

Subject:
ENHANCED SURVEY PROGRAMME FOR
OIL TANKERS AND BULK CARRIERS
(APPLICABLE TO NON-JAPANESE SHIPS)

NKTECHNICAL INFORMATION

116

No.:

17th June, 1993

Date:

TO : Shipowners and shipbuilders concerned

While the enhanced survey programme for oil tankers and bulk carriers is under deliberation at IMO (International Maritime Organization), IACS (International Association of Classification Societies) has agreed to enforce its unified requirements for the enhanced survey which constitute the core of the IMO programme on and after 1 July 1993.

Although some of those requirements have already been incorporated into the Rules and Guidances, the Society has amended the Rules and Guidances adopting all of the requirements of the IACS Unified requirements.

Attachment is the summary of the enhanced survey programme now adopted by the Society. We would very much appreciate your perusal of it so that you would understand the new survey procedure and avoid any unnecessary troubles in carrying out the hull surveys.

If you would have any question, please do not hesitate to contact our Survey Department.

Attachment : Summary of Enhanced Survey Programme for Oil Tanker and Bulk Carriers (Applicable To Non-Japanese Ships)

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Attachment :

Summary Of Enhanced Survey Programme For Oil Tankers And Bulk Carriers
(Applicable to Non-Japanese Ships)

1. Application

- (1) The requirements of the enhanced survey programme should apply to periodical surveys of all oil tankers, oil/ore combination carriers and bulk carriers, which will be conducted on or after 1 July 1993.

All or part of the requirements may apply to other ships such as ore carriers when deemed necessary by the Society.

- (2) Where some survey items remain incomplete after a periodical survey carried out before 1 July 1993, the requirements should apply to the remaining items carried out at following surveys.
- (3) Where planning document is prepared, based on sufficient investigation on hull structures including strength analysis, and approved by the Society in advance of special survey, close-up surveys may be based on the planning document.

In such case, instructions are to be given by the Head Office.

2. Documents For Survey

2.1 Survey programme

A specific survey programme, identifying the outline of the survey, should be worked out in advance with each special survey by the owner in cooperation with the Society.

At least annexed form should be completed as appropriate for a specific survey programme.

2.2 Documents required to be provided on board

- (1) Main structural plans
- (2) Cargo and ballast history
- (3) Extent of use of inert gas plant and tank cleaning procedures (for tankers)
- (4) Previous repair history
- (5) Thickness measurement reports
- (6) Inspections by ship's personnel
- (7) Survey programme
- (8) Planning document (if any)
- (9) Survey records (Surveyors file them after each periodical class survey)
- (10) Condition evaluation report (the Society sends it to the owner after each special survey)

3. Docking Survey

- (1) Docking survey should be conducted as part of special survey. In-water survey cannot be accepted in lieu of the docking survey for this purpose.
- (2) However, the requirement of the above (1) may not apply to special survey to be completed by 30th June, 1994.
- (3) Docking survey specified in the above (1) may be conducted between 4th annual survey and completion of the special survey. A docking survey conducted prior to 4th annual survey may be accepted, provided that the special survey be completed within one year after the docking survey.

4. Thickness Measurements

- (1) Thickness measurements as part of periodical surveys should be conducted at presence of the surveyor. However, when the measurements are carried out by a firm approved by the Society, the presence of the Surveyor may be dispensed with.
- (2) Thickness measurement as part of the special survey should not be held before the fourth annual survey in principle.

5. Enhanced Survey For Oil Tankers

5.1 Additional requirements for special survey

- (1) Close-up surveys, thickness measurements and pressure tests should be carried out in accordance with the requirements specified in the attached Tables -1 to -3. The surveyor may extend the surveys, measurements and tests as deemed necessary.
- (2) The extent of close-up surveys and thickness measurements of tanks which are found to be in good condition may be specially considered by the surveyor.
- (3) Thickness measurements should be carried out as deemed necessary by the surveyor for a ballast tank where a protective coating is found in poor condition and it is not renewed. Such a ballast tank should be examined internally at each annual survey.

5.2 Additional requirements for intermediate survey

5.2.1 Ships over 5 years but not more than 10 years of age

- (1) An internal examination of representative ballast tanks should be carried out.
- (2) Where remarkable breakdown of coating, corrosion or other defects are found, the examination should be extended to other ballast tanks of the same type.

- (3) Thickness measurements should be carried out as deemed necessary by the surveyor for a ballast tank where a protective coating is found in poor condition and it is not renewed.
- (4) The ballast tank noted in the above (3) should be examined internally at each annual survey.

5.2.2 Ships over 10 years of age

- (1) An internal examination of all ballast tanks and combined cargo/ballast tanks should be carried out according to (2) to (4) of the above 5.2.1.
- (2) An internal examination of at least one forward and after cargo tanks should be carried out. Where corrosion or other defects are found, the examination should be extended to other cargo tanks as deemed necessary by the surveyor.
- (3) Close-up survey of following tanks should be carried out.
 - Ballast tanks. The extent of survey should be the same as previous special survey.
 - At least two combined cargo/ballast tanks. Additionally at least one cargo tank should be surveyed after third special survey. The extent of survey should be based on the record of the previous special survey and repair history of the tanks.
- (4) The surveyor may extend close-up surveys.
- (5) The extent of close-up surveys may be specially considered by the surveyor based on the results of the surveys.
- (6) Thickness measurements should be carried out for 'suspect areas' found at the previous special survey. The surveyor may extend the extent of the measurements as deemed necessary.

'Suspect areas' are locations showing substantial corrosion and/or are considered by the surveyor to be prone to rapid wastage.

5.3 Additional requirements for annual survey

- (1) Internal examination of ballast tanks should be carried out when required as a consequence of the results of the special survey and intermediate survey. Where extensive corrosion is found, thickness measurements should be carried out.
- (2) The surveyor may extend the extent of the measurements as deemed necessary.

6. Enhanced Survey For Bulk Carriers

6.1 Additional requirements for special survey

- (1) Close-up surveys, thickness measurements and pressure tests should be carried out in accordance with the requirements specified in the attached Tables -4 to -6. The surveyor may extend the surveys, measurements and tests as deemed necessary.
- (2) The extent of thickness measurements of tanks which are found to be in good condition may be specially considered by the surveyor.
- (3) Thickness measurements should be carried out as deemed necessary by the surveyor for a ballast tank where a protective coating is found in poor condition and it is not renewed.
- (4) The ballast tank noted in the above (3), excluding double bottom tanks, should be examined internally at each annual survey.
- (5) The ballast double bottom tank noted in the above (3) may be required to be examined internally at each annual survey by the surveyor.

6.2 Additional requirements for intermediate survey

- (1) An internal examination of representative ballast tanks, and all ballast tanks for ships over 10 years of age, should be carried out.
- (2) Where remarkable breakdown of coating, corrosion or other defects are found, the examination should be extended to other ballast tanks of the same type.
- (3) Thickness measurements should be carried out as deemed necessary by the surveyor for a ballast tank where a protective coating is found in poor condition and it is not renewed.
- (4) The ballast tank noted in the above (3), excluding double bottom tanks, should be examined internally at each annual survey.
- (5) The ballast double bottom tank noted in the above (3) may be required to be examined internally at each annual survey at the discretion of the surveyor.
- (6) 'Suspect areas' found at the previous special survey should be subject to internal examinations and close-up surveys.
- (7) An internal examination of all cargo holds should be carried out.
- (8) An close-up survey of following structural members should be carried out.
 - Shell frames and their end attachments and transverse bulkheads in the forward cargo hold and one other selected cargo hold.
 - 'Suspect areas' found at the previous special survey.
- (9) Where considered necessary by the surveyor, the survey should be extended to include a close-up survey of sufficient extent of other representative cargo holds.

- (10) Thickness measurements should be carried out to an extent sufficient to determine both general and local corrosion levels at areas subject to close-up survey.

The thickness measurements may be dispensed with by the surveyor based on the results of the close-up survey.

6.3 Additional requirements for annual survey

6.3.1 For all ships

- (1) Internal examinations of ballast tanks should be carried out when required as a consequence of the results of the special survey and intermediate survey. Where extensive corrosion is found, thickness measurements should be carried out as deemed necessary by the surveyor.

6.3.2 For ships over 10 years of age

- (1) An internal examination of a representative forward and after cargo hold should be carried out. Where this level of survey reveals the need for remedial measures, the survey should be extended to include an internal examination of all cargo holds.

6.3.3 For ships over 15 years of age

- (1) An internal examination of all cargo hold should be carried out.
- (2) A close-up survey of sufficient extent to establish the condition of the lower region of the shell frames and their end attachments in a forward cargo hold. Where this level of survey reveals the need for remedial measures, the survey should be extended to include a close-up survey of all cargo holds.

TABLE 1. Requirements of Close-up Survey
for Oil Tankers

Kind of Survey	Structural Members for Close-up Survey
S. S. No. 1 Age ≤ 5 years	A) One Web Frame Ring - in a ballast wing tank, if any, or a cargo wing tank used primarily for water ballast B) One Deck Transverse - in a cargo tank D) One Transverse Bulkhead - in a ballast tank D) One Transverse Bulkhead - in a cargo wing tank D) One Transverse Bulkhead - in a cargo center tank
S. S. No. 2 5 < Age ≤ 10 years	A) All Web Frame Rings - in a ballast wing tank, if any, or a cargo wing tank used primarily for water ballast B) One Deck Transverse - in each of the remaining ballast tanks, if any B) One Deck Transverse - in a cargo wing tank B) One Deck Transverse - in two cargo center tanks C) Both Transverse Bulkheads - in a ballast wing tank, if any, or a cargo wing tank used primarily for water ballast D) One Transverse Bulkhead - in each remaining ballast tank D) One Transverse Bulkhead - in a cargo wing tank D) One Transverse Bulkhead - in two cargo center tanks
S. S. No. 3 10 < Age ≤ 15 years	A) All Web Frame Rings - in all ballast tanks A) All Web Frame Rings - in a cargo wing tank A) One Web Frame Rings - in each remaining cargo wing tank C) All Transverse Bulkheads - in all cargo and ballast tanks E) One Deck And Bottom Transverse - in each cargo center tank F) As considered necessary by the surveyor
S. S. No. 4 or after Age > 15 years	Same as S. S. No. 3 Additional transverses included as deemed necessary by the surveyor

Remark) Abbreviations in this table mean :

- A) Complete transverse web frame ring including adjacent structural members
- B) Deck transverse including adjacent deck structural members
- C) Transverse bulkhead complete including girder system and adjacent members
- D) Transverse bulkhead lower part including girder system and adjacent structural members
- E) Deck and bottom transverse including adjacent structural members
- F) Additional complete transverse web frame ring

TABLE 2. Requirements of Thickness Measurements
for Oil Tankers

Kind of Survey	Structural Members for Thickness Measurement
S.S. NO. 1 Age $\leq$ 5 years	1. Suspect area 2. One section of deck plating for the full beam of the ship within the cargo length area (in way of a ballast tank, if any, or a cargo tank used primarily for water ballast) 3. Structural members subject to close-up survey for general assessment and recording of corrosion pattern
S.S. NO. 2 5 < Age $\leq$ 10 years	1. Suspect area 2. Within the cargo length area : (1) Each deck plate (2) One transverse section 3. Structural members subject to close-up survey for general assessment and recording of corrosion pattern 4. Selected wind and water strakes outside the cargo length area
S.S. NO. 3 10 < Age $\leq$ 15 years	1. Suspect area 2. Within the cargo length area : (1) Each deck plating (2) Two transverse sections 3. Structural members subject to close-up survey for general assessment and recording of corrosion pattern 4. Selected wind and water strakes outside the cargo length area 5. All wind and water strakes within the cargo length area
S.S. No. 4 or after Age > 15 years	1. Suspect area 2. Within the cargo length area : (1) Each deck plate (2) Three transverse sections (3) Each bottom plate 3. Structural members subject to close-up survey for general assessment and recording of corrosion pattern 4. Selected wind and water strakes outside the cargo length area 5. All wind and water strakes within the cargo length area

TABLE 3. Requirements of Pressure Tests
for Oil Tankers

Kind of Survey	Tank Spaces for Pressure Tests
S. S. No. 1 Age $\leq$ 5 years	1. Cargo tank boundaries facing ballast tanks, void spaces, pipe tunnels, fuel oil tanks, pump rooms or cofferdams 2. Representative tanks for fresh water, fuel oil and lubrication oil within the cargo length area 3. Other water tanks (Pressure tests of these tanks may be dispensed with, provided, after an external and internal examination of the tanks, the surveyor is satisfied with the condition of the tanks.)
S. S. No. 2 5 < Age $\leq$ 10 years	1. Cargo tank boundaries facing ballast tanks, void spaces, pipe tunnels, fuel oil tanks, pump rooms or cofferdams 2. All cargo tank bulkheads which form the boundaries of segregated cargoes 3. Representative tanks for fresh water, fuel oil and lubrication oil within the cargo length area 4. Other water tanks (Pressure tests of these tanks may be dispensed with, provided, after an external and internal examination of the tanks, the surveyor is satisfied with the condition of the tanks.) 5. Other fuel oil tanks (Pressure tests of these tanks may be dispensed with, provided, after an external examination of the tanks, the surveyor is satisfied with the condition of the tank.)
S. S. No. 3 10 < Age $\leq$ 15 years	1. All cargo tank bulkheads 2. All water tanks 3. All fuel oil tanks (Pressure tests of these tanks may be dispensed with, provided, after an external examination and from testing of each one double bottom tank forward and aft and of one deep tanks, the surveyor is satisfied with the condition of the tanks.) 4. All lubrication oil tanks (Pressure tests of these tanks may be dispensed with, provided, after an external examination of the tanks, the surveyor is satisfied with the condition of the tank.)
S. S. No. 4 or after Age > 15 years	1. All cargo tank bulkheads 2. All water tanks 3. All fuel oil tanks 4. All lubrication oil tanks

TABLE 4. Requirements of Close-up Survey
for Bulk Carrier

Kind of Survey	Structural Members for Close-up Survey
S.S. No.1 Age $\leq$ 5 years	1. All hold frames in all cargo holds including their end attachments 2. One transverse web with associated plating and longitudinals in two representative water ballast tanks of each type (i.e. topside, hopper side or side tank). 3. Transverse bulkheads : all parts in two selected cargo holds, lower parts in other holds 4. Air pipes and sounding pipes in cargo holds: in way of tank top
S.S. No.2 5 < Age $\leq$ 10 years	1. All hold frames in all cargo holds including their end attachments 2. One transverse web with associated plating and longitudinals in each water ballast tank (i.e. topside, hopper side or side tank). 3. A forward and aft transverse bulkhead in one side ballast tank, including stiffening system 4. Transverse bulkheads in two selected cargo holds 5. All parts of one transverse bulkhead and lower parts of the another in other cargo holds 6. Selected cargo hold hatch covers and coamings 7. Selected area of deck plating inside line of hatch openings between cargo hold hatches 8. Air pipes and sounding pipes in cargo holds: in way of tank top
S.S. No.3 10 < Age $\leq$ 15 years	1. All hold frames in all cargo holds including their end attachments 2. all transverse webs with associated plating and longitudinals in each water ballast tank (i.e. topside, hopper side or side tank). 3. All transverse bulkheads in all ballast tank, including stiffening system 4. All transvers bulkhead in all cargo holds 5. All cargo hold hatch covers and coamings 6. All deck plating inside line of hatch opening between cargo hold hatches 7. Air pipes and sounding pipes in cargo holds: in way of tank top
S.S. No.4 or after Age > 15 years	Same as Special Survey No.3

TABLE 5. Requirements of Thickness Measurements
for Bulk Carrier

Kind of Survey	Structural Members for Thickness Measurements
S.S. No. 1 Age $\leq$ 5 years	1. Suspect area 2. At least following structural members for general assessment and recording of corrosion pattern (1) Lower parts of webs and lower end brackets of each three hold frames at a fore/middle/aft part of both sides in each cargo hold (2) Lowest strake of each transverse bulkhead (3) Other structural members subject to close-up survey
S.S. No. 2 5 < Age $\leq$ 10 years	1. Suspect area 2. Structural members within the cargo length area : (1) Two transverse sections of deck plating, outside line of cargo hatch openings (2) All deck plating, where log cargoes or other cargoes being prone to accelerate corrosion are loaded 3. At least following structural members for general assessment and recording of corrosion pattern (1) Lower and upper parts of web and end brackets of sufficient number (at least 1/3 of total number) of frames at a fore/middle/aft part of both sides in each cargo hold (2) All parts of one transverse bulkhead and lowest strake of the another in each cargo hold (3) Other structural members subject to close-up survey 4. Selected cargo hold hatch covers and coamings (plating and stiffeners) 5. Selected areas of deck plating inside line of openings between cargo hold hatches 6. Wind and water strakes in way of the transverse sections considered under the above 2. (1)
S.S. No. 3 10 < Age $\leq$ 15 years	1. Suspect area 2. Structural members within the cargo length area : (1) Each deck plating outside line of cargo hatch openings (2) Two transverse sections, one in the amidship area, outside line of cargo hatch openings 3. At least following structural members for general assessment and recording of corrosion pattern : (1) Hold frames : same as S.S. No. 2 (2) All transverse bulkheads in all cargo holds (3) Other structural members subject to close-up survey 4. All cargo hold hatch covers and coamings (plating & stiffeners) 5. All deck plating inside line of openings between cargo hold hatch 6. All wind and water strakes within the cargo length area 7. Selected wind and water strakes outside the cargo length area
S.S. No. 4 or after Age > 15 years	1. Suspect area 2. Structural members within cargo length area : (1) Each deck plating outside line of cargo hatch openings (2) Three transverse sections, one in the amidship area, outside line of cargo hatch openings (3) Each bottom plate 3. Structural members specified in 3. to 7. for S.S. No. 3

TABLE 6. Requirements of Pressure Tests
for Bulk Carrier

Kind of Survey	Tank Spaces for Pressure Tests
S. S. No. 1 Age $\leq$ 5 years	1. All boundaries of ballast tanks, deep tanks and cargo holds used for ballast within the cargo hold length 2. Representative tanks for fresh water, fuel oil and lubrication oil 3. Other water tanks (Pressure tests of these tanks may be dispensed with, provided, after an external and internal examination of the tanks, the surveyor is satisfied with the condition of the tanks.)
S. S. No. 2 5 < Age $\leq$ 10 years	1. All boundaries of ballast tanks, deep tanks and cargo holds used for ballast within the cargo hold length 2. Representative tanks for fresh water, fuel oil and lubrication oil 3. Other water tanks (Pressure tests of these tanks may be dispensed with, provided, after an external and internal examination of the tanks, the surveyor is satisfied with the condition of the tanks.) 4. Other fuel oil tanks (Pressure tests of these tanks may be dispensed with, provided, after an external examination of the tanks, the surveyor is satisfied with the condition of the tank.)
S. S. No. 3 10 < Age $\leq$ 15 years	1. All water tanks (including cargo holds used for ballast) 2. All fuel oil tanks (Pressure tests of these tanks may be dispensed with, provided, after an external examination and from testing of each one double bottom tank forward and aft and of one deep tanks, the surveyor is satisfied with the condition of the tanks.) 3. All lubrication oil tanks (Pressure tests of these tanks may be dispensed with, provided, after an external examination of the tanks, the surveyor is satisfied with the condition of the tank.)
S. S. No. 4 or after Age > 15 years	1. All water tanks (including cargo holds used for ballast) 2. All fuel oil tanks 3. All lubrication oil tanks

SURVEY PROGRAMME

For Special Survey No. _____ that is scheduled in _____, 19 ____ for the ship
as stated below :

SHIP'S NAME:

CLASS ID:

CLASS NOTATION:

PORT OF REGISTRY:

NATIONAL FLAG:

OFFICIAL NO./CALL SIGN:

DEADWEIGHT TONNES:

GROSS TONNES:

L(m) REGISTERED:

OWNED BY:

This Survey Programme has been prepared with the followings taken into account;

- (1) past survey results of the classification society including the result of the latest thickness measurement, and
- (2) inspection records by the owners. (See the attached.)

GENERAL ARRANGEMENT AND TANK/HOLD PLAN OF THE SHIP

SCHEME OF REPAIR :

Identification

VOID

CONDITIONS FOR SURVEY :

— Available Facilities _____
 the place / location where the Special Survey is being conducted ;

Safety Gears on board

O₂ content meter / Type ; _____

Accuracy to be checked by ; _____

Gas Detector / Type ; _____

Accuracy to be checked by ; _____

Portable Safety Light / _____ sets of _____ type

Available Breathing Apparatus ; _____ sets of _____ type

Are the safety gears also available at the repair yard ? Yes / No

— Safety and Cleanness Assurance Procedure for Cargo Tank Inspection —

All Cargo Tanks are to be completely discharged, ventilated, gas-freed and cleaned for safe and efficient survey operation.

complete cargo discharge to be confirmed by _____

O₂ content measurement and gas detection

to be confirmed by _____

cleanness in cargo tanks to be confirmed by _____

— Safety and Cleanness Assurance Procedure for Ballast Tank Inspection —

All Ballast Tanks are to be completely discharged, ventilated, and cleaned for safe and efficient survey operation.

complete ballast discharge to be confirmed by _____

O₂ content measurement and gas detection

to be confirmed by _____

cleanness in ballast tanks to be confirmed by _____

— Illumination —

Lighting Arrangement other than Portable Safety Lights for Individuals, if any

ACCESS TO STRUCTURES :

— For Overall Survey _____

To all cargo or ballast tanks, fixed access facilities are provided from the upper deck to the tank bottom. Horizontal girders are fitted with handrails for safety purpose and can be used as the access means to the tank structures at middle heights.

Horizontal girders are provided with steel bars at large lightening holes for the purpose of preventing falling down of personnel.

— For Close-up Survey _____

Areas nominated for close-up survey ; _____

Means for Safe Access ; _____

Areas nominated for close-up survey ; _____

Means for Safe Access ; _____

Areas nominated for close-up survey ; _____

Means for Safe Access ; _____

Areas nominated for close-up survey ; _____

Means for Safe Access ; _____

EQUIPMENT FOR SURVEY :

Thickness measurement has been carried out by _____
using the equipment as _____.

In addition to the above, non-destructive testing as stated below is also deemed necessary by the undersigned surveyor to Nippon Kaiji Kyokai.

Recommended "Non-Destructive Testing"

This SURVEY PROGRAMME is prepared by _____
on 19-- for the ship's Special Survey No. _____
and noted by the undersigned _____
on 19-- at _____, Nippon Kaiji Kyokai

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Nippon Kaiji Kyokai

NK REF. NO. _____

Attachment : 1) Result of thickness measurement
2)
3)