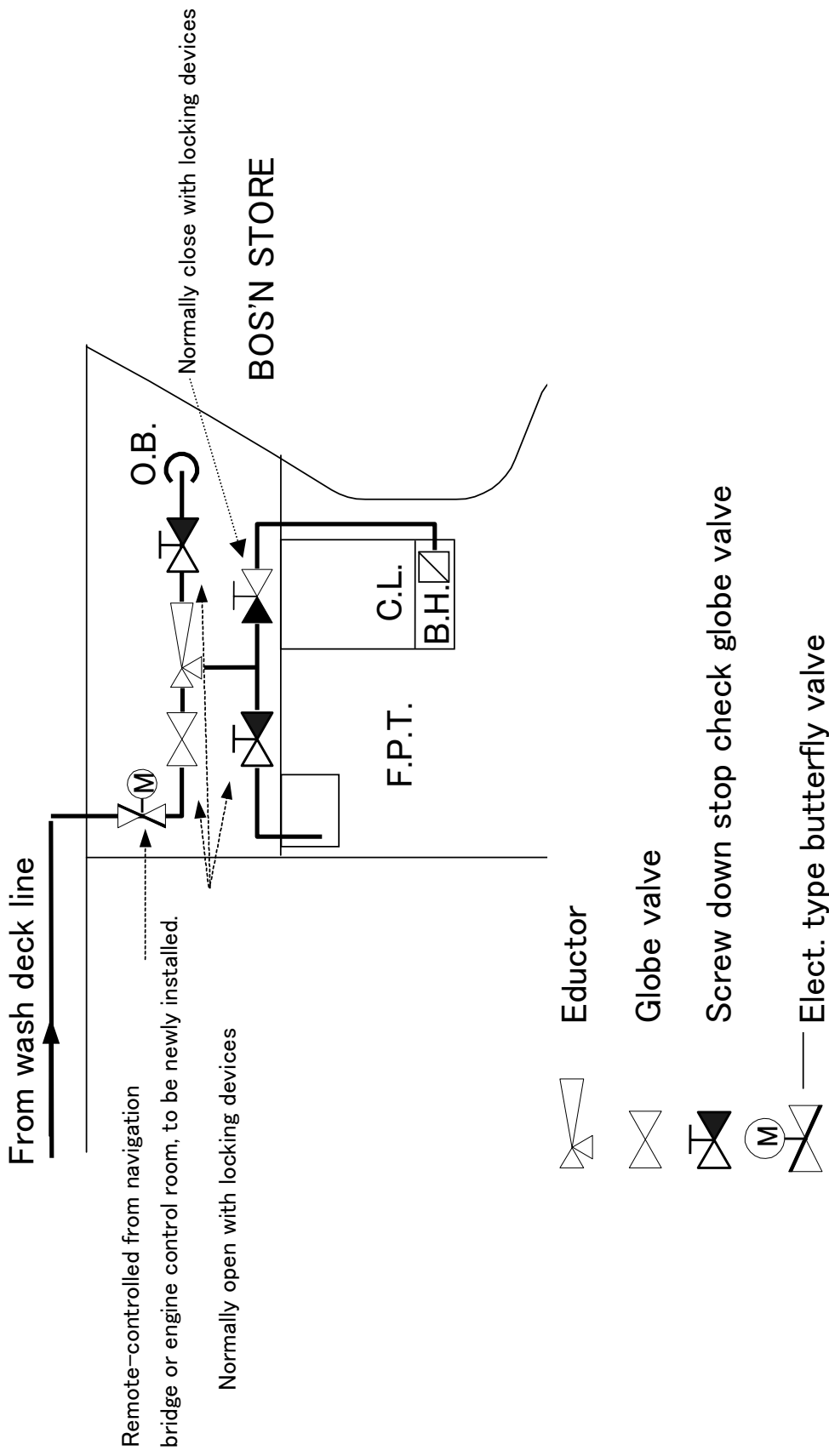


FIG.5-2

Attachment 6. to  
ClassNK Technical Information No. TEC-0587

Regulation 13 of SOLAS Chapter XII

Regulation 13

Availability of pumping systems

(This regulation applies to bulk carriers regardless of their date of construction)

1. On bulk carriers, the means for draining and pumping ballast tanks forward of the collision bulkhead and bilges of dry spaces any part of which extends forward of the foremost cargo hold shall be capable of being brought into operation from a readily accessible enclosed space, the location of which is accessible from the navigation bridge or propulsion machinery control position without traversing exposed freeboard or superstructure decks. Where pipes serving such tanks or bilges pierce the collision bulkhead, valve operation by means of remotely operated actuators may be accepted, as an alternative to the valve control specified in regulation II-1/11. 4, provided that the location of such valve controls complies with this regulation.
2. Bulk carriers constructed before 1 July 2004 shall comply with the requirements of this regulation not later than the date of the first intermediate or renewal survey of the ship to be carried out after 1 July 2004, but in no case later than 1 July 2007.