Bidders Conference
CCGS Anne Harvey
May 15, 2013

CCGS Ann Harvey Drydocking Refit 2013.

Bidders Conference Minutes.

The Bidders Conference for CCGS Ann Harvey was convened on May 15, 2013 at John Cabot Building in St. John's, NL at 1:30 pm with the following attendees:

Name	*Rank or Position*	*Representing*	*Telephone*
Colleen Dalton	Supply Specialist	PWGSC	709-772-4931
Terry Sheppard	VMM	CCG	709-772-4614
Mia Hicks	Chief Engineer	CCG	709-685-3914
Jeff Ivany	Production Dept	NewDock	709-758-6800

Invitation to Tender

Page One

Closing date is **June 06, 2013**.

Bidders are to ensure page (1) is completed accurately.

1.2 Summary

Commencement Date: **July 5, 2013**
Completion Date: **August 9, 2013**

Preamble
No issues

H-1 Production Chart & Subcontractor Allowances
No issues

H-2 Services
3.3.7 Volume of cooling water- bidders are to bid on 100 cubic meter per day. Contractor to bid on installing a flow meter to measure the actual amount of cooling water being used.

H-3 Liferaft Servicing
No issues

H-4 Fixed Fire Fighting Systems Annual Inspection and Maintenance
No issues

H-5 Safety Valve Certification
No issues

H-6 Servicing of Halocarbon Refrigeration/AC Systems
Replace specification in its entirety and replace with the following:

Part 1: SCOPE
1.1 Contractor shall provide the following services;
A) Annual Leak Testing of Domestic Refrigeration and Air Conditioning Systems.
B) Filter Drier and Oil changes on the Domestic Refrigeration Compressors (2 of)
C) Filter Drier and Oil changes on the main Accom HVAC A/C Compressors (1 of stbd)
D) Filter Drier and Compressor Oil changes on the MCR and Radio Room A/C units
E) Filter Drier and Compressor Oil changes on the Wheelhouse A/C unit

Note: Refrigeration Technician shall remove Refrigeration R-22 from Accommodation, Radio Room, MCR and Wheelhouse A/C units as per Provincial Regulations and refill each system with Owner supplied R-44.

Part 2: REFERENCES
2.1 The Contractor's Qualified Refrigeration Technician(s) shall perform the following work on CCGS Ann Harvey's Refrigeration and Air Conditioning Systems. The Contractor shall provide to the Owner photocopies of the Refrigeration Technicians Certificate of Trade Qualifications prior to the commencement of the following work.

Owner Furnished Equipment
2.2 The Contractor shall supply all parts and consumables. Allow $2,500.00 for parts and consumables to be adjusted up or down by 1379 on proof of detailed (c/w part numbers) invoices. The following parts and consumables shall be provided at a minimum:

a) quantity 2 of Sporlan Filter-drier Cartridge P/N RC 4267
b) quantity 2 of Sporlan Filter-Drier Cartridge P/N 4864 7/8"
c) quantity 2 Gallons of Copeland Ultra 32 CC POE Synthetic Compressor Oil (3/4 Gallons each sump capacity plus quantity for 'flushing'.) Domestic Refrigeration Compressors Refrigerant R-134a
d) quantity 7 Gallons (some of which will be left for Ship's stores) of Compressor Oil Mineral Oil 150 for A/C Compressors Refrigerant R-22
e) quantity 1 of Liquid Line Drier Emerson P/N EKP-416

The certified refrigeration technician(s) shall provide and use their own clean recovery cylinder for refrigerant 134a, Nitrogen cylinder and vacuum pump.

Part 3: TECHNICAL DESCRIPTION

3.1 The technician(s) shall with the assistance of the ship's Electrical Officer isolate and lock out the electrical power supply to the Domestic Refrigeration System for the duration of the work of component & seals renewal as required to correct the identified defects and to perform a thorough nitrogen pressurized leak test on the Domestic Refrigeration Systems.

3.2 Domestic Refrigeration System: Upon successful completion of all repairs and satisfactory nitrogen leak testing, drier and oil renewals the system piping shall be evacuated of all air and moisture. The Domestic Refrigeration System shall then be returned to service.

3.3 Accommodation, MCR, Radio and Wheelhouse: Contractor shall recover all R-22 refrigerants from the fore mentioned units. Contractor shall leak test units using nitrogen. Upon successful completion of all repairs and satisfactory nitrogen leak testing, drier and oil renewals the system piping shall be evacuated of all air and moisture. The Contractor shall fill systems as per manufactures quantities with Owner supplied R-44 Refrigerant.

3.4 Upon completion of all work systems to be run up for testing to ensure correct operation pressures and temperatures.

3.5 The technician(s) shall log all work performed on these systems in both the local Logs and in the Halocarbon Book Log maintained in the Chief Engineer's bookshelf.

3.6 All systems shall be left in good running order on completion of work. All standby systems shall be left with their charges isolated in their condensers and standby systems shall be tagged to that effect. The tags shall be dated and signed.

3.7 All work shall be to the satisfaction of the Owner's Representative or Delegate. All work shall be carried out in accordance with provincial and federal environmental regulations and guidelines.

Part 4: PROOF OF PERFORMANCE

Inspection, Testing & Certification

4.1 Contractor shall provide 3 typewritten copies of the work conducted outlining specifically the Refrigeration System(s).

Part 5: Deliverables

Reports, Drawings, Manuals, Spares & Training

N/A

H-7 Aviation Fuel System Servicing

No issues

H-8 Accommodation and Dryer Duct Cleaning
No issues

H-9 Galley Exhaust Trunk Cleaning
No isSues

H-10 Window Replacement
No issues

H-11 Cargo Hatch Cover Overhaul
No issues

H-12 Day Tank Cleaning
Accessible internals of suction valves 4-off, 2" to be mechanically cleaned. Entire tank to be cleaned (misted), with a mild bleach solution.

H-13 Fuel Tanks Survey
3.8 should read "solid" not "soiled".

H-14 Ballast Tank Survey
3.13 C/E to do a survey and advise which anodes need to be replaced.

Contractor to bid on hydrostatically testing the wing tanks and air pressure testing the double bottom tanks. This is to be applied to all references to tanks in H-14.

H-15 Pipe Tunnel Painting
No issues

H-16 Transducer Compartment Inspection
No issues

H-17 Anchors and Chains
No issues

H-18 Port Sea Crane Installation
No issues

H-19 Lifeboat, Davit and Miranda Davit Inspection and Repair
Contractor to bid on 40 hours for assistance to the FSR to be adjusted up or down with actual cost.

H-20 Main Mast Painting
Replace paragraph 3.3 " Contractor to modify existing mast platform as indicated in Allswater Doc #250-SPC-001 and drawing #13038-250-S-001 rev 0.

3.8 Bidders are to include in their bid the cost of supplying 100 6" cable tray hangers. The 100 cable clips noted in the specification are to include the studs.

H-21 Aviation Cofferdam Cleaning and Painting
NEW ITEM ADDED AT BIDDERS CONFERENCE

Note: there is avgas in the tank, safety precautions must be strictly adhered to. Work to be performed in conjunction with HD-07.

Part 1: Scope
1.1 The Contractor shall open up the Aviation Cofferdam for cleaning, inspection, and coating repair.

Part 2: Reference
Guidance Drawings/Nameplate data
2.1 The following Coast Guard Standards and or Technical Bulletins must be adhered to in the course of executing this specification. Copies of these standards and bulletins can be obtained from the CCG Technical Authority. "Canadian Coast Guard Fleet Safety Manual (DFO 5737)

Owner Furnished Equipment
2.2 The Contractor shall supply all materials, equipment and parts required to perform the specified work unless otherwise stated. Contractor shall provide to the Chief Engineer copies of product specifications and MSDS for all chemicals and coating products used.

Part 3: Technical Description
3.1 Aviation Cofferdam Manhole cover located on aft section of Upper Deck (Port side of Tow Winch) shall be dismounted and the space shall be opened up and tested to ensure that it is gas free and safe for personnel to enter. One copy of gas free certificate shall be given to the Chief Engineer prior to men entering the tank and a copy of the certificate shall be posted in close proximity to the manhole cover.

3.2 The Contractor shall provide the tank with a mechanical ventilation system, vented to the outside of the ship. Good ventilation must be provided and any blowers/extractors must ensure good air movement for the length of the space. Aviation Cofferdam is considered a confined space and the Contractor shall ensure the space is safe for entry under the Coast Guard Safety Management System.

3.3 The Aviation Cofferdam shall be thoroughly cleaned. Cleaning shall be by shop vacuum followed by a ragging with a handheld spray cleaner/degreaser. All residues shall be disposed of ashore.

3.4 There are areas of the cofferdam bottom plating where the coating has failed and corrosion is occurring. All these spot areas of corroding bare steel are to be power tooled to SSPC SP3. The dust so generated is to be collected as generated. The freshly prepared bare steel

is to be immediately coated with one stripe coat to all welds and edges and one overall coat of Contractor-supplied Interbond 998 @ 14 mils DFT, as per the product manufacturers.

3.5 Fume extraction ventilation shall be maintained until this coating has cured. Contractor shall bid on an estimated total coating repair area of 40 square Meters and further quote on cost per square meter of surface preparation and coating repair for total area adjustment by 1379 action.

3.6 Cofferdam internals are then to be inspected by the Chief Engineer and a Marine Safety Inspector.

3.7 Sounding pipes, suction pipes and vents shall be proven clear and the cofferdam shall then be closed up using new 1/4" neoprene rubber manhole gasket.

3.8 Contractor shall quote a unit cost to replace manhole cover studs. Any studs broken in the removal and replacement of the manhole covers shall be renewed by 1379 action. The Chief Engineer shall inspect the Aviation Cofferdam prior to final closing.

Part 4: Proof of Performance
4.1 Contractor shall contact Chief Engineer for inspection of Aviation Cofferdam upon completion of cleaning and coating repairs.

Part 5: Deliverables
N/A

HD-01 Docking and Undocking
No issues

HD-02 Tailshaft Bearings Weardown Measurements
Drawing of the ring anodes supplied as a separate drawing.

HD-03 Stbd Propeller
No issues

HD-04 Stbd Tailshaft Inspection
No issues

HD-05 Hull Cleaning and Coating
3.13 Remove the word "OR EQUIVALENT".

3.15 Remove "Amercoat 188" and replace with "Amercoat 339".

3.24 Remove paragraph a. And replace with the following "Two coats of Amercoat 235-Epoxy in contrasting colors, final coat being red, to all bare areas. Apply at 5-6 mils DFT per coat. When second coat of 235 is thumbnail soft, continue with paragraph B."

HD-06 Forepeak Tank
Contractor is to hydroblast the tank to remove loose dirt and debris.

3.8 (a) Contractor to grit blast all bare areas to SA 2 ½ .

3.10 Amend first line as follows "After internal repairs at 3.9 is completed Contractor shall apply two coats of 235 at 6-8 mils DFT per coat anti-corrosive coatings...."

4.2.2 Replace "dye-penetrate" with "ultrasonic".

4.2.3 Contractor to bid on hydrostatic test and provide unit cost for air pressure test.

HD-07 Seachests, Seabays and Sea Strainers
3.10, 3.15 and 3.22 replace Amercoat HMP 771 anti-corrosive (black) paint with "Amercoat 235, anti-corrosive (grey) 6-8 mils DFT per coat".

HD-08 Impressed Current Cathodic Protection System Servicing
3.4 Contractor to provide a unit price to replace one (1) anode assembly complete with the entire 14' diameter di-electric shield. Anodes will be CCG supplied but contractor must supply material for di-electric shield.

3.6 Contractor to bid on 2 anode shields requiring repairs at 40% bare.

HD-09 Storm Valves
3.4 TCMS to inspect all valves when opened.

HD-10 Sea Connections
No issues

HD-11 Central Cooling Sea Water Pumps SDNR Discharge Valve Replacement
Delete in its entirety and replace with the following:

Part 1: SCOPE
Intent of this spec is to replace the listed valves with new Owner supplied valves.

Part 2: REFERENCES
N/A

Part 3: TECHNICAL DESCRIPTION

3.1 The Aft Main Sea Water Pump Discharge, 8" SDNR Globe 150#, Bronze valve is to be isolated, drained, and removed ashore. The removed valve is to be replaced by new owner supplied valve.

3.2 The contractor shall dismount and disassemble the following valves as listed. Spindles shall be removed, cleaned and laid out for inspection. The internals of the valve bodies, valves, and sealing surfaces shall be thoroughly cleaned, and laid out for inspection.

Centre Main Sea Water Pump Discharge 8" SDNR Globe 150 #, Bronze
Forward Main Sea Water Pump Discharge 8" SDNR Globe 150#, Bronze

3.3 Sealing surfaces to be lapped to ensure a watertight seal.
3.4 Contractor shall draw to the attention of the Owner's representative any significant pipe, fitting or flange wastage observed in the course of this work.

3.5 All workmanship and materials to be to the satisfaction of the Owner's representative.

3.6 Following all repairs and inspections valves shall be assembled with anti-seize compound, new gland packing and all new appropriate jointing, and installed in good order in their original respective locations and orientations

Part 4: PROOF OF PERFORMANCE

4.1 After re-installation, each valve will be test operated in the presence of the Owner's Representative, fully opened to fully closed. Valves will then be left in their normal operating position.

Part 5: Deliverables

5.1 At undocking the Contractor is to carry out leakage inspections and check for any ingress of water. Any leakage is to be corrected immediately prior to undocking the vessel.

HD-12 Bow Thruster Oil Change
No issues

HD-13 Rudder and Rudder Trunk Anodes
No issues

HD-14 Seatrials
No issues

E-1 Windlass Survey
No issues

E-2 Starboard Forward Mooring Winch Brake Lining Renewal
No issues

E-03 No.1 Boiler Survey (EO-150 Port)

3.1 Contractor is to perform the work as detailed in the specification. Clayton service provider to oversee the Contractor and make final set-up and adjustments for functional trials for TCMSB.

3.14 All gaskets to be steam rated. Contractor to provide data sheets.

E-04 R/O Installation and Distiller Removal

1.1 paragraph c "installing new 2@ nominal should be 2" nominal.

E-05 Piping Renewals & Repairs

NEW ITEM ADDED AT BIDDERS CONFERENCE

Part 1: SCOPE

1.1 The intent of this specification is to remove, fabricate new and replace the following sections of piping.

" Steel - sewage treatment tank vent pipe - 6" pipe with victaulic couplings.

" CuNi - sea water inlet to aft cooler - 6 ½" outside diameter.

Part 2: REFERENCES

Guidance Drawings/Nameplate data

N/A

Standards

2.1 The Contractor shall adhere to Federal and Provincial Welding Standards and the Canadian Coast Guard Fleet Safety Manual (DFO 5737)

2.2 Coast Guard ISM Lock-Out and Tag-Out 7.D.19

2.3 Coast Guard ISM Hot Work 7.D.11

Owner Furnished Equipment

2.4 The Contractor shall supply all materials, consumables and equipment required to perform the specified work.

Part 3: TECHNICAL DESCRIPTION

3.1 Contractor, with ship's Senior Engineer, shall lockout/tag-out the affected systems when the Contractor is ready to start the related work. The lock-outs shall be entered in the Ship's Lock-out/Tag-Out Register and the affected piping isolated and drained as appropriate.

3.2 Contractor shall supply and erect scaffolding in the Propulsion Motor Room to gain access to the sewage treatment vent pipe, approximately 16 feet above the deck plates.

3.3 Located in Propulsion Motor Room, Contractor shall remove the corroded section of piping, fabricate new piping and re-install. There are two sections of six (6) inch scheduled 40

steel piping. One section is approximately five (5) feet long and the section is approximately ten (10) feet long. The piping is supported by two (2) brackets.

3.4 The pipes are connected by Victaulic couplings. There are three (3) - 45 degree and one (1) - 90 degree victaulic couplings. Contractor shall supply gaskets for all disturbed victaulic couplings.

3.5 After completion, the Contractor shall provide a system to allow for leak detection of the new piping.

3.6 Located in Fwd Engine room Port side; Contractor shall remove a section of corroded 6 ½" diameter by 16" long CuNi seawater pipe.

3.7 The Contractor shall fabricate and install a new section of pipe as per section removed, including flanges, stub, ect. See below a picture of the sea water pipe that needs to be replaced.

3.8 The sea water piping is 14" long x 6 ½" diameter CuNi, welded between 2 stainless steel flanges 1" thick - 11" dia with 8 - ¾" dia bolt holes at 10" pcd. Fitted on the aft side of the pipe at 5 ½" from outside flange end to centerline of stud pipe is a 2 ¼" CuNi stub - 2" diameter. Welded to the end of the sub is a stainless flange ¾" thick - 5 ½" dia with 4 - 5/8" bolt holes at 4" pcd.

3.9 The sea water pipe shall be installed using new gaskets, nuts, bolts and washers.

3.10 After completion the piping shall be tested for leaks.

Part 4: PROOF OF PERFORMANCE
Inspection, Testing & Certification

4.1 The Contractor with the Senior Engineer's assistance shall remove the lock-outs and pipe repairs tested for leaks.

4.2 All work shall be completed to the satisfaction of the Chief Engineer of his delegate.

Part 5: Deliverables
Reports, Drawings, Manuals, Spares & Training
N/A

L-01 Fan and Motor Overhaul
Delete in its entirety and replace with the following outlined in annex "A"

L-02 Breaker Renewal
No issues

CCGS Ann Harvey
Pricing Data Sheet
Drydocking 2013

Item	Description	Price
H-1	PRODUCTION CHART	$
H-2	SERVICES 3.3.1 READINGS & REPORTS 3.3.2 ELECTRICAL POWER (150,000 KWH) 3.3.2 UNIT COST PER LWH $ _____ 3.3.3 FIREMAIN 3.3.4 GANGWAYS (2 IN TOTAL) 3.3.5 TELEPHONE LINE (2 IN TOTAL) 3.3.6 POTABLE FRESH WATER 3.3.7 OVERBOARD CONNECTIONS 3.3.7 UNIT COST PER CUBIC METER/COOLING WATER $ _____ 3.3.8 GARBAGE REMOVAL 3.3.9 BERTHING 3.3.10 CLEANING 3.3.11 OILY BILGE WATER 3.3.11 UNIT COST OF DISPOSAL OF 1 M^3 $ _____ 3.3.12 CRANAGE 3.3.13 TELEVISION/INTERNET 3.3.14 COMPRESSED AIR 3.3.14 UNIT COST FOR ADDTL 12 HR DAY $ _____ 3.3.15 INSPECTIONS	 $_____ $_____ $_____ $_____ $_____ $_____ $_____ $_____ $_____ $_____ $_____ $_____ $_____ $_____ $_____
	TOTAL COST FOR SERVICES	**$**
H-3	LIFERAFT SERVICING **3.3 ALLOWANCE FOR FSR**	$ **$15,000.00**
H-4	FIXED FIRE FIGHTING SYSTEMS ANNUAL INSPECTION	$
H-5	SAFETY VALVE CERTIFICATION **3.2 ALLOWANCE FOR FSR**	$ **$5,000.00**
H-6	SERVICING OF HALOCABRON REFRIGERATION AND AC SYSTEMS **2.2 ALLOWANCE FOR PARTS**	$ **$2,500.00**
H-7	AVIATION FUEL SYSTEM ANNUAL SERVICING **3.1 ALLOWANCE FOR FSR**	$ **$6,000.00**
H-8	ACCOMMODATION AND DRYER DUCT CLEANING **3.4 ALLOWANCE FOR HVAC TECHNICIAN**	$ **$7,000.00**
H-9	GALLEY EXHAUST TRUNK CLEANING	$
H-10	WINDOWS REPLACEMENT	$
H-11	CARGO HOLD HATCH COVER INSPECTION AND REPAIR	$
H-12	DAY TANK CLEANING AND INSPECTION	$
H-13	FUEL TANKS SURVEY 3.2 UNIT COST PER ADDTL. 1 M^3 $ _____ 3.4 UNIT COST PER ADDTL 1 M^3 $ _____ 3.7 UNIT COST TO RENEW ADDTL COVER STUD $ _____	$

Item	Description	Price
H-14	WATER BALLAST TANKS SURVEY 3.9 UNIT COST PER STUD REPLACEMENT $ _____ 3.22 UNIT COST PER SQ MTR FOR TOUCH UPS $ _____ 3.27 UNIT PRICE PER HYDROSTATIC TEST $ _____ 3.28 UNIT PRICE PER AIR PRESSURE TEST $ _____	$
H-15	PIPE TUNNEL COATING REPAIR AND INSPECTION 3.5 UNIT COST PER M² OF SURFACE PREP/COAT REPAIR $ _____	$
H-16	PORT & STBD TRANSDUCER COMPARTMENTS INSPECTION 3.4 UNIT COST TO REPLACE ADDTL MANHOLE COVER $ _____	$
H-17	ANCHORS AND CHAINS	$
H-18	PORT SEA CRANE RENEWAL **3.20 ALLOWANCE FOR FSR**	$ **$2,000.00**
H-19	LIFEBOAT, LIFEBOAT AND MIRANDA DAVIT INSPECTION **3.1 ALLOWANCE FOR FSR**	$ **$8,500.00**
H-20	MAIN MAST REFURBISHMENT **3.9 ALLOWANCE FOR REPLACEMENT OF ADDTL HARDWARE**	$ **$2,500.00**
H-21	AVIATION COFFERDAM CLEANING AND PAINTING 3.5 UNIT CPST PER M² OF SURFACE PREP/COATING $ _____ 3.8 UNIT COST TO REPLACE MANHOLE COVER STUD $ _____	$
HD-01	DOCKING AND UNDOCKING	$
HD-02	TAILSHAFT BEARINGS & WEARDOWN MEASUREMENTS **3.1 ALLOWANCE FOR FSR**	$ **$5,000.00**
HD-03	STBD PROPELLER	$
HD-04	STBD TAILSHAFT INSPECTION **3.5 ALLOWANCE FOR REP**	$ **$8,500.00**
HD-05	HULL CLEANING AND COATING 3.9 UNIT COST PER M² FOR SURFACE PREP/COATING $ _____	$
HD-06	FOREPEAK TANK **3.9 ALLOWANCE FOR MATERIALS**	$ **$10,000.00**
HD-07	SEABAYS, SEACHESTS AND SEA STRAINERS	$
HD-08	IMPRESSED CURRENT SYSTEM (EXCLUDING 3.4) 3.4 UNIT PRICE FOR ITEM 3.4 $ _____	$
HD-09	STORM VALVES	$
HD-10	SEA CONNECTIONS **3.2 ALLOWANCE FOR REPAIRS TO DEFECTS IN PIPE STUBS**	$ **$12,000.00**
HD-11	CENTRAL COOLING SEA WATER PUMPS SDNR DISCHARGE VALVES SERVICING	$
HD-12	BOW THRUSTER 3.8 UNIT COST PER ADDTL LINEAR FT $ _____	$
HD-13	RUDDER AND RUDDER TRUNK ANODES	$
HD-14	SEA TRIALS	$
E-01	BOW WINDLASS SURVEY	$
E-02	STARBOARD FORWARD MOORING WINCH BAND BRAKE	$
E-03	NO 1 BOILER SURVEY **3.1 ALLOWANCE FOR FSR** **3.11 ALLOWANCE FOR REPAIRS TO CEMENT**	$ **$10,000.00** **$5,000.00**
E-04	DISTILLER REMOVAL AND RO DESALINATOR INSTALLATION	$

Item	Description	Price
E-05	PIPING RENEWALS & REPAIRS	$
L-01	FAN AND MOTOR OVERHAUL **3.5 ALLOWANCE FOR MATERIAL COST**	$ **$3,000.00**
L-02	BOW THRUSTER BREAKER RENEWAL **3.1 ALLOWANCE FOR FSR**	$ **$25,000.00**
	TOTAL (EXCLUDING HST) INCLUDING ALLOWANCES	**$**

Annex "A"

Spec item #: L-01	SPECIFICATION	TCMSB Field #
Fan and Motor Overhaul		

1.1 The intent of this item shall be to perform complete overhaul on both Fan/Motor assemblies.

Part 2: Reference

Guidance Drawings/Nameplate data

2.1 The following Coast Guard Standards and or Technical Bulletins must be adhered to in the course of executing this specification. Copies of these standards and bulletins can be obtained from the CCG Technical Authority.

a. Canadian Coast Guard Fleet Safety Manual (DFO 5737)
b. Transport Canada Ship's Electrical Standards TP127E.

Part 2: REFERENCES

Port and Stbd HVAC Supply Blower Motors
ETATECH 7.5 H.P., 575V, 3 Phase, 60Hz FLA 8 Amps, S.F. 1.0,
Cont Duty, RPM 1740 Model : 6545235 Type NBHW1
Frame : 213T DE Bearing 6207-ZZ OE Bearing 6206-ZZ

Location: HVAC Room – Boat Deck Stbd Side fwd of Helicopter Hangar

Part 3: TECHNICAL DESCRIPTION

3.1 The contractor and Owner's Electrical Officer shall; prior to start of work witness and record starting and running currents on all three phases on both motors. The Motors shall then be isolated, locked and tagged out at MCC # 6. Megger and resistance readings of each phase in both shall be taken and recorded by the Contractor before removal and after subsequent installation to prove the integrity of the motor windings. Direction of rotation shall be clearly marked on motors prior to removal and rotation confirmed upon reassembly. A clean, legible and dated copy of both sets of readings shall be delivered to the Chief Engineer.

3.2 Contractor shall then disconnect, uncouple (fan wheels will need to be restrained from free-wheeling) and dismount the fan motors and transport them to his workshop for disassembly, cleaning, inspection and bearing renewal. The new bearings shall be sealed both sides and SKF or equivalent.

3.3 The fan tubes and fan wheels shall be degreased and cleaned in place to the extent possible to remove rust and dirt and then exposed steel shall be coated with primer and enamel finish. The access plates to the blower housing are on the aft side.

3.4 The contractor shall supply and install replacement intake screens and tube transitions canvas flex pieces, dimensions as original.

3.5 Contractor shall allow $3,000.00 for the materials costs of bearings, flex transitions, labels, dynamic balancing etc to be adjusted up or down by 1379 on proof of invoice.

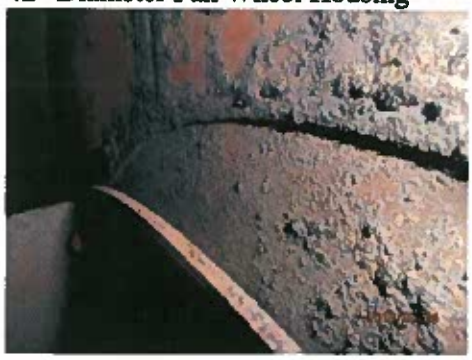
3.6 Upon re-installation of the refurbished motors they shall be re-coupled to their respective blower wheels, reconnected, de-isolated and correct direction of rotation (clockwise looking forward from NDE) shall be confirmed. Fan and motor assemblies shall be dynamically balanced in-situ (by a certified vibration technician). Electrical Officer shall be Owner's Representative for witnessing the recording of starting and running currents for each motor for each phase.

3.7 All work shall be to the satisfaction of the Owner's Representative and in accordance with current Electrical and Marine Standards.

Port HVAC Fan/Motor Assembly

42" Diameter Fan Wheel Housing

Access Covers to Fans Aft side



Clean & coat in place

Interferences to Stbd HVAC Fan/Motor access

Part 4: PROOF OF PERFORMANCE

Inspection, Testing & Certification

4.1 Upon completion of installation of the motors are to be dynamically balanced and tested.

Part 5: Deliverables

Reports, Drawings, Manuals, Spares & Training

5.1 Contractor shall supply the Chief Engineer with 2 typewritten overhaul reports.

New

Spec item #: E-05	SPECIFICATION	TCMSB Field # N/A
Piping Renewals & Repairs		

Part 1: SCOPE

1.1 The intent of this specification is to remove, fabricate new and replace the following sections of piping.

- Steel – sewage treatment tank vent pipe – 6" pipe with victaulic couplings.
- CuNi – sea water inlet to aft cooler – 6 ½" outside diameter.

Part 2: REFERENCES

Guidance Drawings/Nameplate data

N/A

Standards

2.1 The Contractor shall adhere to Federal and Provincial Welding Standards and the Canadian Coast Guard Fleet Safety Manual (DFO 5737)

2.2 Coast Guard ISM Lock-Out and Tag-Out 7.D.19

2.3 Coast Guard ISM Hot Work 7.D.11

Owner Furnished Equipment

2.4 The Contractor shall supply all materials, consumables and equipment required to perform the specified work.

Part 3: TECHNICAL DESCRIPTION

3.1 Contractor, with ship's Senior Engineer, shall lockout/tag-out the affected systems when the Contractor is ready to start the related work. The lock-outs shall be entered in the Ship's Lock-out/Tag-Out Register and the affected piping isolated and drained as appropriate.

3.2 Contractor shall supply and erect scaffolding in the Propulsion Motor Room to gain access to the sewage treatment vent pipe, approximately 16 feet above the deck plates.

3.3 Located in **Propulsion Motor Room**, Contractor shall remove the corroded section of piping, fabricate new piping and re-install. There are two sections of six (6) inch scheduled 40 steel piping. One section is approximately five (5) feet long and the section is approximately ten (10) feet long. The piping is supported by two (2) brackets.

3.4 The pipes are connected by Victaulic couplings. There are three (3) - 45 degree and one (1) – 90 degree victaulic couplings. Contractor shall supply gaskets for all disturbed victaulic couplings.

3.5 After completion, the Contractor shall provide a system to allow for leak detection of the new piping.

3.6 Located in **Fwd Engine room** Port side; Contractor shall remove a section of corroded 6 ½" diameter by 16" long CuNi seawater pipe.

3.7 The Contractor shall fabricate and install a new section of pipe as per section removed, including flanges, stub, ect. See below a picture of the sea water pipe that needs to be replaced.

3.8 The sea water piping is 14" long x 6 ½" diameter CuNi, welded between 2 stainless steel flanges 1" thick - 11" dia with 8 - ¾" dia bolt holes at 10" pcd. Fitted on the aft side of the pipe at 5 ½" from outside flange end to centerline of stud pipe is a 2 ¼" CuNi stub - 2" diameter. Welded to the end of the sub is a stainless flange ¾" thick – 5 ½" dia with 4 - 5/8" bolt holes at 4" pcd.

3.9 The sea water pipe shall be installed using new gaskets, nuts, bolts and washers.

3.10 After completion the piping shall be tested for leaks.

Part 4: PROOF OF PERFORMANCE

Inspection, Testing & Certification

4.1 The Contractor with the Senior Engineer's assistance shall remove the lock-outs and pipe repairs tested for leaks.

4.2 All work shall be completed to the satisfaction of the Chief Engineer of his delegate.

Part 5: Deliverables

Reports, Drawings, Manuals, Spares & Training

N/A

Spec item #: E-05	SPECIFICATION	TCMSB Field # N/A
Piping Renewals & Repairs