



CCGS W.G. George

REFIT 2014

April 30, 2014 to May 28, 2014

TRANSIT INCLUDED



Spec item #:	SPECIFICATION	TCMSB Field #:
REFIT PREAMBLE		

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REFIT PREAMBLE		

REFIT PREAMBLE**1. INTENT**

The intent of this specification is to describe the necessary work involved in carrying out the ship's Annual Refit. All work specified herein and all repairs, inspections and renewals are to be carried out to the satisfaction of the Owner's Representative and, where applicable, the attending TC Marine Safety Inspector.

2. MANUFACTURER'S RECOMMENDATIONS

The overhaul and installation of all machinery and equipment specified herein shall be in accordance with the manufacturer's applicable instructions, drawings and specifications.

3. TESTING AND RECORDS

All test results, calibrations, measurements and readings shall be properly tabulated, compiled and two typewritten copies shall be presented to the Owner's 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. All work shall be subject to inspection by the Owner's Representative.

5. FACILITIES

Quotation shall include all of the necessary labor and equipment required for the erection of access staging, rigging, lighting, tugs, pilot service, necessary cranes and line handling.

6. MATERIALS AND SUBSTITUTIONS

Unless otherwise specified, all material is to be supplied by the contractor and all materials are to be new and unused. All replacement material in the form of jointing, packing, insulation, small hardware, oils, lubricants, cleaning solvents, preservatives, paints, coatings, etc., shall be in accordance with the equipment manufacturer's drawings, manuals or instructions. Where no particular item is specified, the Owner's 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 Owner's representative.

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8. EXPOSURE AND PROTECTION OF EQUIPMENT

The contractor shall provide temporary protection for any equipment or areas 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, airborne particles from sand, grit or shot blasting, welding grinding, burning, gouging, painting or airborne particles of 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 in accordance with the manufacturer's 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 work.

10. CLEANLINESS

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 oil and water residue, which accumulates in the machinery space bilge as a result of any refit work detailed in this specification.

11. ASBESTOS

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

12. ENTRY INTO ENCLOSED SPACES

The contractor shall abide by the Coast Guard Enclosed Space Entry Policy. The policy is listed in the attached Safety Annex as section 7.D.9 and section 7.D.9 (N). Entry certificates shall clearly state the type of work permitted and shall renewed as required by the regulations.

13. HOTWORK

Any item of work involving the use of heat in its execution requires that the contractor advise the owner's representative prior to starting such heating and upon its completion. The contractor

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shall be responsible for maintaining a competent and properly equipped fire watch during and for one full hour after all hotwork. The fire watch shall be arranged such that all sides of surfaces being worked on are visible and accessible. The contractor shall provide sufficient suitable fire extinguishers and a fire watch during any such heating and until the work has cooled. Ship's extinguishers shall not be used except in an emergency. The Contractor shall abide by the Coast Guard Hotwork Policy. The policy is listed in the attached Safety Annex as section 7.D.11 and section 7.D.11 (N). The contractor shall be responsible to ensure the contractor's personnel including any subcontractors shall follow the policy.

14. WELDING

The primary contractor or subcontractor shall be certified by the Canadian Welding Bureau (CWB) to standard CSA W47.2M 1987, Division I, II or III - Certification of Companies for Fusion Welding of Aluminum. All welding shall be completed using Canadian Welding Bureau (CWB) Certified personnel and equipment. The required CWB certification must be in place for the appropriate material, personnel and process that is associated with this work.

15. SMOKING

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

16. ELECTRICAL STANDARDS

Any electrical installations or renewals shall be in accordance with the latest editions 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 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 wiring in panels or junction boxes only.

17. DRAWINGS

All drawings and drawing 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

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updated. For example, drawings that have been lettered and dimensioned in a professional manner shall not to be updated using freehand. Prints and copies that a contractor is required to provide shall be made on one piece of paper.

18. TRANSDUCERS

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

19. OWNER'S REPRESENTATIVE

Throughout this document, there is made reference to the Owner's Representative. For the purpose of this document, the Owner's representative is defined as the Chief Engineer of the Vessel, or in lieu of his/her presence, the Project Engineer, Small Vessels can be assumed to be the Owner's representative.

20. SEA TRIALS

Prior to the completion of the refit, the vessel shall proceed on a one-hour sea trail with the Contractor's Representative on board. Results of the sea trail shall be documented by the Chief Engineer. Any noted deficiencies during the trial will be addressed.

VESSEL CHARACTERISTICS:

SHIP PARTICULARS:

DISPLACEMENT 27.5 Tonnes

LENGTH OVERALL..... 15.77M (51' 9")

BEAM..... 5.18M (17'.)

FRAME SPACING..... Frame 0-3. 535mm (21")

Frame 3-7. 575mm (23")

Frame 7-23 650mm (25-1/2")

Spec item #: HD-01	SPECIFICATION	TCMSB Field #:
SERVICES		

HD-01 SERVICES**Part 1: SCOPE:**

- 1.1** The intent of this specification shall be to have the contractor provide services to the vessel while in dry-dock and afloat during the complete refit period and disconnected on termination of refit, the contractor shall supply all material to the point of onboard connection
- 1.2** This work shall be carried out in Conjunction with the following: Drydocking

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:**3.1 General**

- 3.1.1** The contractor shall provide all the labor and material for the rigging of one contractor supplied boarding gangway complete with safety net and two handrails The gangway shall be illuminated for safe use at night and shall be fitted to the satisfaction of the c/o.
- 3.1.2** The contractor shall provide electrical shore power of 240 volts ac single phase 100 amp. The contractor shall supply the power to the ship and connect from single-phase isolation transformer to 240/120 volt panel via the shore power plug. The contractor shall quote on supplying 2000 kilowatt hours and provide quote per additional kilowatt hour. Total kilowatt hours will be adjusted at the conclusion of the refit. Meter readings shall be witnessed by owner rep. and contractor prior to connection and upon disconnection of the service
- 3.1.3.** The contractor shall provide fire protection for the vessel in the form of one hose 1 ½ inches in diameter, complete with approved fire nozzle, connected to a fully operable fire hydrant. The hose shall be long enough to reach all parts of the vessel. The hydrant shall have a wrench fitted at all times during the refit

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SERVICES		

- 3.1.4.** The contractor shall provide a suitable garbage container and empty it when it reaches 75% full. The contractor shall remove all refuse daily from the ship including all scale and sludge from tanks
- 3.1.5.** The contractor shall quote on the disposal of 200 litres of oily water mixture from tanks and bilges. The contractor shall quote cost per each additional 50 litre. The contractor shall retain the services of a qualified disposal agent that shall comply with all provincial laws and provide evidence of proper disposal
- 3.1.6.** The contractor shall supply and fit cardboard or equivalent to protect interior decks for the duration of the refit. The contractor shall bid on supplying 7.5 sq. meters
- 3.1.7.** The contractor shall provide access for the vessels crew to washroom facilities including flush toilets and washbasins with hot and cold running water
- 3.1.8.** The contractor shall provide a location for use as an office by the Chief Engineer. The office shall be equipped with a desk and office style chair. The office shall be equipped with a phone. The office shall be equipped with a computer with internet and a printer (Windows 98 or higher)The contractor shall also provide access to a fax machine
- 3.1.9.** The successful bidder shall prepare and present a plan which outlines what action(s) will be taken in the event of a fire or unauthorized access
- 3.1.10.** At the end of the refit the contractor shall clean the vessel (bilge, decks, deck heads, bulkheads and all equipment) to the satisfaction of the owner's rep.

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 N/A

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SERVICES		

4.3 Certification**4.3.1** N/A**Part 5: DELIVERABLES:****5.1 Drawings/Reports****5.1.1** N/A**5.2 Spares****5.2.1** N/A**5.3 Training****5.3.1** N/A**5.4 Manuals****5.4.1** N/A

Spec item #: HD-02	SPECIFICATION	TCMSB Field #:
PRODUCTION CHART		

HD-02 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.
- 1.2** This work shall be carried out in Conjunction with the following:

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:

- 3.1 General**
 - 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. The contractor shall email a detailed bar chart to the Vessel Maintenance Manager Geoff Stewart upon arrival at Contractors premises.
 - 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. A copy shall be emailed to the VMM weekly.
 - 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.

Spec item #: HD-02	SPECIFICATION	TCMSB Field #:
PRODUCTION CHART		

3.2 Location**3.2.1** N/A**3.3 Interferences****3.2.1.** Contractor is responsible for the identification of interference items, their temporary removal, and 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** N/A**4.3 Certification****4.3.1** N/A**Part 5: DELIVERABLES:****5.1 Drawings/Reports****5.1.1** N/A**5.2 Spares****5.2.1** N/A**5.3 Training****5.3.1** N/A**5.4 Manuals****5.4.1** N/A

Spec item #: HD-03	SPECIFICATION	TCMSB Field #:
DRY DOCKING		

HD-03 DRY DOCKING**Part 1: SCOPE:**

- 1.1** The intent of this specification shall be to have the contractor provide all equipment and services necessary to dock and undock the vessel.

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**3.1 General**

3.1.1. The contractor shall provide all equipment and services necessary to dock and undock the vessel

3.1.2. The contractor shall quote on the unit day cost

3.1.3. The contractor shall be responsible for the handling of all ships lines

3.1.4. The contractor shall ensure that docking is in accordance with docking plan

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**

Spec item #: HD-03	SPECIFICATION	TCMSB Field #:
DRY DOCKING		

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

4.2 Testing

4.2.1 N/A

4.3 Certification

4.3 N/A

Part 5: DELIVERABLES:

5.1 Drawings/Reports

5.1.1 N/A

5.2 Spares

5.2.1 N/A

5.3 Training

5.3.1 N/A

5.4 Manuals

5.4.1 N/A

Spec item #: HD-04	SPECIFICATION	TCMSB Field #:
HULL INSPECTION AND PAINTING		

HD-04 HULL INSPECTION AND PAINTING

Part 1: SCOPE:

- 1.1** The intent of this specification shall be to have the contractor Hydro blast (1500-2000 psi) and completely clean the aluminum hull from the keel to the maindeck, including both rudders and trim tabs. (The contractor shall bid on a total hull area of 112 sq) meters.

Part 2: REFERENCES:

2.1 Guidance Drawings/Nameplate Data

2.1.1 N/A

2.2 Standards

2.2.1 All coatings to be applied according to manufacturer's specs.

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:

3.1 General

3.1.1 All staging , cranes, screens, lighting, shelter, heaters and any other support services, equipment, paint and materials necessary to carry out these specs. Shall be contractor supplied. The entire hull of the ship from the keel to the main deck, including both rudders and trim tabs shall be Hydro blasted and scraped clean of all marine growth and shall be water washed (1500-2000 psi) to remove any soluble salts

3.1.2 The hull shall be inspected by the contractor, Vessel Maintenance Manager and Chief Engineer and any areas of damaged hull coating shall be identified.

3.1.3 Any repair or application of damaged hull coating will be covered by PWGSC 1379 action and raised as an extra to the contract. Contractor to bid on repair of 100 sq. ft. and unit cost for additional sq. foot.

3.1.4. Sea bay grids are to be protected during the application of coating and orifices shall be proved original diameter before undocking

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HULL INSPECTION AND PAINTING		

- 3.1.5.** The contractor shall Hydro blast (1500-2000 psi) or mechanical buff to SP-3 the entire hull in preparation for the antifouling coating and CG red coating up to the main deck level
- 3.1.6.** The contractor shall supply and apply the following (A) 1 coat of Amercoat ABC #4 Antifouling Red @3-4 mils DFT. Underwater area only including rudders and trim tabs. The contractor shall bid on 72 sq. meters and include unit cost per sq. meter (B) 1 coat of Amershield Polyurethane CG Red @ 3-4 mils DFT. Waterline to main deck. The contractor shall bid on 40 sq. meters and include unit cost per sq. meter. (C) 1 coat of Amershield Polyurethane White & Black @ 3-4 mils. The CG white hull stripe with black outline
- 3.1.7.** The contractor shall reapply all draft markings using contractor supplied white paint (Amershield Polyurethane)
- 3.1.8.** The contractor shall supply and apply new Coast Guard self-adhesive white/Black vinyl lettering for the vessel markings
- 3.1.9.** The contractor shall reapply the vessel names and port of registry using contractor supplied white paint (Amershield Polyurethane)

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 N/A

4.3 Certification

4.3.1 N/A

Part 5: DELIVERABLES:

5.1 Drawings/Reports

5.1.1 Stencils

2 Coast Guard 6 inch letters

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HULL INSPECTION AND PAINTING		

2 Garde cotiere 6 inch letters
2 Fisheries and Oceans 3 inch
2 Peches et Oceans 3 inch
4 Canada
2 6 inch Maple Leafs

5.2 Spares

5.2.1 N/A

5.3 Training

5.3.1 N/A

5.4 Manuals

5.4.1 N/A

Spec item #: HD-05	SPECIFICATION	TCMSB Field #:
Sea Bay Cleaning and Painting		

HD-05 SEA BAY CLEANING AND PAINTING**Part 1: SCOPE:**

- 1.1** The intent of this specification shall be to have the contractor open up and clean and paint the three sea bays and shall bid on a total area of 1 sq. meter and provide the unit cost per 0.5 sq. meter.
- 1.2** This work shall be carried out in Conjunction with the following: Dry-docking

Part 2: REFERENCES:**2.1 Guidance Drawings/Nameplate Data****2.1.1** N/A**2.2 Standards****2.2.1** All coatings to be applied according to manufacturers' specs**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:****3.1 General****3.1.1** The contractor shall remove the sea bay grids and water blast the sea boxes and grids**3.1.2** The contractor shall ensure that the slotted holes in the grids are punched clean**3.1.3** The contractor shall supply and apply the same paint coatings as outlined for the underwater hull**3.1.4** The contractor shall replace the sea bay grids using new 316 stainless steel fasteners and locking wire**3.2 Location****3.2.1** Port main suction @ Frames 12 – 13**3.2.2** Stbd. Main suction @ Frames 12 – 13**3.2.3** Fire Pump suction @ Frames 8 – 9**3.3 Interferences****3.3.1** Contractor is responsible for the identification of interference items, their temporary removal, storage and refitting to vessel.

Spec item #: HD-05	SPECIFICATION	TCMSB Field #:
Sea Bay Cleaning and Painting		

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 N/A

4.3 Certification

4.3.1 N/A

Part 5: DELIVERABLES:**5.1 Drawings/Reports**

5.1.1 N/A

5.2 Spares

5.2.1 N/A

5.3 Training

5.3.1 N/A

5.4 Manuals

5.4.1 N/A

Spec item #: HD-06	SPECIFICATION	TCMSB Field #:
Zinc Anodes		

HD-06 ZINC ANODES**Part 1: SCOPE:**

1.1 The intent of this specification shall be to have the contractor remove and replace with new all the sacrificial zinc anodes on the hull, the rudders, the trim tabs and the tail shafts.

1.2 This work shall be carried out in Conjunction with the following: Dry-docking

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:**3.1 General**

3.1.1 The contractor shall supply and install 12 zinc anodes

3.1.2 The contractor shall supply all stainless steel fasteners to secure all anodes.

3.2.1 Location

3.2.1 2 bolted to the transom 9x6x1 ½ in. 2 bolted to the keel teardrop shape 3x9x1 ¼ in. 2 installed between frames 7& 13 teardrop shape 3x9x1 ¼ in. 1 on each trim tab 6 ½ in circ. 2 installed as collars on each shaft 2 ¾ in. inside diameter. There are 12 anodes in total.

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 N/A

Spec item #: HD-06	SPECIFICATION	TCMSB Field #:
Zinc Anodes		

4.3 Certification**4.3.1** N/A**Part 5: DELIVERABLES:****5.1 Drawings/Reports****5.1.1** N/A**5.2 Spares****5.2.1** N/A**5.3 Training****5.3.1** N/A**5.4 Manuals****5.4.1** N/A

Spec item #: HD-07	SPECIFICATION	TCMSB Field #:
Fuel Tanks Cleaning and Inspection		

HD-07 FUEL TANKS CLEANING AND INSPECTION

Part 1: SCOPE:

- 1.1** The intent of this specification shall be to have the contractor remove the remaining fuel from three fuel tanks and dispose of it in an approved way. These tanks will then be gas freed, opened up and cleaned out for inspection and testing to be witnessed by a Transport Canada Marine surveyor.
- 1.2** This work shall be carried out in Conjunction with the following: Drydocking

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:

3.1 General

- 3.1.1** The contractor shall empty all three tanks and remove the manhole covers.
- 3.1.2** The contractor shall use the services of a chemist to make sure the tanks are safe for entry according to Coast Guard practices as outlined in the fleet safety manual.
- 3.1.3** The contractor shall clean all sludge from the tanks. Contractor shall arrange for Transport Canada to inspect each fuel tank.
- 3.1.4** The contractor shall close up the tanks using contractor supplied gasket material after the Transport Canada Surveyor has it inspected.

3.2 Location

- 3.2.1** Port db fuel tank (1220 litres) cover is located in fwd cabin.
Stbd. Db fuel tank (1220 litres) cover is located in fwd cabin
Reserve Db fuel tank (570 litres) cover is located in engine room

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Fuel Tanks Cleaning and Inspection		

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 N/A

4.3 Certification

4.3.1 N/A

Part 5: DELIVERABLES:**5.1 Drawings/Reports**

5.1.1 N/A

5.2 Spares

5.2.1 N/A

5.3 Training

5.3.1 N/A

5.4 Manuals

5.4.1 N/A

Spec item #: HD-08	SPECIFICATION	TCMSB Field #:
Void Tank Inspection		

HD-08 VOID TANK INSPECTION**Part 1: SCOPE:**

- 1.1** The intent of this specification shall be to have the contractor remove covers and positive floatation foam from double bottom, wing and saddle voids for inspection. These voids, 43 in total, will be opened up, gas freed and cleaned out for inspection and testing, witnessed by a Transport Canada Marine surveyor.
- 1.2** This work shall be carried out in conjunction with the following: Drydocking

Part 2: REFERENCES:**2.1 Guidance Drawings/Nameplate Data**

- 2.1.1** To be supplied by owner

2.2 Standards

- 2.2.1** N/A

2.3 Owner Furnished Equipment

- 2.3.1** 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 contractor shall remove manhole/inspection covers in a safe manner from one DB void and two saddle voids in lavatory space, one DB void and four saddle voids in fwd survivor space, nine DB voids in engine room space, one DB void aft survivor space, three DB voids in Steering space. 21 spaces in total.
- 3.1.2** The contractor shall remove inspection covers in a safe manner to access wing voids; 2 in steering flat, 4 in aft survivor space, 6 in engineroom, 6 in forward survivor space, 2 in lavatory and fore peak void, 22 spaces in total.
- 3.1.3** The contractor shall remove and store fitted equipment/panels to gain access to the inspection holes and reinstall all affected to pre refit condition.
- 3.1.4** The contractor shall remove sealed displacement foam, which shall be tagged and returned to its original location upon completion of spec. The contractor shall identify any damaged bags and replace them with new. Any cost on replacement foam shall be raised as a extra and covered under PWGSC 1379
- 3.1.5** The Contractor shall store the removed bags in a secure, heated area. The space of approx. volume of 20 m cubed.

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Void Tank Inspection		

3.1.6 The contractor shall clean all affected voids and have them air tested at 10 psi for 30min or the satisfaction of owners rep and Transport Canada requirements

3.1.7 The contractor shall close up all the voids installing new gaskets to all the affected covers.

3.1.8 Final closure cannot be completed until Transport Canada is satisfied with its inspection.

3.2 Location

3.2.1 Steering flat, aft survivor space, engine room, Fwd survivor space, lavatory space.

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 Contractor shall have all tanks air tested at 10 psi for 30min or the satisfaction of owners rep and Transport Canada requirements

4.3 Certification

4.3.1 N/A

Part 5: DELIVERABLES:

5.1 Drawings/Reports

5.1.1 N/A

5.2 Spares

5.2.1 N/A

5.3 Training

5.3.1 N/A

5.4 Manuals

5.4.1 N/A

Spec item #: HD-09	SPECIFICATION	TCMSB Field #:
Steering Oil Cooler		

HD-09 STEERING OIL COOLER**Part 1: SCOPE:**

- 1.1** The intent of this specification shall be to have the contractor clean the steering oil cooler.
1.2 This work shall be carried out in Conjunction with the following: Drydocking

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:**3.1 General**

3.1.1 The contractor shall remove both ends of the steering oil cooler and shall clean the tube stack.

3.1.2 The contractor shall reassemble the cooler ends using new contractor supplied gaskets, anodes and two ½ inch threaded street elbows.

3.1.3 Vessel to have sea trials to ensure cooler and affected piping all sound.

3.2 Location

3.2.1 Fitted on aft bulkhead engine room.

3.3 Interferences

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

Spec item #: HD-09	SPECIFICATION	TCMSB Field #:
Steering Oil Cooler		

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 N/A

4.3 Certification

4.3.1 N/A

Part 5: DELIVERABLES:**5.1 Drawings/Reports**

5.1.1 N/A

5.2 Spares

5.2.1 N/A

5.3 Training

5.3.1 N/A

5.4 Manuals

5.4.1 N/A

Spec item #: HD-10	SPECIFICATION	TCMSB Field #:
Trim Tab Cylinder Replacement		

HD-10 TRIM TAB CYLINDER REPLACEMENT**Part 1: SCOPE:**

- 1.1** The intent of this specification shall be to have the contractor and Chief Engineer inspect trim tab cylinders for wear and correct operation. Upon completion of inspection, if required Contractor shall remove the cylinders and have them refurbished with new seals and reinstall cylinders.
- 1.2** This work shall be carried out in Conjunction with the following: Drydocking

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:****3.1 General****3.1.1** The Contractor shall inspect along with the Chief Engineer the operation and wear and tear on cylinders.**3.1.2** If required contractor shall remove cylinders and refurbish them with new seals and reinstall.**3.1.3** The contractor shall ensure that the trim tab hydraulic circuit is fully operational and ensure trim tabs operate correctly before and during sea trials.**3.2 Location****3.2.1** Trim tabs are located on port and starboard aft of vessel.**3.3 Interferences****3.3.1** Contractor is responsible for the identification of interference items, their temporary removal, storage and refitting to vessel.

Spec item #: HD-10	SPECIFICATION	TCMSB Field #:
Trim Tab Cylinder Replacement		

Part 4: PROOF OF PERFORMANCE:**4.1 Inspection**

4.1.1 All work shall be completed to the satisfaction of the Chief Engineer. Contractor shall inspect the operation of trim tabs before and during sea trials.

4.2 Testing

4.2.1 N/A

4.3 Certification

4.3.1 N/A

Part 5: DELIVERABLES:**5.1 Drawings/Reports**

5.2.1 N/A

5.2 Spares

5.2.1 N/A

5.3 Training

5.3.1 N/A

5.4 Manuals

5.4.1 N/A

Spec item #: HD-11	SPECIFICATION	TCMSB Field #:
PROPELLER SERVICING		

HD-11 PROPELLER SERVICING**Part 1: SCOPE**

- 1.1** The intent of this specification shall be to have the contractor remove, service and install vessel propellers
- 1.2** This work shall be carried out in Conjunction with the following:
 - 1.2.1** Drydocking

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:**3.1 General**

- 3.1.1** The contractor shall remove both propellers (Hawboldt Mega Four – four bladed propellers)
- 3.1.2** The contractor shall remove if required after inspection by C/E both propellers from the vessel and shall transport the propellers to/from Atlantic Propeller Repair, 12 Kyle Avenue, Donovan's Industrial Park Mount Pearl. Contact: Earl Latham. Ph. 7479200
- 3.1.3** The contractors bid shall include an allowance of \$1500.00 for the refurbishment and shipping of 2 propellers. The actual amount will be increased or decreased using PWGSC-1379 after the propellers are repaired.
- 3.1.4** The Contractor shall re-install the propellers using 2 new 3/8 stainless steel bolts and wire on the Propeller cone.
- 3.1.5** Vessel to have dock and sea trials to ensure props installed properly.

3.2 Location

3.2.1 Fitted on tailshafts.

Spec item #: HD-11	SPECIFICATION	TCMSB Field #:
PROPELLER SERVICING		

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 N/A

4.3 Certification

4.3.1 N/A

Part 5: DELIVERABLES:**5.1 Drawings/Reports**

5.1.1 N/A

5.2 Spares

5.2.1 N/A

5.3 Training

5.3.1 N/A

5.4 Manuals

5.4.1 N/A

Spec item #: HD-12	SPECIFICATION	TCMSB Field #:
PIPELINE INSPECTION		

HD-12 PIPELINE INSPECTION**Part 1: SCOPE:**

- 1.1** The intent of this specification shall be to have the contractor visually inspect the sea water and bilge piping lines for visual signs of corrosion on the outside
- 1.2** This work shall be carried out in Conjunction with the following: Drydocking

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**

2.2.1 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 contractor shall check all lines for signs of corrosion and deterioration

3.1.2 The contractor shall discuss any defects found with the chief engineer

3.1.3 Contractor shall replace faulty lines using new pipe and fittings that will be supplied by the contractor. Materials and labour will be paid for by using pwsg1379 action and raised as a extra to the contract

3.1.4 The contractor shall pressure test new pipes at 20 psi, which must be witness by chief engineer.

3.1.5 Contractor shall reinstall pipe using new contractor supplied stainless steel bolts and new gasket.

3.2 Location

3.2.1 The piping is located on both sides of engine room and the bilge spaces.

3.3 Interferences

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

Spec item #: HD-12	SPECIFICATION	TCMSB Field #:
PIPELINE INSPECTION		

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 N/A

4.3 Certification

4.3.1 N/A

Part 5: DELIVERABLES:**5.1 Drawings/Reports**

5.1.1 N/A

5.2 Spares

5.2.1 N/A

5.3 Training

5.3.1 N/A

5.4 Manuals

5.4.1 N/A

Spec item #: L-01	SPECIFICATION	TCMSB Field #:
Insulation Testing		

L-01 INSULATION TESTING**Part 1: SCOPE:**

- 1.1** The intent of this specification shall be to have the contractor conduct insulation testing on the main switchboard and on 8 circuit panels. Any readings below 2 Megs to be discussed with the owner's rep.
- 1.2** This work shall be carried out in Conjunction with the following: Drydocking

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:**3.1 General**

3.1.1 Insulation testing to be carried out on the following:

3.1.1.1 Main switchboard (33 circuits)

3.1.1.2 240/120 vac shore power panel (14 circuits)

3.1.1.3 FWD power panel E-5 (10 circuits)

3.1.1.4 WH power panel E-1 (13 circuits)

3.1.1.5 12 VDC Nav panel E-3 (10 circuits)

3.1.1.6 24 VDC Nav panel E-2 (10 circuits)

3.1.1.7 24 VDC HVAC Power panel E-6 (6 circuits)

3.1.1.8 Power panel E-7 (12 circuits)

3.1.1.9 Nav light panel (10 circuits)

3.1.2 Any readings below 2 Megs to be discussed with the owners Rep. and will be corrected using PWGSC 1379 action and raised as an addition to the contract

3.1.3 Contractor shall deliver report and/or readings to Chief engineer.

Spec item #: L-01	SPECIFICATION	TCMSB Field #:
Insulation Testing		

3.2 Location

- 3.2.1** Main switchboard in aft. cabin.
- 3.2.2** Shore power panel in Lazerette.
- 3.2.3** 1 panel in fwd. cabin.
- 3.2.4** The others are all in the wheelhouse

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** N/A

4.3 Certification

- 4.3.1** N/A

Part 5: DELIVERABLES:**5.1 Drawings/Reports**

- 5.1.1** N/A

5.2 Spares

- 5.2.1** N/A

5.3 Training

- 5.3.1** N/A

5.4 Manuals

- 5.4.1** N/A

Spec item #: L-02	SPECIFICATION	TCMSB Field #:
Fire Detection System, CO Smothering System and Portable Extinguishers		

L-02 FIRE DETECTION SYSTEM, CO SMOTHERING SYSTEM AND PORTABLE EXTINGUISHERS

Part 1: SCOPE:

- 1.1** The intent of this specification shall be to have the contractor obtain the services of a certified inspector to test and ensure the correct operation of the smothering system and the fire detection system.
- 1.2** This is a Kidde Fenwal system with 2 cylinders and the fire detection panel is an Edwards System Technologies. This is to be carried out to the satisfaction of a Transport Canada Marine Surveyor.
- 1.3** This work shall be carried out in Conjunction with the following:
 - 1.3.1** Drydocking

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:

- 3.1 General**
 - 3.1.1** The contractor shall test the operation of the fire detection system.
 - 3.1.2** The contractor shall test the operation of each signal device, zone indication and alarm bell operation.
 - 3.1.3** The contractor shall tabulate the results and provide a copy of the results and a certificate of compliance to the chief engineer.
 - 3.1.4** All work shall be completed by a certified technician.
- 3.2 Location**
 - 3.2.1** CO2 bottles are on the outside aft. deck.
 - 3.2.2** Fire detection panel is in the wheelhouse stbd. side.
 - 3.2.3** Heat sensors, smoke detectors and portable fire extinguishers are located all through the ship

Spec item #: L-02	SPECIFICATION	TCMSB Field #:
Fire Detection System, CO Smothering System and Portable Extinguishers		

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 N/A

4.3 Certification

4.3.1 N/A

Part 5: DELIVERABLES:**5.1 Drawings/Reports**

5.1.1 N/A

5.2 Spares

5.2.1 N/A

5.3 Training

5.3.1 N/A

5.4 Manuals

5.4.1 N/A