

CCGS FREDERICK G. CREED

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DRY-DOCKING SPECIFICATION

March 2013

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DRY-DOCKING SPECIFICATION
March 2013

H.D.-1	DRY-DOCKING
H.D.-2	SERVICES
H.D.-3	INSPECTION AND ADDITIONAL WORKS
H.D.-4	STAGING AND CRANE
H.D.-5	ANODES
H.D.-6	HULLS UNDERWATER CLEANING AND PAINTING
H.D.-7	HULL ABOVE WATERLINE
H.D.-8	FREE BOARD, DRAFT MARKS AND IDENTITY PROGRAM MARKING
H.D.-9	RUDDER AND RUDDER STOCK
H.D.-10	PROPELLERS AND TAILSHAFTS
H.D.-11	SEA CHESTS AND VALVES
H.D.-12	TANKS
H.D.-13	STABILIZER AND CANARD FINS
H.-1	HULL REPAIR
H.-2	WINDOWS REPLACEMENT
H.-3	PAINT OF ACCOMODATION

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DRY-DOCKING SPECIFICATION
March 2013

" DRAWINGS "

List of plans included in these refit specifications:

Symbolisation (2)	02604-SF
Docking Plan (2)	176-DCK
Stabilizer fin Detail	65-A4
Shaft Line	65-C8
Rudder construction	8265-200
Canard fin Detail	65-A3
Construction profile	SOS65-B1
Aileron stabilisateur	FR-98-2
Deck Framing plan	65-B4
Hull thickness gauging	02604S02

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ITEM H.D.-1

DRY-DOCKING

REMARKS

1.1 Ref.: Docking plan No. 176-DCK

1.2 **Ship's particulars:**

Lenght overall : 20.42M

Breadth overall : 9.75M

Load draft maximum : 2.74M

Load displacement : 70T

1.3 The shipyard will be responsible for the mooring and unmooring of vessel at a wharf adjacent to dry-dock, including installation and removal of gangway, supplied by shipyard, no matter what time ship arrives or departs. The contractor will be responsible for entering and leaving drydock using tug boats or other equipment.

1.4 The shipyard will supply labour, materials and equipment required for docking and undocking of vessel, including lay days throughout dry-docking period, to perform the following work described here under in view of obtaining renewal of seaworthiness certificate.

1.5 Care must be taken to avoid any blocks being in way of transducers on both hulls, between frames 3 to 6.

A diver must be present underwater to check that those transducers which are protuberant from hulls, are not being damaged and the vessels lies well on blocks.

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ITEM H.D.-1

DRY-DOCKING

REMARKS

- 1.6 As selected contractor will be in possession of the docking plan, contractor will move any misplaced blocks at his own expense.

In order to be conformed to the docking plan, contractor is to align and check blocks alignment. Before dry docking, contractor is to prepare an inspection for the Coast Guard and PW&GSC representatives.

- 1.7 Upon completion of all work in this specification, a two (2) hours sea trial shall be performed following refloating. One (1) supervisor and one (1) shipyard's employee will be present onboard the ship during trials.

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ITEM H.D.-2	SERVICES	REMARKS
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- 2.1 The following services shall be provided to the ship throughout entire docking period, for which a global price shall be submitted. This price will encompass complete dry-docking period. Item pricing shall also be submitted, considering possibilities of providing such services on individual basis, for shorter or longer periods.
- 2.2 Supply labour and services for installation and removal of one (1) gangway, handling of lines and ropes and installation of a safety net under the gangway, throughout entire docking period. Gangway to be supplied by contractor.
- 2.3 Supply a telephone line to the internal communication centre of the ship. The telephone line shall be in service 24 hours a day, assuring communication with the exterior at all times. Long distance calls bill will be sent to the attention of the Technical Services Marine Engineering representative Canadian Coast Guards. The telephone line will be unplugged at the end of the dry docking period.
- 2.4 Supply material and labour to connect and disconnect, as required, one (1) electrical cable to shore power supply with a 1 phase alternating current, 220 volts, 100 amps capacity. The ship can supply one (1) length of 200' cable. This installation is to be throughout duration of works in contractor's facilities, in and/or out of dry-dock.

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ITEM H.D.-2	SERVICES	REMARKS
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(2.4 Continued)

Include 5000 Kw/hr of electrical consumption for the dry dock period. This amount will be adjusted higher or lower on a PW&GSC, 1379 Form, as per the electrical meter readings, meter to be supplied by contractor.

2.5 Supply material and labour to install required connections, and supply fresh water for services described hereafter, and this, throughout entire dry-docking period.

Disconnect at the end of works.

2.5.1 Supply and install a fire hose connected to the ship, not in pressure but ready to be used at any time. Access to the main control valve must be clear.

2.5.2 Filling of fresh water tanks as required. Include 9 m³ to be adjusted higher or lower on a PW&GSC 1379 Form.

2.6 Supply material and labour to temporarily connect four (4) drainage hoses to keep water away from ship's hull and drain these waters to dry-dock drainage system, including sewage waters.

2.7 Supply refuse and a garbage container on ships after deck, remove and empty it daily.

2.8 The shipyard that will get contract shall authorize Coast Guard personnel to work unboard the ship.

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ITEM H.D.-2

SERVICES

REMARKS

- 2.9 Ship must leave the contractor facilities in the same state of cleanliness as it came in.
- 2.10 In order to protect accommodation alleyways from dirt, supply and install Masonite to surfaces of main deck (laboratory, galley, dining room, alleyways) and the wheelhouse, including the stairways to the wheelhouse. Masonite to be maintained in good condition throughout the duration of dry dock. Installation shall be performed as soon as the ship enters dry dock, or before if possible. Surface area to be covered: 590 sq. feet. Removed at the end of dry dock.
- 2.11 Supply an office with two (2) desks and two (2) telephone lines for the Coast Guard and PWGSC representatives for the dry dock period. Supply a high speed internet connection in the office and a printer with all the necessary material for the dry dock period.
- 2.12 All welders doing works on the vessel to be certified by the Canadian Welding Bureau (CWB) for aluminium welding, W47.2.
- 2.13 Ship will be under the care of the shipyard, the cost for the care of the ship will be included in the contract.

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ITEM H.D.-3	INSPECTION AND ADDITIONAL WORKS	REMARKS
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- 3.1 The following works are to be completed and inspected to the entire satisfaction of the Coast Guard and PWGSC representatives and the Marine Safety Branch surveyor.
- 3.2 Upon completion of each specification item, the CG representative is to be notified, so that he may inspect the work prior to final completion.
- 3.3 Failure to notify the F & O/CG representative does not absolve the shipyard of the responsibility of providing the opportunity to inspect any completed item.
- 3.4 Inspection of any item by the Coast Guard representative does not substitute for any required inspection by Marine Safety Branch or PW&GSC inspector.
- 3.5 Contractor is to be responsible for calling in Marine Safety surveyor, when and as necessary, in connection with survey items.
- 3.6 Contractor shall supply to the Coast Guard representative four (4) complete logs of all measures and readings taken in the scope of works, and additional works in regards to the inspection of the hull or other items.

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ITEM H.D.-3 INSPECTION AND ADDITIONAL WORKS REMARKS

3.7 All additional works, not described but arising from the following specification shall be negotiated by the PWGSC representative on DSS-1379 forms. Additional work is to be initiated by the Coast Guard representative so that PWGSC can obtain a firm price prior to start work.

NOTE: Shipyard must respect the Canada Labour Code.

3.8 The crown reserves the right to cancel partly or entirely any item of this specification in the case where, from Marine Safety Surveyor's opinion, any works described in this specification are acceptable in their current state.

3.9 "INTERNATIONAL" paints product specified in this dry docking specification can be replaced by an equivalent "AMERCOAT" product.

No substitute will be allowed for the "TRI-LUX II" paint specified at item H.D.-6.9.

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ITEM H.D.-4

STAGING AND CRANE

REMARKS

- 4.1 The shipyard shall supply material and labour required to erect staging for all work to be performed on the ship's hull including underwater area, shafts, propellers, etc. Remove staging upon completion of work.

- 4.2 The shipyard shall supply the services of a shipyard crane throughout dry docking period for the general handling stemming from the work described in this specification.

- 4.3 Supply five (5) hours of shipyard crane services for the ship's general needs, including all necessary personal.

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ITEM H.D.-5

ANODES

REMARKS

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- 5.1 Supply and replace the (18) zinc anodes, bolted, rectangular in shape of 6" x 11" x 1" inches, on both hulls. Remove old anodes and discard. Supply new stainless steel bolts, lock nuts and washers for the installation of the new anodes.
- 5.2 Supply and replace the (15) zinc anodes, bolted, teardrop shape of 5 ½" x 2 ½" inches on both hulls and in the six (6) sea suction. Remove old anodes and discard. Supply new stainless steel bolts for the installation of the new anodes.
- 5.3 Supply and replace the two (2) zinc anodes, bolted, rectangular in shape of 5" x 1 ¼" x 1" inches, in the "SIMRAD" transducer location on the starboard hull between frame 5 to 6. Supply new stainless steel bolts, lock nuts and washers for the installation of the new anodes. Remove old anodes and discard.

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ITEM H.D.-6	HULLS UNDERWATER CLEANING AND PAINTING	REMARKS
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- 6.1 During the work period in dry-dock, contractor is to supply and install a temporary shelter covering the entire ship's hulls starting to the main deck level. This shelter is to be ventilated, heated, and weather tight to the hulls. The heated and ventilated shelter is mandatory no matter of the existing weather conditions.
- 6.2 The total surface area to be covered is 214m². The entire surface from keel to 150mm above load line of the two (2) hulls, including rudders, stabilizer and canards.
- 6.3 Ship's hulls to be fresh water pressure wash not less 3000 PSI in a manner to remove dirt. Total surface area 214 m².
- 6.4 Protect transducers, drain plugs, propellers, sea overboard discharge, sea suction, rudder bearing as well as others that are deemed necessary by the chief engineer, where sand and paint may infiltrate during the works.
- 6.5 42 sq. m. within the total surface area that is damaged, to be sandblasted to bare metal. A feathering is to be made at the demarcation between naked aluminium and old remaining paint. The 172 sq. m. remaining of the total surface area to be sand sweep in order to remove the old antifouling paint "INTERSPEED 640" to the good epoxy paint, and to favour adhesion of the new paint. Beware not to over blast Belzona re-epoxy. The contractor is responsible to clean, gather and dispose of all sand used for sandblasting. Remove protections upon completion of works.

CCGS FREDERICK G. CREED (March 2013)

ITEM H.D.-6	HULLS UNDERWATER CLEANING AND PAINTING	REMARKS
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- 6.6 Sweep surfaces with compressed air before to apply paint. Proceed to a visual exam of the complete hull to detect any defects and produce a report with pictures.
- 6.7 On bare metal only, supply and apply in several coats a minimum of 15 mils dry of grey "INTERGARD 264".
- 6.8 Supply and apply on the entire surface area one (1) coat of grey "INTERGARD 263", 4 mils dry.
- 6.9 Supply and apply two (2) coats of antifouling paint "TRI-LUX II", black color, 2 mils dry per coat, on the entire surface area. Paint to be demarcated in a straight line from the 11' feet forward draft marks to the 10.5' feet after draft marks.
- 6.10 Application and drying time will be done according to the specifications from the "INTERNATIONAL" firm for these products.

CCGS FREDERICK G. CREED (March 2013)

ITEM H.D.-7	HULL ABOVE WATERLINE	REMARKS
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- 7.1 The total surface area is 272m², starting from the load line level of both hulls to the level of the deck, including the complete surface area between the two (2) hulls.

- 7.2 This surface area to be fresh water pressure wash at 3000 PSI minimum in a manner to remove dirt.

- 7.3 The damaged 27m² within the total surface area are to be sandblast to bare metal. A feathering is to be made around the demarcation between naked aluminium and old remaining paint. It is the contractor's responsibility to clean, gather and dispose of all sand used for blasting.

- 7.4 Sweep surfaces with compressed air before to apply paints.

- 7.5 Supply and apply in several coats a minimum of 10 mils dry of red "INTERGARD 264" on bare metal only.

- 7.6 Supply and apply one (1) coat 2 mils dry of "INTERTHANE 990" red Coast Guard RAL 3000 to the surface treated with the "INTERGARD" 264".
Supply and apply one (1) coat 2 mils dry of "INTERTHANE 990" red Coast Guard RAL 3000 to cover the total surface area. Paint to be demarcated in a straight line from the 11' feet forward draft marks to the 10.5' feet after draft marks.

- 7.7 Application and drying time will be done to the specification of INTERNATIONAL for these products.

CCGS FREDERICK G. CREED (March 2013)

ITEM H.D.-8

**FREEBOARD, DRAFT MARKS
AND IDENTITY PROGRAM MARKING**

REMARKS

Ref.: Drawing: 02604-SF Symbolisation

8.1 Contractor is to supply white "INTERTHANE 990" paint for all inscriptions and white acronyms and black "INTERTHANE 990" for black stripes and white "INTERSHEEN 579" for the draft marks, according to the paint color codes specified on the drawing "Symbolisation 02604-SF".

8.2 The freeboard discs, letters, load line and draft marks, fore and aft, port and starboard, shall be painted with two (2) coats of white "INTERSHEEN 579", compatible with the paint that will coat the ship's hulls.

8.3 All signage must also be repainted with two (2) coats. The name of the ship on port and starboard sides, fore and aft, as well as the port of registry. On both port and starboard sides, the diagonal white stripes and the demarking black stripes, the "COAST GUARD" and "GARDE CÔTIÈRE", on both sides after the Canada official flag, Canada, Pêches et Océans, Fisheries and Oceans.

CCGS FREDERICK G. CREED (March 2013)

ITEM H.D.-9

RUDDER AND RUDDER STOCK

REMARKS

- 9.1 Remove the two (2) rudders and rudder's stocks for inspection of Marine Safety surveyor.
Clean and measure pintles, gudgeons and their bushing clearances.
Clean and measure rudder stocks and bushings.
- 9.2 Proceed with an hydrostatic test on the two (2) rudders in the presence of the Coast Guard and PW & GSC representatives and Marine Safety surveyor.
- 9.3 Machine the square drive on both rudder stocks to make them square. Using welding, rebuilt the inside of the tiller and machine to the new dimensions of the rudder stocks square drive, in order to obtain a fit without any clearance.



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ITEM H.D.-9

RUDDER AND RUDDER STOCK

REMARKS

9.4 Inspect hydraulic cylinders looking for leaks, have the one leaking repaired and re-install.

9.5 Upon completion of inspections, reinstall rudder stocks and rudders in place.

Supply and replace stock gland seals. Seals are "O" ring, three (3) per stock,

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ITEM H.D.-10

PROPELLERS AND TAIL SHAFTS

REMARKS

10.1 Propellers shall be removed for inspection and to carry out repairs if necessary.

10.2 Withdraw propellers from the tapered end of tail shafts and put propellers on the ground for inspection. Dye check propellers keyway and propeller blades.

If the propellers are damaged and after having obtained an evaluation by an expert, propellers will be loaded on a truck and shipped to the expert. The price for propeller repair work will be adjusted on a DSS-1379 form as per expert's invoice.

In accordance to your work schedule, propellers will be reinstalled in place. Proceed to a propeller fit using Prussian blue on each propeller, to the satisfaction of Marine Safety surveyor.

Include the performance of three (3) propeller fits using Prussian blue on each propeller, to be adjust higher or lower on PW & GSC 1379 form.

Propellers will be reinstalled on tail shafts, tightened and locked to the satisfaction of Marine Safety surveyor.

10.3 **Tail shafts:** Measure and record port and starboard tail shaft wear down and concentricity before partially remove tail shafts. Remove rope cutters.

CCGS FREDERICK G. CREED (March 2013)

ITEM H.D.-10

PROPELLERS AND TAIL SHAFTS

REMARKS

(10.3 Continued)

Measurements of the alignment of the tail shaft's couplings with the transmissions are to be taken prior to remove tail shafts and another time once the vessel will be back afloat.

Disassemble couplings with the transmissions, remove stuffing boxes inside. Withdraw tail shafts outside to allow inspection of rubber bearings and tail shafts by Marine Safety surveyor. Tail shafts and stern tubes are to be cleaned. Dye check tail shafts keyways and coupling keyways.

Take inside readings of stern tubes bearings. Take readings on the shafts corresponding to the readings taken into bearings.

Transport tail shafts to a lathe at the contractor's machine shop. On the lathe, verify the straightness of shafts.

10.4 Remove the two (2) stuffing boxes from the port and starboard stern tubes, return to the chief engineer. Supply new gaskets and install two (2) new stuffing boxes supplied by Coast Guard.

10.5 Remove both "THORDON" bearings in each stern tubes. Measure bearing housings in each stern tubes at three (3) different locations.

CCGS FREDERICK G. CREED (March 2013)

ITEM H.D.-10

PROPELLERS AND TAIL SHAFTS

REMARKS

(10.5 Continued)

Supply services of a specialized firm and machine the four (4) bearing housings in order to eliminate the out of roundness, foresee to machine 0.040" inch on the diameter. If necessary to machine more material, the cost will be adjusted on a DSS 1379 form.

Supply services of a specialized firm in laser or optical alignment in order to maintain the alignment of the stern tubes with the propulsion systems during the machining. Supply a written report to confirm the alignment have been maintained after the machining have been completed.

Supply and install in both stern tubes, four (4) new "THORDON XL" bearings, as per "THORDON" specifications.

NOTE: Following the inspection of the Marine Safety surveyor and the Coast Guard representative, this work could be cancelled.

10.6 After inspection, reinstall tail shafts in place, couple tail shafts to transmissions. Stuffing boxes to be reinstalled with new packing, Coast Guard supplied.

Reinstall rope cutters with the new parts supplied by Coast Guard.

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ITEM H.D.-11

SEA CHESTS AND VALVES

REMARKS

11.1 Remove the six (6) sea chests grids for the sea suction. Clean the sea chest using fresh water pressure wash 3000 PSI minimum, and paint as describe at item H.D.-6. Remove and replace anodes as describe at item H.D.-5.

Reinstall sea chests grids with new stainless steel bolts, nuts and washers, supplied by contractor.

11.2 Dismantle, clean and submit to the Marine Safety surveyor all valves listed on the attached list, all valves are stainless steel ball valves. Reassemble and reinstall in place with new gaskets, supplied by contractor.

List of valves and location (See next page)

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ITEM H.D.-11

SEA CHESTS AND VALVES

REMARKS

List of valves and location

Sea suction

#	Qty	Hull	Name	Location	Size
1	1	Port	Aft ballast tk	Stabilizer compartment	2"
2	1	Port	Fire pump	Engine room compartment	2"
3	1	Port	Ship service generator	Engine room compartment	2"
4	1	Port	Main engine	Engine room compartment	3"
5	1	Port	Sea water pump	Fwd canard compartment	2"
6	1	Port	Air conditioning	Fwd canard compartment	2"
7	2	Port	Discharge to stern tube	Engine room compartment	¾"
8	1	Port	Echo sounder	Fwd canard compartment	1-1/4"
9	1	Starboard	Aft ballast tk	Stabilizer compartment	2"
10	1	Starboard	Fire pump	Engine room compartment	2"
11	1	Starboard	Ship service generator	Engine room compartment	2"
12	1	Starboard	Main engine	Engine room compartment	3"
13	1	Starboard	Reverse osmosis	Fwd canard compartment	2"
14	1	Starboard	Air conditioning	Fwd canard compartment	2"
15	2	Starboard	Discharge to stern tube	Engine room compartment	¾"

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ITEM H.D.-11

SEA CHESTS AND VALVES

REMARKS

Overboard discharges

#	Qty	Hull	Name	Location	Size
16	1	Starboard	Bilge pump canard compartment	Sponson Fr. 6	¾"
17	1	Starboard	Bilge pump dry compartment	Dry compartment frwd Fr.: 2	¾"
18	1	Starboard	Bilge pump engine room	Sponson Fr. 16	1"
19	1	Starboard	Bilge pump under propeller shaft	Sponson Fr. 16.5	1"
20	1	Starboard	Ballast pump	Sponson Fr. 18	2"
21	1	Starboard	Bilge pump stabilizer compartment	Sponson Fr. 19	¾"
22	1	Starboard	Bilge pump steering gear compartment	Sponson Fr. 22	¾"
23	1	Port	Science sea water pump	Sponson Fr. 5	1"
24	1	Port	Bilge pump canard compartment	Sponson Fr. 6	¾"
25	1	Port	Bilge pump dry compartment	Dry compartment frwd Fr.: 2	¾"
26	1	Port	Bilge pump engine room	Sponson Fr. 16	1"
27	1	Port	Bilge pump under propeller shaft	Sponson Fr. 16.5	1"
28	1	Port	Ballast pump	Sponson Fr. 18	2"
29	1	Port	Bilge pump stabilizer compartment	Sponson Fr. 19	¾"
30	1	Port	Bilge pump steering gear compartment	Sponson Fr. 22	¾"

11.3 Supply and install three (3) stainless steel ball valves, threaded

¾" NPT, to the following overboard discharges:

- a) Reverse Osmosis, starboard hull, sponson Fr. 9
- b) A/C unit, starboard hull, sponson Fr. 10
- c) A/C unit, port hull, sponson Fr. 10

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ITEM H.D.-11

SEA CHESTS AND VALVES

REMARKS

(11.3 Continued)

The work consist to remove the flexible hoses connected to the through-hull aluminium pipes, refresh threads, install valves and reinstall the flexible hoses to the new valves. Supply necessary stainless steel adapters to reinstall flexible hoses to the new valves.

- 11.4 Supply two (2) stainless steel swing check valves, threaded $\frac{3}{4}$ " NPT. Remove the actual plastic check valves, refresh threads, install new check valves on the following overboard discharges:
- a) Engine room bilge pump, starboard hull, sponson Fr.16
 - b) Engine room bilge pump, port hull, sponson Fr. 16.

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ITEM H.D.-12

TANKS

REMARKS

12.1 On ballast tanks, remove drain plugs and drain tanks, open manhole covers. Vent and using a high pressure water jet 3000 PSI minimum, clean and clear the tanks of all rust, crust and waste, which shall be carried ashore by shipyard personnel. Obtain a certificate from a chemist to certify that tanks are gas free.

12.2 On fuel tanks, remove drain plugs and drain tanks of fuel, which shall be emptied into containers and removed ashore by shipyard personnel.

Include to dispose 250 liters of fuel residue before to clean the tanks, to be adjust higher or lower on a PW & GSC 1379 Form.

Open manholes covers, ventilate, then a certificate is to be obtained from a chemist to certify that tanks are gas free.

Clean and degrease tanks using a cleaner, clean the tanks of all waste, which shall be carried ashore by shipyard personnel. The quantity of remaining fuel in the tanks is approximately 3500 litres.

NOTE: At shipyard request, ship's chief engineer will transfer fuel from tank to tank. Shipyard will be responsible of the fuel transfer operation even if the chief engineer will do it for the shipyard. If desired, the shipyard will be allowed to pump the fuel in portable tanks ashore and return the fuel on board after completion of works.

CCGS FREDERICK G. CREED (March 2013)

ITEM H.D.-12

TANKS

REMARKS

12.3 Upon completion of tanks cleaning, all tanks will be inspected by a chemist to obtain a certificate to certify that hot work can be done.

12.4 Marine Safety surveyor is to inspect all tanks.

12.5 After tanks have been cleaned and inspect by Marine Safety, those tanks will be closed with new gaskets, bolts, nuts and washers supplied by shipyard, and subjected to a hydrostatic test to the Marine Safety surveyor satisfaction. Tanks will then be drained, dried of all water and left empty.

12.6 **List of tanks**

TYPE	LOCATION	LITRES
Ballast starboard forward	Frame 0 to 3	2022
Ballast starboard after	Frame 20 to 23	1940
Ballast portside forward	Frame 0 to 3	2022
Ballast portside after	Frame 20 to 23	1940
Fuel tank starboard forward	Frame 8 to 11	4324
Fuel tank starboard after	Frame 17 to 19	3489
Fuel tank portside forward	Frame 8 to 11	4324
Fuel tank portside after	Frame 17 to 19	3489
Potable water tank starboard	Frame 6 to 7	1440
Potable water tank portside	Frame 6 to 7	1440
Fuel day tank portside	Frame 11	262
Fuel day tank starboard	Frame 11	262

CCGS FREDERICK G. CREED (March 2013)

ITEM H.D.-12

TANKS

REMARKS

12.7 Supply and replace the (12) zinc anodes, bolted, rectangular in shape of 3" x 11 ½" inches, in the four (4) ballast tanks. Remove old anodes and discard. Supply new stainless steel bolts, lock nuts and washers for the installation.

12.8 In the four (4) ballast tanks, using mechanical tools, prepare surface of the bottom of the tanks in order to favour the adhesion of the paint. Supply and apply two (2) coats of "INTERGARD FP 264", white or grey color, to the tanks bottom.

Surface to be considered:

- Fwd ballast tanks (2): 65 sq feet each
- After ballast tanks (2): 30sq feet each

12.9 Two (2) potable tanks

12.9.1 Remove drain plugs and drain tanks, open manhole covers. The whole tanks must be cleaned with International 950, GMA570, alkaline bio-degradable cleaner using a small pressure pump. Karcher type, followed by thorough fresh water rinsing, prior to proceeding forward. Clean crust and waste, which shall be carried ashore by shipyard personnel Obtain a certificate from a chemist to certify that tanks are gas free

12.9.2 Before painting, it is ABSOLUTELY necessary to create an adhesion profile on the metal's surface. The best method is to do an abrasive blast (sandblast) but depending on the size and accessibility to the tank, this could be impossible or impractical.

CCGS FREDERICK G. CREED (March 2013)

ITEM H.D.-12

TANKS

REMARKS

The alternative is to disk ALL the surfaces of the tank that will be coated, by using a rotary “grinder”, with small 3 or 3/12 inch disks, by using the edge of the disk to create a “rotary” pattern; DO NOT apply the disk in a flat position, as this will not create enough profile. It is important to use a special disk for aluminum. You could contact the Walter Company in Montreal, for a specific recommendation. In the corners where the disk will not reach, use a square sander with course #24 or #36 sand paper. The fact of not creating this profile or to use instead “wash primer” would ensure that the coating will detach in a short time.

12.9.3 Applied following manufacture recommendation, Interline 925 white, a 100% solids NSF approved, potable water epoxy. DO NOT USE ANY THINNERS!!! Depending on the method of application, this may require several coats (one coat only using an airless pump). You must apply at least 14 mils dry film thickness.

12.9.4 After application, ventilate and rinse with water containing a bit of Javex / Clorox, then rinse with fresh water at least twice to remove any epoxy taste.

CCGS FREDERICK G. CREED (March 2013)

ITEM H.D.-13

STABILIZER AND CANARD FINS

REMARKS

13.1 Dismantle the control rods inside and remove the two (2) stabilisers and the two (2) canards, then they will be transported to the shipyard's shop. Identify position of each stabilizer and canard.

Before to completely dismantle, measure the end play of the canards and stabilisers.

13.2 Clean stabilizers and canards shafts and bearings. Dye check the stabilizers and canards shafts at the join to the fins body.

13.3 Take inside readings of fins plastic bearings. Take readings on the shafts corresponding to the readings taken into bearings.

13.4 Supply material, machine and adjust four (4) new Teflon (PTFE) discs for the canards and stabilizers thrust, in order to obtain 0.020" inch of end play. Estimated disc dimensions: Diameter 6-1/2" inches, thickness 3/4" inch.



CCGS FREDERICK G. CREED (March 2013)

ITEM H.D.-13

STABILIZER AND CANARD FINS

REMARKS

- 13.5 Inspect stabilizers and canards hydraulic cylinders looking for leaks, have the one leaking repaired and re-install
- 13.6 Supply and replace "Buna N" "O" rings, three (3) per shaft, 5 mm section, and the lip seals one (1) per shaft.
- 13.7 Transport stabilizers and canards to the ship, install them, reinstall control rods and proceed to a trial on the presence of the Coast Guard representative.
- 13.8 Upon completion of work on stabilizers and canards, a Coast Guard technician will proceed to a position adjustment, before the ship is back afloat.

CCGS FREDERICK G. CREED (March 2013)

ITEM H.1

HULL REPAIR

REMARKS

1.1 **General hull repair**

- 1.1.1 Supply material and labour to proceed with dye checks on 30' linear feet of hull welding joints, that will be identified by the Marine Safety expert and the Coast Guard representative, during hulls inspection.
- 1.1.2 Supply material and labour to grind and re-weld 30' linear feet, three (3) passes of hull welding joints. Work must be done to the satisfaction of the Marine Safety expert and the Coast Guard and PW & GSC representatives.

CCGS FREDERICK G. CREED (March 2013)

ITEM H.-2

WINDOWS REPLACEMENT

REMARKS

2.1 Windows replacement

2.1.1 Supply material and labour to proceed replacement of 5 (five sliding windows of the accommodations with equivalent equipment.

CCGS FREDERICK G. CREED (March 2013)

ITEM H.-3	PAINT OF ACCOMODATION	REMARKS
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3.1 Paint of accommodation

- 3.1.1 The surface area to be considered is 1577 sq. feet, between FR3 and FR19, from the levels of the main deck to the deck head of the wheelhouse. The railings on main deck is including.
- 3.1.2 Prepare surfaces to obtain the commercial grade, The shipyard shall supply material and labor for clean using sandblast to obtain the commercial grade (use glass or granite product) and ensure that the surface is acceptable to apply the paint. Cover all lens, lights, windows, openings, controls, antennas identification and equipment in order to avoid any damage and intrusion of the sand product during sand blast. All the precautions will have to be taken in order to avoid aluminum oxidation after cleaning by applying the paint as soon as possible, according to standards of application and manufacturer's recommendations.
- 3.1.3 Apply one coat of INTERPRIME 539 VTA 538 on all bare aluminum surfaces, then apply one coat of INTERPRIME 198 red oxide, 3 mils thickness dry.
- 3.1.4 Apply two (2) coats of INTERTHANE 990 white RAL9003 2 mils thick dry each on all surfaces. The surface area to be considered is of approximately? meters.
- 3.1.5 Take out protection and clean
- 3.1.6 Re-installed new symbolization as per dwg #02604-SF