CCGS Harp
Storage & Refit
December 2014 – April 2015

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VESSEL CHARACTERISTICS

SHIP PARTICULARS:

Gross Registered Tonnage	179.2 Tonnes
Net Registered Tonnage	69.2 Tonnes
Displacement at design waterline	225 Tonnes
Length Overall	24.5 meters (80.4 Feet)
Length Between Perpendiculars	21.5 meters (70.5 Feet)
Breadth Moulded	7.5 meters (24.6 Feet)
Depth moulded at midships	3.4 meters (11.2 Feet)
Draft at design waterline	2.4 meters (7.9 Feet)
Frame spacing	0.5 meters (1.64 Feet)

REQUIREMENTS

INTENT

The intent of this specification is to describe the necessary work and services involved in carrying out a long-term lay-up for the ship. All work specified herein and services shall be carried out to the satisfaction of the Project Engineer, Small Vessels.

RESPONSIBLE INDIVIDUAL

The individual responsible for the vessel during the lay-up period is Craig Barrett, Project Officer Ph. 772-2348 fax 772-3652 cell. 725-3027.

PERIOD OF LAY-UP

1) The Contractor shall provide layup and storage for the vessel.

2) The vessel will arrive at contractor's facilities on December 10-2014 to be docked. .Shore power services to be supplied and connected at this time.

3) The dates listed above may change due to operational requirements of the vessel.

4) Contractor shall supply the shore power cable from shore power connection on dock to shore power connection on aft deck of the vessel.

5) The ship's crew has 14 days to prepare and lay up ship. From December 10 2014 to December 24-2014

6) Ship will be handed over to contractor for layup and security at December 24 -2014 at 0800 hours.

7) Contractor shall provide layup and security of the ship from December 24 -2014 to April 1 -2015.Total days in storage is 97 days.

8) Contractor shall arrange to have Caterpillar FSR on board with Chief Engineer for overhaul of Starboard Main Engine during the lay up period. .Owner will determine the date for this work to be carried out. See refit specification E-9.

9) Refit work period shall commence on February 10-2015 until April 1 2015.These dates may change due to operational requirements.

10) Contractor shall quote on refit work that is required prior to ship leaving dry dock. The contractor shall provide a quote on each individual work specification. The date of this word to be later determined by owner.

11) Contractor shall quote the cost per additional day for security and storage, or less time in storage which can be adjusted up or down by 1379 action.

12) Contractor shall quote on removal and disposal of 1000 liters of oily water mixture from tanks and bilges as required. Contractor shall quote cost per each additional 100 liters. The Contractor retain if necessary, the services of a qualified disposal agent who shall comply with all Provincial Laws and provide evidence of proper disposal.. This shall be included in the cost..

13) The above mentioned dates are tentative and may change due to operational requirements.

14) Contractor shall supply all material, equipment and parts required to perform this work unless otherwise stated.

15) Contractor shall be responsible to dock the vessel and undock the vessel using a certified docking master or other qualified person approved by the owner's representative.

16) Contractor shall reference the docking plan from the Chief Engineer on board the vessel.

17) Contractor shall have an individual cost breakdown of the individual service. (Example Docking and undocking the ship., and each individual refit item.)

18) Contractor shall prepare the blocks and necessary shoring to maintain true alignment of the vessels hull and machinery throughout the dry docking layup period.

19) Contractor shall have support posts on the stern overhung section of the vessel and left in position until the ship is undocked.

20) The owner shall provide the contractor in writing of the desire to remove the vessel from storage.

21) Contractor shall dock the vessel so that all docking plugs, transducers, anodes and sea inlet grids are clear and accessible. If any hull fittings are covered, contractor shall be responsible for all labour and materials required to make the alternative arrangements to drain the tanks as required and or move blocks to gain access to the area of the specified work.

22) Contractor shall be responsible for the safe transfer of the ship from its pre docking berth or location onto its docking blocks. During docking radio contact is to be maintained between the vessels Commanding Officer and the Contractors Docking officer. The contract is to include in its bid, tug and or pilotage services as required.

23) Prior to docking, all tanks on vessel to be sounded and contents recorded in Chief Engineer's log. Copy of the soundings to be signed by Commanding Officer, Chief Engineer and contractors Docking Master. Contractor shall receive a copy of the tank soundings.

24) Prior to commencing hydro blasting contractor shall protect all hull mounted equipment and openings.

25) Contractor shall water blast the hull within two hours after the vessel comes out of the water at a minimum pressure of 2000 pounds per square inch. (psi) to remove marine growth and allow for preliminary inspection.

26) Contractor shall remove the sea grid chests on the port and starboard side. Contractor shall water blast inside and the Chief Engineer to carry out an inspection. After cleaning and inspection is carried out contractor shall reinstall the sea grids and secure as per removal.

27) Contractor shall drain three water ballast tanks and one potable water tank by removing the docking plugs .Contractor shall get the docking plug drawing from the Chief Engineer on board the vessel. .After the tanks are drained contractor shall install the docking plug in each tank with new contractor supplied approved gasket and sealant. Chief Engineer to witness the installation of the docking plug.

28) Contractor shall not remove or transfer any contents of the vessel without first checking with the Chief Engineer.

29) Contractor shall supply one gangway to provide safe access to the vessel throughout the layup and storage period. Gangway is to have sufficient lighting and rigged with safety net.

30) Prior to flooding /undocking contractor shall re-check the security of the keel / blocks and docking plugs in the presence of the owners representative.

31) The condition of the vessel shall be the same as the condition at time of docking.

32) At undocking, all tanks to be refilled to obtain the same draft and trim as the time of docking and the conditions agreed by Contractors Docking Master, Commanding Officer and the Chief Engineer.

REMOVALS

Contractor shall .quote on removing one thousand litres (1000) of oily water removal by vacuum truck from the bilges and waste oil tank.
Contractor shall quote on additional per 100 litres of waste oil/water to be removed by vacuum truck that can be adjusted up or down by 1379 action..

EXPOSURE AND PROTECTION OF EQUIPMENT

The contractor shall ensure that the ship and equipment are protected from damage due to exposure, movement of materials, sand grit or shot blasting, airborne particles from sand, grit or shot blasting, welding grinding, burning, gouging, painting or airborne particles of paint.

LIGHTING AND VENTILATION

The Contractor shall ensure that the area around the vessel is illuminated.

CLEANLINESS

a) The Contractor shall ensure that the area around the ship will be kept in a neat condition and parts, lumber, cradles etc shall not be stored in close proximity to the vessel.
b) The area to be kept clear of stored items shall be an area that is 5 feet away from any vertical line dropped from the widest point of the ship, both Port and Stbd.; The furthest point Aft and the furthest point Fwd. on the vessel.

RESTRICTED ACCESS

a) The Contractor shall ensure that the vessel is stored in a secure fenced location.
b) Access on board the vessel during the lay-up is strictly prohibited unless authorized by the Project Officer for the CCGS Harp.. This includes contractor personnel, Coast Guard and Department of Fisheries personnel and any other personnel.

STAGING

a) Contractor shall supply one gangway to provide safe access to the vessel throughout the layup and storage period. Gangway is to have sufficient lighting and rigged with safety net.

ELECTRICAL REQUIREMENTS

a) Contractor shall supply and connect shore power to the vessel upon arriving at dock.
b) Contractor shall supply shore power cable from the shore power connection on the dock to the shore power connection box on the after deck on the vessel.
c) The shore power cable from the vessel shall not be used.
d) Contractor shall supply shore power 575 volts, 3 phase and 100 amps .
e) Contractor shall quote on supplying 50,000 KWH of power and quote on additional per KWH that can be adjusted up or down by 1379 action.
f) Contractor shall install a separate meter for the CCGS Harp during the layup /storage period.

SECURITY

a) Layup and storage of the vessel shall include contractor doing 24 hour a day and 7 days a week security on the vessel.
b) In the event of an alarm goes off on board the vessel contractors personal will be available so they can go onboard to investigate. The types of alarms that are

incorporated into the alarm system are fire detection, bilge alarm system temperature sensing, ect.

c) Temperature readings are to be taken and recorded twice daily in the steering gear compartment, engine room, forward cabin area, and wheelhouse.

d) Dry store room area and the wheelhouse. .A copy of the temperature readings are to be kept on board the vessel during the layup storage period.

e) In the event the temperature goes down below 7 degree Celsius or above 40 degree Celsius contractor shall notify the vessels owner contact person..

f) Contact Person.
Craig Barrett.
Project Officer
Office # 772 - 2384
Cell # 725-3027
E-Mail craig.barrett@dfo-mpo.gc.ca

g) Contractor personal shall be familiarized with the vessel.

REFIT PRE-AMBLE

1) INTENT

The intent of this specification is to describe the necessary work involved in carrying out the ships Annual refit. All work specified herein and all repairs, inspections and renewals are to be carried out to the satisfaction of the owners representative and, where applicable, the attending TC Marine Safety Inspector. Unless otherwise specifically stated, the Owners representative is the Chief Engineer.

2) MANUFACTURES RECOMMENDATIONS.

The overhaul and installation of all machinery and equipment specified herein shall be as per the manufactures applicable instructions, drawings and specifications.

3) TESTING AND RECORDS

All test results, calibrations, measurements and readings are to be properly tabulated , compiled and two type written copies shall be presented to the Owners Representative and attending surveyors.

4) WORKMANSHIP

The contractor shall use fully qualified ,certified and competent tradesmen and supervision to ensure a uniform high level of workmanship as judged by normally accepted shipbuilding standards and to the Owners satisfaction.

5) FACILITIES

Quotation shall include all of the necessary labour and equipment required for the erection of access staging, rigging, lighting .tugs, pilotage, necessary cranage and linehandling.

6) MATERIALS AND SUBSTITUTIONS

All material shall be supplied by the contractor and all material shall be new and unused unless otherwise specified. All replacement material in the form of jointing, packing, insulation, small hardware, oils, lubricants, cleaning solvents, preservatives, paints, coatings ect shall be in accordance with the equipment manufactures_drawings, manuals or instructions. Where no particular item is specified, or where substitution must be made, the owners representative must approve all material offered.

7) REMOVALS

Any items of equipment to be removed and subsequently reinstalled in order to carry out work specified or for access to carry out the work specified, shall be jointly inspected for damages prior to removal by both the contractor and the Owners representative.

8) EXPOSURE AND PROTECTION OF EQUIPMENT

The contractor shall provide adequate temporary protection for any equipment or area affected by this refit. The contractor shall take proper precautions to maintain in a proper state of preservation any machinery, equipment, fittings, stores or items of outfit which might become damaged by exposure, movement of materials, sand grit or shot blasting, welding, grinding, burning, gouging, painting or airborne particles from paint.Any damage shall be the responsibility of the contractor. Government furnished equipment and materials shall be received by the contractor and stored in a secure warehouse or storeroom having a controlled environment appropriate to the equipment as per the manufactures instructions.

9) LIGHTING AND VENTILATION

Temporary lighting and or temporary ventilation required by the contractor to carry out any item of this specification shall be supplied, installed and maintained in a safe working condition by the contractor and removed upon the completion of the work.

10) CLEANINESS

The contractor shall at all times, maintain the work areas in which his personnel have access in a clean condition and free from debris. Upon completion of this refit, the contractor shall ensure that the vessel is in a clean condition, free from all foreign material in any system or location placed there as a result of this refit. The contractor shall provide adequate temporary protection for any equipment or areas affected by this refit. The contractor shall dispose of any and all oil and water residue, which accumulates in the machinery space bilges as a result of any refit work detailed in this specification.

11) ABSESTOS

Any and all insulation materials shall be asbestos free and approved for the required application.

12) ENTRY INTO ENCLOSED SPACES

The shall abide by the Coast Guard Enclosed Space Entry Policy. The policy is listed in the Safety Annex as section 7.D.9 and section D9(N). Entry certificates shall clearly state the type of work permitted and shall be renewed as required by the regulations. Additional copies of these certificates shall be posted in conspicuous locations for the information of ship and contractor personnel.(See preamble item # 22.)

13) HOTWORK

Any item of work involving the use of heat in its execution requires that the contractor advise the owners representatives prior to starting such heating and upon its completion. The contractor shall be responsible for maintaining a competent and properly equipped fire watch during and for one full hour after all hot work. The fire watch shall be arranged such that all sides of surfaces being worked on are visible and accessible. The contractor shall provide sufficient fire extinguishers and a fire watch during any such heating and until work has cooled. Ships fire extinguishers shall not be used except in an emergency. The contractor shall abide by the Coast Guard Hot Work Policy. The policy is listed in the Safety Annex as section 7.D.11 and section 7.D.11(N).The contractor shall be responsible to ensure the contractors

personnel including any subcontractors shall follow the policy.(See Preamble item # 22)

14) PAINTING

All new and disturbed steelwork that will not be on the underwater wetted surfaces of the ships hull shall be protected with one coat of marine primer (contractor supplied) unless otherwise specified in specification.

15) WELDING

Welding shall be in accordance with the Canadian Coast Guard Welding Specifications for ferrous Materials ,Revision 4.
The Contractor shall be currently certified by the Canadian Welding Bureau(CWB) in accordance with CWB 47.1 latest revision division I ,II, III, at the time of bid closing. The contractor may be required to provide approved procedure data sheets for each type of joint and welding position that will be involved in this construction.
The contractor may be required to supply a current Welders Certificate for each individual welder that will be involved in this construction.

16) SMOKING

The public Service Smoking Policy forbids smoking in all Government ships in area inside the ship where shipyard personnel will be working. The contractor shall inform shipyard workers of this policy and ensure that it is compiled to.

17) RESTRICTED AREAS

The following areas are out of bounds to shipyard personnel except to perform work as required by the specification, all cabins, offices, wheelhouse, Control Room, Engineers office, public washrooms, cafeteria, dining room and lounge area.

18) ELECTRICAL STANDARDS

Any electrical installations or renewals shall be in accordance with the latest edition of the following marine standards.

(a) TP 127E-TC Marine Safety Electrical Standards.
(b) IEEE Standard 45- Recommended Practice for Electrical Installation on Shipboard.

If any cable installed within this contract is found to be damaged, shorted, or opened as a result of the manner of the installation , the entire length of cable shall be replaced and installed at no cost to the Department. Plastic tie wraps may be used to secure wires in panels or junction boxes only.

19) DRAWINGS

All drawings and drawings revisions that the contractor is requested to do in the execution of this contract shall be of a quality equal to that of the drawings that are requested to be updated. For example, drawings that have been lettered and dimensioned in a professional matter shall not be updated using freehand. Prints and reproducibles that a contractor is required to provide shall be made on one piece of paper.

20) TRANSDUCERS

The contractor shall not paint the transducers and all transducers are to afforded the necessary protection during hull cleaning, blasting, burning, welding, and coating operations.

21) OWNERS REPRESENTATIVE

Throughout this document, there is made reference to the Owners Representative. For the purpose of this document, the Owners Representative is defined as the Chief Engineer of the Vessel.

22) Safety ANNEX

The contractor shall follow the Coast Guard Policies as outlined in the attached Safety Annex. This Annex contains excerps from the Fisheries and Oceans Canada, Canadian Coast Guard Fleet Safety Manual (DFO 5737) and deals with contractor

responsibilities for items such as Hot work, Confined Space Entry, Diving, Diving operations, and Dry Docking.

An electronic copy of the Fleet Safety Manual (Adobe Acrobat PDF version) can be found at http://142.130.14.20/fleet-flotte/Safety/main ehtm.

PRODUCTION CHART

Part 1: SCOPE:

1.1 The intent of this specification shall be to have the contractor provide a bar chart showing the start and completion dates for each item of work.

Part 2: REFERENCES:

2.1 Guidance Drawings/Nameplate Data

2.1.1 N/A

2.2 Standards

2.2.1 N/A

2.3 Regulations

2.3.1 N/A

2.4 Owner Furnished Equipment

2.4.1 The contractor shall supply all materials, equipment, and parts required to perform the specified work unless otherwise stated.

Part 3: TECHNICAL DESCRIPTION:

3.1General

3.1.1 The successful contractor shall supply three copies of a detailed bar chart showing the planned work schedule for the ships refit. These bar charts shall be presented to the Chief Engineer upon the ships arrival at the Contractors premises. The bar charts shall show for each specific item, the start date, the manpower loading, the duration and the completion date.

3.1.2 The bar charts shall be updated weekly to reflect the actual production on the refit and changes to the anticipated completion dates of each individual specification item.

3.1.3 Three copies of each weekly update shall be given to the Chief Engineer prior to each weekly production meeting..

3.1.4 The Contractor shall include on the updates to the production chart any work arising from PWGSC 1379 action and indicate how the additional work will impact the completion schedule for the vessel..

3.2 Location

3.2.1 N/A

3.3 Interferences

3.3. 1 Contractor is responsible for the identification of interference items, their temporary removal, storage and refitting to vessel.

Part 4: PROOF OF PERFORMANCE:

4.1 Inspection

4.1.1 All work shall be completed to the satisfaction of the Chief Engineer.

4.2 Testing

N/A

4.3 Certification

N/A

Part 5: DELIVERABLES:

5.1 Drawings/Reports

5.1.1 N/A

5.2 Spares

N/A

5.3 Training

N/A

5.4 Manuals

N/A

HD-1 STORM VALVES

Part 1: SCOPE:

1.1 The intent of this specification shall be for the contractor to remove the valves and open up for inspection for Transport Canada and reinstall the storm valves.

1.2 This work shall be carried out in Conjunction with the Dry – Docking Specification.

Part 2: REFERENCES:

2.1 Guidance Drawings/Nameplate Data

2.1.1 N/A

2.2 Standards

2.2.1 N/A.

2.3 Regulations

2.3.1Contractor shall comply with

a) Fleet Safety Manual.
b) Latest edition of all provincial regulations

2.4 Owner Furnished Equipment

2.4.1. The contractor shall supply all materials, equipment, and parts required to perform the specified work unless otherwise stated.

Part 3: TECHNICAL DESCRIPTION:

3.1 General

3.1.1. Contractor shall inform Chief Engineer prior to starting work.

3.1.2. Contractor shall remove the storm valves for cleaning inspection and overhaul.

3.1.3. Contractor shall disassemble and ensure that all internal components of the valves are cleaned and inspected by the Chief Engineer and TCMS Inspector before assembled.

3.1.2 The contractor shall lap in all valve seats and install new valve stem packing and gaskets when assembling, and reinstall the valves using new flange gaskets, and new bolts, nuts and washers.

3.1.3 The contractor shall report to the Chief Engineer any faults found with any valve which may require valve repair or replacement.

3.3 Location

3.2.1.

Storm Valve List			
Description	Location	Size(inch)	Qty
Toilet Disch & Check Valve	Void Space Port	3	1
Toilet Disch	Lower Accom Washroom Port	2	1
Scupper Disch	Void Space Stbd	3	1
Scupper Disch	Lower Accom Port	2	1
Machinery Disch	Engine Room Port	6	1
Machinery Disch	Engine Room Stbd	6	1
Pumps Disch	Engine Room Port	6	1
Pumps Disch	Engine Room Stbd	6	1
Blank Disch	Engine Room Stbd	1	1
Watermaker Disch	Engine Room Stbd	1	1
# 1 Gen Disch	Engine Room Port	2	1
# 2 Gen Disch	Engine Room Port	2	1

3.3 Interferences

3.3.1 Contractor is responsible for the identification of interference items, their temporary removal, storage and refitting to vessel.

Part 4: PROOF OF PERFORMANCE:

4.1 Inspection

4.1.1. All work shall be completed to the satisfaction of the Chief Engineer and TCMS Inspector.

4.2 Testing

N/A

4.3 Certification

N/A

Part 5: DELIVERABLES:

5.1 Drawings/Reports

5.1.1 Contractor shall supply Chief Engineer two type written copies of what work was carried out when the work is complete.

5.2 Spares

N/A

5.3 Training

N/A

5.4 Manuals

N/A

HD-2 SEA SUCTION VALVES

Part 1: SCOPE:

1.1 The intent of this specification shall be contractor to remove, open up for Transport Canada 5 year inspection, overhaul and reinstall the sea suction valves .

Part 2: REFERENCES:

2.1 Guidance Drawings/Nameplate Data

2.1.1 N/A

2.2 Standards

2.2.1 N/A

2.3 Regulations

2.3.1 Contractor shall comply with Fleet Safety Manual..

2.3.2 Contractor shall comply with all Provincial Regulations and the Canada Labour Code.

2.4 Owner Furnished Equipment.

2.4.1 The contractor shall supply all materials, equipment, and parts required to perform the specified work unless otherwise stated.

Part 3: TECHNICAL DESCRIPTION:

3.1General

3.1.1 Contractor shall inform Chief Engineer Prior to starting work.

3.1.2 Contractor shall remove the sea suction valves listed below in section 3.2.

3.1.3 Contractor shall disassemble the valves and clean the 2 sea strainers in the 6 inch Pipe. All internal components of the valves are cleaned and inspected by the Chief Engineer and TCMS Inspector before refitting.

3.1.4 Contractor shall lap in all valve seats and install new valve stem packing and gaskets when assembling, and reinstall the valves using new flange gaskets and new bolts, nuts and washers.

3.1.5 The contractor shall report to the Chief Engineer any faults found with any valve which may require valve repair or replacement.

3.2 Location.

3.2.1

Sea Suction Valve List			
Description	Location	Size(inch)	Qty
Sea Chest Vent-Butterfly	E/R Port Frame 20-22	6	1
Sea Chest Outlet-Butterfly	E/R Port Frame 20-22	6	1
Sea Bay Inlet-Butterfly	E/R Port Frame 24-25	6	1
Generator Suction-SDNR	E/R Port Frame 24-25	1 ½	1
Main Engine Suction-SDNR	E/R Port Frame 24-25	3	1
Main Engine Suction-SDNR	E/R Port Frame 24-25	3	1
Sea Chest Vent-Butterfly	E/R Port Frame 20-22	2	1
Sea Chest Air-SDNR	E/R Port Frame 20-22	¾	1
Sea Chest Air-SDNR	E/R Port Frame20-22	¾	1
Sea Chest Outlet-Butterfly	E/R Port Frame 20-22	8	1
Fire Pump Inlet-Butterfly	E/R Port Frame 20-22	6	1
Sea Chest vent-Butterfly	E/R Stbd Frame 20-22	6	1
Sea chest Outlet-Butterfly	E/R Stbd Frame 20-22	6	1
Sea Bay Inlet-Butterfly	E/R Stbd Frame 20-22	6	1
Sanitary Pump Suction-SDNR	E/R Stbd Frame 24-25	1 ¼	1
Air Comp Suction-SDNR	E/R Stbd Frame 24-25	1	1
Stern Tube Suction-SDNR	E/R Stbd Frame 24-25	1 ¼	1
Bilge/Fire Pump Suction-Butterfly	E/R Stbd Frame 24-25	2 ½	1
Bilge/Ballast Pump Suction-Butterfly	E/R Stbd Frame 24-25	2 ½	1
Generator Suction-SDNR	E/R Stbd Frame 24-25	1 ½	1
Sea Chest Air-SDNR	E/R Stbd Frame 24-25	¾	1
Watermaker Suction-Butterfly	E/R Stbd Frame 24-25	2	1

3.3 Interferences

3.3.1 Contractor is responsible for the identification of interference items, their temporary removal, storage and refitting to vessel.

Part 4: PROOF OF PERFORMANCE:

4.1 Inspection

4.1.1 All work shall be completed to the satisfaction of the Chief Engineer and TCMS Inspector.

4.3 Testing

4.2.1. All Valves are to be checked for leaks when vessel is being launched.

4.3 Certification

N/A

Part 5: DELIVERABLES:

5.1 Drawings/Reports

5.1.1 Contractor shall supply Chief Engineer two type written copies of what work was carried out when the work is complete.

5.2 Spares : N/A

5.3 Training ; N/A

5.4 Manuals; N/A

HD-3 STARBOARD TAILSHAFT,BEARINGS & PROPELLER.

Part 1: SCOPE:

1.1 The intent of this specification shall be to have the Starboard Propeller and tail shaft removed for Transport Canada 5 year inspection and reinstall.

1.2 This work shall be carried out in Conjunction with the Port & Starboard Rudder Stock Inspection Specification.

Part 2: REFERENCES:

2.1 Guidance Drawings/Nameplate Data

2.1.1 N/A

2.2 Standards

2.2.1 N/A

2.3 Regulations

2.3.1 Contractor shall comply with Fleet Safety Manual.

2.3.2 Contractor shall comply with all Provincial regulations and the Canada Labour Code..

2.4 Owner Furnished Equipment

2.4 .1 The contractor shall supply all materials, equipment, and parts required to perform the specified work unless otherwise stated.

Part 3: TECHNICAL DESCRIPTION:

3.1 General.

3.1.1 The contractors bid shall include the cost of providing an Ulstein FSR for the removal, disassembly, rebuilding and reinstallation of the Starboard tail shaft and propeller. (Contact- Ted Gurr Rolls Royce Canada Ltd. 902-468-2883). The contractor shall include an allowance of $5000.00 for the provision of the Ulstein FSR. The actual amount will be increased or decreased using PWGSC 1379 action.

3.1.2 Contractor shall inform Chief Engineer prior to commencement of work.

3.1.3 Contractor shall ensure that the steering gear motors are isolated, locked out and tagged prior to starting work.

3.1.4 The contractor shall remove the Port and Starboard rope guard to measure and record the

amount of Tail Shaft Bearing wear down for the Port and Starboard shafts. A Type written copy of measurements to be provided to Chief Engineer prior to removal of Starboard Propeller shaft.

3.1.5 The contractor shall remove the Starboard Rudder to facilitate the removal of the Starboard shaft assemble.

3.1.6 The contractor is to remove the Starboard propeller shaft to gearbox coupling and disconnect the pitch actuator rod.

3.1.7 The contractor shall remove the Starboard propeller aft cap, propeller hub, blades, and complete tail shaft assembly.

3.1.8 Propeller seals will be owner supplied.

3.1.9 When the shaft is drawn the contractor shall clean the bore of the bearings and take measurements vertical and horizontal in three positions of the inboard and outboard bearings. Two Type written copy to be provided to Chief Engineer.

3.1.10 The contractor shall remove the shaft bearings from the stern tube if required, clean the bore of the stern tube and install new contractor supplied bearings. The new bearings supplied are not machined to exact size from the supplier. The contractor is to take required measurements and machine the bearings to size as per Ulstein FSR Instructions. Also groves are to be machined in the bearings for water passage. Machining of new bearings is to be included in the cost if required.

3.1.11 The contractor shall remove the inside bulkhead mounted sealing flange and check the flange for damage, and reinstall the flange using a new manufactures approved contractor supplied gasket.

3.1.12 The FSR shall install all components of the propeller and tail shaft using owner supplied seals.

3.1.13 The contractor shall hook up a pressurized water hose to the inside connection of the stern tube from inside the ship to confirm a sufficient water flow at the outside end of the stern tube.

3.1.14 After the vessel has been refloated and settled in the water for a minimum of 48 hours Shaft alignment measurements are to be taken by the FSR to determine if shaft alignment procedure is required.

3.1.15 If shaft alignment is required, the engine and gearbox are coupled using a flexible coupling, therefore they cannot be aligned to the propeller shaft as a unit. The engine and gearbox must be separated, the old chockfast broken away, the bed plates are to be cleaned and prepared for new chockfast.

3.1.16 The gearbox is then to be aligned to the propeller shaft and chockfast poured, this chockfast is to cure for 48 hours and the alignment checked, if OK this procedure is then to be done for the engine.

3.1.17 All work shall be in accordance with the manufacturers recommendations and to the satisfaction of TCMS Inspector and the Chief Engineer

3.1.18 Note : Contractor shall include what the cost is for the alignment procedure. If realignment is not required on the Starboard shaft to gearbox and engine the cost will be adjusted back for credit.

3.2 Location

3.2.1 N/A.

3.3 Interferences

3.3.1 Contractor is responsible for the identification of interference items, their temporary removal, storage and refitting to vessel.

Part 4: PROOF OF PERFORMANCE:

4.1 Inspection

4.1.2. All work shall be completed to the satisfaction of the Chief Engineer and TCMS Inspector

4.2 Testing

4.2.1 A 1 hour dock trial and 4 hour sea trial is to be done after the vessel is refloated and prepared for running.

4.3 Certification

4.3.1 A copy of work done and all applicable measurements to be provided to the Chief Engineer.

Part 5: DELIVERABLES:

5.1 Drawings/Reports

5.1.1 Contractor shall supply Chief Engineer two type written copies of what work was carried out when the work is complete.

HD-4 ANODES

Part 1: SCOPE:

1.1 The intent of this specification shall be to Inspect wear down and replacement of Anodes on hull.

1.2 This work shall be carried out in Conjunction with the Dry Docking Specification.

Part 2: REFERENCES:

2.1 Guidance Drawings/Nameplate Data

2.1.1 N/A.

2.2 Standards

2.2.1 N/A

2.3 Regulations

2.3.1 Contractor shall comply with Fleet Safety Manual.

2.3.2 Contractor shall comply with all Provincial Regulations and the Canada Labour Code.

2.4Owner Furnished Equipment.

2.4.1 The contractor shall supply all materials, equipment, and parts required to perform the specified work unless otherwise stated.

Part 3: TECHNICAL DESCRIPTION:

3.1 General

3.1.1 Contractor shall inform Chief Engineer prior to commencement of work.

3.1.2 The contractor shall quote on replacement of 32 anodes, the anodes are 24 anodes 24 lb each and 8 anodes that are 12 lb as per following list.

3.1.3 Contractor shall quote per additional 12 lb and 24 lb anode to supply and install which can be adjusted up or down by 1379 action.

3.1.4 The contractor shall ensure that the area around each anode is properly coated in accordance with the requirements with the hull coating section.

3.2 Location.

3.2 # OF ANODES	LOCATION	TYPE
10	Hull	24 lb
4	Rudders	24 lb
4	Kort Nozzles	24 lb
1	Sea Bay Cover	24 lb
5	Sea Chests	24 lb
8	Stern tubes	12 lb

3.3 Interferences.

3.3 .1 Contractor is responsible for the identification of interference items, their temporary removal, storage and refitting to vessel.

Part 4: PROOF OF PERFORMANCE:

4.1 Inspection.

4.1.1 All work shall be completed to the satisfaction of the Chief Engineer.

4.2. Testing

N/A

4.3 Certification

N/A

Part 5: DELIVERABLES:

5.1 Drawings/Reports.

5.1.1.1 Contractor shall supply Chief Engineer with two type written copies of a report of all work carried out.

5.2 Spares

N/A

5.3 Training

N/A

HD-5 PORT & STARBOARD RUDDER STOCK

Part: 1 SCOPE:

1.1 The intent of this specification shall be to remove Port and Starboard Rudder Stock from vessel for 5 year inspection.

1.2 This work shall be carried out in Conjunction with the following specifications.

a) Starboard Tail Shaft Inspection. Specification # 3.

Part: 2 REFERENCES:

2.1 Guidance Drawings/Nameplate Data

2.1.1 N/A

2.2 Standards

2.2.1 N/A

2.3 Regulations

2.3.1 Contractor shall comply with Fleet Safety Manual.

2.3.2 Contractor shall comply with all Provincial Regulations and the Canada Labour Code.

2.4 Owner Furnished Equipment

2.4.1 The contractor shall supply all materials, equipment, and parts required to perform the specified work unless otherwise stated.

Part: 3 TECHNICAL DESCRIPTION

3.1 General

3.1.1 Prior to commencement of the work the contractor shall inform the Chief Engineer.

3.1.2 Contractor shall ensure that the Steering Pump Motors are isolated, locked out and tagged.

3.1.3 Contractor shall remove the Port and Starboard Rudders and pintle bearings.

3.1.4 Contractor shall disconnect and remove the hydraulic rams, tiller arms and tie bar between the tiller arms.

3.1.5 Contractor shall disconnect the Rudder Stock from the steering and remove the Rudder Stocks from the vessel.

3.1.6 Contractor shall clean the rudder stocks and bearings for inspection.

3.1.7 Contractor shall take and record measurements on each of the rudder stock bearing location and bearings in three positions. Top, center and bottom vertical and horizontal positions.

3.1.8 All measurements are to be as per Wagner specifications.

3.1.9 The Rudder stock and Bearings are to be inspected by the Chief Engineer and Transport Canada Safety Inspector before installation.

3.1.10 Contractor shall install new owner supplied Rudder Stock Seals during assembly. (New type Seal).

3.2 Location

3.2.1 Steering Gear Compartment.

3.3 Interferences

3.3.1 Contractor is responsible for the identification of interference items, their temporary removal, storage and refitting to vessel.

Part: 4 PROOF OF PERFORMANCE:

4.1 Inspection

4.1.1 Rudder Stock & Bearings to be inspected by the Chief Engineer and Transport Canada Ship Safety Inspector when they are removed.

4.2 Testing

Steering Gear to be tested when the work is complete and before the ship goes into the water.The testing is to be witnessed by the Chief Engineer and Transport Canada Ship Safety Inspector.

4.3 Certification

N/A

Part: 5 DELIVERABLES:

5.1 Drawings/Reports

5.1.1 Contractor shall supply Chief Engineer two type written copies what work was carried out when the work is complete.

HD-6 HULL CLEANING & PAINTING

Part 1: SCOPE:

1.1 The intent of this specification shall be to remove all marine growth and completely hydro blast the hull from the keel to the main deck and to install new underwater hull coating and coating from the water line to the main deck, including the complete bow area above the waterline.

Part 2: REFERENCES:

2.1 Guidance Drawings/Nameplate Data.

2.1.1 N/A.

2.2 Standards.

2.2.1 All coatings shall be applied according to manufacturer's specifications.

2.3Regulations.

2.3 .1 Contractor shall comply with Fleet Safety Manual.

2.3.2 Contractor shall comply with all Provincial Regulations and the Canada Labour Code.

2.4 Owner Furnished Equipment.

2.4 .1 The contractor shall supply all staging, cranage, screens, lighting and any other support services and equipment for cleaning and coating the hull.

Part 3: TECHNICAL DESCRIPTION:

3.1General

3.1.1 Contractor shall inform Chief Engineer prior to commencement of work.

3.1.2 The area of the hull from the keel to the waterline including appendages is 264 m2. The area from the waterline to the main deck, including the complete bow area above the waterline is 93 m2.The contractor shall bid on cleaning and coating the hull. The contractor shall submit with the bid, a unit cost for cleaning and coating per m2 of additional area which can be adjusted up or down by using PWGSC 1379 action.

3.1.3 The contractor shall hydro blast the entire hull portion of the ship including rudders, nozzles and skegs. The contractor shall ensure that all marine growth is removed. The contractor shall water wash the hull to remove any soluble salts.

3.1.4. The contractor shall ensure that all bare steel areas are sandblasted to SA-2.5 Near White surface with existing edges feathered. The contractor shall bid on 40 m2 of bare area and shall include a unit cost to blast any additional area. The actual area will be adjusted using PWGSC 1379 action. The rest of the hull from the keel to the main deck, including rudders, nozzles, skegs, and the complete bow area above the waterline, shall be sand swept with mineral slag to provide a suitable surface for new paint application.

3.1.5. The contractor shall ensure that grit for sweep and sand blasting shall not enter any part of the ship. The contractor shall ensure that every opening into the vessel where grit can gain entry is suitably covered. All traces of grit used for sweep and sand blasting shall be removed by the contractor. The contractor shall be responsible for ensuring that the hull is clear and clean prior to, during and immediately after the coating application.

3.1.6. The contractor shall plug deck scuppers and discharges as well as take other measures necessary to prevent liquids from contaminating areas being prepared or coated. The contractor shall also take measures to ensure that no damage, unnecessary cleaning or any repairs result from either the hull preparation process or the coating application. Measures shall also be taken to ensure that surfaces and equipment other than those specified are not coated and that inlets or discharges in the shell will not be blocked by the coating. Deck machinery and other gear susceptible to damage by grit or coating material shall also be protected as necessary.

3.1.7 The contractor shall supply and apply the following to the underwater portion:

a) One coat of International Paints Intershield ENA 300 Series Epoxy (Aluminum) at 5-6 mils DFT to all bare areas.

b) One complete coat of International Paints Intershield ENA Series (Bronze) at 5-6 mils DFT.

c) One complete coat of International Paints Intershield BRA 640 Antifouling (Black) at 4 mils DFT up to the waterline. The antifouling paint shall be applied at a maximum of 24 hours prior to the vessel being placed in the water.

3.1.8 The contractor shall draw and mark off the waterline which runs across the stern and forward from the 2.9 meter draft aft to the 2.3 meter draft forward. The contractor shall supply and apply from the waterline up to the main deck level, including the complete bow portion above the waterline, the following:

a) Two complete coats of International Paints Interprime 198 (CPA099 Red) at 2-3 mils DFT per coat.
b) Two complete coast of International Paints Interlac 665 Marine Enamel (Interlac CLC 287 Signal red) at 1.5 -2 mils DFT per coat.

3.1.9 The contractor shall reapply the CG white stripe complete with black outlone on both sides of the vessel and shall reapply all markings using International Paints Interlac 665 Marine Enamel.

3.2 Location

3.2.1 N/A

3.3 Interferences

3.3 .1 Contractor is responsible for the identification of interference items, their temporary r removal, storage and refitting to vessel..

Part 4: PROOF OF PERFORMANCE:

4.1 Inspection

4.1.1 All work shall be completed to the satisfaction of the Commanding Officer or Chief Engineer.

4.2 Testing
N/A

4.3 Certification:
N/A

Part 5: DELIVERABLES:

5.1 Drawings/Reports

5.1.1.1 Contractor shall supply to chief Engineer two type written copies of what work was carried out when the work is complete.

5.2 Spares
N/A

H-1 PORT DAY & PORT BUNKER FUEL TANKS.

Part 1: SCOPE:

1.1 The intent of this specification shall be to open up and clean Port Day and Port Bunker fuel oil tanks for the 5 year inspection for Transport Canada.

Part 2. REFERENCES:

2.1Guidance Drawings/Nameplate Data.

2.1.1 N/A.

2.2 Standards

2.2 N/A

2.3 Regulations.

2.3.1 Contractor shall comply with the Fleet Safety Manual.
2.3.2 Contractor shall comply with all Provincial Regulations and the Canada Labour Code.

2.4 Owner Furnished Equipment.

2.4.1 The contractor shall supply all materials, equipment, and parts required to perform the specified work unless otherwise stated.

Part 3: TECHNICAL DESCRIPTION:

3 General

3.1 Contractor shall inform Chief Engineer prior to commencement of work.

3.2 Contractor shall confirm that the fuel oil system is isolated, locked out and tagged prior to starting work.

3.3 Contractor shall pump the approximately 3500 litres of fuel oil from the Port Day Tank and approximately 10,000 litres of fuel oil from the Port Fuel Oil Storage tank into contractor supplied clean storage tank for storage while the fuel oil tanks are being cleaned. The transferring of fuel and storage to be included into the price.

3.4 Chief Engineer to inspect contractor supplied storage tank prior to transferring the fuel from the ship. This storage tank shall not be located on board the ship.

3.5 Contractor will have to move work bench and storage cabinet on the Port side cargo hold to access manhole covers for the fuel oil tanks.

3.6 Tanks to be vented to the atmosphere when opened up and during the duration the tanks are opened up.

3.7 The tanks to be gas freed by a certified chemist. Certificate shall specify Safe For Persons. Contractor shall post a copy of the certificate at the entrance to the affected spaces.

3.8 The remaining fuel and sludge in the bottom of the tank to be pumped ashore by contractor and disposed of by the contractor as per regulations. Contractor shall have this included into the cost.

3.9 The entire tank to be cleaned out and wiped dry.

3.10 The tanks to be inspected by the C/E and Transport Canada Inspector before the tanks are closed up.

3.11 Contractor shall install the manhole covers using new approved gaskets.

3.12 Contractor shall prepare and perform hydrostatic test on the fuel oil tanks as required per Transport Canada Regulations. Testing to be witnessed by Chief Engineer and Transport Canada Marine Safety Inspector.

3.13 Contractor shall transfer fuel from the storage tank back to the fuel oil tanks on the ship.

3.2 Location.

3.2.1 Port Deep #1 Fuel oil Tank.(Frames 5-10)
Port Day Tank (Frames 10- 12)

3.4 Interferences.

3.3.1 Contractor is responsible for the identification of interference items, their temporary removal, storage and refitting to vessel.

Part 4: PROOF OF PERFORMANCE:

4.1 Inspection

4.1.1 All work shall be completed to the satisfaction of the Chief Engineer and Transport Canada Inspector.

4.3 **Testing.** Hydrostatic or Air Test as required by Transport Canada Inspector.

4.4 Certification

4.3.1 N/A. .

Part 5: DELIVERABLES:

5.1 Drawings/Reports.

5.1.1.1 Contractor shall supply to Chief Engineer two type written copies of what work was carried out when the work is complete.

5.2 Spares

N/A

5.3 Training

N/A

5.4 Manuals

N/A

H-2 POTABLE WATER TANK CLEANING

Part 1: SCOPE:

1.1 The intent of this specification shall be contractor to open the potable water tank for cleaning and inspection.

Part 2: REFERENCES:

2.1 Guidance Drawings/Nameplate Data.

2.1.1 N/A.

2.2 Standards.

2.2.1 Fleet safety Manual Section 7.F.12 Potable Water Quality.

2.3. Regulations.

2.3.1 Contractor shall comply with Fleet Safety Manual.
2.3.2 Contractor shall comply with all Provincial Regulations and the Canada Labour Code.

2.4 Owner Furnished Equipment.

2.4.1 The contractor shall supply all materials, equipment, and parts required to perform the specified work unless otherwise stated..

Part 3: TECHNICAL DESCRIPTION:

3.1General

3.1.1 Contractor shall inform Chief Engineer prior to starting work.

3.1.2 Contractor shall ensure that the fresh water tank is isolated, locked out and tagged.

3.1.3 Contractor shall drain the fresh water tank and open up for cleaning and inspection. The volume of the fresh water tank is 10 m3.

3.1.4 The fresh water tank is to gas freed by certified personnel before entry into the tank.

3.1.5 Contractor shall ensure that the tank is inspected by the attending Commanding Officer.

3.1.6 The contractor shall close up the tank using new approved contractor supplied gaskets same as removed.

3.1.7 The contractor shall fill the tank with fresh water and super chlorinate in accordance with the directions in the Fleet safety Manual 7.F. 12 Potable water Quality. The total volume of the tank is 10m³. The contractor shall remove and dispose of the chlorinated water in accordance with all Provincial and Federal regulations. The cost of disposal shall be included in the contractors bid.

3.1.8 Contractor shall fill and flush fresh water tank two additional times as per Fleet Safety Manual 7.F.12

3.1.9 After completion of all work, samples of fresh water are to be taken from the tank and the water source, they are to be sent to an accredited laboratory for analysis. Laboratory to be approved by owner's representative. The Chief Engineer or his delegate shall witness the taking of a water sample from the sample points as required. The testing completed on the water shall be as set out in the Coast Guard Fleet Safety Manual Section 7.F.12 Potable Water Quality, paragraph 3.6.7. (28 parameter test) A copy of the test certificate shall be delivered to the Captain or Chief Engineer. The contractor shall make arrangements to have the samples taken and reports sent to the ship. The contractors bid shall include the cost of arranging the water testing and delivery of samples to the laboratory.

3.2 Location.

3.2.1 N/A

3.3 Interferences.

3.3 .1 Contractor is responsible for the identification of interference items, their temporary removal, storage and refitting to vessel.

Part 4: PROOF OF PERFORMANCE:

4.1 Inspection.

4.1.1 All work shall be completed to the satisfaction of the Chief Engineer and Commanding Officer.

4.2 Testing

4.2.1 As per Technical Description

4.3 Certification

4.3.1 As per Technical Description.

Part 5: DELIVERABLES:

5.1 Drawings/Reports.

5.1.1 Contractor shall supply to Chief Engineer two type written copies of what work was carried out when the work is complete.

5.2Spares

N/A

5.3 Training

N/A

5.4 Manuals

N/A

H-3 BILGE CLEANING

Part 1: SCOPE:

1.1 The intent of this specification shall be to have the engine room bilge cleaned at end of refit.

Part 2: REFERENCES:

2.1 Guidance Drawings/Nameplate Data

2.1.1 N/A.

2.2 Standards.

2.2.1 N/A

2.3 Regulations.

2.3.1 Contractor shall comply with Fleet Safety Manual..
2.3.2 Contractor shall comply with all Provincial Regulations and the Canada Labour Code.

2.4 Owner Furnished Equipment.

2.4.1 The contractor shall supply all materials, equipment, and parts required to perform the specified work unless otherwise stated..

Part 3: TECHNICAL DESCRIPTION:

3.1 General

3.1.1 Contractor shall inform Chief Engineer Prior to starting work.

3.1.2 Contractor shall remove the engine room deck plates at the end of the refit.

3.1.3 Contractor shall remove all debris and dirt from the bilge.

3.1.4 Contractor shall wash the bilges and vacuum out bilges by use of vacuum truck..

3.2 Location

3.2 .1 Main Engine Room.

3.3 Interferences.

3.3 .1 Contractor is responsible for the identification of interference items, their temporary r removal, storage and refitting to vessel.

Part 4: PROOF OF PERFORMANCE:

4.1 Inspection.

4.1.1 All work shall be completed to the satisfaction of the Chief Engineer.

4.2 Testing

N/A

4.3 Certification

N/A

Part 5: DELIVERABLES:

5.1 Drawings/Reports

5.1.1 Contractor shall supply Chief Engineer with two type written copies of what work was carried out when the work is complete.

5.2 Spares

N/A

5.3 Training

N/A

5.4 Manuals

N/A

H-4 FM-2 00 INSPECTION

Part 1: SCOPE:

1.1 The intent of this specification shall be to have an annual inspection done on the FM 200 system by Certified technician.

Part 2: REFERENCES:

2.1 Guidance Drawings/Nameplate Data

2.1.1 N/A..

2.2 Standards.

2.2.1 N/A.

2.3 Regulations.

2.3 .1 Contractor shall comply with Fleet Safety Manual.
2.3.2 Contractor shall comply with all Provincial Regulations and the Canada Labour Code.

2.4 Owner Furnished Equipment

2.4.1 The contractor shall supply all materials, equipment, and parts required to perform the specified work unless otherwise stated.

Part 3: TECHNICAL DESCRIPTION:

3.1 General

3.1.1 Contractor shall inform Chief Engineer prior to work commencement.

3.1.2 FM 200 System shall have annual inspection and tested by a certified FM 200 Technician..

3.1.3 The FM 200 system is to be thoroughly examined and tested as required by TCMS.

3.1.4 The cylinders are to be disconnected and the piping, lines, sirens, time delays and shut downs to be proven operational.

3.1.5 All hand controls, wires and pulleys are to be inspected and proven operational. The FM 200 Cylinder is to be weighed and recorded.

3.1.6 Upon completion of all inspections and tests the system is to be reconnected to the satisfaction of the Chief Engineer and TCMS Inspector.

3.2 Location.

3.2.1 Cargo Hold.

3.3 Interferences.

3.3.1 Contractor is responsible for the identification of interference items, their temporary removal, storage and refitting to vessel..

Part 4: PROOF OF PERFORMANCE:

4.1 Inspection

4.1.1 All work shall be completed to the satisfaction of the Chief Engineer.

4.2 Testing

4.2.1. F M 200 System testing to be witnessed by The Chief Engineer and TCMS inspector.

4.3 Certification

4.3.1. Contractor shall provide Certification for FM 200 System.

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Part 5: DELIVERABLES:

5.1 Drawings/Reports.

5.1.1 Contractor shall supply to Chief Engineer two type written copies of what work was carried out when the work is complete.

5.2 Spares N/A

5.3 Training
N/A

H-5 LIFE RAFTS INSPECTION

Part 1: SCOPE:

1.1 Contractor shall remove from the ship and transport 3 life rafts and hydrostatic release mechanisms to and from the authorized service center for servicing and certification.

Part 2: REFERENCES:

2.1 Guidance Drawings/Nameplate Data

2.1.1 N/A.

2.2 Standards

2.2.1 N/A.

2.3 Regulations.

2.3.1 Contractor shall comply with Fleet Safety Manual.

2.3.2 Contractor shall comply with all Provincial Regulations and the Canada Labour Code.

2.5 Owner Furnished Equipment.

2.4.1 The contractor shall supply all materials, equipment, and parts required to perform the specified work unless otherwise stated.

Part 3: TECHNICAL DESCRIPTION:

3.1 General.

3.1.1 Contractor shall inform Chief Engineer prior to starting work.

3.1.2 Contractor is to remove from the vessel three inflatable liferafts and hydrostatic release mechanisms, ship them to respective OEM service centers for annual inspection. Upon return of the rafts and hydrostatic release mechanisms they are to be replaced onboard the vessel in their respective places and secured.

3.1.3 Contractor shall allow $1000. allowance for each raft service. Total invoice of raft service shall be adjusted up or down by 1379 action as per invoices.

3.2 Location

3.2.1 Two 12 person rafts is located foc'sle deck aft (Nord Marine Services) One 6 person raft is located fwd of wheelhouse (NL Marine Safety Systems).

3.3 Interferences

3.3.1 Contractor is responsible for the identification of interference items, their temporary removal, storage and refitting to vessel.

Part 4: PROOF OF PERFORMANCE:

4.1 Inspection.

4.1.1 All work shall be completed to the satisfaction of the Chief Engineer and Transport Canada Ship Safety Inspector.

4.2 Testing

N/A

4.3 Certification

4.3.1 Copies of service certificates to be provided to the Chief Engineer

Part 5: DELIVERABLES:

5.1 Drawings/Reports.

5.1.1 Contractor shall supply to Chief Engineer two type written copies of what work is carried out when the work is complete.

5.2 Spares.

N/A

5.3 Training.

N/A

5.4 Manuals.

N/A

H-6 CO2 SYSTEM INSPECTION

Part 1: SCOPE:

1.1 The intent of this specification shall be to have an annual inspection done on the CO2 System.

Part 2: REFERENCES:

2.1 Guidance Drawings/Nameplate Data

2.1.1 N/A.

2.2 Standards.

2.2.1 N/A.

2.3 Regulations

2.3.1 Contractor shall comply with Fleet Safety Manual.
2.3.2 Contractor shall comply with all Provincial Regulations and the Canada Labour Code.

2.4 Owner Furnished Equipment

2.4.1 The contractor shall supply all materials, equipment, and parts required to perform the specified work unless otherwise stated.

Part 3: TECHNICAL DESCRIPTION:

3.1 General

3.1.1 Contractor shall inform Chief Engineer prior to starting work.

3.1.2 The CO2 System is to be thoroughly examined and tested by a qualified certified service representative as required by TCMS.

3.1.3 The bottle is to be disconnected and the piping, lines, sirens, time delays and shut downs are to be proven operational.

3.1.4 All Hand controls, wires, and pulleys are to be inspected and proven operational. The CO2 Cylinder is to be weighed and recorded.

3.1.5 Upon completion of all tests and inspections, the system is to be reconnected to the satisfaction of the Chief Engineer and TCMS Inspector.

3.2 Location

3.2.1 N/A.

3.3 Interferences

3.3.1 Contractor is responsible for the identification of interference items, their temporary removal, storage and refitting to vessel.

Part 4: PROOF OF PERFORMANCE:

4.1 Inspection

4.1.1 All work shall be completed to the satisfaction of the Chief Engineer.

4.2 Testing

4.2.1. Testing **t**o be witnessed by the Chief Engineer and TCMS Inspector.

4.3 Certification

4.3.1. A copy of the work report and certificate to be provided to the Chief Engineer

Part 5: DELIVERABLES:

5.1 Drawings/Reports

5.1.1 Contractor shall supply to Chief Engineer two type written copies of what work was carried out when the work is complete.

5.2 Spares

N/A

5.3 Training

N/A

5.4 Manuals

N/A

H-7 PORTABLE FIRE EXTINGUISHERS

Part 1: SCOPE:

1.1 The intent of this specification shall be to have annual inspection done on the portable fire extinguishers.

Part 2: REFERENCES:

2.1 Guidance Drawings/Nameplate Data

2.1.1 N/A.

2.2 Standards.

2.2.1 N/A.

2.3 Regulations

2.3.1 Contractor shall comply with Fleet Safety Manual.
2.3.2 Contractor shall comply with all Provincial Regulations and the Canada Labour Code.

2.4 Owner Furnished Equipment

2.4.1 The contractor shall supply all materials, equipment, and parts required to perform the specified work unless otherwise stated.

Part 3: TECHNICAL DESCRIPTION:

3.1 General

3.1.1 Contractor shall inform Chief Engineer prior to starting work.
3.1.2 The portable extinguishers are to have an annual inspection. All extinguishers are to be inspected and serviced by a certified qualified representative.
3.1.3 Extinguishers to be dealt with are as follows:

Dry Chemical	8 of 5 lb each
	3 of 10 lb each
	1 of 2.5 lb each
	2 of 8 lb each
CO2	6 of 5 lb each
	2 of 10 lb each

AK 1 of 21 lb each

3.1.4 Contractor is to supply an adequate number of suitable extinguishers in order to maintain the same degree of fire fighting safety while the vessels extinguishers are being serviced.

3.2 Location

3.2.1 Through - out the ship.

3.3 Interferences

3.3.1 Contractor is responsible for the identification of interference items, their temporary removal, storage and refitting to vessel.

Part 4: PROOF OF PERFORMANCE:

4.1 Inspection

4.1.1 All work shall be completed to the satisfaction of the Commanding Officer.

4.2 Testing

4.2.1 Testing of all systems to be within TCMS regulations

4.3 Certification

4.3.1 Two copies of certificates to be provided to the Chief Engineer

Part 5: DELIVERABLES:

5.1 Drawings/Reports

5.1.1 Contractor shall supply to Chief Engineer two type written copies of what work was carried out when the work is complete.

5.2 Spares
N/A

5.3 Training N/A

5.4 Manuals
N/A

H-8 GALLEY KARBOLY

Part 1: SCOPE:

1.1 The intent of this specification shall be to have an annual inspection done on the Karboly Fire Fighting System.

Part 2: REFERENCES:

2.1 Guidance Drawings/Nameplate Data

2.1.1 N/A.

2.2 Standards

2.2.1 N/A

2.3 Regulations.

2.3.1 Contractor shall comply with Fleet Safety Manual.
2.3.2 Contractor shall comply with all Provincial Regulations and the Canada Labour Code.

2.5 Owner Furnished Equipment.

2.4.1 The contractor shall supply all materials, equipment, and parts required to perform the specified work unless otherwise stated.

Part 3: TECHNICAL DESCRIPTION:

3.1 General

3.1.1 Contractor shall inform Chief Engineer prior to commencement of work.

3.1.2 Contractor shall have the Karboly System inspected by a qualified service representative as per manufactures recommendations.

3.1.3 The bottle is to be disconnected and contents level and pressure verified.

3.1.4 All piping is to be blown through with compressed air and all nozzles proven clear.

3.1.5 All release mechanisms and electrical alarms and shut downs to be proven operational and witnessed by the Chief Engineer and TCMS Inspector.

3.2Location

3.2.1 Karboly Cylinder located under Bridge Deck Port Side.

3.3 Interferences

3.3.1 Contractor is responsible for the identification of interference items, their temporary removal, storage and refitting to vessel.

Part 4: PROOF OF PERFORMANCE:

4.1 Inspection.

4.1.1 All work shall be completed to the satisfaction of the Chief Engineer.

4.2Testing

4.2.1 To be witnessed by the Chief Engineer and TCMS Inspector.

4.3 Certification

4.3.1. A copy of the inspection report and a certificate to be provided to the Chief Engineer.

Part 5: DELIVERABLES:

5.1 Drawings/Reports

5.1.1 Contractor shall supply to Chief Engineer two type written copies of what work was carried our when the work is complete.

5.2 Spares

N/A

5.3 Training

N/A

5.4 Manuals

N/A

H-9 FIRE DETECTION SYSTEM

Part 1: SCOPE:

1.1 The intent of this specification shall be to have a qualified certified contractor do the annual inspection on the Fire Detection System.

Part 2: REFERENCES:

2.1 Guidance Drawings/Nameplate Data

2.1.1 N/A.

2.2 Standards

2.2.1 N/A

2.3 Regulations

2.3.1 Contractor shall comply with Fleet Safety Manual.

2.3.2 Contractor shall comply with all Provincial Regulations and the Canada Labour Code.

2.4 Owner Furnished Equipment

2.4.1 The contractor shall supply all materials, equipment, and parts required to perform the specified work unless otherwise stated.

Part 3: TECHNICAL DESCRIPTION:

3.1General

3.1.1 Contractor shall inform Chief Engineer prior to work commencement.

3.1.2 Contractor shall have annual inspection and testing carried out on the Fire Detection Notifier NFS -640 System as per manufactures recommendations by Qualified certified personnel.

3.1.3 All heat / smoke / and pull stations, general alarms and shut downs devices are to be activated and proven operational. The system is also to be proven operational using the back –up batteries with the A/C power supply isolated .

3.2 Location

3.2.2 N/A.

3.3 Interferences

3.3.1 Contractor is responsible for the identification of interference items, their temporary removal, storage and refitting to vessel.

Part 4: PROOF OF PERFORMANCE:

4.1 Inspection :

4.1.1 All work to be witnessed by the Chief Engineer and Transport Canada Marine Safety Inspector.

4.2 Testing

4.2.1. Chief Engineer and Transport Canada Marine safety Inspector shall be present for the testing.

4.3 Certification

4.3.1. N/A.

Part 5: DELIVERABLES:

5.1 Drawings/Reports

5.1.1 Contractor shall supply to Chief Engineer two type written copies of what work was carried out when the work is complete.

5.2 Spares N/A

5.3 Training
N/A

5.4 Manuals
N/A

H-10 SEWAGE TANK INSPECTION

Part 1: SCOPE:

1.1 The intent of this specification shall be contractor to open up sewage tank for 5 year Inspection for Transport Canada.

Part 2: REFERENCES:

2.1 Guidance Drawings/Nameplate Data

2.1.1 N/A.

2.2 Standards

2.2.1 N/A

2.3 Regulations

2.3.1 Contractor shall comply with Fleet Safety Manual.
2.3.2 Contractor shall comply with all the Provincial Regulations and the Canada Labour Code.

2.3 Owner Furnished Equipment

2.4.1 The contractor shall supply all materials, equipment, and parts required to perform the specified work unless otherwise stated.

Part 3: TECHNICAL DESCRIPTION:

3.1 General

3.1.1 Contractor shall inform Chief Engineer prior to starting work.

3.1.2 Contractor shall ensure that the sewage system is isolated, locked out and tagged prior to starting work.

3.1.3 Contractor shall pump out and dispose of the remaining contents in the sewage tank and remove the manhole cover.

3.1.4 Contractor shall have sewage tank gas freed by certified personal safe for persons prior to entering the sewage tank.

3.1.5 Contractor shall wash out sewage tank for inspection by Chief Engineer and Transport Canada Marine Safety Inspector.

3.1.6 The sewage tank maximum capacity 1500 litres.

3.1.7 Contractor shall prepare and perform hydrostatic test for Transport Canada Marine Safety Inspector as required.

3.2 Location.

3.2.1 Forward store room.

3.3 Interferences

3.3.1 Contractor is responsible for the identification of interference items, their temporary removal, storage and refitting to vessel.

Part 4: PROOF OF PERFORMANCE:

4.1 Inspection.

4.1.1 All work shall be completed to the satisfaction of the Chief Engineer and Transport Canada Ship Safety Inspector.

4.2 Testing

4.2.1 Sewage Tank hydrostatic tested as Transport Canada Marine Safety Inspector.
4.2.2 Hydrostatic testing to be witnessed by Chief Engineer and Transport Canada Marine Safety Inspector.

4.3 Certification

N/A

Part 5: DELIVERABLES:

5.1 Drawings/Reports

5.1.1 Contractor shall supply to Chief Engineer two type written copies of what work was carried out when the work is complete.

5.2 Spares

N/A

5.3 Training

N/A

H-11 SLUDGE TANK.

Part 1: SCOPE:

1.1 The intent of this specification shall be contractor shall open up sludge tank for 5 year survey for Transport Canada Marine Safety Inspector.

Part 2: REFERENCES:

2.1 Guidance Drawings/Nameplate Data

2.1.1 N/A.

2.2 Standards

2.2.1 N/A.

2.3 Regulations

2.3.1 Contractor shall comply with the Fleet Safety manual.

2.3.2 Contractor shall comply with all Provincial Regulations and the Canada Labour Code..

2.4 Owner Furnished Equipment.

2.4.1 The contractor shall supply all materials, equipment, and parts required to perform the specified work unless otherwise stated.

Part 3: TECHNICAL DESCRIPTION:

3.1 General

3.1.1 Contractor shall inform Chief Engineer prior to commencement of work.

3.1.2 Contractor shall confirm sludge tank is empty prior to starting work.

3.1.3 Contractor to open sludge tank is to be open for cleaning and inspection. The manhole is to be removed and all sludge to be removed ashore and disposed of by the contractor.

3.1.4 Contractor shall have the sludge tank gas freed by certified personnel.

3.1.5 The tank is to be cleaned internally.

3.1.6 Upon completion of cleaning the tank is to be inspected by the Chief Engineer and Transport Canada Marine Safety Inspector.

3.1.7 Contractor shall close up the tank using new approved contractor supplied gasket.

3.1.8 The tank fill pipe and vent are to be sealed and the tank hydrostatically tested as required by Transport Canada Ship Safety Inspector.

3.2 Location.

3.2.1 Engine room stbd Frames 12-15.

3.3 Interferences.

3.3.1 Contractor is responsible for the identification of interference items, their temporary removal, storage and refitting to vessel.

Part 4: PROOF OF PERFORMANCE:

4.1Inspection

4.1.1 All work shall be completed to the satisfaction of the Chief Engineer and TCMS Inspector

4.2 Testing

4.2.1 Hydrostatic test to be witnessed by Chief Engineer and Transport Canada Marine Safety Inspector.

4.3 Certification
N/A

Part 5: DELIVERABLES:

5.1 Drawings/Reports.

5.1.1 Contractor shall supply Chief Engineer two typewritten copies of what work was carried out when the work is complete.

5.2 Spares
N/A

5.3Training : N/A

H-12 DAVIT ANNUAL INSPECTION.

Part 1: SCOPE:

1.1 The intent of this specification shall be annual inspection to be carried out on Global Davit by Qualified Certified Personnel.

1.2 Davit parts are to be owner supplied.

Part 2: REFERENCES:

2.1 Guidance Drawings/Nameplate Data

2.1.1 N/A.

2.2 Standards

2.2.1 N/A .

2.3 Regulations

2.3.1 Contractor shall comply with Fleet Safety Manual.
2.3.2 Contractor shall comply with all Provincial Regulations and the Canada Labour Code.

2.4 Owner Furnished Equipment

2.4.1 The contractor shall supply all materials, equipment, and parts required to perform the specified work unless otherwise stated.

Part 3: TECHNICAL DESCRIPTION:

3.1 General

3.1.1 Contractor shall inform Chief Engineer prior to work commencing.

3.1.2 Global Davit shall have annual inspection carried out by (Nord Marine) Authorized Service Dealer.

3.13 Davit testing to be witnessed by Chief Engineer.

3.1.4 Contractor shall quote on an allowance of $ 3000.
for the servicing of the Global Davit. The cost will be adjusted up or down by 1379 action as per invoice from service contractor.

3.2 Location

3.2.1 Main Deck.

3.3 Interferences

3.3.1 Contractor is responsible for the identification of interference items, their temporary removal, storage and refitting to vessel.

Part 4: PROOF OF PERFORMANCE:

4.1 Inspection

4.1.1 All work shall be completed to the satisfaction of the Chief Engineer.

4.2 Testing

4.2.1 Davit to be tested and proven operational..
4.2.2 Davit testing to be witnessed by Chief Engineer .

4.3 Certification

4.3.1 Service Technician to provide annual certification and a report of what work was carried out.

Part 5: DELIVERABLES:

5.1 Drawings/Reports

5.1.1 Contractor shall supply to Chief Engineer two type written copies of what work was carried out when the work is complete.

5.5 Spares
N/A

5.6 Training
N/A

5.7 Manuals
N/A

E-1 AIR RECEIVERS & SAFETY VALVES.

Part 1: SCOPE:

1.1 The intent of this specification shall be contractor remove the safety valves from the air receivers for testing / certification and open up four air receivers for the 5 year inspection.

Part 2: REFERENCES:

2.1 Guidance Drawings/Nameplate Data

2.1.1 N/A.

2.2 Standards

2.2.1 N/A.

2.3 Regulations.

2.3.1 Contractor shall comply with Fleet Safety Manual.
2.3.2 Contractor shall comply with all Provincial Regulations and the Canada Labour Code.

5.2 Owner Furnished Equipment

2.4.1 The contractor shall supply all materials, equipment, and parts required to perform the specified work unless otherwise stated.

Part 3: TECHNICAL DESCRIPTION:

3.1General

3.1.1 Contractor shall inform Chief Engineer prior to starting work.

3.1.2 Contractor shall ensure that the compressed air system is isolated, locked out and tagged prior to starting work.

3.1.3 Contractor shall remove and send safety valves from 4 air receivers to New Valve for testing and certification as per manufactures specifications. Contractor shall reinstall the safety valves when complete.

3.1.4 Contractor shall allow $ 200. for the service and certification of each safety Valve. The total may be adjusted up or down by 1379 action as per invoice from New Valve Services..

3.1.5 Contractor shall provide to Chief Engineer Safety valve certification from New Valve prior to installation of the valves.

3.1.6 Contractor shall open up four air receivers for cleaning and inspection.

3.1.7 Air receivers are to be inspected by Chief Engineer and Transport Canada Ship Safety Inspector prior to contractor closing them up.

3.1.8 Contractor shall install hand hold covers on the air receivers using new approved contractor supplied gaskets.

3.1.9 Contractor shall prepare and hydrostatic test the four air receivers as per Transport Canada Marine Safety Inspector requirements.

3.2.1 Location.

3.2.1 Main Engine Room.

3.3 Interferences.

3.3.1 Contractor is responsible for the identification of interference items, their temporary removal, storage and refitting to vessel.

Part 4: PROOF OF PERFORMANCE:

4.1 Inspection

4.1.1 All work shall be completed to the satisfaction of the Chief Engineer.

4.2 Testing

4.2.1 Air receivers Hydro-static tested as per Transport Canada Ship Safety Inspector.

4.3 Certification

4.3.1 Certificate for each valve to be presented to the Chief Engineer.

Part 5: DELIVERABLES:

5.1 Drawings/Reports

5.1.1 Contractor shall supply Chief Engineer with two type written copies of what work was carried out when the work is complete.

5.2 Spares

N/A

5.3 Training

N/A

5.4 Manuals

N/A

E-2 PORT & STARBOARD GEAR BOX INSPECTION.

Part 1: SCOPE:

1.1 The intent of this specification shall be contractor shall do a 5 year inspection on Port and Starboard Gear Boxes.

Part 2: REFERENCES:

2.1 Guidance Drawings/Nameplate Data

2.1.1 N/A.

2.2 Standards

2.2.1 N/A.

2.3 Regulations

2.3.1 Contractor shall comply with Fleet Safety Manual.
2.3.2 Contractor shall comply with all Provincial Regulations and the Canada Labour Code.

2.3 Owner Furnished Equipment.

2.4.1 The contractor shall supply all materials, equipment, and parts required to perform the specified work unless otherwise stated..

Part 3: TECHNICAL DESCRIPTION:

3.1 General

3.1.1 Contractor shall inform Chief Engineer prior to work commencing.

3.1.2 Contractor shall ensure that the Port and Starboard Gear Boxes are isolated, locked out and tagged prior to starting work.

3.1.3 Contractor shall have Ulstein FSR open up Port and Starboard gear box for 5 year inspection for Transport Canada. Inspection covers are to be removed and inspection carried out. Oil and filters to be replaced at this time.

3.1.4 Chief Engineer and Transport Canada Marine Safety Inspector to inspect gear boxes before closing up for credit on Division 3 report.

3.2 Location.

3.2.1 Engine Room .

3.3 Interferences.

3.3.1 Contractor is responsible for the identification of interference items, their temporary removal, storage and refitting to vessel.

Part 4: PROOF OF PERFORMANCE:

4.1 Inspection.

4.1.1 All work shall be completed to the satisfaction of the Chief Engineer and Transport Canada Marine Safety Inspector.

4.2 Testing

N/A

4.3 Certification

4.3.1 N/A

Part 5: DELIVERABLES:

5.1 Drawings/Reports

5.1.1 Contractor shall supply Chief Engineer two typewritten copies of what work was carried out when the work is complete.

5.2 Spares

N/A

5.3 Training

N/A

5.4 Manuals

N/A

E-3 FOSTER FREEZER MAINTAINCE

Part 1: SCOPE:

1.1 The intent of this specification shall be to have annual maintenance done to the Foster Freezer by a certified Refrigeration technician.

Part 2: REFERENCES:

2.1 Guidance Drawings/Nameplate Data .

2.1.1 N/A

2.2 Standards.

2.2.1 N/A.

2.3 Regulations.

2.3.1 Contractor shall comply with Fleet Safety Manual.
2.3.2 Contractor shall comply with all Provincial Regulations and the Canada Labour Code.

2.4 Owner Furnished Equipment

2.4.1 The contractor shall supply all materials, equipment, and parts required to perform the specified work unless otherwise stated..

Part 3: TECHNICAL DESCRIPTION:

3.1 General

3.1.1 Contractor shall inform Chief Engineer prior to commencement of work.

3.1.2 Contractor shall ensure that Freezer is isolated, locked out and tagged prior to starting work.

3.1.3 Change refrigerant dryer, check refrigerant level, clean condenser and check cooling fan motor. Check operation of compressor.

3.1.4 Freezer to be run up and proven operating correctly.

3.1.5 Refrigeration technician shall record in the ships Halocarbon log book of what work was carried out.

3.2 Location.

3.2.1 Dry Store Room.

3.3 Interferences

3.3.1 Contractor is responsible for the identification of interference items, their temporary removal, storage and refitting to vessel.

Part 4: PROOF OF PERFORMANCE:

4.1 Inspection

4.1.1 All work shall be completed to the satisfaction of the Chief Engineer.

4.2 Testing

4.2.1 Freezer run up and tested operational properly.

4.3 Certification

N/A

Part 5: DELIVERABLES:

5.1 Drawings/Reports

5.1.1 Contractor shall supply Chief Engineer with type written copies of what work was carried out when the work is complete.

5.2 Spares

N/A

5.3 Training

N/A

5.4 Manuals

N/A

E-4 PMC SYSTEM SET –UP

Part 1: SCOPE:

1.1 The intent of this specification shall be to have the PMC system set up to provide equal load sharing between both main engines.

Part 2: REFERENCES:

2.1 Guidance Drawings/Nameplate Data

2.1.1 N/A.

2.2 Standards

2.3.1 N/A.

2.3 Regulations.

2.3.1 Contractor shall comply with Fleet Safety Manual.
2.3.2 Contractor shall comply with all Provincial Regulations and the Canada labour Code.

2.4 Owner Furnished Equipment

2.4.1 The contractor shall supply all materials, equipment, and parts required to perform the specified work unless otherwise stated.

Part 3: TECHNICAL DESCRIPTION:

3.1 General

3.1.1 Contractor shall have qualified service technician to set up the PMC System.
.
3.1.2 At present the stbd main engine is carrying more load than the port engine. A FSR is to troubleshoot this system and make necessary repairs or adjustments so that each engine is equally sharing the load..

3.1.3 Contractor shall allow an allowance of $ 3000. 00 for services of FSR . The price may ajust up or down by 1379 action as per FSR invoice .

3.2 Location

3.2.1 N/A.

3.3 Interferences

3.3.1 Contractor is responsible for the identification of interference items, their temporary removal, storage and refitting to vessel.

Part 4: PROOF OF PERFORMANCE:

4.1 Inspection.

4.1.1 All work shall be completed to the satisfaction of the Chief Engineer.

4.2 Testing

4.2.1 Sea trial to be carried out for this testing and set up.

4.3 Certification

4.3.1 A report of findings and work done to be provided to the Chief Engineer.

Part 5: DELIVERABLES:

5.1Drawings/Reports

5.1..1 Contractor shall supply to Chief Engineer two type written copies of what work was carried out when the work is complete.

5.2 Spares

N/A

5.3 Training

N/A

5.4 Manuals

N/A

E-5 AIR COMPRESSOR # 2 OVERHAUL

Part 1: SCOPE:

1.1 The intent of this specification shall be contractor to overhaul Air Compressor # 2 for Transport Canada 5 year Inspection.

2 Compressor parts are owner supplied.

Part 2: REFERENCES:

2.1 Guidance Drawings/Nameplate Data

2.1.1 N/A.

2.2 Standards

2.2.1 N/A.

2.3 Regulations.

2.3.1 Contractor shall comply with Fleet Safety Manual.
2.3.2 Contractor shall comply with all Provincial Regulations and the Canada Labour Code.

2.4 Owner Furnished Equipment.

2.4.1 The contractor shall supply all materials, equipment, and parts required to perform the specified work unless otherwise stated.

Part 3: TECHNICAL DESCRIPTION:

3.1 General

3.1.1 Contractor shall inform Chief Engineer prior to commencement of work..

3.1.2 Contractor shall ensure that # 2 Air Compressor is isolated, locked out and tagged prior to commencement of work.

3.1.3 Contractor shall disassemble, clean up parts, and overhaul the air compressor as per manufactures specifications.

3.1.4 Measurements are to taken and recorded by contractor during the overhaul as per manufactures instructions.

3.1.5 Compressor to be inspected by the Chief Engineer and Transport Canada Marine Safety Inspector before assembling.

3.2 Location .

Engine Room

3.3 Interferences.

3.3.1 Contractor is responsible for the identification of interference items, their temporary removal, storage and refitting to vessel.

Part 4: PROOF OF PERFORMANCE:

4.1 Inspection:

4.1.1 Compressor to be inspected by Transport Canada Marine Safety Inspector.

4.2 Testing

4.2.1. Compressor to be run up for 30 minutes and proven operational by filling air Receivers.

4.3 Certification

4.3.1.

Part 5: DELIVERABLES:

5.1 Drawings/Reports

5.1.1 Contractor shall supply to Chief Engineer two type written copies of what work was carried out when the work is complete.

5.2 Spares N/A

5.3 Training

N/A

E-6 BALLAST PUMP OVERHAUL

Part 1: SCOPE:

1.1 The intent of this specification shall be to contractor to open up ballast pump #1 for Transport Canada 5 year inspection.

1.2 Parts for ballast pump are to be owner supplied.

Part 2: REFERENCES:

2.1 Guidance Drawings/Nameplate Data

2.1.1 N/A.

2.2 Standards

2.2.1 N/A

2.3 Regulations.

2.2.2 Contractor shall comply with Fleet Safety Manual.
2.2.3 Contractor shall comply with all Provincial Regulations and the Canada Labour Code.

2.5 Owner Furnished Equipment

2.4.1 The contractor shall supply all materials, equipment, and parts required to perform the specified work unless otherwise stated.

Part 3: TECHNICAL DESCRIPTION:

3.1 General

3.1.2 Contractor shall inform Chief Engineer prior to work commencement.

3.1.2 Contractor shall ensure Ballast Pump # 1 is isolated, locked out and tagged.

3.1.3 Contractor shall disassemble the ballast pump, clean all parts for inspection..

3.1.4 Ballast pump to be inspected by Chief Engineer and Transport Canada Marine Safety Inspector before assembling.

3.1.5 Ballast pump to be overhauled by contractor as per manufactures instructions..

3.1.6 Ballast pump to be run up for 30 minutes and proven operational when the ship is in the water..

3.2 Location.
Engine Room.

3.2 Interferences.

3.3.1 Contractor is responsible for the identification of interference items, their temporary removal, storage and refitting to vessel..

Part 4: PROOF OF PERFORMANCE:

4.1 Inspection

4.1.1 N/A

4.2 Testing

4.2.1. Ballast Pump to be run up for 30 minutes and proven operational when ship goes into the water.

4.3 Certification

4.3.1. N/A.

Part 5: DELIVERABLES:

5.1Drawings/Reports

5.1.1 Contractor shall supply to Chief Engineer two type written copies of what work was carried out when the work is complete.

5.2 Spares N/A

5.3 Training
N/A

5.4 Manuals
N/A

E-7 JACKET WATER SHELL & TUBE COOLER FOR STBD M /E

Part : 1 Scope

1.1 The intent of this specification shall be to contractor to remove the jacket water shell and tube cooler for the Starboard Main Engine for cleaning, inspection and testing.

Part : 2 REFERENCES:

2.1 Guidance Drawings/Nameplate Data

2.1.1 N/A

2.2 Standards

2.2.1 N/A.

2.3 Regulations

2.3.1 Contractor shall comply with Fleet Safety Manual.
2.3.2 Contractor shall comply with all Provincial Regulations and the Canada Labour Code.

2.4 Owner Furnished Equipment

2.4.1 The contractor shall supply all materials, equipment, and parts required to perform the specified work unless otherwise stated.

3 TECHNICAL DESCRIPTION

3.1 General

3.1.1 Contractor shall inform Chief Engineer prior to commencement of work.

3.1.2 Contractor shall ensure that Jacket Water Shell & Tube Cooler for Starboard Main Engine is isolated prior to starting work.

3.1.3 Contractor shall remove the shell and tube cooler, disassemble, clean and hydrostatic test as per Transport Canada Marine Safety Inspector request.

3.1.4 Contractor shall have included in cost the preparation and hydro-static testing of the shell and tube cooler.

3.1.5 Contractor shall supply and install all new approved seals and gaskets during assembly.

3.1.6 Tube and shell cooler to be inspected by Chief Engineer and Transport Canada Marine Safety Inspector prior to assembly and during the Hydrostatic Test.

3.1.7 Shell and tube cooler to be installed and tested when ship goes into the water.

3.2 Location

3.2.1 Engine Room.

3.3 Interferences

3.3.1 Contractor is responsible for the identification of interference items, their temporary removal, storage and refitting to vessel

4 PROOF OF PERFORMANCE:

4.1 Inspection

4.1.1 Shell and Tube Cooler to be inspected by Chief Engineer and Transport Canada Marine safety Inspector.

4.2 Testing

4.2.1 Chief Engineer and Transport Canada Marine Safety Inspector shall witness the Hydro-static testing.

4.3 Certification

N/A

5 DELIVERABLES:

5.1 Drawings/Reports

5.1.1 Contractor shall supply to Chief Engineer two type written copies of what work was carried out when the work is complete.

5.2 Spares

N/A

5.3 Training

N/A

5.4 Manuals N/A

E-8 STARBOARD MAIN ENGINE HYD PUMP & PTO

Part 1 : Scope.

1.1 The intent of this specification shall be contractor to remove the Hydraulic Pump & PTO from the Starboard Main Engine so the main engine can be overhauled and install hydraulic pump and PTO after the engine overhauled.

1.2 This work shall be carried out in Conjunction when the main engine is being overhauled by contractor during the lay - up period.

2 REFERENCES:

2.1 Guidance Drawings/Nameplate Data

2.1.1 N/A.

2.2 Standards

2.2.1 N/A.

2.3 Regulations

2.3.1 Contractor shall comply with Fleet Safety Manual.
2.3.2 Contractor shall comply with all Provincial Regulations and Canada Labour Code.

2.4 Owner Furnished Equipment

2.4.1 The contractor shall supply all materials, equipment, and parts required to perform the specified work unless otherwise stated.

3 TECHNICAL DESCRIPTION

3.1 General

3.1.1 Contractor shall inform Chief Engineer prior to starting work.

3.1.2 Contractor shall ensure with Chief Engineer that hydraulics are isolated, locked out and tagged prior to starting work.

3.1.3 Contractor shall remove from the Starboard Main Engine the Hydraulic Pump and the PTO so the Main Engine can be overhauled by the Caterpillar FSR and installed when overhaul complete.

3.1.4 Hydraulic Pump and PTO removal and installation shall be carried out during the lay –up period for the engine overhaul.

3.1.5 Contractor shall cap off all blank lines and openings when pump is removed.

3.1.6 Contractor shall run up the hydraulics and test for leaks when ship goes in water.

3.2 Location

3.2.1 Engine Room.

3.3 Interferences

3.3.1 N/A

4 PROOF OF PERFORMANCE:

4.1 Inspection

4.1.1 N/A.

4.2 Testing

4.2.1 Hydraulics to be run up and tested for leaks when ship goes into the water.

4.3 Certification

N/A

5 DELIVERABLES:

5.1 Drawings/Reports

5.1.1 Contractor shall supply Chief Engineer two type written copies of what work was carried out when the work is complete.

5.2 Spares

N/A

5.3 Training

N/A

5.4 Manuals

N/A

5.5 This work shall be carried out in Conjunction when the main engine is being overhauled by contractor during the lay - up period.

E-9 STARBOARD MAIN ENGINE OVERHAUL.

Part 1 : SCOPE

1.1 The intent of this specification shall be contractor to supply services of Caterpillar Field Service Representative (FSR) to carry out complete full overhaul the Starboard Main Engine as per manufactures instructions.

1.2 Engine overhaul to be carried out in conjunction with specification # E-8 Hydraulic Pump & PT.

1.3 This work shall be carried out when the vessel is in Lay- up period.

1.4 Starboard Main Engine overhaul parts are to be supplied by Caterpillar.

2 REFERENCES:

2.1 Guidance Drawings/Nameplate Data

2.1.1 N/A

2.2 Standards

2.2.1 N/A

2.3 Regulations

2.3.1 Contractor shall comply with Fleet Safety Manual.
2.3.2 Contractor shall comply with all Provincial Regulations and Canada Labour Code.

2.4 Owner Furnished Equipment

2.4.1 The contractor shall supply all materials, equipment, and parts required to perform the specified work unless otherwise stated.

3 TECHNICAL DESCRIPTION

3.1 General

3.1.1 Contractor shall inform Chief Engineer prior to starting work.

3.1.2 Contractor shall ensure with Chief Engineer that the Starboard Main Engine is isolated, locked out and tagged prior to starting work.

3.1.3 Contractor shall arrange for Caterpillar FSR to come on board to complete full overhaul of Starboard Main Engine as per manufactures specifications.

3.1.4 Complete full overhaul also to include the overhauling of fuel injection pump, testing and cleaning water cooled manifolds, cleaning and testing after cooler and engine cooler and additional parts, turbo cartridge and turbo HSG & manifold crossover, and all new caterpillar parts for installed for the overhaul.

3.1.5 Contractor shall arrange For Transport Canada Marine Safety Inspector to be inspected as required.

3.1.6 Overhaul to be inspected by Chief Engineer and Transport Canada Marine Safety Inspector.

3.1.7 Date for the Starboard Main Engine overhaul to be determined by owner.

3.1.8 Engine run up and testing to be carried out by FSR when the ship goes into the water after the refit period. Ends.

3.2 Location

3.2.1 N/A

3.3 Interferences

3.3.1 Contractor is responsible for the identification of interference items, their temporary removal, storage and refitting to vessel.

4 PROOF OF PERFORMANCE:

4.1 Inspection

4.1.1 Inspected by Transport Canada Marine Safety Inspector and Chief Engineer.

4.2 Testing :

4.2.1 Testing to be carried out as per Transport Canada Marine Safety Inspector.

4.2.2 Run up and testing to be carried out when ship goes into the water. FSR to be on board.

4.3 Certification

N/A

5 DELIVERABLES:

5.1 Drawings/Reports

5.1.1 Contractor shall provide to Chief Engineer two type written copies of what work was carried out when the work is complete.

5.2 Spares

All new parts are to be Caterpillar parts

5.3 Training

N/A

5.4Manuals N/A

L-1 MEGGER TESTING

Part 1: SCOPE:

1.1 The intent of this specification shall be to have all electrical systems megger tested

Part 2: REFERENCES:

2.1 Guidance Drawings/Nameplate Data

2.1.1 N/A.

2.2 Standards

2.2.1 N/A.

2.3 Regulations.

2.3.1 Contractor shall comply with fleet Safety Manual.
2.3.2 Contractor shall comply with all Provincial Regulations and the Canada Labour Code.

2.4 Owner Furnished Equipment.

2.4.1 The contractor shall supply all materials, equipment, and parts required to perform the specified work unless otherwise stated.

Part 3: TECHNICAL DESCRIPTION:

3.1 General

3.1.1 All electrical systems and circuitry insulation to be megger tested..

3.1.2 Coast Guard Electronics Technicians to disconnect electronic equipment on bridge before meggering begins and to reconnect after test is done

3.2 Location.

3.2.1 N/A

3.3 Interferences.

3.3.1 Contractor is responsible for the identification of interference items, their temporary removal, storage and refitting to vessel.

Part 4: PROOF OF PERFORMANCE:

4.1 Inspection

4.1.1 All work shall be completed to the satisfaction of the Chief Engineer and TCMS.

4.2 Testing

4 .2.1 N/A

4.3 Certification

4.3.1 N/A

Part 5: DELIVERABLES:

5.1 Drawings/Reports

5.1.1 Contractor shall provide Chief Engineer with two type written copies of what work was carried out in a report.

5.2 Spares

N/A

5.3 Training

N/A

5.4 Manuals

N/A