GUIDANCE ON
CONTINUOUS MACHINERY SURVEY (CMS)
(Ver.4)

June 2025

ClassNK

NIPPON KAIJI KYOKAI

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I. GUIDANCE ON CONTINUOUS MACHINERY SURVEY (CMS)

1. Scope:

The Continuous Machinery Survey (CMS) System is to aim to grasp the general condition of the whole machinery and equipment by opening up a part of the machinery and equipment through reasonable procedures in a continuously and systematically planned manner.

This, of course, can only be achieved when the attending Surveyor is provided with accurate information on the ship's side (Ship-Owner or Ship Management Company, here-in-after to call "Shipping Company") maintenance at every occasion of CMS.

The points of CMS system are as follows:

(1) The survey items of CMS specified in Chapt. 9, Part B of the Rules may be overhauled and examined according to the ship's maintenance schedule in such a manner that all of them are opened up for survey once within a cycle not exceeding 5-year period.

(2) Conditions of those items of machinery and equipment which have not been opened up at the survey are evaluated from the results of the open-up inspection of the similar machinery and equipment together with the records of the systematic inspection scheme in line with the ship's maintenance schedule. This system may prove a preventive measure to avoid possible damage in the future for those items of machinery and equipment which have not been opened at the survey, and thus can cooperate with the ship's maintenance work without disturbance of planned maintenance schedule.

(3) If any defects are found on machinery, equipment or parts which have been opened up in the course of CMS open-up survey on similar machinery, equipment or parts may be required by the attending Surveyor.

2. Application:

The CMS system applies to those items of machinery and equipment of well experienced type.

The following machinery and equipment are applicable to CMS system.

① **Main Propulsion Machinery:**

(a) Steam Turbines:

◆Turbine Rotors accompanied with Bearings, Casings ◆Couplings between Turbine and Reduction Gears ◆Nozzle Valves ◆Maneuvering Valves

(b) Diesel Engines:

◆Cylinder Covers ◆Cylinder Liners ◆Pistons (Piston Pins and Piston Rods to be accompanied) ◆Crosshead Pins and their Bearings ◆Connecting Rods ◆Crank Pins and their Bearings ◆Crank Journals and their Bearings ◆Camshafts and their Driving Gears ◆Turbo-Chargers ◆Auxiliary Blowers ◆Air Inter-Coolers ◆Attached essential Pumps & Coolers (e.g. Bilge Pumps/L.O. Pumps/ F.O. Pumps/ Cooling Water Pumps/L.O. Cooler/CFW Cooler ◆Hyd. Oil Pumps for Electric Control System)

② **Power transmission system and Main Shafting:**

◆Reduction/Reversing Gears ◆Flexible Couplings (Rubber/Fluid/Claw) ◆Clutch ◆Thrust Shafts and Bearings ◆Intermediate Shafts and Bearings

③ **Auxiliary engines:**

◆Main and Aux. Generator Engines including Port-use Generator Engine ◆Emergency Generator Engines ◆Other Engines used for essential Auxiliaries

④ **Air Compressors, Blowers:**

◆Main and Aux. Starting Air Compressors (excluding those for Emergency use) ◆Air Compressors for Control System ◆Forced Draft Fans for Boiler (excluding the same for Boilers with a maximum evaporation of 3 tons/h or less)

⑤ **Cooling Water Pumps:**

◆Circulating Pumps for Main Steam Turbine ◆Jacket C.F.W. Pumps ◆Piston C.F.W./ Oil Pumps ◆F.V. C.F.W./ Oil Pumps ◆Turbo-Charger Pumps ◆Main C.S.W. Pumps ◆C.S.W. Pumps for L.O. Coolers ◆C.F.W. Pumps for Generator ◆S.W. Service Pumps ◆Air Coolers C.F.W. Pumps

⑥ **F.O. Pumps:**

◆F.O. Supply Pumps ◆F.O. Service Pumps ◆F.O. Transfer Pumps ◆F.O. Circulating Pumps ◆Boiler Burning Pumps (excluding those for Boilers with a maximum evaporation of 3 tons/h or less)

⑦ **Lubricating Oil Pumps:**

◆L.O. Pumps for Main engine ◆L.O. Pumps for Camshaft ◆L.O. Pumps for Reduction Gear ◆L.O. Pumps for Controllable Pitch Propeller (C.P.P.) ◆Stern Tube L.O. Pumps (excluding the case where Stern Tube L.O. system by natural circulation in an emergency case is also available) ◆Thermal Oil Circulating Pumps ◆Exhaust Value Operation oil Pumps ◆Rocker arm L.O. Pumps ◆Crosshead L.O. Pumps ◆System Oil Pumps (Pumps for feeding oil to Hydraulic systems for Control and adjustment of essential auxiliaries for propulsion)

⑧ **Feed Water Pumps, Condensate Pumps, Drain Pumps:**

◆Feed Water Pumps ◆Boiler Water Circulating Pumps ◆Condensate Pumps (for Main Turbines ◆Generator Turbines ◆Cargo Oil Pump Turbines ◆Ballast Pump Turbines) ◆Dain Pumps

⑨ **Bilge Pumps, Ballast Pumps, Fire Pumps:**

◆Bilge Pumps (excluding those for Oily Bilge & Oily Water Separators) ◆Ballast Pumps ◆G.S. Pumps ◆Fire Pumps (excluding Emergency Fire Pump)

⑩ **Condensers, Feed Water Heaters:**

◆Main condensers ◆Aux. Condensers ◆Gland Condensers ◆Atmospheric Condensers ◆Dirty Steam Condensers ◆Vent Condensers ◆Drain Coolers ◆Feed Water Heaters ◆Deaerators

⑪ **Coolers:**

◆Main F.W. Coolers (for Cylinder Jackets and Pistons) ◆F.V. C.F.W./ Oil Coolers ◆F.W. Coolers for Turbo-Chargers ◆F.W. Coolers for Generator Engines ◆Main L.O. Coolers ◆Turbo-Charger L.O. Coolers ◆Camshaft L.O. Coolers ◆Reduction Gear L.O. Coolers ◆Control Oil Coolers ◆L.O. Coolers for C.P.P. ◆Stern Tube L.O. Coolers ◆L.O. Coolers for Generator Turbines ◆Air Coolers C.F.W. Coolers ◆F.O. Coolers

⑫ **Oil Heaters:**

◆F.O. Heaters and L.O. Heaters (excluding Electric Heaters having a capacity of 10 kw or less)

⑬ **F.O. Tanks** (having a capacity of more than 1m^3 which do not form part of the Ship's Hull Structure)

◆F.O. Settling Tanks and Service Tanks (for Main and Auxiliary Engines) ◆F.O. Tanks for Boilers

⑭ **Air Reservoirs** (For ◆Main ◆Auxiliary ◆Control ◆Emergency)

⑮ **Cargo Oil Pumping Installation:**

◆Cargo Oil Pumps (including Chemical, Liquid Gas Pumps) ◆Stripping Pumps ◆Tank Cleaning Pumps ◆Tank Cleaning Heaters and Drain Coolers ◆Drain Coolers for Cargo Oil Heaters

⑯ **Deck Machinery:**

◆Steering Gears ◆Windlass ◆Mooring Winches (including their Hydraulic Oil Pumps)

⑰ **Fresh Water Generator** (for Main Boiler Water to use for driving Steam Turbines)

⑱ **Cargo Refrigerating Installation:**

◆Compressors ◆Condenser C.W. Pumps ◆Primary Refrigerant Pumps ◆Brine Pumps ◆Condensers ◆Evaporators

⑲ **Other items** of Machinery, Equipment and Refrigerating Installations which the Society considers to be covered by CMS

3. Application Procedures:

(1) Where the CMS system is applied, the procedures are as follows:

① **New Ships:**

(a) The forms of ''Application for CMS'' and ''CMS Schedule'' (as shown in Appendix A and B respectively) and, if necessary, this ''Guidance'' will be sent to the Shipping Company (Ship-Owner or Ship Management Company) from the Head Office in about 3 months after completion of the Classification Survey.

(b) The Shipping Company should submit the ''Application for CMS'' filled with necessary information, and ''CMS Schedule'' to Classification Department of Head Office or the Local Survey Office prior to the first CMS Survey.

(c) Copies for the Shipping Company and the Ship's file will be returned to the applicant with the following endorsement on the ''Application for CMS'', signed by General Manager of Classification Department or the Survey Office.

Accepted the application for Continuous Machinery Survey System to the ship . (Date) (Signature) Name Title

② **Existing Ship** (in such case as the ship class-transferred from other classification society):

(a) The survey items applicable to CMS are newly registered by the Society referring to the record of CMS survey carried out by the previous Society.

(b) The due date of each CMS item shall be taken over that of previous Classification Society.

(c) In case CMS system was not applied in previous class, 5 years' survey cycle shall be started from the delivery date of new-shipbuilding or the latest Special Survey at previous class whichever comes later.

(d) Where all CMS items were surveyed at the class-transfer survey, the application procedures may be made same manner as above ① foe new ship.

(2) It is a usual way that an application for CMS is submitted within about 3 months after the construction survey or class-transfer survey but this application may be acceptable at any time.

4. CMS Schedule:

(1) Details of CMS Schedule

The ‘’CMS Schedule’’ should be prepared referring to the items ① to ③ below and be kept on board the ship for reference to the attending Surveyor.

① All items for CMS should be included in the program.

② All items of CMS should be completed within a cycle of five years.

③ Open-up schedule of the machinery and equipment should be planned to enable the attending Surveyor to evaluate the condition of the whole system by the results of the open-up inspection.

(2) Amendment of CMS Schedule:

CMS should be carried out within the due date in compliance with the accepted ‘’CMS Schedule’’.

In case where the ship’s maintenance program is modified in the process of implementation, the accepted “CMS Schedule” kept on board the ship may be amended and the survey can be carried out accordingly.

When defects were found on a part during survey, the surveyor may request thorough examination on the other similar parts of the machinery or equipment regardless of the CMS Schedule.

5. Kind of CMS required for credit :

5-1) Open-up inspection under Surveyor’s Attendance: (Survey mark in record ”X”):

By the amendments of Classification Rules/Regulations on 2012, the CMS items requiring the attendance of surveyor were drastically slashed, but following items are still required surveyor’s attendance.

① Steam Turbine driving Main Propulsion and Auxiliary including its components

② Reduction/Reversing Gears and Power Transmission system (Coupling, Clutch)

③ Ref. Compressor (at least 1 set) of Cargo Refrigerating Unit

5-2) Confirmatory Survey: (Survey mark in record ”E”) : (Survey based on the Chief Engineer’s inspection report)

5-2-1) Procedure for Confirmatory Survey:

Where any of the machinery and equipment listed in below (2) is opened up at sea and inspected by the Chief Engineer in routine maintenance work, such inspection may be accepted as Confirmatory Survey as equivalent to open-up inspection under supervision of the Surveyor provided that the maintenance records are kept in order and in compliance with the following ①～④.

① One (1) copy of the inspection record including the following items on the machinery and equipment inspected by the chief engineer should be submitted to the attending Surveyor.
(Refer to the Appendix C, “Chief Engineer’s Report”)
  (a) Signature of the chief engineer
  (b) Date and place of the inspection
  (c) Inspection items and their results
  (d) Operating conditions before and after the inspection

② Parts replaced with spares or repaired should be kept onboard until the confirmation by the Surveyor. (If this part would not be kept onboard, it is required to take and keep the photograph.)

③ Visual inspection should be made for the main engine, and inspection under operating condition as well as visual inspection should be made for the other machinery.

④ As a result of the confirmatory survey stated in ① through ③ above, open-up inspection and/or

re-inspection may be required where deemed necessary by the Surveyor.

5-2-2) Machinery applicable for Confirmatory Survey :

Items of machinery applicable for confirmatory survey are as follows:

① **Main diesel engine**:

◆Cylinder Covers ◆Cylinder Liners ◆Pistons (Piston Pins and Piston Rods to be accompanied) ◆ Crosshead Pins and their Bearings ◆Connecting Rods ◆Crank Pins and their Bearings ◆Crank Journals and their Bearings ◆Camshafts and their Driving Gears ◆Turbo-Chargers ◆Auxiliary Blowers ◆Air Inter-Coolers ◆Attached essential Pumps and Coolers (e.g. Bilge Pumps, L.O. Pumps, F.O. Pumps, Cooling Water Pumps, Hyd. Oil Pumps for Electric Control System)

② **Diesel engines used for driving** Main Generators, important auxiliaries for main propulsion of the ship and those for the safety of life and the ship. However confirmatory survey may only be acceptable when the surveyor can confirm the followings by the record and/or photograph.

(a) The engine was completely opened up and a careful examination was made on all Cylinder units ◆ Cylinder Liners ◆Cylinder Covers ◆Cylinder Cover valves ◆Piston ◆Piston Rings ◆ Connecting Rods and Top and Bottom end bearings ◆Piston Pins ◆Camshaft Driving Gear ◆ Turbo-Chargers ◆Air Intercoolers ◆Crankcase and Crankcase Doors ◆Engine foundation bolts, and Crankcase Safety valves.

(b) All main bearings were taken out for examination.

(c) An examination was made on all crankpins and journals to detect cracks, especially at fillets and areas in the vicinity of oil holes, and oil grooves of the crankshaft.

(d) Crank web deflections were measured and recorded.

(e) Wear-downs of the cylinder liners were measured and recorded.

(f) L.O. Coolers attached to the Engine and Pumps (L.O. Pumps, Cooling Water Pumps, etc.) of direct driven type were opened up and examined.

(g) The service hours of crankpin bolts were checked and recorded.

③ Shafting:

◆Thrust shaft & bearing ◆Intermediate shafts & bearings

④ **Auxiliary machinery:**

◆Air compressors ◆Pumps ◆Heat Exchangers ◆Deck Machinery ◆Evaporators

⑤ **Air reservoirs** (Main, Aux, Control, General Service, Emergency)

⑥ **Cargo Refrigerating Installation:**

(a) Ref. compressors

(*1) Open-up inspection of at least one (1) unit of compressors should be carried out by the Surveyor within one (1) cycle of CMS.

(*2) For the screw type compressor, the interval of open-up survey may be extended up to 25,000hrs.

(b) Condenser Cooling Water Pumps

(c) Primary Refrigerant Pumps

(d) Brine Pumps

(e) Condenser

(f) Evaporators, etc.

5-2-3) Time of open-up inspection by the Chief Engineer:

Each machinery and equipment applicable for Confirmatory Survey is to be opened up within each due date.

5-2-4) Time of Confirmatory Survey by the Surveyor:

The open-up inspection record by the Chief Engineer is to be submitted to the Surveyor on or before the forthcoming periodical survey.

5-2-5) Next due date of inspection by Chief Engineer:

The end of month after 5 years counting from the inspection date by Chief Engineer regardless of the date of Confirmation Survey by Surveyor.

5-3) Substitution for Open-up Inspection: (Survey mark in record "G") (Visual inspection and inspection under operating condition):

For the following machinery and equipment, the inspections by Surveyor mentioned below may be substituted for the open-up inspection subject to a confirmation of working conditions, and a review of the relevant log books or other records. However, in case where it is found they are not in order at the inspection or they have not been opened-up for a long period, open-up inspection may be required.

① **Oil Pumps** (excl. Cargo Oil Pumps) and
Hydraulic Deck Machinery (incl. Hyd. Motors for Driving Cargo Oil Pumps):

Visual inspection including the check on the Oil Strainers and the sampling oil, also inspection under operating condition

② **Oil Tanks and Oil Heaters**:
Visual inspection

③ **C.F.W. Pumps, Blowers and Fans**:
Visual inspection and inspection under operating condition

④ **Aux. Diesel Engines** that are not used at normal sea going with total running hours of less than 7,000 hrs. from the last open-up inspection
Visual inspection and inspection under operating condition

④ **Cargo Refrigerating Installation:**

a) For Screw Compressors or other compressors specifically approved by the Society.
Visual inspection and inspection under operating condition

b) For the compressor to which the inspection of item (1) is applied, open-up inspection is to be carried out when the total running hour after last open-up inspection becomes 25,000 hours and over.

6. Cancellation of CMS System:

(1) Where the Shipping Company requests the cancellation of the CMS system, the normal survey system should henceforth be applied. If there is any item of machinery and equipment whose interval of inspection would exceed 5 years at the next S.S, they should be inspected within 5 year counting from the last inspection

(2) When non-compliance with this Guidance is found, the application of the CMS system may be canceled by the Society. The procedures to be taken henceforth should be in accordance with that shown in (1) above.

(3) Where the Shipping Company is changed, the application of CMS system should be canceled. When the new Shipping Company intends to continue the application of the CMS system, a new application as prescribed in 3. should be re-submitted. In this case, it is acceptable to continue the CMS Schedule prepared by the previous Shipping Company.

－The end－

Appendix A-1

ClassNK

Form CMS-1E
(2025.4)

Application for Continuous Machinery Survey (CMS)

To: NIPPON KAIJI KYOKAI (ClassNK), Classification Department
(E-Mail: cldjc@classnk.or.jp)

Date:

Applicant (Ship Management Company):	Dept.:
	Name:
Address:	TEL:
	E-Mail:

We hereby request the application for CMS to the following ship. This request is made on the basis that we accept the provisions of CONDITIONS OF SERVICE FOR CLASSIFICATION OF SHIPS AND REGISTRATION OF INSTALLATIONS of NIPPON KAIJI KYOKAI.

Ship's Name: _____

Class No.: _____

We assure you that the arrangement on Continuous Machinery Survey (CMS) will be made under the following conditions.

(1) One cycle of each CMS item is to be completed within five (5) years.

(2) The survey schedule for each item of the machinery and equipment is to preferably be planned in such a way that the conditions of the other machinery and equipment can be assumed from the result of an open-up inspection of the machinery and equipment.

(3) In case of the ship class-transferred from other classification society, the due date of each CMS item succeeded to previous class to be observed.

Attachment: Schedule of Continuous Machinery Survey (CMS)

(for NK Use)

Distribution: 1 Copy: Ship's File
1 Copy: Shipowner

Appendix B−1

M/v "○○○○○○" Class Number: 10XXXX

SAMPLE PLAN FOR CMS

Main Diesel Engine Type x No.: 6S70MC-C x	2010	2011	2012	2013	2014	2015
NO.1 CYLINDER COVER OF M/E					○	
NO.2 CYLINDER COVER OF M/E		○				
NO.3 CYLINDER COVER OF M/E			○			
NO.4 CYLINDER COVER OF M/E				○		
NO.5 CYLINDER COVER OF M/E					○	
NO.6 CYLINDER COVER OF M/E						○
NO.1 CYLINDER LINER OF M/E					○	
NO.2 CYLINDER LINER OF M/E		○				
NO.3 CYLINDER LINER OF M/E			○			
NO.4 CYLINDER LINER OF M/E				○		
NO.5 CYLINDER LINER OF M/E					○	
NO.6 CYLINDER LINER OF M/E						○
NO.1 PISTON OF M/E					○	
NO.2 PISTON OF M/E		○				
NO.3 PISTON OF M/E			○			
NO.4 PISTON OF M/E				○		
NO.5 PISTON OF M/E					○	
NO.6 PISTON OF M/E						○
NO.1 CROSSHEAD PIN & BEARING OF M/E					○	
NO.2 CROSSHEAD PIN & BEARING OF M/E			○			
NO.3 CROSSHEAD PIN & BEARING OF M/E			○			
NO.4 CROSSHEAD PIN & BEARING OF M/E					○	
NO.5 CROSSHEAD PIN & BEARING OF M/E			○			
NO.6 CROSSHEAD PIN & BEARING OF M/E					○	
NO.1 CRANKPIN & BEARING OF M/E					○	
NO.2 CRANKPIN & BEARING OF M/E			○			
NO.3 CRANKPIN & BEARING OF M/E			○			
NO.4 CRANKPIN & BEARING OF M/E					○	
NO.5 CRANKPIN & BEARING OF M/E			○			
NO.6 CRANKPIN & BEARING OF M/E					○	
NO.1 CRANKJOURNAL & BEARING OF M/E					○	
NO.2 CRANKJOURNAL & BEARING OF M/E			○			
NO.3 CRANKJOURNAL & BEARING OF M/E			○			
NO.4 CRANKJOURNAL & BEARING OF M/E			○			
NO.5 CRANKJOURNAL & BEARING OF M/E			○			
NO.6 CRANKJOURNAL & BEARING OF M/E					○	
NO.7 CRANKJOURNAL & BEARING OF M/E					○	
NO.8 CRANKJOURNAL & BEARING OF M/E					○	
CAM SHAFT DRIVING GEAR OF M/E			○			
NO.1 TURBO CHARGER OF M/E			○			
NO.2 TURBO CHARGER OF M/E					○	
NO.1 AIR INTER COOLER OF M/E			○			
NO.2 AIR INTER COOLER OF M/E					○	
NO.1 AUX. BLOWER OF M/E			○			
NO.2 AUX. BLOWER OF M/E					○	
Shafting / Aux. Engine	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
THRUST SHAFT & BEARING					○	
INTERMEDIATE SHAFT					○	
INTERMEDIATE SHAFT BEARING					○	
NO.1 MAIN GENERATOR DIESEL ENGINE			○			
NO.2 MAIN GENERATOR DIESEL ENGINE				○		
NO.3 MAIN GENERATOR DIESEL ENGINE					○	
EMERGENCY GENERATOR DIESEL ENGINE					○	
Pump, Compressor and Fan	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
NO.1 MAIN COOL. S.W. PUMP		○				
NO.2 MAIN COOL. S.W. PUMP			○			
NO.3 MAIN COOL. S.W. PUMP				○		
NO.1 LOW TEMP COOL. F.W. PUMP					○	
NO.2 LOW TEMP COOL. F.W. PUMP		○				
NO.3 LOW TEMP COOL. F.W. PUMP			○			
NO.1 HIGH TEMP COOL. F.W. PUMP				○		

NO.2 HIGH TEMP COOL. F.W. PUMP					○	
H.F.O. TRANSFER PUMP		○				
NO.1 F.O. CIRCULATING PUMP				○		
NO.2 F.O. CIRCULATING PUMP					○	
NO.1 F.O. SUPPLY PUMP		○				
NO.2 F.O. SUPPLY PUMP			○			
NO.1 MAIN L.O. PUMP			○			
NO.2 MAIN L.O. PUMP				○		
NO.1 START. AIR COMPRESSOR					○	
NO.2 START. AIR COMPRESSOR		○				
NO.1 STERN TUBE L.O. PUMP			○			
NO.2 STERN TUBE L.O. PUMP				○		
M.D.O. TRANSFER PUMP			○			
F.O. SUPPLY PUMP FOR G/E				○		
NO.1 BOILER FEED PUMP				○		
NO.2 BOILER FEED PUMP					○	
BILGE & FIRE PUMP		○				
NO.1 BALLAST PUMP			○			
NO.2 BALLAST PUMP				○		
FIRE & G.S. PUMP					○	
Heat Exchanger, Independent Tank and Air Reservoir	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
NO.1 CENTRAL COOLER			○			
NO.2 CENTRAL COOLER					○	
F.O. SETTLING TANK FOR M/E			○			
F.O. SERVICE TANK FOR M/E					○	
NO.1 F.O. HEATER FOR M/E		○				
NO.2 F.O. HEATER FOR M/E			○			
MAIN L.O. COOLER		○				
NO.1 MAIN DIESEL START. AIR RESERVOIR			○			
NO.2 MAIN DIESEL START. AIR RESERVOIR					○	
NO.1 F.O. HEATER FOR PURIFIER			○			
NO.2 F.O. HEATER FOR PURIFIER				○		
NO.1 PURIFIER L.O. HEATER		○				
NO.2 PURIFIER L.O. HEATER			○			
F.O. SERVICE TANK FOR A/E					○	
AUX DIESEL START AIR RESERVOIR					○	
AUX. CONDENSER			○			
Deck Machinery	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
NO.1 HYDR. PUMP OF STEERING GEAR					○	
NO.2 HYDR. PUMP OF STEERING GEAR					○	
NO.1 HYDR. PUMP FOR WINDLASS, MOOR.WINCH					○	
NO.2 HYDR. PUMP FOR WINDLASS, MOOR.WINCH					○	
NO.3 HYDR. PUMP FOR WINDLASS, MOOR.WINCH					○	
NO.1 WINDLASS					○	
NO.2 WINDLASS					○	
NO.1 MOORING WINCH					○	
NO.2 MOORING WINCH					○	
NO.3 MOORING WINCH					○	
NO.4 MOORING WINCH					○	
NO.5 MOORING WINCH					○	
NO.6 MOORING WINCH					○	

(Note)

(1) In case the machinery/equipment is installed in No.1, 2, 3, ・・・ for same system which will be usually operated alternately, the survey plan to be set up in separate timing each other through the one cycle of 5 years.

(2) Major items such as M/E bearings and/or shafting shall be allowable to plan for survey at intermediate or periodical survey time at the Dockyard, but survey plan for other items should be spread out in such a way to complete the cycle within 5 years

- over -

Appendix C-1

To Class NK

Chief Engineer's Report
For CMS Confirmatory Survey

Ship's Name :	Flag :	Class No. :
Owner's Name (Management Company's Name) :		
C/E's Name :	Nationality of C/E :	
C/E's License No. :	Validity of C/E's License :	
Issuing States of License :	No. of License endorsed by the flag :	

I, the undersigned Chief Engineer of the above ship, carried out "Open-up Inspection" of the CMS Items and state that the conditions were in order as reported in the attached "Detail of Open-up Inspection by C/E" (Appendix C-2).

Total Nos. of machinery/equipment inspected by C/E:_____
Date of Signature of C/E: _____

Signature of C/E :

_____
(*C/E's Name*) ( )

Confirmatory Survey by NK Surveyor

I, the undersigned surveyor, have carried out "Confirmatory Survey" of the CMS Items inspected by Chief Engineer in open-up condition, and confirmed that all of the CMS Items are maintained in good order, or placed to good working order.

Date:_____
Port:_____ (*Signature*)_____
( )
Surveyor to ClassNK

This format is to be used to report the results of C/E's open-up inspection according to the 9.1.2, Part B of NK Rules. In case where any machinery and equipment defined in 6(2) is to be opened up within due date by the Chief Engineer, this Report is to be prepared and submitted to the Surveyor on or before the forthcoming periodical survey. This Report is to be prepared 2 sets and 1 set is to be put in NK survey record File with endorsement by the Surveyor.

(Distribution) Original : (To: Surveyor), Copies (2) (For Ship Company and Ship' File)

Appendix C-2

Details of Open-up Inspection by C/E

page （ / ）

Name & No. of machinery/equipment：	Date of C/E's inspection：	Place of Inspection：
Condition before and after reassembly：		
Contents of overhaul/inspection/maintenance/repair etc： (measurement records attached : **Yes or No**)		
Name of parts replaced/repaired： (photographs attached : **Yes or No**)		

Appendix D-1

CMS Reference Table

2013/1

CMS Items				Survey mark X	Survey mark E	Survey mark G	Remarks
Steam Turbine		Main Turbine		●			
		Generator Turbine		●		(○)*	(*) Less than 7,000hrs since last open-up
		Cargo/Ballast Pump Turbine		●			
Diesel	M/E	Cylinder	Cover	○	○		
			Liner	○	○		
			Piston	○	○		
		Pin & Bearing	Crosshead	○	○		
			Crank Pin	○	○		
			Crank Journal	○	○		
		Camshaft & Driving Gear		○	○		incl. Driving Gear for Elect cont. system
		Turbo Charger		○	○		
		Air Inter Cooler		○	○		
		Aux .Blower		○	○	○	
		Pumps & Coolers attached to M/E	L.O.	○	○	○	
			F.O.	○	○	○	
			C.F.W.	○	○	○	
			C.S.W.	○	○		
			Hyd. Oil	○	○	○	
	Aux.	Main Generator		○	○		
		Aux Generator (Emerg/Port)		○	○	(○)*	(*) Less than 7,000hrs since last open-up
Reduction Gear/Reversing Gear/Clutch				●			
Flexible Coupling (Rubber/Fluid./Claw)				●			
Shafting		Thrust Shaft & Bearing		○	○		
		Interm Shaft & Bearing		○	○		
Air Compressor				○	○		
Boiler F.D. Fan				○	○	○	
Pumps in E/R		Cool. S.W.		○	○		
		Cool. F.W.		○	○	○	
		F.O.		○	○	○	
		L.O.		○	○	○	
		Feed W./Condensate/Drain		○	○		
		Bilge/Ballast/G.S./Fire		○	○		
Heat Exchanger		Condensate/Feed W. Heater		○	○		
		Cooler		○	○		
		Oil Heater		○	○	○	
		Condenser		○	○		
		Fresh Water Generator (*)		○	○		(*) Only for Main Boiler Water for Steam T.
Tanks		Air Reservoirs		○	○		
		F.O Tank in E/R		○	○	○	
Deck Machinery & Hydr.Pumps		Steering Gear		○	○	○	
		Windlass /Moor Winch		○	○	○	
Aux for Oil Tanker		Cargo Oil Pump		○	○		
		Tank Cleaning Pump		○	○		
		Stripping Pump		○	○		
LGP /LNG Installation				○	○		
Cargo Ref Installation		Compressor		○*1	○	○*2	(*1) At least 1unit to be (X) during 5 years (*2)Applicable for Screw type till 25,000hrs
		Condenser		●			
		Pumps (CSW/Braine)		○	○		
		Receiver		○	○	○	
		Heat exchanger(Cooler/Evap'r)		○	○	○	

(X) : Creditable in Open-up condition by Surveyor's attendance (● is acceptable only by "X")
(E) : Creditable by C/E's Inspection Record
(G) : Creditable in Working condition inspected by Surveyor

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