GUIDANCE NOTES
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CHINA CLASSIFICATION SOCIETY

INTERIM GUIDELINES FOR SURVEYS OF POLAR TRANSPORT LANDING CRAFTS

Effective from 29 July 2015

Interim Guidelines for Surveys of Polar Transport Landing Crafts

1 General provisions

1.1 Application

The Guidelines apply to the transport landing crafts (hereinafter referred to as the landing crafts) of less than 20m in length intended to apply for CCS plan approval and construction surveys, carried on polar scientific research ships. The landing crafts are mainly used for transporting engineering equipment and goods and materials between research ships and research stations.

1.2 Navigation area restriction

The landing crafts are to be engaged on voyages in polar open water① with wind force not exceeding Beaufort scale 6 and visual wave height not more than 1 m. The landing crafts are to be engaged on voyages in the sea area of the lowest daily average temperature higher than -10℃ and within 10 n miles off the shore or the mother ship.

1.3 Surveys and certification

1.3.1 Prior to the commencement of construction of the landing crafts, the following plans and documents are to be submitted together with the application letter to CCS:

(1) General specifications;

(2) General arrangement;

(3) Construction profile (including typical transverse sections, bow and stern construction, bulkheads, decks, typical structures joints, etc.);

(4) Shell expansion;

(5) Structure of main engine seating and gear box seating;

(6) Structure of vehicle ramps;

(7) Ice strengthening;

(8) Scantling calculations according to the Rules;

(9) Construction of rudder and Calculations of rudder strength;

(10) Structural fire protection arrangement;

(11) Intact stability calculations;

(12) Freeboard calculations;

(13) Tonnage calculations;

(14) Arrangement of safety equipment including fire safety, life-saving and communications

① Open water means a large area of freely navigable water in which sea ice is present in concentrations less than 1/10. No ice of land origin is present.

equipment, etc.

(15) Equipment number calculations and arrangement of mooring equipment;

(16) Arrangement of machinery spaces;

(17) Ventilation arrangement in machinery spaces;

(18) Schematic diagrams and arrangement of lighting;

(19) Electric power system;

(20) Arrangement of electric power equipment (including installation position of motors, storage batteries, switchboards, etc.);

(21) Electric loading calculations (including calculations of storage battery capacity);

(22) Propulsion system (including shafting, propeller, shafting strength, propeller strength and propeller installation calculations);

(23) Piping system (fuel oil, lubricating oil, cooling, exhaust, bilge, ballast, drainage, fire protection, filling, venting and sounding systems and steering gear hydraulic system (if any));

(24) Arrangement of pollution prevention equipment;

(25) Arrangement of cargo securing and cargo lashing calculations;

(26) Lines plan;

(27) Calculations of gravity center and weight;

(28) Hydrostatic curves plan;

(29) Particulars of all boat equipment.

The names of plans and documents to be submitted may not be all the same, however at least the contents of the above-mentioned plans and documents are to be included. Other plans and documents may be required by CCS to submit according to the practical cases.

1.3.2 Surveys of newbuildings are to be carried out as follows:

(1) to confirm material, technology, equipment and fittings used for hull structure complying with the rules requirements and holding the relevant marine product certificates;

(2) to examine integrity of hull structure and weathertight;

(3) to examine mooring equipment;

(4) to examine provision and arrangement of life-saving, fire safety and securing equipment;

(5) to examine installation and test of essential machinery, remote-control closing devices and system;

(6) to examine electrical power system and lighting system;

(7) to examine installation and test of generators, storage batteries and switchboards;

(8) to examine specification and installation of cables;

(9) to examine installation and test of radio communication equipment and navigating equipment;

(10) survey and test of main/auxiliary engines, steering systems and control, safety and alarm systems;

(11) to confirm integrity of pollution prevention facilities;

(12) inclination test;

(13) sea trial.

The items for examination and test may be increased as deemed necessary by CCS.

1.3.3 Issue of certificates and documents

(1) Upon completing plan approval and construction survey in accordance with the Guidelines for the crafts intended to be classed with CCS, CCS will issue the classification certificate and documents of compliance for safety and environmental protection and assign the characters of classification and the class notation "Polar Tender". CCS may also issue corresponding evidential document of construction survey if required by clients.

(2) The forms of the above-mentioned certificates and documents will be established by CCS.

2 Technical requirements

2.1 General requirements

Unless expressly provided otherwise as below, the technical requirements for landing crafts are to meet the related requirements of the existing CCS Rules for Construction of Coastal Boats and Technical Rules for Statutory Surveys of Coastal Small Boats of Maritime Safety Administration of the People's Republic of China.

2.2 Hull structure and outfitting

2.2.1 The ice strengthening of landing crafts is to meet the related requirements of Chapter 4 of PART TWO of the Rules for Classification of Sea-going Steel Ships of CCS.

2.2.2 The ramp of landing crafts is to meet the requirements of Section 6, Chapter 9 of PART TWO of the Rules for Classification of Sea-going Steel Ships of CCS.

2.2.3 The materials and welding procedures used for landing crafts are to meet the related requirements of CCS Rules for Materials and Welding.

2.2.4 Anchoring equipment is not necessary for landing crafts.

2.3 Machinery

2.3.1 The total capacity of the starting arrangements provided on landing crafts is to be sufficient to provide, without replenishment, not less than three consecutive starts of every main engine in cold condition and not less than three consecutive starts of the auxiliary engine in cold condition.

2.3.2 The main engine and auxiliary engine are to be capable of being started in their cold condition at the temperature of polar environment. If they do not have this capability, auxiliary heating arrangements are to be provided to ensure the starting performance of main engine and

auxiliary engine in the cold condition.

2.3.3 The blade thickness of propeller and the installation of propeller to screw shaft are to comply with the relevant requirements of 6.8.2, Chapter 6 of Rules for Construction and Classification of Sea-going High Speed Craft of CCS.

2.3.4 The materials of propeller and shafting are to meet the related requirements of CCS Rules for Materials and Welding.

2.3.5 The material quality, wall thickness, connection, test and installation of pipeline are to meet the requirements of Chapter 2 of PART THREE of the Rules for Classification of Sea-going Steel Ships.

2.3.6 The fuel oil pipeline is to be made of steel or other equivalent material.

2.3.7 The open ends of bilge suction pipes are to be fitted with the strum boxes which can be easily removed and replaced for cleaning and the flow area of strum box is not to be less than twice the sectional area of the bilge suction pipe.

2.3.8 The function of hydraulic system at the polar low temperature environment and antifreezing measures for water piping, water boxes and water tanks are to be taken into account.

2.3.9 The sea chest is to be so arranged that the possibility of blockage of sea water suction gratings and suction pipe inlets by floating ice can be minimized.

2.3.10 The fuel oil and lubricating oil used for landing crafts are to be suitable for the polar low temperature environment.

2.3.11 The engine room is to be adequately ventilated so as to ensure the safety of personnel and normal operation of engines. For natural ventilation system, the ventilation is to be so arranged as to let adequate fresh air get into the engine room; otherwise powered ventilation system is to be provided.

2.4 Electrical requirements

2.4.1 The lightning rod is not required for the landing craft.

2.4.2 The period of time for emergency lighting is to be at least 1 h.

2.5 Stability and load lines

2.5.1 The effect of icing on the stability is to be taken into account for checking the intact stability of landing crafts. The calculation of icing allowance is to comply with the requirements of 4.3.1, Chapter 4 of IMO MSC.385 (94) (Polar Code).

2.5.2 The residual stability following floating ice damage on the hull of landing crafts is to be taken account. The assumed ice damage extent is to be in compliance with the requirements of 4.3.2.2, Chapter 4 of IMO MSC.385 (94) (Polar Code). Where the damage position is located between the transverse watertight bulkheads, one of the bulkheads is to be assumed as being damaged if the distance between the transverse watertight bulkheads is less than the specified value. The residual stability following the damage is to comply with the requirements of 5.3.2.1, Chapter 5 of Technical Rules for Statutory Surveys of Coastal Small Boats.

2.5.3 If the freeboard cannot meet the requirements of 5.4.3 of Technical Rules for Statutory

Surveys of Coastal Small Boats, it can be assigned in accordance with the requirements of Part 3 of Technical Rules for Statutory Surveys of Sea-going Ships Engaged on Domestic Voyages.

2.6 Fire safety

2.6.1 Structural fire protection

2.6.1.1 The insulation between the engine room and navigation bridge are to be of "A-60" class standards.

2.7 Life-saving appliances

2.7.1 When the landing craft is launching for sail, an immersion suit is to be provided for every person on board the craft and is to be put on before launching.

2.7.2 When the landing craft is launching for sail, one lifebuoy on each side of the craft is to be fitted with a lifeline for release.

2.8 Communication and navigation equipment

2.8.1 The communication and navigation equipment are be kept in good order under expected environmental conditions.

2.8.2 When the landing craft is launching for sail, the following radiocommunication equipment are to be carried:

(1) one VHF radiotelephone apparatus;

(2) one search and rescue locating device.

2.8.3 The landing craft is to be provided with one electronic positioning device.

2.8.4 Means is to be taken to ensure the clear view of the navigation bridge front windows in the expected ambient conditions.

2.9 Pollution prevention

2.9.1 Discharge of any pollutant [①] into the sea is prohibited.

2.9.2 Fueling of fuel oils and lubricating oils and transfer of oils and oily mixtures to the receiving ships are to be so arranged as to minimize the possibility of causing pollution due to joint failure.

2.9.3 Heavy fuel oils are to be prohibited for the landing crafts engaged on voyages in the Antarctic area[②].

2.10 Cargo Securing

2.10.1 Deck cargos are to be secured in accordance with the requirements of the Guidelines for the preparation of the Cargo Securing Manual of CCS.

① Pollutants mean any substance subject to control by MARPOL which, if introduced into the sea, is liable to create hazards to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea.

② Heavy fuel oils mean the oils which are prohibited in the Antarctic area as defined in Regulation 43, Annex I of MARPOL.