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CHINA CLASSIFICATION SOCIETY

GUIDELINES FOR CONTINUOUS MACHINERY SURVEY OF MOBILE OFFSHORE UNITS

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Chapter 1 General

Section 1 General Provisions

1.1.1 Purposes

1.1.1.1 The Guidelines specify the implementation and operation procedures for CMS of mobile offshore units (hereinafter referred to as the “Unit”), which could not replace the relevant provisions of CMS in the *Rules for Classification of Mobile Offshore Units* of China Classification Society (hereinafter referred to as the “CCS”).

1.1.1.2 The Guidelines serve as guidance notes for CCS, shipowner or unit management company (hereinafter referred to as the “Company”) to carry out continuous machinery survey (hereinafter referred to as “CMS”), and together with the CCS *Rules for Classification of Mobile Offshore Units*, form the basis for continuous machinery survey of mobile offshore units.

1.1.2 Scope of Application

1.1.2.1 The Guidelines are applicable to the mobile offshore units that apply for and have the CMS class notation.

1.1.2.2 Special survey of the engine (including electrical equipment) may be substituted by CMS at the request of the Shipowner or Company and with the approval of CCS.

1.1.2.3 CMS, as an alternative to the special machinery survey, does not cancel or change the survey of other items for class maintenance (for example, annual survey, intermediate survey, examinations of the outside of the unit’s bottom, surveys of propeller shafts and stern tube shafts, boiler and steam tube surveys, etc.). Items not included in the CMS shall still be surveyed in accordance with the provisions of post-construction surveys in Chapter 5, Part 1 of the CCS *Rules for Classification of Mobile Offshore Units*.

1.1.3 Definitions

1.1.3.1 Unless otherwise specified, the terms and definitions used in the Guidelines are as follows:

(1) **Continuous machinery survey (CMS):** An alternative to the special machinery survey. Specifically, the survey and test items of the special survey of the mechanical devices (including electrical equipment) are evenly distributed in each year within the cycle of the special survey. The longest interval between consecutive surveys of each item is not to exceed 5 years.

(2) **Shipowner:** The owner of the assets of the mobile offshore units.

(3) **Unit management company:** The company that manages, operates, maintains and implements operations of the mobile offshore units.

(4) **Authorized person:** The personnel of the Shipowner or unit management company authorized by CCS to implement the related work of CMS.

(5) **Witness survey:** The survey of CMS items witnessed by CCS surveyor on the spot.

(6) **Confirmatory survey:** The survey carried out by CCS surveyor for CMS items examined by the approved authorized person of the unit to confirm the completion of the relevant CMS items by reviewing the Report of Continuous Machinery Survey (Form PC/CE-M, with the format given in the Guidelines) and job log submitted by the authorized person.

(7) **Head of M&E equipment on the units:** The general technical leader of unit machinery, power, electrical and instrumental equipment appointed by the Company, who supervises and guides the technical management of all equipment in service on the units.

1.1.4 Requirements for Authorized Person

1.1.4.1 The authorized person shall meet the following requirements:

(1) Be familiar with the specific implementation rules of the CMS plan;

(2) Participate in the training organized by CCS according to the requirements of the *Rules for Classification of Mobile Offshore Units* and the Guidelines, and pass the examination;

(3) Certificate is to be issued to the CMS authorized person by CCS based on the qualified records of training organized by CCS. The certificate is valid for five years;

(4) Receive training at the time of annual survey.

1.1.4.2 The authorized person shall have the following responsibilities:

(1) The authorized person is the head of the M&E equipment on the units, and also the person in charge of the implementation of CMS on the units;

(2) The authorized person is responsible for arranging the maintenance and supervision of each CMS item, which shall be carried out in accordance with the requirements of CMS, and necessary repair and measurement records shall be kept;

(3) The authorized person shall examine or confirm and sign the relevant maintenance reports.

1.1.5 Survey Methods

1.1.5.1 The Surveyor shall adopt the following methods for witness survey on CMS items:

(1) Survey Method 1: Carry out full open inspection of the CMS items and/or if approved by the Surveyor, partial open inspection, and perform relevant functional tests and/or pressure tests (including pressure tests if deemed necessary by the Surveyor);

(2) Survey Method 2: Perform functional tests of the CMS items;

(3) Survey Method 3: Conduct measurement and/or verification of the CMS items.

1.1.5.2 The survey methods applicable to different CMS items are detailed in Appendix 1 of the Guidelines.

1.1.4 Abbreviation

CCS	China Classification Society
CMS	Continuous Machinery Survey
PMS	Planned Maintenance Scheme

Section 2 Procedural Requirements

1.2.1 CMS Application and Review

1.2.1.1 Application for Survey of CMS Class Notation

(1) The Company shall submit a “Survey Application” for any mobile unit that intends to apply for a CMS class notation to the survey unit.

(2) It is recommended to apply for CMS before the new unit is put into operation or when the special machinery survey is completed.

(3) The application may also be accepted for the in-service mobile units which apply for CMS between two special surveys, are transferred to CCS from a classification society accepted by CCS, and have implemented the Planned Maintenance Scheme (hereinafter referred to as “PMS”) of the unit in the last cycle.

1.2.1.2 Survey Review for CMS Class Notation to be Assigned

The survey review shall be carried out by the survey unit upon receipt of the application.

1.2.2 Information to be Submitted

1.2.2.1 The information to be submitted for survey of CMS class notation shall include:

(1) CMS plan, which shall be prepared by the Company and comply with the relevant provisions in Chapter 5 of Part 1 of *CCS Rules for Classification of Mobile Offshore Units*. Consult the attending surveyor who carries out the survey, if necessary;

(2) General layout of the unit;

(3) Layout of engine room and pump room;

(4) List of M&E equipment;

(5) Description of the changes or additions to the M&E equipment of the unit (if any).

1.2.2.2 The preparation and approval of the CMS plan shall comply with the provisions in Chapter 2 of the Guidelines.

1.2.3 The Assignment of CMS Class Notation and the Implementation of Survey

1.2.3.1 After the CMS plan is approved and confirmed satisfactory through on-site verification, the survey unit of CCS shall issue a full-term classification certificate to the unit of application, assign the CMS class notation, and issue a survey report for explanation.

1.2.3.2 For the unit subject to PMS survey in the last cycle, after the CMS plan is approved and confirmed satisfactory through on-site verification, the full-term classification certificate shall be issued to the unit of application and the CMS class notation shall be assigned. Attention shall also be paid to the cancellation of the PMS class notation. The survey report shall be issued to explain the above survey.

1.2.3.3 The implementation of the CMS shall comply with the requirements of Chapter 3 of the Guidelines.

1.2.4 Impact of CMS on Class

1.2.4.1 Suspension of Class

According to the relevant provisions of *CCS Rules for Classification of Mobile Offshore Units*, the class of the unit will be suspended when the expired CMS items have not been completed at the time of annual survey, and no extension is granted by CCS.

1.2.4.2 Cancellation of Class

According to the relevant provisions of *CCS Rules for Classification of Mobile Offshore Units*, the class of the unit will be canceled when the class has been suspended for six consecutive months due to expired post-construction surveys, including CMS.

1.2.4.3 Deadline for Completion of Survey

For the first cycle of the continuous survey, if the continuous survey items are not surveyed as planned during the annual or intermediate survey as its expiry date is the planned survey date, the class of the unit will not be affected, but the items shall be checked at the end of the special hull survey cycle, i.e., at the completion of the continuous survey, and the outstanding survey items shall be completed by then. Otherwise, it shall be handled as if the completion survey of CMS has not been completed. Under the above circumstances, if the CMS item cannot be completed before its expiry date, the Company shall apply to the survey unit of CCS for adjusting the planned survey date. In any case, however, the planned survey date shall be within this CMS cycle.

1.2.5 Termination and Cancellation of CMS

1.2.5.1 CCS or The Company, depending on the implementation of the continuous survey, can terminate the continuous survey and perform a special machinery survey.

(1) If CMS or PMS was performed in last cycle:

1) if CMS is stopped before the cycle is over: the full scope of the special machinery survey shall be carried out in conjunction with the completion of the special hull survey, but the completed

CMS items and the 5-year PMS survey items of which the survey date is within 15 months before the commencement of this special survey can be considered as the completed special survey items and no further survey is required.

2) if CMS is stopped in the cycle: first, it shall be confirmed that the continuous survey items expired when the continuous survey is stopped have been satisfactorily completed. In addition, the uncompleted continuous survey items outside the last 15 months of the cycle shall be completed. The expiry date of the special machinery survey is that of the special hull survey, by which all the special survey items shall be completed.

3) The Company should complete the application of CMS that is stopped in combination with the planned cycle of the special hull survey.

(2) If a special survey is performed in the last cycle, or the first special survey cycle of the newly built unit:

The Company may choose to stop CMS at any time during the current cycle and resume the special survey. When the special survey expires, the full scope of special survey shall be carried out. However, the CMS items that have been dealt with and of which the survey date is within 15 months before the special machinery survey can be regarded as the completed special survey items and no further survey is required.

1.2.5.2 The Company may, based on the implementation of CMS, apply for the termination of CMS and implementation of PMS survey.

(1) For the unit where CMS is implemented, if the PMS survey plan can be reasonably arranged, the original CMS items can be confirmed. The PMS items shall fully cover all CMS items, and it shall be ensured that the period between the completion date of the original CMS items and the next maintenance date does not exceed the PMS survey interval.

(2) The PMS requirements are detailed in Appendix 2 *Guidelines for Planned Maintenance Scheme (PMS) of Machinery on Mobile Units* in Chapter 5, Part 1 of *CCS Rules for Classification of Mobile Offshore Units*.

1.2.5.3 The CMS results of the unit, if found by the survey unit of CCS for failing to meet the relevant requirements, shall be reported to the Headquarters. The Headquarters will put forward a written reminder to the Company as appropriate, and require the Company to correct within a specified time limit. If not corrected, the CMS system will be terminated and the CMS class notation will be canceled. In this case, the survey shall be carried out according to the requirements of 1.2.5.1 (1).

1.2.5.4 The processing of certificates and reports after the termination and cancellation of CMS shall comply with the following provisions:

(1) After the completion of surveys as required in 1.2.5.1 to 1.2.5.3, the CMS can be stopped, and the survey unit shall issue a classification certificate for the unit and cancel the CMS class notation.

(2) In the case of 1.2.5.2, the PMS class notation shall also be added to the classification certificate. At the same time, the survey report shall be issued for explanation.

Chapter 2 Preparation and Approval of CMS Plan

Section 1 General Provisions

2.1.1 Documentation

2.1.1.1 The Company shall collect documentation according to the provisions given in 1.2.2.1 of Chapter 1 of the Guidelines.

2.1.2 Scope of Application of CMS

2.1.2.1 CMS is applicable to M&E equipment and systems given in special surveys under 5.4.4, 5.5.4, and 5.6.4, Chapter 5 of Part 1 of *CCS Rules for Classification of Mobile Offshore Units*.

2.1.3 CMS Cycle

2.1.3.1 All survey items shall be completed within the cycle period of a special survey cycle.

Section 2 CMS Items

2.2.1 CMS items to be surveyed by CCS-approved authorized person

2.2.1.1 Main Propulsion Diesel Engine

(1) Including diesel engine cylinder covers and their accessories, cylinder liners, pistons, piston rods, piston pins and bearings, crossheads, crosshead bearings, guides, connecting rods, crankshaft deflection measurement, bedplates, crankcases, frames, speed governors, crankcase door fastenings and explosion relief devices, scavenger relief devices, main engine high pressure oil pumps, fuel booster pumps, electronic fuel injection systems, scavenging pumps or blowers, superchargers, air coolers, diesel engine shock absorbers and balancing devices, diesel engine camshafts and camshaft driving gears, diesel engine reversing gears, diesel engine driven bilge pumps/lubricating oil pumps/cooling water pumps, diesel engine oil and fresh water coolers, diesel engine anchor bolts and gaskets, diesel engine starting air pipes and starting valves, safety protection devices and alarm devices.

(2) The main engine crankshafts, main bearings and crank pin bearings can be surveyed by the approved authorized person of the unit, followed by confirmatory survey. However, at least two main bearings and two crank pin bearings shall subject to the witness survey by CCS Surveyor on site, and the bearings selected shall be at least one from the three bearings at the rearmost end and one from the other bearings than these three bearings. In any case, the selected bearings shall be different from those in the last cycle of continuous machinery survey. The above requirements do not exclude that “items that have been surveyed by the authorized person of the unit in the last CMS cycle will be surveyed by CCS Surveyor in this CMS cycle”. In the survey plan and information sheet, these items will be marked with “※”.

2.2.1.2 Running test of the electric propulsion equipment, including propulsion motors, propulsion generator prime movers, propulsion generators and propulsion motor.

2.2.1.3 Power transmission system and shafting, including thrust shaft and its bearing, intermediate shaft and its bearing, anchor bolts and gaskets of gearbox/thrust shaft/intermediate shaft bearing seats.

2.2.1.4 Auxiliary engines, including auxiliary diesel engines for power generation (main/berthing/emergency), auxiliary diesel engines for essential auxiliary machinery, anchor bolts and gaskets for auxiliary engines, as well as attached pumps, coolers, air coolers, filters and safety equipment for these auxiliary engines.

2.2.1.5 Auxiliary Machinery

(1) Air compressors, including main, auxiliary, control and emergency air compressors and their intercoolers, filters and oil-water separators.

(2) Independently-driven pumps and their motors and starters: including sea water cooling pumps,

fresh water cooling pumps, fuel pumps, lubricating oil pumps, oil purifiers, feed pumps, condensate pumps, hot oil pumps, bilge pumps, ballast pumps, and fire pumps.

(3) Heat exchangers, including condensers, feed water heaters, coolers, and oil heaters.

(4) Electrical equipment, including all generators, insulation resistors (for electrical equipment and circuits), equipment in hazardous areas, main switchboards and their accessories, emergency switchboards and their accessories, distribution boards and their accessories, all cables, wet transformers for essential services, emergency power supplies and their automatic devices and auxiliary power supplies (including uninterruptible power supplies (UPS) for automation systems), emergency lighting, temporary emergency lighting, additional lighting, electric propulsion equipment cables and frequency converters/transformers/all ancillary equipment and control equipment/and measuring insulation resistance, navigation lights, general alarms, public broadcasting, and remote control shut-off devices.

(5) Deck machinery, including steering gear and its hydraulic pump and/or electric motor, windlass and windlass machinery (including positioning windlass), hydraulic pump station.

(6) Blower and exhaust fan of engine room.

(7) Cargo pumping set, including cargo oil pump, stripping pump, tank cleaning pump, tank cleaning heater, and drain condenser.

(8) Piping, valves and fittings, including compressed air piping, fuel piping, lubricating oil piping, cooling seawater piping, cooling fresh water piping, feed piping, engine room steam condensate piping, hot oil piping, bilge piping, ballast piping, hydraulic piping and valves, cocks and filters for these systems, as well as remote control valves and collision bulkhead valves, and pressure/vacuum valves.

(9) Approved inert gas systems, including:

1) Inert gas piping, valves and fittings;

2) Flue gas and inert gas generator system, flue inert gas generator, fuel inert gas generator, inert gas distribution line and stop valve (including air intake valve group, soot blower interlock device, etc.), inert gas fan, scrubber, cooling and washing pump, cooling and washing water piping/valves/fittings, deck water seal, water seal pump, water seal water piping/valves/fittings, double stop and relief valves, and deck machinery check valves;

3) Nitrogen generation system: air compressor, air supply treatment system, nitrogen generator, nitrogen receiver or surge tank;

4) All automatic closing devices and alarms.

(10) Additional requirements with class notation for engine room automation, including the main propulsion machinery automation system, local control station, engine room centralized control station, bridge control station, main engine oil mist concentration detector, boiler (including hot oil boiler) automation system, generator system and power station automation system, other important mechanical equipment automatic control and alarm, suction valve and discharge valve operating test of seawater below the waterline.

(11) Independent fuel tank (not part of the unit structure).

2.2.1.6 Jacking device

(1) Rack-and-pinion jacking device, including linkage shaft, bearing, lifting motor or hydraulic motor, hydraulic pipeline, grease lubricating system, pile leg guide rail and anti-impact pad;

(2) Pin-type jacking device, including lifting lug, annular girder, locking pin, hydraulic pump, hydraulic piping (including hose and joint), master/auxiliary hydraulic oil cylinder.

2.2.1.7 Fixation device, including locking indent, locking hydraulic unit, jacking device and control device.

2.2.1.8 Cantilever beam/drill floor sliding devices, including traction cylinders and other sliding mechanical systems, equipment fastening bolts and other connectors, control and safety systems, lubricating systems.

2.2.1.9 Oil and gas processing system, including fluid conveying machinery, pressure vessels and important manifolds affecting safety (when internal survey is not possible, thickness measurement can be used to replace the internal survey, and the thickness measurement plan shall be approved by CCS).

2.2.1.10 Special piping for drilling or production operations required to be surveyed in *CCS Rules for Classification of Mobile Offshore Units*.

2.2.1.11 Other items that CCS considers necessary to be covered under the CMS system.

2.2.2 CMS items subjected to witness survey by CCS surveyor on site

2.2.2.1 Main gas turbine and its auxiliary systems.

2.2.2.2 Reduction gearbox, elastic coupling of shafting and clutch.

2.2.2.3 Load test of generator set and governor test, parallel operation test of generator, automatic control and alarm of generator system and power station, air circuit breaker of generator.

2.2.2.4 Main engine test and initial starting test.

2.2.2.5 Air cylinders (with operating pressure of 0.7MPa or above), including primary air cylinders, auxiliary air cylinders, control air cylinders and emergency air cylinders.

2.2.2.6 Rack-and-pinion jacking device, including climbing gear, gear box and transmission gear, rack, brake device, functional test.

2.2.2.7 Functional test of pin-type hydraulic jacking device.

2.2.2.8 Functional test of cantilever beam/drill floor sliding device.

2.2.2.9 Damage, repair and modification of mechanical devices.

2.2.2.10 CMS items subjected to witness survey by CCS surveyor on site will be identified as “S” in the CCS survey information sheet.

2.2.3 Survey Items not Covered by CMS

2.2.3.1 Annual survey, intermediate survey, and survey of class notation with no explicit provision on CMS.

2.2.3.2 Propeller shaft and its bearings, stern tube shaft and its bearing, full rotary propeller propulsion unit, water jet propulsion unit, etc.

2.2.3.3 Complete propeller unit.

2.2.3.4 Docking survey, including the survey of sea water inlet valves, side valves and their attached piping and components included in the scope of the special machinery survey, which should be carried out at the same time as the external survey of the unit bottom, and should not be included in CMS.

2.2.3.5 Surveys of boilers, their burners and steam pipelines, which shall be carried out in accordance with the provisions of “Post-construction Survey” in Chapter 5 of Part 1 of *CCS Rules for Classification of Mobile Offshore Units*.

2.2.4 List of CMS Items and Survey Methods

2.2.4.1 The list of CMS items and survey methods is detailed in Appendix 1 of the Guidelines: List of CMS Items and Survey Methods.

Section 3 Preparation of CMS Plan

2.3.1 General Requirements

2.3.1.1 The Company shall fully consider the provisions of this section when preparing the CMS plan.

2.3.1.2 The survey of the following equipment should be arranged during the intermediate survey or special survey of docking:

(1) For the main propulsion diesel engine:

1) Crankshaft, main bearing, connecting rod big end bearing and other items, taking into account the situation described in 2.2.1.1 (2);

2) Medium speed main propulsion engines and high speed main propulsion engines not suitable for the opening survey of engines by components;

3) Main engine test.

(2) Main gas turbine.

(3) Reduction gearbox, elastic coupling of shafting and clutch.

(4) Air circuit breaker of generator.

(5) M&E equipment arranged in hazardous areas.

(6) The prime mover of the generator set, the generator, the prime mover attached pump/cooler/intercooler/filter/oil-water separator/safety device, as well as the generator system and the power station automation system and alarm are best arranged to be surveyed together. For the prime mover of the generator set, especially the prime mover of the large generator set of the electric propulsion unit, the continuous survey by component can be performed. Meanwhile, the surveys of the generator system and power station automation system and alarm device can be arranged in the special survey.

2.3.1.3 The survey time of multiple engines of the same model should be arranged according to different use intensity, economy and coordination of service personnel, and should conform to the following recommended methods:

(1) 2 sets: One arranged to be surveyed during the special survey, and the other arranged to be surveyed in the third year of the special survey cycle (during annual/intermediate survey);

(2) 3 sets: One arranged to be surveyed during the special survey, one arranged to be surveyed in the second year of the special survey cycle (during annual/intermediate survey), and the last one arranged to be surveyed in the third year of the special survey cycle (during annual/intermediate survey);

(3) 4 sets: One arranged to be surveyed during the special survey, one arranged to be surveyed in the first year of the special survey cycle (during annual survey), one arranged to be surveyed in the second year of the special survey cycle (during annual/intermediate survey), and the last one arranged to be surveyed in the third year of the special survey cycle (during annual/intermediate survey);

(4) 5 sets: One arranged to be surveyed during the special survey, one arranged to be surveyed in the first year of the special survey cycle (during annual survey), one arranged to be surveyed in the second year of the special survey cycle (during annual/intermediate survey), one arranged to be surveyed in the third year of the special survey cycle (during annual/intermediate survey), and the last one arranged to be surveyed in the fourth year of the special survey cycle (during annual survey);

(5) The above are only the requirements of CMS items. The Company shall also check the engine cylinder liner, cylinder head combustion chamber side, piston, crankshaft deflection and crankshaft bearing parts on time according to the maintenance requirements of the engine manual.

2.3.1.4 The survey cycle of the intermediate shaft, thrust shaft and its bearings, and the propulsion

motor located below the waterline should be consistent with the survey cycle of the propeller shaft and stern tube shaft.

2.3.1.5 CMS items should be surveyed in rotation, evenly distributed within the cycle of the special survey.

2.3.1.6 According to the actual operating status of the mobile offshore units, attention shall be paid to the following requirements:

(1) For the new mobile offshore units and the in-service units implementing the special machinery survey

1) The Company may formulate a CMS plan based on the above principles and in conjunction with the Company's maintenance procedures.

2) In the first cycle of CMS, the expiry date of all CMS items can be scheduled on the expiry date of the classification certificate. The unit management company shall arrange the CMS plan for the first cycle by itself according to the actual maintenance requirements in the operation of the unit, and shall pay attention to the requirements of 2.3.1.1 to 2.3.1.4 in this section.

(2) For the in-service units which start to implement CMS between two special surveys

CMS items shall be reasonably arranged to ensure that the remaining items required by special survey are completed within the remaining time of the cycle. CCS confirms the survey items that have already been completed.

(3) For the in-service units which are transferred from a classification society accepted by CCS to CCS

1) If the CMS mode is adopted for the mechanical devices (including electrical equipment) of the unit when it is in the original classification society, the unit owner can continue to implement the CMS according to the original cycle after the unit is classed in CCS. The CMS plan is prepared according to the expiry time of various surveys of the original classification society, and CCS accepts the items that have been examined by the original classification society. The CCS surveyor shall confirm whether the survey items cover the scope of all special surveys (including relevant requirements for class notation). Items that are not covered (items that are required in CCS special survey but are not included in the list of survey items of the original classification society) may be negotiated with the unit management company and shall be arranged to be completed before the expiration of the current cycle.

2) If the CMS mode is not adopted for the mechanical devices (including electrical equipment) of the unit when it is in the original classification society, an application for CMS may also be submitted according to the requirements of the Guidelines.

3) If the original classification society adopts the CMS mode instead of the special survey, and the Company applies to no longer implement the CMS, the provisions of Article 1.2.5 of the Guidelines on the termination and cancellation of CMS shall be followed.

(4) For the in-service units with PMS survey in the last cycle

The survey unit of CCS shall verify all PMS items according to the equipment maintenance plan of PMS and previous survey reports of PMS during this survey interval of PMS. The continuous survey can be directly resumed once it is confirmed that all expired survey items of PMS have been completed. The attending surveyor shall prepare the CMS plan based on the completion date of the 5-year survey items of the PMS. The cancellation of the relevant "PMS" class notation shall comply with the requirements of Appendix 2 *Guidelines for Planned Maintenance Scheme (PMS) of Machinery on Mobile Units* in Chapter 5 of Part 1 of the *CCS Rules for Classification of Mobile Offshore Units*.

Section 4 First Preparation of CMS Plan

2.4.1 General Requirements

2.4.1.1 The unit management company is responsible for preparing the CMS plan, and when necessary, can consult the attending CCS surveyor who performs the survey.

2.4.1.2 The CCS surveyor who is responsible for the survey shall export a CMS plan (Form PLAN/CMS) containing the list of CMS items from the survey information management system of mobile units of CCS based on the actual configuration of the mechanical devices (including electrical equipment) on the mobile units, and forward it to the unit management company.

2.4.1.3 The Company shall check the integrity and accuracy of the mechanical devices (including electrical equipment) and their components on the units given in the list of items of the CMS plan (Form PLAN/CMS) according to the principles given in Sections 1 to 3 of this Chapter and in combination with the Company's maintenance procedures, and arrange the disassembling inspection time of mechanical devices (including electrical equipment) and their components. After completion of the above work, the Company shall submit the relevant plan template to the responsible surveyor of the survey unit of CCS for approval.

Section 5 Approval of CMS Plan

2.5.1 General Requirements

2.5.1.1 In accordance with the principles set out in Sections 1 to 3 of this Chapter, the Surveyor of the survey unit of CCS who is responsible for the survey shall approve the survey plan. After the plan is confirmed satisfactory through on-site verification, the complete content of the CMS plan (Form PLAN/CMS) shall be entered into the survey information management system of mobile units of CCS, and a formal CMS plan (Form PLAN/CMS) is generated. The plan shall be issued by the CCS surveyor who is responsible for the survey.

2.5.1.2 When entering the CMS plan (Form PLAN/CMS) into the survey information management system of mobile units of CCS, the Surveyor shall mark the CMS items surveyed by unapproved authorized person as "S".

2.5.1.3 The CMS plan (Form PLAN/CMS) prepared for the first time is only used as the basis for the initialization of the CMS plan by the ship survey information management system of CCS, and is for reference by subsequent surveys. It will not be changed with the completion survey of the CMS, and the Surveyor does not have to sign the completed survey items one by one.

2.5.1.4 For the CMS plan (Form PLAN/CMS) prepared for the first time, one copy shall be kept on the unit and the other shall be archived by the survey unit of CCS.

Chapter 3 Implementation of Surveys

Section 1 General Provisions

3.1.1 General Requirements

3.1.1.1 The interval between each survey of all CMS items shall not exceed 5 years. The Company and the authorized person of the unit shall reasonably arrange the maintenance time and complete the CMS items on time. All CMS items shall be examined in accordance with the special survey status, i.e., under open and clean conditions. For the control, alarm and safety systems, the functional test can be carried out by simulation.

3.1.1.2 Before implementing the CMS, the authorized person of the unit and the CCS surveyor shall check the latest survey information sheet of the unit and verify the CMS item to be carried out this time.

3.1.1.3 In conjunction with any boarding survey, the Surveyor shall inspect CMS items applied for by the Company or authorized person of the unit, including CMS items completed in advance. For expired continuous survey items, it is necessary to make clear to the Company or authorized person of the unit that these items must be dealt with at the time of annual survey, and to remind them to pay attention to the handling of extension described in 3.1.2. For the first cycle of CMS, special care shall be taken during the survey to emphasize to the Supervisor on the unit the requirement that the CMS items be examined in rotation, evenly distributed within the cycle of the special survey, and the CMS items applied for by the Company and the authorized person of the unit shall be surveyed.

3.1.1.4 When an annual survey is arranged for the unit, the continuous survey items that shall be carried out on and before the current annual survey date may not expire yet. In order to avoid the suspension of the class of the unit due to the lack of survey conditions when these continuous survey items expire, special attention shall be paid during the preparation for the annual survey to completing the continuous survey items that shall be carried out on and before the annual survey date in the current annual survey. If during the annual survey, the survey items that shall be carried out on and before the current annual survey date do not meet the survey conditions, they shall be dealt with according to the requirements in 3.1.2 of this chapter.

3.1.1.5 The CMS items surveyed by authorized person of the unit approved by CCS are detailed in Article 2.2.1 and Appendix 1 of the Guidelines. The authorized person of the unit shall apply for confirmatory survey on the CMS items approved by CCS for implementation in the next survey of the unit and submit the survey report after such items pass the survey.

3.1.1.6 For CMS items surveyed by unapproved authorized person of the unit, the Company shall apply for an on-site witness survey by the Surveyor. These items will be identified as “S” in the survey information sheet of CCS.

3.1.1.7 The CMS items surveyed by the approved authorized person of the unit, if surveyed by authorized person of the unit in the last continuous machinery survey cycle, shall be marked as “CE” in the survey information sheet of CCS, indicating that the continuous survey items have been surveyed by authorized person of the unit. During the continuous machinery survey cycle, these items will subject to witness survey by the CCS surveyor, after which the “CE” mark will be canceled.

3.1.1.8 Although CMS items are generally only required to be surveyed once in a special survey cycle, they can be repeated upon the request of the Company. The date of the next survey may be calculated from the date of the last survey.

3.1.2 Extension of CMS Items

3.1.2.1 During the annual survey, if the survey conditions are really not available at that time for the continuous survey items that shall be carried out on and before the current annual survey date, the extension may be considered as appropriate, with the consent of the branch of the survey unit of CCS. After the result of the survey by the Surveyor is satisfactory, an extension period not more

than 3 months from the annual survey date can be granted, and an internal memo shall be given. The extension survey includes review of maintenance or overhaul records, visual inspection of equipment and related functional tests. After the completion of the survey of the extended CMS items, the new expiry date will still be counted from the original expiry date.

3.1.2.2 The Company and the CCS surveyor shall pay special attention to the fact that for the survey items that shall be carried out on and before the annual survey date, if the survey conditions are not available within 3 months after the annual survey date, the survey cannot be arranged, and the application for extension, if needed, shall be subject to special consideration by CCS Headquarters.

3.1.2.3 When the special hull survey is extended, if there are unfinished CMS items, with the consent of CCS and the Surveyor's satisfaction, they can be extended together with the special hull survey.

3.1.2.4 Notwithstanding the foregoing, taking into account the special requirements for surveys by some industry organizations, when performing surveys other than annual, intermediate or special surveys, if the information sheet indicates that the CMS item is about to expiring, has expired or expired, the Company is advised to consider extension as appropriate. With the consent of the branch of the survey unit of CCS and the Surveyor's satisfaction, an extension period not more than 3 months from the annual survey date (the longest interval of the extension period shall not exceed 15 months, but shall not exceed the expiry date of the special hull survey) can be granted and an internal memo shall be given. After the completion of the survey of the extended CMS items, the new expiry date will still be counted from the original expiry date. Extension beyond the expiry date of special hull survey shall follow 3.1.2.3 above.

3.1.3 Completion Survey of CMS

3.1.3.1 Upon the expiration of the classification certificate, the completion survey of CMS shall be carried out, the unfinished survey items shall be completed, and the "Report of Continuous Machinery Survey" (Form PC/CE-M) and the survey information sheet of the unit issued in this continuous survey cycle shall be checked to confirm that all the items in the CMS plan have been completed. In the case of a phased special hull survey, all CMS items may be completed at the beginning of the special hull survey or in the phased survey of special survey in combination with docking survey, which means that the CMS items may be completed within 15 months before the expiry date of the classification certificate. This is only to carry out the CMS, and the completion survey of CMS is still to be carried out upon the expiration of the classification certificate. When carrying out the completion survey of CMS, special attention shall also be paid to verifying that the main engine crankshaft, main bearings and crank pin bearings mentioned in 2.2.1.1 (2) have met the requirements in the spot check.

3.1.3.2 If a special hull survey of the unit is requested to be completed ahead of schedule and the classification certificate is requested to be renewed, the completion survey of CMS shall be carried out in accordance with 3.1.3.1.

3.1.4 Requirements for Handling Defects, Damages, Repairs and Modifications

3.1.4.1 The CCS surveyor shall request for repair or replacement and re-survey if any defect or dissatisfaction is found during survey. The defect or dissatisfaction that cannot be solved at the survey site, if any, shall be reported to the CCS Headquarters in time, and the conditions for the class of the unit may be given according to the situation, requiring repair within a specified time limit.

3.1.4.2 In the event of damage, repair and/or modification of the mechanical devices on the unit, the Company shall apply to the CCS surveyor for a damage survey, repair survey and/or modification survey.

3.1.4.3 If any replacement, addition, modification, or reconstruction of equipment or any inconsistency between the CMS items listed in the survey information of the unit and the actual conditions of the unit is found during the implementation of the CMS, verification, confirmation and/or survey shall be carried out as required. After the survey results are satisfactory, the

Surveyor shall make appropriate modification to the CMS plan in the unit survey information management system of CCS, and explain it through the survey report, and then report it to the CCS Headquarters. Such modification, without the approval of CCS, will affect the effectiveness of the unit class.

Section 2 Preparation Before CMS by Authorized Person

3.2.1 General Provisions

3.2.1.1 The approved scope of the CMS items to be surveyed by authorized person of the unit approved by CCS is detailed in Article 2.2.1 and Appendix 1 of the Guidelines.

3.2.1.2 After the survey of CMS items is completed by the authorized person of the unit, the Company shall apply to CCS for confirmatory survey in next survey of the unit, and the authorized person of the unit shall submit the survey report.

3.2.1.3 For the standby equipment, such as auxiliary engines and main lubricating oil pumps, examined by the authorized person of the unit approved by CCS in the open state, the authorized person of the unit shall consult with the representative of the Company during the survey and confirm that the relevant survey is harmless to the unit and will not cause fire and risk to the unit due to equipment failure during the work.

Section 3 Implementation of CMS Items

3.3.1 On-site Witness Survey

3.3.1.1 For the CMS items submitted to the Surveyor for on-site witness survey, the unit personnel shall disassemble, clean and orderly place the components of the relevant equipment in advance for survey by the Surveyor.

3.3.1.2 The Surveyor shall survey the relevant CMS items in accordance with the technical requirements of the special survey.

3.3.2 Confirmatory Survey

3.3.2.1 For the CMS items surveyed by authorized person of the unit with the approval of CCS, the Company shall apply for confirmatory survey at the time of the next survey of the unit after the completion of CMS items.

3.3.2.2 For the items executed by the approved authorized person of the unit, records shall be made in the engine log book or maintenance history and wear measurements form, and wherever possible, the relevant photos of disassembling inspection shall be kept, and the “Report of Continuous Machinery Survey of Authorized Person (Form PC/CE-M)” shall be completed in time for inspection by the Surveyor.

3.3.2.3 The Company shall ensure that the authorized person of the unit executing the CMS items are competent for the maintenance of the relevant unit class items. The authorized person of the unit shall be trained in CCS and obtain an authorization certificate of CMS so that the Surveyor performing the confirmatory survey can verify its validity and authenticity.

3.3.2.4 The authorized person of the unit shall prepare two signed copies of the *Report of Continuous Machinery Survey of Authorized Person (Form PC/CE-M)*, with one retained on the unit and the other submitted to the Surveyor performing the confirmatory survey. The following information shall be included in the Report of Continuous Machinery Survey of Authorized Person (Form PC/CE-M):

- (1) Unit name, unit registration number, flag state, port of registry, unit owner or company;
- (2) Name of the authorized person of the unit and details of the authorization certificate;
- (3) Name of CMS item, survey time and place;
- (4) Survey content: survey modes (such as: disassembly/inspection/maintenance/repair),

description of survey work content, and measurement records attached if measurement is necessary;

(5) Detailed description of the findings, the technical status of the survey objects, and the operation status of the equipment before the survey;

(6) Detailed description of the replaced/repaired parts, and the replaced parts shall be retained on the unit or photographed for inspection;

(7) Take photos to record the survey process as far as practicable.

3.3.2.5 The CCS surveyor shall review and check the *Report of Continuous Machinery Survey of Authorized Person (Form PC/CE-M)* and work records submitted by the authorized person of the unit. After passing the above check, the CCS surveyor will sign the *Report of Continuous Machinery Survey of Authorized Person (Form PC/CE-M)* to confirm that the relevant CMS items have been completed.

3.3.2.6 The Surveyor may request a re-inspection of the confirmatory survey items if he/she deems it necessary.

Section 4 Other Precautions

3.4.1 General Requirements

3.4.1.1 The method for the witness survey of the CMS items by the Surveyor is detailed in 1.1.5 of the Guidelines. The technical requirements for survey of the continuous machinery survey items shall be exactly the same as those of the special machinery survey.

3.4.1.2 Where a defect is found in a part during the survey, the Surveyor may require a full inspection of the similar part of the machinery or equipment without regard to the arrangement of the CMS plan.

3.4.2 Determination of the Next Expiry Date

3.4.2.1 For the CMS items requiring witness survey, the following provisions shall be met:

(1) If the completion date of the continuous machinery survey item is within 3 months before the original expiry date or is later than the original expiry date, the next expiry date of the item shall be the original expiry date plus the special survey cycle;

(2) If the completion date is more than 3 months before the original expiry date, the next expiry date shall be the completion date of the survey plus the special survey cycle.

3.4.2.2 For the CMS items requiring confirmatory survey, the following provisions shall be met:

(1) If the date of open survey by the authorized person of the unit is within 3 months before the original expiry date or is later than the original expiry date, the next expiry date of the item shall be the original expiry date plus the special survey cycle;

(2) If the date of open survey by the authorized person of the unit is more than 3 months before the original expiry date, the next expiry date shall be the completion date of the survey by the authorized person of the unit plus the special survey cycle.

3.4.3 Document Arrangement After the Completion of Survey on CMS Items

3.4.3.1 After the completion of each continuous machinery survey, the *Report of Continuous Machinery Survey of Authorized Person (Form PC/CE-M)* signed by the Surveyor shall be collected. The report shall be made in two copies, one of which shall be kept on the unit and the other shall be given to the Surveyor implementing the confirmatory survey. The Supplement Sheet of Report of Continuous Machinery Survey by Authorized Person is only for the Surveyor to check on the unit, and does not need to be submitted to the Surveyor.

3.4.3.2 The preparation and distribution of the *Report of Continuous Machinery Survey (Form PC/M)* shall comply with the following provisions:

- (1) The survey unit shall register the completed survey items in the unit survey information management system of CCS, including witness survey items and confirmatory survey items;
- (2) The survey unit shall enter the survey date and check whether the next expiry date automatically generated by the system meets the requirements of 3.4.2;
- (3) For CMS items completed by authorized person of the unit, the Surveyor shall mark the relevant CMS item as “CE” in the unit survey information management system after the confirmatory survey, and change the mark “CE” of the relevant CMS item to a blank space after the witness survey of the CMS item marked as “CE”;
- (4) After the relevant information is entered, the *Report of Continuous Machinery Survey (Form PC/M)* will be automatically generated. The Surveyor shall file the document according to the procedure document requirements.

Chapter 4 Management of Information of Continuous Machinery Survey

Section 1 General Provisions

4.1.1 Entry of Survey Information at Assignment of CMS Class Notation

4.1.1.1 When assigning CMS class notation, the survey unit shall enter the CMS plan (Form PLAN/CMS) approved by the Surveyor into the unit survey information management system of CCS.

4.1.1.2 Information processing after the CMS plan is prepared for the first time shall comply with the following provisions:

(1) If it is not necessary to carry out continuous survey of some items in the following 3 months, the information of the prepared CMS plan can be uploaded to the unit survey information management system of CCS together with the survey report;

(2) If the Company may schedule a continuous survey of some items within the following 3 months, the entry of the CMS plan shall be completed while submitting the survey information, so as to be informed of the subsequent continuous survey arrangement in a timely manner.

4.1.1.3 After the CMS plan is entered into the unit survey information management system of CCS, the system will automatically manage the survey status and cycle. The subsequent survey arrangement will be carried out according to the unit survey information sheet of CCS.

4.1.2 Maintenance of Survey Information After Completion of the CMS Items

4.1.2.1 After the completion of the CMS items, the *Report of Continuous Machinery Survey (Form PC/CE-M)* and the survey information of the CMS items shall be uploaded to the unit survey information management system of CCS within the specified time limit.

Appendix 1: List of Continuous Machinery Survey Items and Survey Methods

CMS item	Survey mode	Survey method	Precautions
1. Main propulsion diesel engine			
Main engine cylinder covers and their accessories	Y ¹	1 ⁴	
Cylinder liners	Y	1	
Main engine pistons, piston rods, packing and seal	Y	1	
Piston pins and bearings	Y	1	
Main engine crossheads, crosshead bearings and guides	Y	1	
Main engine connecting rods	Y	1	
Crankshafts and all bearings※ ³	S ²	1	If the axis or bearing wear is normal, the lower half bearing is generally not removed for inspection.
Crankshaft deflection measurement	Y	3	
Bedplates, crankcases, frames	Y	1	
Main engine governors	Y	1	
Crankcase door fastenings and explosion relief devices	Y	1, 3 ⁶	
Scavenger relief devices	Y	1, 3	
Main engine high pressure oil pumps, fuel booster pumps or electronic fuel injection systems	Y	1	
Scavenging pumps or blowers	Y	1	
Superchargers	Y	1	
Air coolers	Y	1	
Main engine shock absorbers and balancing devices	Y	1	
Main engine camshafts and camshaft driving gears	Y	1	
Main engine reversing gears	Y	1	
Main engine driven bilge pumps, lubricating oil pumps and cooling water pumps	Y	1	
Main engine lubricating oil and fresh water coolers	Y	1	

CMS item	Survey mode	Survey method	Precautions
Main engine anchor bolts and gaskets	Y	1	Appearance inspection and tap test.
Main engine starting air pipes and starting valves	Y	1	Select a section of starting air pipe and disassemble it for internal inspection and tap test. If lubricating oil accumulation is found in the pipe, in addition to steam blowing, the pipe section near the main starting valve and the discharge pipe section of the air compressor shall be disassembled for inspection.
Safety protection devices	Y	2 ⁵	
Alarm devices	Y	2	
Initial starting test	S	2	
Main engine operating test	S	2	
2. Main gas turbine (complete set)			
Impeller or blade, rotor, air booster housing and rotor, combustion chamber, internal cooler, gas and air tubes, starter and reversing device, etc.	S	1 ⁷	For details, see 5.4.4.7, Chapter 5 of Part 1 of the CCS <i>Rules for Classification of Mobile Offshore Units</i> .
Operation test of main gas turbine	S	2	
3. Electric propulsion equipment			
Propulsion motors	Y	1	
Propulsion generator diesel engines	Y	1	
Load test, starting test, and operation test of propulsion generator diesel engines	S	2	
Propulsion generators	Y	1	
Operation test of propulsion motors	Y	2	
4. Power transmission system and shafting			
Clutch	S	1	
Elastic coupling (rubber/hydraulic/gear)	S	1	
Reduction gear box and reversing device	S	1	(1) The reduction/speed-increasing gear, elastic coupling and clutch shall be opened and checked to

CMS item	Survey mode	Survey method	Precautions
			confirm that the main gear, auxiliary gear, shaft, bearing, thrust shaft, thrust bearing and lubrication system are in normal working condition. (2) For conventional gear units of 1120kW or below and all epicycloidal gear units, if the owner can provide satisfactory operating records, it is not necessary to open the units for inspection.
Thrust shafts and bearings	Y	1	If the axis or bearing wear is normal, a spot check can be carried out.
Intermediate shafts and bearings	Y	1	If the axis or bearing wear is normal, the lower half bearing is generally not removed for inspection.
Anchor bolts and gaskets for bearing seats of gearboxes, thrust shafts and intermediate shafts	Y	1	Appearance inspection and tap test.
5. Auxiliary engines			
Auxiliary diesel engines for power generation including pumps driven by them (main/berthing/emergency)	Y	1	
Load test, parallel operation test and governor test of generator set	S	2	Relevant tests must be witnessed by the attending surveyor.
Safety protection devices	Y	2	
Alarm devices	Y	2	
Auxiliary diesel engines for essential auxiliary machinery	Y	1	
Anchor bolts and gaskets for auxiliary engines	Y	1	Appearance inspection and tap test shall be performed.
6. Air cylinders (applicable to air cylinders with operating pressure of 0.7MPa or above)			
Primary air cylinders	S	1	(1) If corrosion or damage is found, a hydrostatic pressure test shall be carried out to determine the operating pressure. (2) Check the safety valve in operating condition. (3) When some pressure vessels of 0.7MPa or above
Auxiliary air cylinders	S	1	
Control air cylinders	S	1	
Emergency air cylinders	S	1	

CMS item	Survey mode	Survey method	Precautions
			are difficult to open for inspection, a hydraulic test of 1.25 times the operating pressure can be used instead.
7. Auxiliary machinery			
(1) Air compressors:			
Primary air compressors	Y	1	(1) Including the inspection of the prime mover. In case of the motor, it shall be surveyed together with its auxiliary control and operating mechanisms, and insulation records shall be submitted.
Auxiliary air compressors	Y	1	
Control air compressors	Y	1	
Emergency air compressors	Y	1	(2) The intercooler, filter and oil-water separator as well as the safety device shall be inspected together.
(2) Independently-driven pumps and their motors and starters			
Seawater cooling pumps: main seawater cooling pump, auxiliary seawater cooling pump, lubricating oil cooler, seawater cooling pump, and seawater service pump.	Y	1	The motors for essential services shall be surveyed together with their auxiliary control and operating mechanisms, and insulation records shall be submitted.
Fuel pumps: fuel supply pump, fuel service pump, fuel transfer pump, fuel circulating pump, boiler combustion pump, and oil purifier.	Y	1	
Lubricating oil pumps: main engine lubricating oil pump, main engine camshaft lubricating oil pump, reduction gearbox lubricating oil pump, main engine crosshead lubricating oil pump, controllable pitch propeller lubricating oil pump, stern tube lubricating oil pump, main engine cylinder oil pump, rocker arm oil pump, system oil pump (hydraulic system supply oil pump for the control and adjustment of the main equipment of the propulsion system), and oil purifier.	Y	1	
Feed pumps, and condensate pumps: Feed pump, boiler water circulating pump, condensate pump (main turbine/generator turbine/cargo oil pump turbine/ballast pump turbine), and drain pump.	Y	1	
Hot oil pumps: Hot oil circulating pump, hot oil supply pump.	Y	1	
Bilge pump, ballast pump, fire pump	Y	1	

CMS item	Survey mode	Survey method	Precautions
(3) Heat exchangers			
Condensers and feed water heaters: main condenser, auxiliary condenser, atmospheric condenser, drain cooler, feed water heater, and degasser.	Y	1	(1) If corrosion or damage is found, pressure tests shall be carried out to determine the operating pressure.
Coolers: main fresh water cooler, supercharger fresh water cooler, cylinder liner fresh water cooler, piston fresh water/oil cooler, generator prime mover fresh water cooler, main lubricating oil cooler, supercharger lubricating oil cooler, camshaft lubricating oil cooler, reduction gearbox lubricating oil cooler, control oil cooler, adjustable speed propeller lubricating oil cooler, stern tube lubricating oil cooler, generator prime mover lubricating oil cooler, air cooler fresh water cooler, and fuel cooler.	Y		(2) Verify the safety valve in operating condition. (3) When some small heat exchangers are difficult to open for inspection, a hydraulic test of 1.25 times the operating pressure can be used instead.
Oil heaters: fuel heater, and lubricating oil heater.	Y	1	
(4) Electrical equipment			
All generators	Y	1	(1) The relevant load test shall be witnessed by the attending surveyor, and if necessary, a full load test may be required. (2) The coils of the main propulsion generator shall be thoroughly inspected, which shall be dry and clean. Special attention shall be paid to the ends of all coils on the stator and rotor.
Parallel operation, load distribution and rejection of generators	S	2	Relevant tests must be witnessed by the Surveyor on site.
Insulation resistance (electrical equipment and circuits)	Y	3	(1) When measuring the insulation resistance of the electrical line in the hazardous area (such as the cargo oil pump room and the space adjacent to the cargo oil tank), it is necessary to consider whether the existing conditions meet the relevant operational requirements. If appropriate measurement records are maintained, recent data shall be considered. (2) It is recommended that the Company shall establish regular insulation resistance measurement

CMS item	Survey mode	Survey method	Precautions
			records for submission to the Surveyor for verification.
Explosion-proof equipment for hazardous areas (Confirm the category of hazardous areas according to the approved hazardous area division map)	Y	General inspection	(1) According to the approved hazardous area division map, confirm whether the explosion-proof level of the electrical equipment serving in the hazardous area meets the grade requirements of the hazardous area. (2) Check whether there is any corrosion of, and damage to the explosion-proof equipment, incoming wire and installation base in the hazardous area, and whether there is any defect affecting the explosion-proof performance. (3) Check the explosion-proof level and type of the replaced explosion-proof electrical equipment to meet the explosion-proof requirements of the corresponding area, and make corresponding records.
Main switchboards, emergency switchboards, distribution boards and accessories	Y	2、3	Verify and validate overload current protection and fuses.
Air circuit breaker of generator (master switch)	S	1、3	Test to verify its protection device, including overcurrent (long and short delay), undervoltage, reverse power, etc.
All cables	Y	2	(1) Ensure that the fixture and protective cover are not loose. (2) The circuit passing through the hazardous area shall be inspected to confirm that there is no danger, no defect and dead-end line.
The motor necessary for the navigation or safe operation of the unit together with its auxiliary control and operating mechanisms	Y	General inspection	(1) When necessary, perform running tests under operating conditions. (2) The coils of the main propulsion motor shall be thoroughly checked, which shall be dry and clean. (3) Special attention shall be paid to the ends of all coils on the stator and rotor.

CMS item	Survey mode	Survey method	Precautions
Wet transformers necessary for navigation or safe operation of the unit	Y	1	The unit company shall send the liquid sample to the authority to determine its breakdown voltage, acidity and moisture, and the test result report shall be submitted to the Surveyor.
Mechanical, hydraulic, pneumatic control starting devices and their power supply systems	Y	2	
Emergency power supplies and their automatic devices and auxiliary power supplies (including UPS for automation system)	Y	2	
Main lighting, emergency lighting, temporary emergency lighting, and additional lighting	Y	2	
The cables and frequency converters, transformers, all ancillary equipment and control equipment of the electric propulsion equipment shall be inspected and the insulation resistance shall be measured.	Y	2、3	
Navigation light, general alarm, public broadcasting, fire detection system, engineer call system, and bilge detection system	Y	2	
Lifting motor, motor control center (MCC) and center console of the elevating system	Y	2、3	(1) Measure the insulation resistance of each motor. (2) Check and verify overload current protection and fuse.
Electronic control system of drilling unit and essential motor	Y	2、3	(1) Measure the insulation resistance of each motor. (2) Check and verify overload current protection and fuse.
(5) Deck machinery			
Steering gear, including the oil pump, steering motor.	Y	1	The main and auxiliary steering gears shall be checked, the safety pressure relief valve shall be tested, and its setting value shall be verified.
Windlass and windlass machinery, including positioning windlass.	Y	1	(1) Load test is carried out on the windlass with partial landing and lifting of the anchors. (2) Windlass gear, sprocket, bearing, brake band (pad) and base shall be checked, and hydraulic pump, cylinder, rotor, blade, bearing and sealing device shall

CMS item	Survey mode	Survey method	Precautions
			be checked. (3) The bearing condition of the motor shall be checked and the insulation resistance shall be measured. The safety devices shall be tested.
Mooring winch (including its hydraulic pump)	Y	1	
Hydraulic motor that drives the cargo oil pump	Y	1	
Submersible pump tower mechanism of the unit (if any)	Y	1	
(6) Blower and exhaust fan for engine room and cargo hold	Y	1	
(7) Cargo pumping set			
Cargo oil pumps (including chemical and liquefied gas pumps)	Y	1	
Stripping pump	Y	1	
Tank cleaning pump	Y	1	
Tank cleaning heater	Y	1	
Drain condenser	Y	1	
(8) Piping, valves and fittings			
Compressed air piping and its valves, cocks and filters	Y	2	Check and test them under the operating pressure, and if necessary, pressure test and valve opening test can be required.
Fuel piping and its valves, cocks and filters	Y	2	
Lubricating oil piping and its valves, cocks and filters	Y	2	
Cooling seawater piping and its valves, cocks and filters	Y	2	
Cooling fresh water piping and its valves, cocks and filters	Y	2	
Feed piping and its valves, cocks and filters	Y	2	
Steam condensate piping and its valves, cocks and filters	Y	2	
Hot oil piping and its valves, cocks and filters and flanges	Y	2	
Bilge piping and its valves, cocks and filters	Y	2	
Ballast piping and its valves, cocks and filters	Y	2	
Hydraulic piping and its valves, cocks and filters	Y	2	
Remote control valves and collision bulkhead valves	Y	2	

CMS item	Survey mode	Survey method	Precautions
Pressure/vacuum valves	Y	1、3	
Pressure vacuum breaker	Y	1、3	
(9) Approved inert gas systems			
Inert gas piping system	Y	1	
Flue gas and inert gas generator system			
Flue inert gas generator	Y	1	
Fuel inert gas generator	Y	1	
Inert gas distribution pipe and stop valve, including air intake valve group, soot blower interlock device, etc.	Y	1	
Inert gas fan	Y	1	The motors for essential services shall be surveyed together with their auxiliary control and operating mechanisms, and insulation records shall be submitted.
Scrubber	Y	1	
Cooling and washing pump	Y	1	The motors for essential services shall be surveyed together with their auxiliary control and operating mechanisms, and insulation records shall be submitted.
Cooling and washing water piping, valves and fittings	Y	1	Valves shall generally be opened for survey, and special attention shall be paid to the inspection of discharge pipes, outboard discharge pipes and valves. Outboard valves will be inspected in conjunction with docking survey.
Deck water seal	Y	1	
Double stop and relief valves	Y	1	
Deck machinery check valves	Y	1	
Water seal water pump	Y	1	The motors for essential services shall be surveyed together with their auxiliary control and operating mechanisms, and insulation records shall be

CMS item	Survey mode	Survey method	Precautions
			submitted.
Water seal water piping, valves and fittings	Y	1	Valves shall generally be opened for survey, and special attention shall be paid to the inspection of discharge pipes, outboard discharge pipes and valves. Outboard valves will be inspected in conjunction with docking survey.
Nitrogen generation system			
Air compressor	Y	1	Including the inspection of the prime mover. In case of the motor, it shall be inspected together with its auxiliary control and operating mechanisms, and insulation records shall be submitted.
Gas supply treatment system	Y	1	
Nitrogen generator	Y	1	
Nitrogen receiver or surge tank	Y	1	
All automatic closing devices and alarms	Y	2	
(10) Additional requirements with class notation for engine automation			
Main propulsion machinery automation systems, including: a. Main control system (including automatic control of main propulsion machinery starting, running, stopping, and reversing, remote control of engine control room and bridge); b. Conversion and communication of control systems; c. Safety system; d. Alarm system; e. Override control system; f. Automatic start-up of standby equipment; g. Confirm the function of switching to manual control when the remote control system malfunctions; h. Functional tests of control system, safety system and alarm system when the power source is restored after failure of power source (electrical, hydraulic and pneumatic).	Y	2	(1) Confirm the reliability of each system by checking the records on the fault recorder, the use log of the automatic control and remote control equipment, the inspection and calibration records of the alarm point on the unit, and the test records of the safety protection device on the unit, and simulating functional tests. (2) It is recommended that the shipowner shall establish regular inspection and calibration records of the alarm point and test records of the mechanical equipment safety protection device on the unit.

CMS item	Survey mode	Survey method	Precautions
Local control station, engine room centralized control station, bridge control station	Y	2	
Main engine oil mist concentration detector	Y	2	
Boiler (including hot oil boiler) automation systems, including: a. Combustion safety system (including automatic stop of fuel supply pump, automatic start and stop of feed pump, scavenging, temperature automatic control, etc.); b. Monitoring and alarm system; c. Manual control device.	Y	2	
Automatic control and alarm of generator systems and power stations: Including the automatic start, access, parallel operation, load distribution and rejection of the standby generator set	S	2	
Automatic control and alarm of other important mechanical equipment: such as incinerators, cargo oil pumps, steam turbines, cargo pump engines, oil tanks, heaters (electric/steam) and so on. Including: a. Perform functional tests of the control system, safety system and alarm system (including alarm indicator and display screen) according to the practical situation: b. Conduct appearance inspection of components of the automatic control and remote control systems (elements, valves, actuators, instruments, etc.), and if necessary, conduct disassembling inspection and testing.	Y	2	
Operating test of suction and discharge valves below the waterline	Y	2	
(11) Independent fuel tank (not part of hull structure)	Y	1	Fuel tanks less than 10 years old may be exempted from internal inspection if external inspection is satisfactory. Pressure tests may be carried out if deemed necessary by the Surveyor.
8. Jacking device			
(1) Rack-and-pinion jacking device			

CMS item	Survey mode	Survey method	Precautions
Climbing pinions and racks	S	1	
Linkage shafts and bearings	Y	2	
Gearboxes and transmission systems	S	1	
Lifting motors or hydraulic motors	Y	2	
Hydraulic cylinders and hydraulic piping	Y	2	Check and test them under the operating pressure, and if necessary, pressure test and valve opening test can be required.
Brake devices	S	1、2	
Pile leg guide rails and anti-impact pads	Y	3	
Grease lubricating systems	Y	2	
Functional tests	S	2	
(2) Locking pin-type jacking device			
Lifting lug, annular girder, latch, pin hole	Y	1	
Hydraulic pump or hydraulic motor	Y	1	The motors for essential services shall be surveyed together with their auxiliary control and operating mechanisms, and insulation records shall be submitted.
Hydraulic cylinders and hydraulic piping	Y	2	Check and test them under the operating pressure, and if necessary, pressure test and valve opening test can be required.
Functional tests	S	2	
9. Fixation device			
Locking indent	Y	1	
Locking power unit	Y	1	
Jacking device	Y	1	
10. Cantilever beam/drill floor sliding device			
Traction slip power unit	Y	1	

CMS item	Survey mode	Survey method	Precautions
Control and safety systems	Y	1	
Lubricating system	Y	1	
Functional tests	S	2	
11. Oil and gas processing system			
Rotating machinery	Y	1	
Pressure Vessels	Y	1	When internal survey is not possible, thickness measurement can be used to replace the internal survey, and the thickness measurement plan shall be approved by CCS.
Important manifolds affecting safety	Y	1	
12. Special piping for drilling or production operations	Y	1	For details, see the survey requirements given in 5.4.4.10 of Chapter 5 of Part 1 of the CCS <i>Rules for Classification of Mobile Offshore Units</i> .
13. Other items that CCS considers necessary to be covered under the CMS system	Determined by the Surveyor according to the actual situation.		

Notes:

1. “Y” means the survey mode performed by the approved authorized person and confirmed by the Surveyor.
2. “S” means the survey mode performed by the Surveyor on site.
3. “※” means that the CMS items examined by the approved authorized person of the unit shall be subjected to a confirmatory survey by the Surveyor. However, at least two main bearings and two crank pin bearings shall be examined by the CCS surveyor on site through witness survey, and the bearings selected shall be one from the three bearings at the rearmost end and one from the other bearings than these three bearings. In any case, the selected bearings shall be different from those in the last cycle of continuous machinery survey. The above requirements do not exclude that “items that have been examined by authorized person of the unit in the last CMS cycle will be examined by CCS surveyor in this CMS cycle”.
4. Survey Method 1: Carry out full open inspection of the CMS items and/or if approved by the Surveyor, partial open inspection, and perform relevant functional tests and/or pressure tests (including pressure tests if deemed necessary by the Surveyor).
5. Survey Method 2: Perform functional tests of the CMS items.

6. Survey Method 3: Conduct measurement and/or verification of the CMS items.
7. The whole system of gas turbine is examined according to the requirements of Survey Method 1.

Appendix 2: Report of Continuous Machinery Survey of Authorized Person

Form PC/CE-M

Report No.:

China Classification Society

Report to Continuous Machinery Survey

(for authorized person only)

Unit's Name		Class No.	
Flag State		Port of Registry	
Owner or Management Company			

Authorization Certificate

Name of authorized person		Authorization Certificate No.	
Issuing Organization of authorization certificate		Validity of authorization certificate Validity of authorization certificate	

This form is to be used to record the results of the examination of Continuous Machinery Survey (hereinafter called "CMS") by authorized person. The results of examination of CMS items by authorized person are to be recorded on the following Supplement Sheet.

- Two signed copies of this report are to be prepared by authorized person. One copy is to be kept onboard and the other is to be given to the Surveyor who carried out confirmatory survey.
- After the completion of the surveyable CMS items by the authorized person, it is the responsibility of the unit Operator to arrange for the attendance of a Surveyor to credit such items. Such confirmatory survey may be carried out at the time of unit's next survey. The undersigned surveyor shall confirm that all of the following CMS items are maintained in good order.
- The instruction of filling in this report is given by 3.3.2 of *CCS Guidelines for Implementing of the CMS of Mobile Offshore Units*.

Signature of authorized person:

Confirmatory Survey:

Place: (Abc Sxxxxxx)

Date: Surveyor to CHINA CLASSIFICATION SOCIETY

Reminders to the authorized persons when conducting the examination of CMS items:

- CMS item(s) is (are) to be surveyed on time so that each survey interval for all CMS items may not exceed 5 years.
- According to the provision of *CCS Rules for Classification of Mobile Offshore Units*, the

unit's class might be suspended if due or overdue continuous survey item(s) has (have) not been dealt with and extension is not granted by CCS at time of annual survey.

3) A list of the examination of surveyable CMS items by authorized persons is given by 2.2.1 of ***CCS Guidelines for Implementing of the CMS of Mobile Offshore Units***.

4) The amount of CMS items surveyed by the authorized person shall not exceed 50% per year, and atleast 50% of M.E. CMS items shall be examined by the Surveyor of CCS.

5) Items that have been examined by the authorized person at last CMS cycle (marked with "CE" in survey status of CCS) are to be examined by the surveyor of CCS at this CMS cycle.

6) After the completion of the surveyable CMS items, the authorized person is to make relevant records in engine log book, maintenance history and wear measurements forms, so to present to the attending surveyor at confirmatory survey.

7) The surveyor may, if necessary, require a re-survey for items surveyed by the authorized person.

8) If there is any damage, defect, breakdown or grounding which tends to invalidate the assigned class of the unit, a report is to be made to CCS office without delay.

9) All CMS items related to the condition of class are not to be dealt with by authorized person, but by CCS surveyor.

10) In addition to the above provisions, the Liability of CCS is contained in the provisions of ***CCS Rules for Classification of Mobile Offshore Units***.

Supplement Sheet of Report to Continuous Machinery Survey

This is to certify that the undersigned authorized person examined the following items, and found satisfactory.

Item No.	Survey items	Date of examination	Place of examination
Contents of survey:			
Survey finding and condition:			
Parts replaced/repared, if any:			
Item No.	Survey items	Date of examination	Place of examination
Contents of survey:			
Survey finding and condition:			
Parts replaced/repared, if any:			

Appendix 3: Authorization Certificate
China Classification Society

**Authorization Certificate of Personnel Responsible for CMS for
Mobile Offshore Units**

Photo

NAME

COMPANY

NUMBER OF CERT.

THIS IS TO CERTIFY that the authorized person, _____ is authorized to carry out surveys for
MOU CMS on behalf of this Society according to the Rules and Instructions of this Society.

This certificate will remain in force until _____ ;

Issued on _____

Issued at _____ (_____)

CHINA CLASSIFICATION SOCIETY

ENDORSEMENT

ENDORSEMENT WHEN THE ANNUAL AUDIT HAS BEEN COMPLETED

Place: _____
Date: _____ Surveyor to CHINA CLASSIFICATION SOCIETY

ENDORSEMENT WHEN THE ANNUAL AUDIT HAS BEEN COMPLETED

Place: _____
Date: _____ Surveyor to CHINA CLASSIFICATION SOCIETY

ENDORSEMENT WHEN THE ANNUAL AUDIT HAS BEEN COMPLETED

Place: _____
Date: _____ Surveyor to CHINA CLASSIFICATION SOCIETY

ENDORSEMENT WHEN THE ANNUAL AUDIT HAS BEEN COMPLETED

Place: _____
Date: _____ Surveyor to CHINA CLASSIFICATION SOCIETY