



NOAA SHIP HENRY B. BIGELOW (R225)

FY2019
DOCKSIDE REPAIRS

DETAIL SPECIFICATIONS
October 2018
REV 1



NOAA - Port Office
Northeast Marine Support Facility
166 Water Street
Woods Hole, MA 02543

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1. Scope

1.1 These detailed specifications contain requirements for NOAA Ship Henry B. Bigelow (R225) FY19 Dockside Repairs.

1.2 Scope and Intent of the Drydock or Dockside Ship Repair Contract

2. General

2.1 References

2.1.1 NOAA Standard Specification AMC-000-1F, "General Requirements for Contract Repair Work on NOAA Ships"

2.1.2 NOAA Standard Specification MOC-631-2D, "Coating Systems for Steel Surfaces"

2.1.3 NOAA Drawing HB-085 FA02, "General Arrangements"

2.1.4 NOAA Drawing HB-631 FF04, "Painting Schedule"

2.2 Requirements

2.2.1 References 1.2.1 through 1.2.4 form a part of these Detail Specifications. All provisions and requirements contained therein are applicable to all work items, including all additional work items, which are authorized by the Contracting Officer. All work procedures and all materials shall meet ABS Rules.

2.2.2 Unless otherwise stated in these work items, prepare and coat all new steel, disturbed steel, or otherwise required painted surfaces in accordance with References 2.1.2 and 2.1.4. If no paint system is identified in the item, then apply the appropriate coating system similar to the area being coated as identified in Paragraph 5.2 of Reference 2.1.2 except that the top coat shall match the surrounding area.

2.2.3 Provide an electronic copy of all Condition Reports in Adobe Portable Document Format (.pdf).

2.2.4 The NOAA Ship *Henry B. Bigelow*, ABS ID Number 06142681, is a fully ABS classed ship. An ABS surveyor will be required for some of the work items on this specification. Provide the services of the local ABS Surveyor as required by ABS to retain the ship in ABS class during the accomplishment of

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this specification. Provide a copy of ABS approved welding procedures and a list of currently ABS qualified welders. NOAA will pay for all ABS surveys using a Blanket Purchase Agreement associated with work required by these specifications. The Contractor shall provide a credit for any additional ABS charges associated with rescheduling of surveys and rework surveys which are directly under the control of the Contractor.

2.2.5 Provide a copy of ABS approved welding procedures and maintain a list of currently ABS qualified welders. This list must be provided prior to any welding on the ship.

2.2.6 The contractor shall provide adequate ventilation (exhaust) in all areas where hot work (grinding, welding, etc.) occurs on the ship to ensure that all smoke and airborne debris are removed from the interior spaces of the ship.

2.2.7 Weigh all materials and items removed, installed, or relocated on the ship. Provide a summary report to the COR indicating the total weight in pounds of the materials and items with a breakdown of their locations by space, deck, frame, distance from centerline, and height off of the deck. A sample Weight Report form is attached to these specifications.

2.2.8 Redline "as-built" drawing for modifications accomplished by these detail specifications.

2.2.9 Electrical power distribution systems available aboard the ship for Contractor power tools include 480vac via three submersible pump receptacles and 120vac receptacles throughout the ship.

2.2.10 The Contractor shall minimize shipboard work and inspections requiring ship's force and COR presence on December 24 and 31, 2018. Shipboard work may include mechanical tools and light industrial work. The Contractor shall not schedule nor conduct any shipboard hot work during these periods. The contractor shall not conduct any shipboard work on December 25, 2018 and January 1, 2019.

2.2.11 Vehicle and personnel access to NOAA Ship *Henry B. Bigelow* for pre-bid inspections and all work is restricted via gated security. Naval Station Newport requires all personnel needing access onto the base to be vetted prior to entering the base. All contractors, vendors, and visitors are required to make pre-arrival arrangements for access at a minimum of 21 days in advance by calling the Port Engineer at 508-495-4708 (office) or 508-642-3986 (cell).

2.2.12 All work will be performed at Naval Station Newport - Pier 2, 68 Peary Street, Newport, RI. Vehicle and personnel access to NOAA Ship HENRY B. BIGELOW for all work is restricted via gated security. All contractors, vendors, and visitors are encouraged to make pre-arrival arrangements for access in advance by calling the Port Engineer at 508-495-2347.

2.2.13 Metrication

a. A combination of Standard English units of measure (feet - pounds) and Metric System International (SI) units of measure (millimeter - kilogram) were used in the builders' drawings, specifications and reference materials for construction, operation, maintenance and repair of this ship. In this specification for NOAA Ship Henry B. Bigelow, there is a combination of Standard English units and metric units.

2.3 Notes

2.3.1 Descriptive data of NOAA Ship ~~1~~

B. Bigelow: Length Overall: 208.6 feet
Beam (Molded): 49.2 feet
Displacement: 1,840 metric tons Light Ship
2,479 metric tons Full Load
Draft: 20.35 feet Full Load Centerboard
Retracted
29.7 feet Full Load Centerboard
Extended
Cruising Speed: 12 knots [Max speed 14 knots]
Propulsion: Diesel Electric, Single Propeller,
Fixed Pitch, with two, in-line 1508 hp
DC Motors
Generators: Caterpillar 3508B, 3512B (two each) 600
volts AC
Bow Thruster: Elliott 40T3S, 360 Degree
Electric Service: 480 volts AC
Year Built: Commissioned July 2006
Builder: VT Halter Marine Inc., Moss Point, MS
ABS ID: 06142681
IMO Number: 9349057
Construction: Welded Steel Hull, Aluminum
Superstructure
Crew size: 22
Bunks: 39
Homeport of Record: Newport, OR

3. Basic Items - ORF 10000

3.1 Item 10730: Resilient Mount Renewal

3.1.1 Intent

a. Provide all labor, material and equipment to renew/reassemble various resilient mounts throughout the ship.

3.1.2 References

a. NOAA Ship Henry B. Bigelow (R-225) Resilient Mount Measurement and Inspection (05/17)

3.1.3 Government-Furnished Material

a. None

3.1.4 Requirements

a. Renew/reassemble all resilient mounts noted in reference (a), Table 1. Reassembly of the usable mounts may require enlarging of the existing mounting holes. Enlarging of the holes will be included in the contractors bid. If welding of additional material is required to correctly reassemble the mounts provide a condition report to the COR.

b. Replace all mounts noted in reference (a), Table 1, with new stainless steel fasteners.

3.1.5 Quality Assurance

a. COR Inspection.

3.1.6 Notes

a. None

END OF ITEM

3.2 Item 11230: Tank Cleaning & Inspection

3.2.1 Intent

a. Provide all labor, material and equipment to open five ballast tanks and a lube oil and make safe for entry.

3.2.2 References

a. NOAA Standard Specification MOC-100-1, "ABS Load Line Survey"

3.2.3 Government-Furnished Material

a. None

3.2.4 Requirements

a. Provide inspection of the following tanks as per reference (a):

1. Forepeak Ballast (Capacity 11,500 gallons);
2. No. 3 Starboard Ballast (Capacity 9,000 gallons);
3. No. 3 Center Ballast (Capacity 9,375 gallons);
4. No. 3 Port Ballast (Capacity 9,500 gallons);
5. No. 4 Center Ballast (Capacity 6,800 gallons);
6. Lube Oil (Capacity 940 gallons).

b. The ballast tanks are known to have a fine layer of silt, on all surfaces, which will be required to be removed.

c. Provide the local ABS Surveyor to inspect the tanks.

d. After all tanks have been inspected by the local ABS Surveyor close the manhole covers on all tanks after ship's force has inspected the interior of each tank. Renew the manhole cover gaskets.

e. At the conclusion of all tank work Refill all ballast tanks and potable water tanks with fresh water.

3.2.5 Quality Assurance

a. Upon completion of all work and with concurrence from

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the COR, perform, to the satisfaction of ABS Surveyor, an air test of all opened tanks. Maximum test pressure shall be 2.0 psig. Submit a condition report documenting completion of the tank testing.

3.2.6 Notes

a. Prior to emptying the 5 ballast tanks, the anti-roll tank must be emptied.

END OF ITEM

3.3 Item 11670: Wet Lab Sliding Door Replacement

3.3.1 Intent

a. Provide all labor, material and equipment to replace wet lab sliding door.

3.3.2 References

a. Freeman Marine Drawing #P0007776-001, "Sliding Door"

b. NOAA Drawing FSV6-01, "Wet Lab Door"

3.3.3 Government-Furnished Material

a. Aluminum Sliding Door, 1 each

3.3.4 Requirements

a. Remove the existing sliding door along with associated frame and supports and scrap. Remove the "Rain Shield" over the door and save for reinstallation.

b. Install the government furnished aluminum sliding door in place of the removed door in accordance with the manufacturer's instructions and using references (a) and (b) as guides. Ensure that the existing bulkhead is flat. Install shims as necessary in all areas where the bulkhead is not flat. Install a ¼ inch neoprene rubber gasket between the new door frame and the bulkhead.

c. Reinstall the rain shield above the new door. The rain shield shall be continuously welded.

d. Preserve all new and disturbed steel and aluminum areas. The top coat shall match the surrounding color.

3.3.5 Quality Assurance

a. Ensure that the door open and closes freely with no

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binding. Repair all deficiencies, if any.

3.3.6 Notes

- a. None

END OF ITEM

3.4 Item 11700: VSAT Work Platform Installation

3.4.1 Intent

a. Provide all labor, material and equipment to install a work platform on the VSAT mast on the flying bridge.

3.4.2 References

a. NOAA Drawing HB-170 FH22, "Mast, Rigging & Flagstaff Layout & Details"

3.4.3 Government-Furnished Material

a. None

3.4.4 Requirements

a. Fabricate and install a new work platform and handrails on the VSAT mast located above the ships flying bridge. See Figure 1. Use aluminum pipe and angle for construction. All shapes shall be Aluminum 5086-H111. Use reference (a), sheets 9 and 11, and Figure 2 as guide to fabricate the platforms. The working deck of the platform shall be approximately 4 feet below the access opening for the dome. The platform shall be 80 inches in diameter.

b. Cut back the plate and supports below the Inmarsat dome shown on Figure 1 to the mounting plate structure.

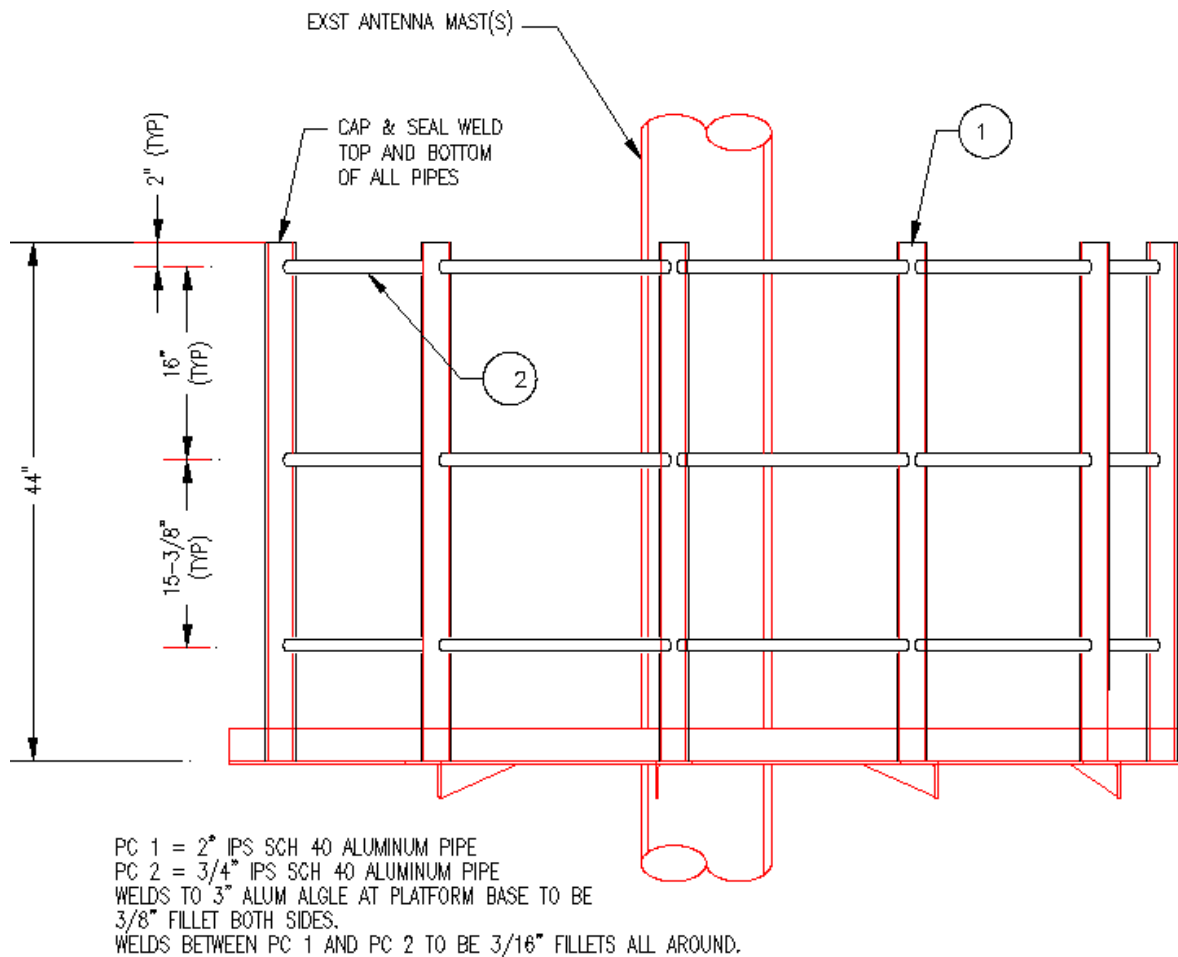
c. Fabricate and install a hinged access cover on the platform to cover the access opening to the platform. The cover and platform deck shall be made from the fiberglass grating similar to the existing radar platform decks.

d. Preserve all new and disturbed aluminum surfaces with (2 coats) of primer and one top coat to match existing mast

color.



Figure 1 - VSAT Mast



ELEVATION 61-A

Figure 2 - Platform and Handrail Assembly

3.4.5 Quality Assurance

- a. Ensure that the door open and closes freely with no binding. Repair all deficiencies, if any.

3.4.6 Notes

- a. None

END OF ITEM

3.5 Item 15040: Pressure & Temperature Gauge Calibrations

3.5.1 Intent

a. Provide all labor, material and equipment to calibrate the pressure and temperature gauges throughout the ship.

3.5.2 References

a. None

3.5.3 Government-Furnished Material

a. None

3.5.4 Requirements

a. In conjunction with Ship's Force, follow ship's Lockout and Tagout Procedures to secure each system to allow for the safe removal and reinstallation of each gauge.

b. Remove the gauges listed in the table below and have each gauge calibrated by an ISO-certified facility. Provide the COR with a certificate for each gauge that is calibrated. Reinstall each gauge using Teflon tape and ensure the gauges are orientated so that they are easily visible.

	Name	Location	System	Manufacturer	Range
1	CW Pump 1 Disch Press	Upper ER CNTR	Chill Water	Wika	0-160 psi
2	CW Pump 2 Disch Press	Upper ER CNTR	Chill Water	Wika	0-160 psi
3	CW Pump 3 Disch Press	Upper ER CNTR	Chill Water	Wika	0-160 psi
4	Chiller 1 CW Supply Temp	Upper ER CNTR	Chill Water	Ashcroft	0-250°F
5	Chiller 1 CW Supply Press	Upper ER CNTR	Chill Water	No gauge	-
6	Chiller 1 CW Outlet Temp	Upper ER CNTR	Chill Water	Ashcroft	0-200°F
7	Chiller 1 CW Outlet Press	Upper ER CNTR	Chill Water	-	0-60 bar
8	Chiller 1 SW Inlet Press	Upper ER CNTR	Chill Water	Ashcroft	0-100 psi
9	Chiller 1 SW Outlet Press	Upper ER CNTR	Chill Water	Wika	0-100 psi
10	Chiller 2 CW Supply Temp	Upper ER CNTR	Chill Water	Ashcroft	0-250°F
11	Chiller 2 CW Supply Press	Upper ER CNTR	Chill Water	Wika	0-100 psi
12	Chiller 2 CW Outlet Temp	Upper ER CNTR	Chill Water	Ashcroft	0-200°F
13	Chiller 2 CW Outlet Press	Upper ER CNTR	Chill Water	No gauge	-
14	Chiller 2 SW Inlet Press	Upper ER CNTR	Chill Water	Dixon	0-60 psi
15	Chiller 2 SW Outlet Press	Upper ER CNTR	Chill Water	Wika	0-100 psi
16	Common CW Outlet Temp	Upper ER CNTR	Chill Water	Wika	0-200°F
17	CW to CW Pumps Temp	Upper ER CNTR	Chill Water	Omega	RTD
18	CW TO LPAC'S Temp	Upper ER CNTR	Chill Water	Omega	RTD

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19	Chill Water Expansion Tank Press	Upper ER CNTR	Chill Water	Weksler	0-160psi
20	Scientific Vacuum Pump Vacuum	Upper ER PORT	Scientific VAC	Wika	0-30"hg
21	Scientific Vacuum Pump Oil Tank Press	Upper ER PORT	Scientific VAC	Elmo Rietschie	0-1.6 bar
22	EVAP 1 Vacuum	Upper ER PORT	Potable Water	-	(-)100 -2.0 bar
23	EVAP 1 Shell Temp	Upper ER PORT	Potable Water	-	0-200°F
24	EVAP 1 FW Sample Point Press	Upper ER PORT	Potable Water	-	0-43.5 bar
25	EVAP 1 Aux SW Disch Press	Upper ER PORT	Sea Water	Wika	0-100 psi
26	EVAP 1 Production Meter	Upper ER PORT	Potable Water	-	-
27	EVAP 1 Aux SW Overboard Press	Upper ER PORT	Sea Water	Weksler	0-100 bar
28	EVAP 1 Aux SW Overboard Temp	Upper ER PORT	Sea Water	Weksler	0-200°F
29	EVAP 1 Hour Meter	Upper ER PORT	Potable Water	Redington	-
30	EVAP 1 JW Supply Press	Upper ER PORT	Potable Water	Ashcroft	0-30 psi
31	EVAP 1 JW Supply Temp	Upper ER PORT	Potable Water	Wika	0-200°F
32	EVAP 1 JW Outlet Temp	Upper ER PORT	Potable Water	Wika	0-200°F
33	SSDG 1 JW Heat Exch SW Outlet Temp	Upper ER PORT	Jacket Water	Wika	0-200°F
34	SSDG 1 JW to 3-Way Valve Temp	Upper ER PORT	Jacket Water	Wika	0-200°F
35	SSDG 1 JW Outlet from Heat Exch Temp	Upper ER PORT	Jacket Water	Wika	0-200°F
36	SSDG 1 JW Expansion Tank	Upper ER PORT	Jacket Water	Murphy	Low-Full
37	SSDG 1 AC Expansion Tank	Upper ER PORT	Jacket Water	Murphy	Low-Full
38	SSDG 3 JW Heat Exch SW Outlet Temp	Upper ER PORT	Jacket Water	Wika	0-200°F
39	SSDG 3 JW to 3-Way Valve Temp	Upper ER PORT	Jacket Water	Wika	0-200°F
40	SSDG 3 JW Outlet from Heat Exch Temp	Upper ER PORT	Jacket Water	Wika	0-200°F
41	SSDG 3 JW Expansion Tank	Upper ER PORT	Jacket Water	Murphy	Low-Full
42	SSDG 3 AC Expansion Tank	Upper ER PORT	Jacket Water	Murphy	Low-Full
43	EVAP 2 Vacuum	Upper ER STBD	Potable Water	-	(-)100-2.0 bar
44	EVAP 2 Shell Temp	Upper ER STBD	Potable Water	-	0-200°F
45	EVAP 2 FW Sample Point Press	Upper ER STBD	Potable Water	No gauge	-
46	EVAP 2 Aux SW Disch Press	Upper ER STBD	Sea Water	Wika	0-100 psi
47	EVAP 2 Production Meter	Upper ER STBD	Potable Water	-	-
48	EVAP 2 Aux SW Overboard Press	Upper ER STBD	Sea Water	Weksler	0-100 psi
49	EVAP 2 Aux SW Overboard Temp	Upper ER STBD	Sea Water	-	0-200°F
50	EVAP 2 Hour Meter	Upper ER STBD	Potable Water	Redington	-
51	EVAP 2 JW Supply Press	Upper ER STBD	Potable Water	No gauge	-
52	EVAP 2 JW Supply Temp	Upper ER STBD	Potable Water	Wika	0-200°F
53	EVAP 2 JW Outlet Temp	Upper ER STBD	Potable Water	Wika	0-200°F
54	SSDG 2 JW Heat Exch SW Outlet Temp	Upper ER STBD	Jacket Water	Wika	0-200°F
55	SSDG 2 JW to 3-Way Valve Temp	Upper ER STBD	Jacket Water	Wika	0-200°F

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56	SSDG 2 JW Outlet from Heat Exch Temp	Upper ER STBD	Jacket Water	Wika	0-200°F
57	SSDG 2 JW Expansion Tank	Upper ER STBD	Jacket Water	Murphy	Low-Full
58	SSDG 2 AC Expansion Tank	Upper ER STBD	Jacket Water	Murphy	Low-Full
59	SSDG 4 JW Heat Exch SW Outlet Temp	Upper ER STBD	Jacket Water	Wika	0-200°F
60	SSDG 4 JW to 3-Way Valve Temp	Upper ER STBD	Jacket Water	Wika	0-200°F
61	SSDG 4 JW Outlet from Heat Exch Temp	Upper ER STBD	Jacket Water	Wika	0-200°F
62	SSDG 4 JW Expansion Tank	Upper ER STBD	Jacket Water	Murphy	Low-Full
63	SSDG 4 AC Expansion Tank	Upper ER STBD	Jacket Water	Murphy	Low-Full
64	Air Station Press	Upper ER STBD	Compressed Air	-	0-200 psi
65	LPAC 1 Air Supply Press	Upper ER STBD	Compressed Air	Wika	0-300 psi
66	LPAC 2 Air Supply Press	Upper ER STBD	Compressed Air	Wika	0-300 psi
67	Air Dryer Left Tower Press	Upper ER STBD	Compressed Air	Pneumatech	0-200 psi
68	Air Dryer Right Tower Press	Upper ER STBD	Compressed Air	Pneumatech	0-200 psi
69	Air Dryer Heater Press	Upper ER STBD	Compressed Air	Pneumatech	0-200 psi
70	Air Dryer Unit Air Filter Press	Upper ER STBD	Compressed Air	Pneumatech	(-)29-29 psi
71	Air Dryer Unit Moisture Indicator Press	Upper ER STBD	Compressed Air	Pneumatech	(-)29-29 psi
72	Air Reciever AFT Tank Press	Lower ER STBD	Compressed Air	Wika	0-160 psi
73	Air Reciever FWD Tank Press	Lower ER STBD	Compressed Air	Wika	0-160 psi
74	SW Washdown Pump Press	Lower ER STBD	Sea Water	Wika	0-160 psi
75	SSDG 2 Racors FO Outlet Vacuum	Lower ER STBD	Fuel Oil	-	0-30"hg
76	SSDG 4 Racors FO Outlet Vacuum	Lower ER STBD	Fuel Oil	-	0-30"hg
77	STBD Air Station	Lower ER STBD	Compressed Air	Wika	0-200 psi
78	LO Transfer Pump Disch Press	Lower ER STBD	Lube Oil	Wika	0-30 psi
79	FO Lighterage Pump Disch Press	Lower ER STBD	Fuel Oil	Wika	0-60 psi
80	Prop Motor 1 FWD Hyd Lift Pump Disch Press	Lower ER CNTR	Lube Oil	Ashcroft	0-30 psi
81	Prop Motor 1 AFT Hyd Lift Pump Disch Press	Lower ER CNTR	Lube Oil	No Gauge	-
82	Prop Motor 1 FWD SW Disch Press	Lower ER CNTR	Sea Water	-	0-200°F
83	Prop Motor 1 AFT SW Disch Press	Lower ER CNTR	Sea Water	-	0-200°F
84	Prop Motor 1 SW Cooling Inlet Temp	Lower ER CNTR	Sea Water	No Gauge	-
85	Prop Motor 2 FWD Hyd Lift Pump Disch Press	Lower ER CNTR	Lube Oil	No Gauge	-
86	Prop Motor 2 AFT Hyd Lift Pump Disch Press	Lower ER CNTR	Lube Oil	No Gauge	-
87	Prop Motor 2 FWD SW Disch Press	Lower ER CNTR	Sea Water	No Gauge	-

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88	Prop Motor 2 AFT SW Disch Press	Lower ER CNTR	Sea Water	No Gauge	-
89	Prop Motor 2 SW Cooling Inlet Temp	Lower ER CNTR	Sea Water	Wika	0-200°F
90	Prop Motor Hyd Lift Pump 1-4 Press	Lower ER CNTR	Lube Oil	Wika	0-30 psi
91	Prop Motor Hyd Lift Pump 1-4 SW Inlet Temp	Lower ER CNTR	Sea Water	Weiss	0-180°F
92	Prop Motor Hyd Lift Pump 1-4 SW Outlet Temp	Lower ER CNTR	Sea Water	Weiss	0-180°F
93	Thrust Bearing SW Disch Temp	Shaft Alley	Sea Water	Wika	0-200°F
94	Shaft Break Air Press	Shaft Alley	Compressed Air	Lenz	0-3000 psi
95	Stern Tube Seal Vent Press	Shaft Alley	Sea Water	Wika	0-300 psi
96	SSDG 1 Racors FO Outlet Vacuum	Lower ER PORT	Fuel Oil	Parker	0-30"hg
97	SSDG 3 Racors FO Outlet Vacuum	Lower ER PORT	Fuel Oil	-	0-30"hg
98	Main SW Pump 1 Disch Press	Lower ER PORT	Sea Water	Wika	0-100 psi
99	Main SW Pump 2 Disch Press	Lower ER PORT	Sea Water	Wika	0-100 psi
100	Aux SW Pump 1 Disch Press	Lower ER PORT	Sea Water	Wika	0-60 psi
101	Aux SW Pump 2 Disch Press	Lower ER PORT	Sea Water	Wika	0-60 psi
102	EVAP 1 Feed Pump Disch Press	Lower ER PORT	Sea Water	Wika	0-100 psi
103	EVAP 2 Feed Pump Disch Press	Lower ER PORT	Sea Water	Wika	0-100 psi
104	PORT Air Station	Lower ER PORT	Compressed Air	-	0-150 psi
105	Emergency Bilge Pump Disch Press	Lower ER PORT	Bilge/Ballast/Fire	Wika	0-300 psi
106	STBD Air Station	AMR STBD	Compressed Air	Ross	0-14 bar
107	FO Manifold Disch Press	AMR STBD	Fuel Oil	Wika	0-30 psi
108	Air Reciever Tank Press	AMR STBD	Compressed Air	Wika	0-200 psi
109	FOP 1 Fuel Inlet Press	AMR STBD	Fuel Oil	Dixon	0-60 psi
110	FOP 1 Clean Fuel Disch Press	AMR STBD	Fuel Oil	Dixon	0-60 psi
111	FOP 1 Air Supply Press	AMR STBD	Compressed Air	Wika	0-10 bar
112	FOP 1 Current Consumption	AMR STBD	-	FC Misure	0-10 Amps
113	FOP 2 Fuel Inlet Press	AMR STBD	Fuel Oil	Dixon	0-60 psi
114	FOP 2 Clean Fuel Disch Press	AMR STBD	Fuel Oil	Dixon	0-60 psi
115	FOP 2 Air Supply Press	AMR STBD	Compressed Air	Wika	0-10 bar
116	FOP 2 Current Consumption	AMR STBD	-	FC Misure	0-10 Amps
117	Common FOP Air Supply Press	AMR STBD	Compressed Air	Wika	0-200 psi

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118	Ballast Manifold Suction Vacuum	AMR PORT	Ballast	-	0-30"hg
119	Ballast Pump Disch Press	AMR PORT	Ballast	Ashcroft	0-60 psi
120	PORT Air Station	AMR PORT	Compressed Air	MC	0-150 psi
121	Fire Main Press	EOS STBD	Fire Main	Noshok	0-300 psi
122	Sewage Vacuum	EOS STBD	Black/Grey Water	Noshok	0-30"hg
123	Shaft RPM	EOS STBD	-	-	150 Astern - 150 Ahd
124	Prop Motor Drive 1 Motor RPM	EOS PORT	-	Crompton	150 Astern - 150 Ahd
125	Prop Motor Drive 2 Motor RPM	EOS STBD	-	Crompton	151 Astern - 150 Ahd
126	PORT Crane Pump Oil Disch Press	Oceano PORT	Hyd Oil	Valley Instrument	0-5000 psi
127	STBD Crane Pump Oil Disch Press	Oceano PORT	Hyd Oil	Valley Instrument	0-5000 psi
128	PORT Air Station	Oceano PORT	Compressed Air	Wika	0-200 psi
129	Main Hyd Pump 1 Hours	Oceano STBD	-	Micro Matic	-
130	Main Hyd Pump 1 Current Consumption	Oceano STBD	-	Circulor	0-400 Amps
131	Main Hyd Pump 1 Disch Press	Oceano STBD	Hyd Oil	-	0-250 bar
132	Main Hyd Pump 2 Hours	Oceano STBD	-	Micro Matic	-
133	Main Hyd Pump 2 Current Consumption	Oceano STBD	-	Circulor	0-400 Amps
134	Main Hyd Pump 2 Disch Press	Oceano STBD	Hyd Oil	No Gauge	-
135	Main Hyd Pump 3 Hours	Oceano STBD	-	Micro Matic	-
137	Main Hyd Pump 3 Current Consumption	Oceano STBD	-	Circulor	0-400 Amps
138	Main Hyd Pump 3 Disch Press	Oceano STBD	Hyd Oil	-	0-250 bar
139	Main Hyd Pump 4 Hours	Oceano STBD	-	Micro Matic	-
140	Main Hyd Pump 4 Current Consumption	Oceano STBD	-	Circulor	0-400 Amps
141	Main Hyd Pump 4 Disch Press	Oceano STBD	Hyd Oil	-	0-250 bar
142	Main Hyd Pump 5 Hours	Oceano STBD	-	Micro Matic	-
143	Main Hyd Pump 5 Current Consumption	Oceano STBD	-	Circulor	0-400 Amps
144	Main Hyd Pump 5 Disch Press	Oceano STBD	Hyd Oil	-	0-250 bar
145	Main Hyd Pump 6 Hours	Oceano STBD	-	Micro Matic	-
146	Main Hyd Pump 6 Current Consumption	Oceano STBD	-	Circulor	0-400 Amps
147	Main Hyd Pump 6 Disch Press	Oceano STBD	Hyd Oil	-	0-250 bar
148	Main Hyd Pump 7 Hours	Oceano STBD	-	Micro Matic	-

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149	Main Hyd Pump 7 Current Consumption	Oceano STBD	-	Circulor	0-400 Amps
150	Main Hyd Pump 7 Inlet Press	Oceano STBD	Hyd Oil	-	0-250 bar
151	Main Hyd Pump 7 Outlet Press	Oceano STBD	Hyd Oil	-	0-250 bar
152	Main Hyd Servo Pump Hours	Oceano STBD	-	Micro Matic	-
153	Main Hyd Servo Pump Current Consumption	Oceano STBD	-	Circulor	0-400 Amps
154	Main Hyd Servo Pump Disch Press	Oceano STBD	Hyd Oil	-	0-100 bar
155	Main Hyd Tank Oil Temp	Oceano STBD	Hyd Oil	Omega	RTD
156	Main Hyd Cooler SW Inlet Temp	Oceano STBD	Sea Water	Omega	RTD
157	Main Hyd Cooler SW Outlet Temp	Oceano STBD	Sea Water	Omega	RTD
158	Steering Gear Pump 1 Current Consumption	Trawl PORT	Hyd Oil	Deif	0-50 Amps
159	Steering Gear Pump 1 Oil Reservoir Pressure	Trawl PORT	Hyd Oil	Noshok	0-160 psi
160	Steering Gear Pump 2 Current Consumption	Trawl STBD	Hyd Oil	Deif	0-50 Amps
161	Steering Gear Pump 2 Oil Reservoir Pressure	Trawl STBD	Hyd Oil	Noshok	0-160 psi
162	Steering Gear STBD Chamber Press	Trawl CNTR	Hyd Oil	-	0-250 bar
163	Steering Gear PORT Chamber Press	Trawl CNTR	Hyd Oil	-	0-250 bar
164	PORT Air Station	Trawl PORT	Compressed Air	Wika	0-200 psi
165	Ejector Pump 1 Hours	MSD Rm	-	Redington	-
166	Ejector Pump 2 Hours	MSD Rm	-	Redington	-
167	Media Tank Press	MSD Rm	Sewage	Megnehelic	0-60"H ₂ O
168	Vacuum System Vacuum	MSD Rm	Black/Grey Water	Trerice	0-30"hg
169	Air Station	MSD Rm	Compressed Air	Wika	0-200 psi
170	UV Purifier Hours	MSD Rm	-	Grasslin	-
171	UV Relative % Irradiance	MSD Rm	-	Aquafine Corp	0-100 x254nm
172	Potable Water Pump 1 Disch Press	MSD Rm	Potable Water	Weksler	0-100 psi
173	Potable Water Pump 2 Disch Press	MSD Rm	Potable Water	Weksler	0-100 psi
174	Hot Water Pump 1 Disch Press	MSD Rm	Potable Water	Wika	0-160 psi
175	Hot Water Pump 2 Disch Press	MSD Rm	Potable Water	Wika	0-160 psi
176	Potable Water System Press	MSD Rm	Potable Water	Weksler	0-100 psi
177	Fire Pump Disch Press	BT Rm	Fire Main	Wika	0-100 psi

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178	Air Station	BT Rm	Compressed Air	Wika	0-200 psi
179	Bow Thruster Oil Pressure	BT Rm	Lube Oil	-	0-200 psi
180	Scientific Sampling Pump 1 Disch Press	BT Rm	Scientific SW	Weksler	0-100 psi
181	Scientific Sampling Pump 2 Disch Press	BT Rm	Scientific SW	Weksler	0-100 psi
180	Air Station	Reefer Rm	Compressed Air	-	0-200 psi
183	Reefer 1 Oil Pressure	Reefer Rm	Reefer Oil	Winiers	0-200 psi
184	Reefer 1 Suct Pressure	Reefer Rm	Refrigeration	Winiers	0-200 psi
185	Reefer 1 Disch Pressure	Reefer Rm	Refrigeration	Winiers	0-400 psi
186	Reefer 2 Oil Pressure	Reefer Rm	Reefer Oil	Winiers	0-200 psi
187	Reefer 2 Suct Pressure	Reefer Rm	Refrigeration	Winiers	0-200 psi
188	Reefer 2 Disch Pressure	Reefer Rm	Refrigeration	Winiers	0-400 psi
189	Reefer 2 Tank Pressure	Reefer Rm	Refrigeration	Marsh	0-500 psi
190	Reefer 2 Heat Exch Temp	Reefer Rm	Refrigeration	Reotemp	0-250°F
191	SCBA Air Compressor 1st Stage Pressure	Dive Locker	Compressed Air	Mako	0-200 psi
192	SCBA Air Compressor 2nd Stage Pressure	Dive Locker	Compressed Air	Mako	0-2000 psi
193	SCBA Air Compressor 3rd Stage Pressure	Dive Locker	Compressed Air	Mako	0-7500 psi
194	SCBA Air Compressor Hours	Dive Locker	-	-	-
195	SCBA Bank 1-4 Storage Pressure	Dive Locker	Compressed Air	Mako	0-7500 psi
196	SCBA Bottle 1 Press	Dive Locker	Compressed Air	Mako	0-7500 psi
197	SCBA Bottle 2 Press	Dive Locker	Compressed Air	Mako	0-7500 psi
198	Louver Air Press	01 Fan Rm	Compressed Air	-	0-200 psi
199	Air Station	01 Fan Rm	Compressed Air	Wika	0-200 psi
200	Scientific Freezer Oil Pressure	01 Fan Rm	Reefer Oil	Winiers	0-200 psi
201	Scientific Freezer Suct Press	01 Fan Rm	Refrigeration	Winiers	0-200 psi
202	Scientific Freezer Disch Press	01 Fan Rm	Refrigeration	Winiers	0-400 psi
203	Centerboard Hyd Upper Accumulator Press	01 Fan Rm	Hyd Oil	Stauff	0-5000 psi
204	Centerboard Hyd Lower Accumulator Press	01 Fan Rm	Hyd Oil	Stauff	0-5000 psi
205	Centerboard Oil Disch to 3-Way Valve	01 Fan Rm	Hyd Oil	Stauff	0-5000 psi
206	Centerboard Solenoid Valve Press	01 Fan Rm	Hyd Oil	Stauff	0-5000 psi
207	Louver Air Press	EDG Rm	Compressed Air	-	0-200 psi
208	Air Station	EDG Rm	Compressed Air	-	0-200 psi
209	EDG Racors FO Outlet Vacuum	EDG Rm	Fuel Oil	Parker	0-30"hg

3.5.5 Quality Assurance

a. After all removed gauges have been installed in each system the engineering department personnel shall operate each system to ensure there are no leaks. Repair all leaks, if any.

3.5.6 Notes

a. None

END OF ITEM

3.6 Item 15050: Flex Connections - Renewal

3.6.1 Intent

a. Provide all labor, material and equipment to renew miscellaneous flex connections on the ship.

3.6.2 References

- a. Bigelow Flex Hoses - FY19 DS Repairs
- b. NOAA Drawing HB-256 FP08, "Main Seawater Cooling System"
- c. NOAA Drawing HB-524 FP23, "Auxiliary Seawater Cooling System"
- d. NOAA Drawing HB-523 FP17, "Seawater Washdown System"

3.6.3 Government-Furnished Material

- a. None

3.6.4 Requirements

a. In conjunction with Ship's Force, follow ship's Lockout and Tagout Procedures to secure the hydraulics to the Crane HPU, Fuel Oil Purifier's, port and starboard Trawl Winches, Outhaul Winch and the port and starboard Gallows Swing Rams.

b. Renew all hydraulic hoses and hose end fittings on the equipment noted below and in reference (a) and in accordance to the following information. Disconnect and cap each hydraulic hose. Ensure containment is provided to prevent spillage of oil. Hydraulic lines and inlet/outlet ports shall be capped or plugged with threaded fittings to prevent leakage or contamination of the system. After all connections are free of leaks wrap all hose end fittings with cloth impregnated anti-corrosion grease tape. New hydraulic hoses shall be pressure tested to 125% of the rated maximum hose assembly pressure and tagged with engraved or embossed aluminum tags indicating test pressure, date and the contractor or facility that performed the tests. Provide and install protective nylon sleeves over each

hydraulic hose and secure the sleeves in place.

1. Crane HPU - 2 Deck (8 Hoses);
2. Fuel Oil Purifiers (fore and aft) - 3 Deck (5 hoses);
3. Trawl Winch (Port and Starboard) - 2 Deck (8 hoses per trawl winch);
4. Gallows Swing Rams (Port and Starboard) - Main Deck (2 hoses per swing ram and 2 hoses located in trawl winch room);
5. Stern Gate - Trawl Winch Room (8 hoses in trawl winch room and 4 hoses in gate trunk);
6. Out Haul Winch - Trawl Winch Room (6 hoses);
7. Aft A-Frame - Aft Main Deck (9 hoses).

c. Provide the following information on the replaced hydraulic hoses (Fill in/correct all information in reference (a)):

1. Parent System;
2. Detail on the hose assembly (make, model, size);
3. Length of hose;
4. Type of hose/Type of adapter;
5. Tag number/Location.

d. In conjunction with Ship's Force, follow ship's Lockout and Tagout Procedures to secure the main and auxiliary seawater pumps, the washdown pump.

e. Renew the main seawater system expansion joints on the following systems and in accordance with reference (b). The new expansion joints must be ABS approved.

1. Inlet/outlet to each pump;
2. Inlet/outlet to each propulsion motor heat

exchanger;

3. Outlet of each sea chest strainer (4 total).

f. Renew the auxiliary seawater pump expansion joints in accordance with reference (c). The new expansion joints must be ABS approved.

g. Renew the deck washdown pump expansion joints in accordance with reference (d). The new expansion joints must be ABS approved.

h. Renew the two chiller expansion joints. The new expansion joints must be ABS approved.

i. Renew the Mission Hydraulic system expansion joints. The new expansion joints must be ABS approved.

j. Clear all Tagouts / Lockouts with Ship's Force.

3.6.5 Quality Assurance

a. In conjunction with ship's force perform an operational test on each piece of equipment to ensure there are no leaks on the hoses or fittings. Repair all leaks, if any.

3.6.6 Notes

a. None

END OF ITEM

3.7 Item 15051: Piping General - Exterior Air Pipes Replacement

3.7.1 Intent

a. Provide all labor, material and equipment to replace the ship's service air exterior pipes.

3.7.2 References

a. None

3.7.3 Government-Furnished Material

a. None

3.7.4 Requirements

a. In conjunction with Ship's Force, follow ship's Lockout and Tagout Procedures to secure the air to each pipe to allow for the safe removal and installation of each new pipe section.

b. Replace the exterior air piping at the following air stations:

1. Starboard Gallows - Main Deck;
2. Port Gallows - Main Deck;
3. Paint Locker - Main Deck;
4. Deck Locker - Main Deck;
5. Side Sampling Station - Main Deck;
6. Port Net Reel - 01 Deck;
7. Starboard Crane - 01 Deck;
8. Hydro Winches - 01 Deck;
9. 01 Deck Forward Starboard Side;
10. 01 Deck Forward Port Side.

c. The air piping will be replace from just above the deck up to and including the isolation valve and quick disconnect fitting. All new piping shall be 3/4 inch, schedule

80, 316 stainless steel pipe. All new isolation valves shall be 3/4 inch, 316 stainless steel, 3-piece ball valves. All new quick disconnects shall be 1/2 inch, 316 stainless steel, female disconnects. Remove and scrap all weathertight enclosures for each noted location.

d. After successful air tests have been complete, paint all new piping. The top coat shall match the existing color of the pipe. Do not paint the new valves or quick disconnects.

e. Power tool clean and preserve the areas behind the removed weathertight enclosures. The top coat shall match the existing color.

3.7.5 Quality Assurance

a. Perform an air test on all new piping and check for leaks. Repair all deficiencies, if any.

3.7.6 Notes

a. None

END OF ITEM

3.8 Item 15052: Piping General - Port Sea Chest Vent Pipe Replacement

3.8.1 Intent

a. Provide all labor, material and equipment to replace the replace the port main sea chest vent pipe.

3.8.2 References

a. NOAA Standard Specification AMC-505-2, "Hydrostatic Pressure Test"

3.8.3 Government-Furnished Material

a. None

3.8.4 Requirements

a. In conjunction with Ship's Force, follow ship's Lockout and Tagout Procedures to secure the port sea chest isolation valve.

b. Crop out and scrap the port main sea chest vent pipe from horizontal section in the engine room supply air plenum back to the isolation valve upper flange.

c. Provide and install 2 inch 90-10 CUNI pipe in place of the removed piping from the isolation valve up to the horizontal section. Provide and install one 2 inch 90-10 CUNI flange and one 2 inch steel flange and install in the horizontal section in engine room supply air plenum. Provide and install a gasket in the flange. Approximately 50 feet of CUNI pipe will be required as well as four (4) 90 degree CUNI elbows and two (2) 45 degree CUNI elbows. Install a blank flange on the isolation valve while existing piping is being removed and the new piping is being installed.

d. After all hydrostatic tests have been accepted by ABS, preserve the new piping and any disturb steel areas. The top coat shall be white.

3.8.5 Quality Assurance

a. Perform a hydrostatic pressure test on the new pipe section in accordance with reference (a). The test pressure

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shall be 50 psig.

3.8.6 Notes

- a. None

END OF ITEM

3.9 Item 15053: Piping General - Crossover Pipe Installation

3.9.1 Intent

a. Provide all labor, material and equipment to valves, flanges and fittings in the main seawater, auxiliary seawater and fire main systems to allow the main seawater pumps to pressurize the fire main system in an emergency.

3.9.2 References

a. NOAA Standard Specification AMC-505-2, "Hydrostatic Pressure Test"

3.9.3 Government-Furnished Material

- a. Gate Valve, 6", Bronze, 2 total
- b. Gate Valve, 3", Bronze, 2 total

3.9.4 Requirements

a. In conjunction with Ship's Force, follow ship's Lockout and Tagout Procedures to secure the main seawater, auxiliary seawater and fire main systems, as necessary to perform the following work.

b. Install valves, flanges, piping, fittings, etc. in the following piping systems:

1. Main Seawater Cooling

- a) Install the government-furnished 6 inch bronze gate valve in the vertical piping in the upper main machinery room (MMR) next to

the chill water pumps. See Figure 3.9.1.



Figure 3.9.1

- b) Provide and install a 6 x 6 x 3 inch CUNI tee above the installed valve.
 - c) Provide and install a 3 inch CUNI flange onto the tee.
 - d) Provide and install a 2-1/2 inch brass fire hose fitting (male thread) onto the CUNI flange.
2. Fire Main
- a) Provide and install a 4 x 4 x 3 inch,

schedule 80, steel tee in the fire main piping in the overhead near the port evaporator. See Figure 3.9.2.



Figure 3.9.2

- b) Provide and install a 3 inch, schedule 80, nipple and a 3 inch, schedule 80, 90 degree elbow off of the tee. The length of the elbow shall be such that the gate valve can be installed without hitting any other structure.
- c) Provide and install a 3 inch steel flange onto the elbow.
- d) Install the government-furnished 3 inch bronze gate valve onto the flange.
- e) Provide and install a 3 inch CUNI flange

onto the valve.

- f) Provide and install a 2-1/2 inch brass fire hose fitting (male thread) onto the CUNI flange.

3. Main Seawater Cooling

- a) Install a 6 inch CUNI flange on the end of the main seawater supply header to the starboard heat exchangers. See Figure 3.9.3.



Figure 3.9.3

- b) Install the government-furnished 6 inch bronze gate valve onto the flange.
- c) Provide and install a 6 inch CUNI flange

onto the valve.

- d) Provide and install a 6 inch to 3 inch CUNI reducer onto the flange.
- e) Provide and install a 3 inch CUNI flange onto the reducer.
- f) Provide and install a 2-1/2 inch brass fire hose fitting (male thread) onto the CUNI flange.

4. Auxiliary Seawater

- a) Install a 3 x 3 x 3 inch CUNI tee in the auxiliary seawater piping in the upper MMR, starboard side, near the aft air compressor. See Figure XX.



Figure 3.9.4

- b) Provide and install a 3 inch CUNI flange

onto the tee.

- c) Install the government-furnished 3 inch bronze gate valve onto the flange.
- d) Provide and install a 3 inch CUNI flange onto the valve.
- e) Provide and install a 2-1/2 inch brass fire hose fitting (male thread) onto the CUNI flange.

c. Install pipe hangers, as necessary, to support all new valves and piping.

d. Provide and install gaskets between all valves and flanges.

e. All fasteners shall be stainless steel.

f. After all hydrostatic tests have been successfully completed, preserve the new steel piping and any disturb steel areas. The top coat shall be white.

g. Insulate all new and disturbed CUNI piping similar to the existing insulated piping. The wettable cloth shall be painted white.

3.9.5 Quality Assurance

a. Perform a hydrostatic pressure test on the new pipe section in accordance with reference (a). The test pressure shall be 50 psig.

3.9.6 Notes

a. None

END OF ITEM

3.10 Item 15120: Ventilation Systems - HVAC Duct Cleaning

3.10.1 Intent

a. Clean all exhaust and supply heating, ventilation, and air conditioning systems supplying to and exhausting from all public spaces and all staterooms on the ship.

3.10.2 References

a. NOAA Standard Specification MOC-510-1B, "HVAC Cleaning"

3.10.3 Government-Furnished Material

a. None

3.10.4 Requirements

a. Provide the services of a qualified marine ventilation cleaning company to thoroughly clean the interior surfaces of the ventilation systems listed below, including ducts, trunks, screens filters, heaters and fan castings. All interferences shall be removed to provide access to ducting and ventilation components for the purpose of cleaning the ventilation systems. After completion of the ventilation cleaning and acceptance by NOAA, Restore all removed interferences and accomplish touchup painting of any disturbed surfaces. The cleaning of ducts and trunks shall be accomplished by high vacuum suction augmented by hand tools. Galley ducts shall be thoroughly degreased with commercial detergents and scrapers

b. Clean all HVAC systems in their entirety, from inlet trunk or duct, to fan, and from fan through entire duct distribution system supplying/exhausting to/from all public spaces and all staterooms in accordance with reference (a) with

the following additional requirements:

1. Clean galley intake ducting, TA-03;
2. Clean galley exhaust ducting, E-04;
3. Clean laundry/stored intake, TA-02;
4. Clean laundry exhaust ducting, E-10;
5. Clean main accommodation intake, AC-01;
6. Clean 01 and 02 deck exhaust, E-01;
7. Clean 2nd deck exhausts, E-11;
8. Clean lab supply, AC-04;
9. Clean Lab exhausts, E-06, E-07, E-08, E-14;
10. Clean Stores intake, TA-04;
11. Clean Stores exhaust, E-13.

c. Use of a skipper hose, per paragraph 3.7.4.a. of reference (a), is not required in round ducts, provided a system using single, round brushes, each matched to various duct diameters, is used to clean the entire inside of the ducts.

d. The system using dry ice for duct cleaning is not authorized in this contract.

e. Ship's fans cannot be used to facilitate duct cleaning.

f. Remove grease and debris from all inside surfaces of Galley Exhaust System, E01-48-3.

g. Accomplish joint inspection with COR of all HVAC Return and Recirculation systems. Inspect all ducts, along with all items installed in each system, to include fans, dampers, and heaters. Conduct visual inspections. Provide condition report identifying findings using a spreadsheet or table, with columns in which each system, and system components, are identified, along with an associated row for findings and recommendations.

h. Remove all existing inspection and access covers

inducts for inspection. Remove all existing registers and terminals for inspection. Reinstall covers, registers, and terminals upon completion of inspection.

i. Clean the Gaylord Hood system as follows:

1. Disassemble, clean, inspect, and reassemble the internal nozzles, baffles, ducts, and wash down systems;
2. Route out the hood drains to remove all debris,
3. Test and operate the wash down system;
4. Use a grease solvent to clean the interior of the Gaylord Hood exhaust system ducts, and the exhaust fan;
5. Protect galley range hood form accidental discharge during cleaning.

3.10.5 Quality Assurance

- a. All cleaning shall be inspected and accepted by the COR or the port Engineer prior to reinstalling access openings.

3.10.6 Notes

- a. None

END OF ITEM

3.11 Item 15121: Ventilation Systems - Duct Replacement

3.11.1 Intent

a. Provide all labor, material and equipment to replace ducting and overhaul fans on several ventilation systems.

3.11.2 References

a. NOAA Drawing HB-512-FV07, "HVAC General Notes and Construction Details"

3.11.3 Government-Furnished Material

a. None

3.11.4 Requirements

a. In conjunction with Ship's Force, follow ship's Lockout and Tagout Procedures to secure/de-energize the following fans:

1. S07 - Bow Thruster Room Supply Fan;
2. S01 - EDG Room Supply Fan;
3. E06 - Main Deck Exhaust Fan.

b. AC01 - Outside Air Supply for A/C System

1. Disconnect the motor electrically and mechanically. Remove motor and fan assembly, tag and convey to shop. Remove all of the supply fan ducting (up to the upper duct flange) in the bow thruster room.

2. Provide services of a local OEM service provider to provide inspection of fans. Provide and install new motor bearings, seals and provide fan balancing. Provide CFR.

3. Provide and install two new fan flex connection joints per reference (a), sheet 25 of 47. New fan connections to have a clear opening same as the existing. Flex material to be 1/16 inch neoprene coated fiberglass cloth.

4. Preserve the new ducting, flex connections and fan in accordance with reference 2.1.4, sheet 4 of 34.

5. Power tool clean and preserve the fan foundation.

The top coat shall be white.

6. Install fan and renew fan resilient mounts. The existing resilient mounts are Christie & Grey 19.100 Y.M.F. (4 total).

7. Provide and install new gaskets (between flanges) and stainless steel hardware as per reference (a), General Note 7.

c. EDG Room Supply Fan (S01)

1. Disconnect the motor electrically and mechanically. Remove motor and fan assembly, tag and convey to shop. Remove all of the supply fan ducting (up to the upper duct flange) in the bow thruster room.

2. Provide services of a local OEM service provider to provide inspection of fans. Provide and install new motor bearings, seals and provide fan balancing. Provide CFR.

3. Provide and install two new fan flex connection joints per reference (a), sheet 25 of 47. New fan connections to have a clear opening same as the existing. Flex material to be 1/16 inch neoprene coated fiberglass cloth.

4. Remove all of the ducting and perform a light sand sweep on the ducting in accordance with SSPC-SP7 / NACE 4 Brush-Off Blast Cleaning.

5. Preserve the new ducting, flex connections and fan in accordance with reference 2.1.4, sheet 4 of 34.

6. Power tool clean and preserve the fan foundation. The top coat shall be white.

7. Install fan and renew fan resilient mounts. The existing resilient mounts are Christie & Grey RH28 M.F. (4 total).

8. Provide and install new gaskets (between flanges) and stainless steel hardware as per reference (a), General Note 7.

9. Renew the end cover gasket and free up all cover

dogs.

d. Main Deck Exhaust Fan (E06)

1. Disconnect the motor electrically and mechanically. Remove motor and fan assembly, tag and convey to shop. Remove all of the supply fan ducting (up to the upper duct flange) in the bow thruster room.

2. Provide services of a local OEM service provider to provide inspection of fans. Provide and install new motor bearings, seals and provide fan balancing. Provide CFR.

3. Provide and install two new fan flex connection joints per reference (a), sheet 25 of 47. New fan connections to have a clear opening same as the existing. Flex material to be 1/16 inch neoprene coated fiberglass cloth.

4. Remove all of the ducting and perform a light sand sweep on the ducting in accordance with SSPC-SP7 / NACE 4 Brush-Off Blast Cleaning.

5. Preserve the new flex connections and fan in accordance with reference 2.1.4, sheet 4 of 34.

6. Power tool clean and preserve the fan foundation. The top coat shall be white.

7. Install fan and renew fan resilient mounts. The existing resilient mounts are Christie & Grey RH28 M.F. (4 total).

8. Provide and install new gaskets (between flanges) and stainless steel hardware as per reference (a), General Note 7.

9. Renew the end cover gasket and free up all cover dogs.

e. Outside Air Supply for A/C System (AC01)

1. Disconnect the motor electrically and mechanically. Remove motor and fan assembly, tag and convey to shop. Remove all of the supply fan ducting (up to the upper duct flange) in the bow thruster room.

2. Provide services of a local OEM service provider to provide inspection of fans. Provide and install new motor

bearings, seals and provide fan balancing. Provide CFR.

3. Provide and install two new fan flex connection joints per reference (a), sheet 25 of 47. New fan connections to have a clear opening same as the existing. Flex material to be 1/16 inch neoprene coated fiberglass cloth.

4. Remove all of the exterior ducting and perform a light sand sweep on the ducting in accordance with SSPC-SP7 / NACE 4 Brush-Off Blast Cleaning. Inspect the interior of the ducting and provide a condition report to the COR of found condition.

5. Preserve the ducting, new flex connections and fan in accordance with reference 2.1.4, sheet 4 of 34.

6. Power tool clean and preserve the fan foundation. The top coat shall be white.

7. Install fan and renew fan resilient mounts. The existing resilient mounts are Christie & Grey RH80 M.F. (4 total).

8. Provide and install new gaskets (between flanges) and stainless steel hardware as per reference (a), General Note 7.

9. Renew the end cover gasket and free up all cover dogs.

10. Renew the flex joint between the fan and the duct heater located inside of the CO2 room. Coordinate this work with Item 15210: Fire System Annual Servicing work item.

f. Clear all Tagouts / Lockouts with Ship's Force.

3.11.5 Quality Assurance

a. With the COR test fans in all modes for proper operation and rotation direction.

3.11.6 Notes

a. The fan information is as follows:

Fan	Manufacturer	Model (Size)
S07	American Fan Co. & Woods	45JM (17 23/32" DIA.)
S01	Woods Fan Co.	31JM (12 13/32" DIA.)

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E06	Woods Inc.	35JM
AC01	Woods Fan Co.	63JM (24 13/16" DIA.)

END OF ITEM

3.12 Item 15120: Ventilation Systems - Fume Hood Replacement

3.12.1 Intent

a. Provide all labor, material and equipment to replace the fume hood located in the Preservation Alcove (1-31-3).

3.12.2 References

a. None

3.12.3 Government-Furnished Material

a. None

3.12.4 Requirements

a. In conjunction with Ship's Force, follow ship's Lockout and Tagout Procedures to secure the fume hood.

b. Disassemble and remove the fume hood and base from the Preservation Alcove (1-31-3) located on the main deck and scrap. Remove and scrap the drain piping back to the union near the aft bulkhead and removable pipe joint near the inboard bulkhead.

c. Renew the Labconco fume hood and base in the Preservation Alcove. Install the new fume hood and base and secure in place similar to how the existing fume hood and base were secured. Provide and install new drain piping. All new piping shall be 304 stainless steel. The required fume hood parts shall be as follows:

1. Solvent Storage Cabinet, 48 inches wide, VWR P/N 46610-474;
2. Filler Panel, 8 inches deep F/Cabinet, VWR P/N 89238-200;
3. REDISHIP Premier Hood 4FT/115V, VWR P/N 89260-050;
4. REDISHIP Premier Spills Stopper, 4FT, VWR P/N 89260-066.

d. Wire up the new fume hood in accordance with the manufacturer's instructions.

e. Connect the exhaust vent of the new fume hood to the

existing vent. Modify the existing vent, as necessary, to ensure a tight seal.

3.12.5 Quality Assurance

- a. Perform an operational test of the new fume hood.
- b. Pour water down the drain piping to ensure there are no leaks. Repair all leaks, if any.

3.12.6 Notes

- a. Labconco contact information is as follow:

Andy Miller
Senior Sales Representative
Labconco Corporation
Tel: 603-770-7929 (Cell)

END OF ITEM

3.13 Item 15130: MMR Supply Fan Overhaul

3.13.1 Intent

a. Provide all labor, material and equipment to overhaul the MMR Supply fans.

3.13.2 References

a. NOAA Drawing HB-512-FV07, "HVAC General Notes and Construction Details"

3.13.3 Government-Furnished Material

a. None

3.13.4 Requirements

a. With the COR check the fans and dampers for proper operation in all modes of operation. Provide CFR of operation check.

b. Remove installed MMR supply fans. Provide proper lock out tag out before removal.

c. Provide services of a local OEM service provider to provide inspection of fans. Provide and install new motor bearings, seals and provide fan balancing. Provide CFR.

d. Remove and inspect ducting and damper louvers. Freshwater pressure wash, lubricate, and inspect for proper operation. Provide CFR.

e. Replace the existing ducting from the bottom of each fan to the damper louvers with 316 stainless steel ducting and flanges.

f. Restore damper louvers. Provide and install new gaskets and stainless steel hardware as per reference (a), HVAC General Notes.

g. Provide and install two new fan flex connection joints per reference (a), sheet 25 of 47. New fan connections to have a clear opening same as the existing. Flex material to be 1/16 inch neoprene coated fiberglass cloth.

h. Install fans and renew fan resilient mounts. The existing resilient mounts are Christie & Grey Cushyfloat,

17/1609/1-55. Four mounts per fan (8 total mounts).

i. Renew bell mouths for each fan. The new bell mouths shall be fabricated from 316 stainless steel. Bell mouth max OD is 1200 mm. Provide and install new 316 stainless steel wire mesh screens in accordance with reference (a), General Note 6.

j. Provide and install new gaskets and stainless steel hardware as per reference (a), General Note 7.

3.13.5 Quality Assurance

a. With the COR, test fans in all modes for proper operation and rotation direction.

3.13.6 Notes

a. The MMR fans are Woods Inc. fans. Fan Size 100 JM.

END OF ITEM

3.14 Item 15160: Scientific Freezer Compressor No. 2 Piping & Electrical Installation

3.14.1 Intent

a. Provide all labor, material and equipment to install cooling water piping, refrigerant piping and electrically wire the spare (No. 2) scientific freezer compressor unit.

3.14.2 References

a. Tech Manual HB-516 03 (FRV40-225-091-010), "Refrigeration System, Scientific Freezer, Carrier"

3.14.3 Government-Furnished Material

a. None

3.14.4 Requirements

a. Provide and install two (2) low profile evaporator coils, Kramer Model LPE-46 or equal, in the scientific freezer located in the Wet Lab on the main deck. Provide and install mounting brackets, similar to the existing freezer evaporator brackets, for the new evaporators. New coils can take up no more room than the existing coils and must be adjacent to each other on the aft bulkhead of the freeze box.

b. Relocate the existing scientific freezer compressor skid from the upper engine room, starboard side, to the 01 deck fan room. The exact location of the skid in the fan room will be determined by the COR and the CME.

c. Provide and install a new system control box, Carrier P/N 90Y SYSCTRLBOX, on the bulkhead next to the scientific freezer compressor in the fan room.

d. Make all electrical and system control connections to the compressor, evaporator coils and compressor control system in accordance with reference (a). Wire the compressor, evaporator coils and compressor control system as follows:

1. Provide and run new electrical power cable from Power Panel P604 to the freezer compressor. Power Panel P604 is located in the upper engine room, starboard side. Utilize existing wire runs, hangers and multi cable transits as much as

possible to run the new cable,

2. Provide and install a new NEMA 4X fused disconnect between the breaker in P604 and the compressor. Mount the fused disconnect next to the compressor,

3. Provide and run new electrical power cable from power panel P406 to the freezer compressor unit control box. Power panel P406 is located in the ladderwell going up to the bridge from the 02 deck,

4. Provide and install a new NEMA 4X fused disconnect between the breaker in P406 and the unit control box. Mount the fused disconnect next to the compressor. Wire the disconnect to the control box. Use reference (a) as a guide.

e. Provide and install new suction and liquid lines to/from the freezer compressor unit and the new evaporators. All refrigeration lines are to be brazed copper pipe and fittings. Copper tubing is not acceptable. All piping passing through watertight bulkheads and decks as well as any A-60 fire boundaries shall be installed through pipes and filled with an ABS type approved watertight and fire tight material system such as the RISE/NOFIRNO system. Install pipe hangers on all newly installed lines to properly support each line. The minimum line sizes shall be as follows:

1. Liquid Line - 3/8" OD minimum;
2. Suction Line - 1-1/8" OD minimum.

f. Provide, install and wire three (3) liquid line solenoid valves (LLSV). The valve will be installed in accordance with Reference (a). The new LLSV's shall be similar to the existing ones.

g. Provide and install isolation valves on the refrigerant lines before the compressor and before the evaporator coil in the freeze box. Valves in both locations are to have Schrader valves installed on the equipment side of the valve.

h. Provide and install isolation valves on the refrigerant lines before the compressor and before the evaporator coil in the freeze box. Valves in both locations are to have Schrader valves installed on the equipment side of the

valve.

i. Provide and install new 1½ inch CUNI pipes to/from the freezer unit condenser to the existing cooling water piping to the existing condensing unit in the fan room. Cooling water connections to/from the condenser are to be via flexible hoses with stainless fittings. Hoses and fittings must have a minimum pressure rating of 150 PSI. Install a 1½ inch isolation ball valve in the supply line from the existing cooling water piping for the No. 1 compressor unit. Contractor is to provide and install a 1½ inch water regulating valve (WRV). The WRV is to be intended for continuous use in salt water service and be similar to the existing WRV for the No. 1 scientific freeze compressor unit located on the 01 deck fan room. Provide and install 1½ inch isolation ball valve on each side of the WRV. Provide and install a 1½ inch CUNI pipe by-pass around the WRV. The by-pass line shall have a 1½ inch isolation ball valve installed. The cooling water must be able to be isolated between the two compressor/condenser units to allow for the individual operation of each compressor unit.

j. After the system has been checked for leaks and proven SAT, install insulation and wettable cloth on all refrigerant and cooling water lines ensuring no portions of the lines are left un-insulated.

k. Paint all lines, lagging and disturbed surfaces to match surrounding.

l. Provide and install aluminum type stamped wire labels at each end of all new electrical cables and on each side of all bulkhead penetrations in keeping with good marine practice.

3.14.5 Quality Assurance

a. Pressurize refrigerant lines with nitrogen and check for leaks. Evacuate all refrigerant lines, compressor and evaporator. Install new filter dryer, compressor oil and charge with refrigerant.

b. Ensure freeze box is at ambient temperature and commission the No 2 compressor. Allow unit to complete on full cycle and ensure the box reaches set point (-10 Deg F) within 30

minutes.

3.14.6 Notes

- a. All bulkhead and deck penetrations must be per ABS standards.
- b. All electrical cables must be ABS or MILSPEC low smoke approved.
- c. Entire installation must be completed utilizing marine grade components, fixtures, materials and accessories.
- d. All cooling water system valves are to be stainless steel.

END OF ITEM

3.15 Item 15550: Fire System Annual Inspection

3.15.1 Intent

a. Provide all labor, material and equipment to perform the annual inspection and certification of the fire system.

3.15.2 References

- a. NOAA Drawing HB-985 FA05, "Fire Control Plan"
- b. Fire System Inventory (01-19-18)

3.15.3 Government-Furnished Material

- a. None

3.15.4 Requirements

a. General

1. All systems and equipment shall be maintained in accordance with requirements as set forth by the OEM, United States Coast Guard (USCG), American Bureau of Shipping (ABS), Code of Federal Regulations (CFR), Department of Transportation (DOT), Occupational Safety and Health Administration (OSHA), National Institute for Occupational Safety and Health (NIOSH), Mine Safety and Health Administration (MSHA), and National Fire Protection Association (NFPA), Underwriters Laboratories (UL), and Factory Mutual Research Corp (FM) as applicable.

2. Servicing technicians for the SCBAs must be covered by a current ABS certificate for Self-Contained Breathing Apparatus Servicing Firms. Provided a copy of the certificate.

3. Repairs on SCBAs shall be accomplished by an OEM authorized repair facility.

4. Servicing technicians for the firefighting equipment and fire detection system must be covered by a current ABS certificate for Fire Extinguishing Systems Inspection/Maintenance Firms. Provided a copy of the certificate.

5. Guarantee workmanship and material against defects for twelve months. Authorized repairs or replacements will be approved within a reasonable time after written notice

that the goods are deemed to be defective.

6. Submit a condition report consisting of a detailed list of necessary replacement parts and repairs not already identified.

7. Ensure that any spaces which have CO2 release alarms tested, are safe for entry after thorough ventilation.

8. Coordinate servicing with the local ABS Surveyor as required by ABS.

b. Reports, Tests, Evaluations

1. Inspect and test all fire systems on board the vessel including all:

- a) Time delays,
- b) Sirens,
- c) Heat detectors,
- d) Smoke detectors,
- e) Pressure switches,
- f) Remote pull boxes,
- g) Control alarm panels,
- h) Two Galley roller doors.

2. Inspect and test the Gaylord Hood Fire Suppression System. Renew all fusible links.

3. Inspect all (fixed & portable) fire extinguishers (CO2, ABC, Purple K and Halotron) throughout the vessel to include the Fast Rescue Boat assigned to the vessel.

4. Inspect, test and return all SCBA units (facemasks and tanks). Refill SCBA tanks after testing.

5. Inspect and test H2S alarms located in the MSD flat.

c. Deliverables

- 1. After completion of all servicing and repairs,

provide an ABS approved, completed Marine Certificate of Inspection.

2. Verify and provide redline markup of reference (a), as necessary.

3. Update reference (b) to reflect the latest changes to the equipment in supplied government format (.xls).

3.15.5 Quality Assurance

a. No additional requirements.

3.15.6 Notes

a. The Contractor shall ensure that their company and technicians, whether employed directly or subcontracted, have Certifications/Approvals that are maintained current throughout the period of performance.

END OF ITEM

3.16 Item 15560: Mission - Mission System Electric Motor and Hydraulic Pump Overhauls

3.16.1 Intent

a. Provide all labor, material and equipment to remove and overhaul the mission system electric motors and hydraulic pumps.

3.16.2 References

a. None

3.16.3 Government-Furnished Material

a. None

3.16.4 Requirements

a. In conjunction with Ship's Force, follow ship's Lockout and Tagout Procedures to secure the port sea chest isolation valve.

b. Pump all hydraulic oil from the Mission System reservoir into clean moisture-free dockside storage tanks.

c. Remove all 8 mission system HPU electric motors from the ship and have the bearings and couplings replaced by a factory authorized overhaul and repair facility.

d. Remove the No. 1, 2, 3, 4, 6 and 7 hydraulic pumps from the ship and have them overhauled by a factory authorized overhaul and repair facility. Cap/plug all pump and hose fittings while the pumps are disconnected.

e. Renew the five (5) pump suction line butterfly valves located on the reservoir.

f. After all work has been completed return all removed hydraulic oil to the reservoir. The transfer of oil to the reservoir shall be through 10 micron (max.) filters.

g. Clear all Tagouts / Lockouts with Ship's Force.

3.16.5 Quality Assurance

a. Perform an operational test of all pumps and motors and check for leaks and binding in the couplings. Repair all

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deficiencies, if any.

3.16.6 Notes

a. None

END OF ITEM

3.17 Item 15610: Steering Gear Pump Renewals

3.17.1 Intent

a. Provide all labor, material and equipment to renew the two steering gear pumps.

3.17.2 References

a. Tech Manual HB-561-02 (FRV40-225-128-010), "Steering Gear Model"

3.17.3 Government-Furnished Material

a. None

3.17.4 Requirements

a. Prior to removing the steering gear pumps operate the rudder from hard over to hard over and record the total travel (in degrees) to each side. Time the rudder from hard over on one side to hard over on the other side and record the results. Time the rudder in each direction. Provide the COR with a report of all readings.

b. In conjunction with Ship's Force, follow ship's Lockout and Tagout Procedures to secure the steering gear pumps.

c. Remove the port and starboard steering gear pumps (Denison T6C series vane pumps) and renew the pumps. Install the new pumps. Drain down oil from each reservoir, as necessary, to remove/install pumps. Oil will be placed in clean containers. The new pump must be ABS approved pumps with certification. Use reference (a) as a guide.

d. Clear all Tagouts / Lockouts with Ship's Force.

3.17.5 Quality Assurance

a. After the pumps have been installed operate the rudder from hard over to hard over and record the total travel (in degrees) to each side. Time the rudder from hard over on one side to hard over on the other side and record the results. Time the rudder in each direction. Provide the COR with a

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report of all readings.

3.17.6 Notes

a. None

END OF ITEM

3.18 Item 15830: Liferaft Annual Inspection

3.18.1 Intent

a. Provide all labor, material and equipment for the annual service and recertification of the ships liferafts.

3.18.2 References

a. NOAA Standard Specification AMC-583-1B, "General Requirements for Liferaft Inspections"

3.18.3 Government-Furnished Material

- a. Elliot Liferrafts, 6 each
- b. Switlik Liferaft, 1 each

3.18.4 Requirements

a. Perform annual servicing/inspection of the seven (7) liferafts listed in Table 301-1 in accordance with Reference (a) as modified below:

- 1. Perform the 5 year inspection on the 6 Elliot liferafts.
- 2. In addition to being an authorized USCG servicing facility, the liferafts must be serviced by Original Equipment Manufacture's factory certified technicians.
- 3. All replacement pyrotechnic signaling devices (including aerial flares and hand held signals) must be within 3 months of the date of manufacture when replaced on the life rafts during servicing.
- 4. Properly dispose of all replaced material.

Table 1. Henry B. Bigelow Liferaft Inventory

<u>MFG</u>	<u>SIZE</u>	<u>SERIAL #</u>	<u>MFG DATE</u>	<u>LAST 5th YEAR</u>	<u>NEXT 5th YEAR DUE</u>	<u>RELEASE EXPIRATION</u>	<u>ADDITIONAL PARTS REPLACEMENTS</u>
Elliot	25	5086300200934 Lot 1551	7/2015	N/A	12/2019	1/1/19	
Elliot	25	5086300200716 Lot 1551	4/2015	N/A	12/2019	1/1/19	

<u>MFG</u>	<u>SIZE</u>	<u>SERIAL #</u>	<u>MFG DATE</u>	<u>LAST 5th YEAR</u>	<u>NEXT 5th YEAR DUE</u>	<u>RELEASE EXPIRATION</u>	<u>ADDITIONAL PARTS REPLACEMENTS</u>
Elliot	25	5086300200762 Lot 1551	4/2015	N/A	12/2019	1/1/19	
Elliot	25	5086300200942 Lot 1551	7/2015	N/A	12/2019	1/1/19	
Elliot	25	5086300200719 Lot 1551	7/2015	N/A	12/2019	1/1/19	
Elliot	25	5086300200730 Lot 1551	4/2015	N/A	12/2019	1/1/19	
Switlik	4	P4-2310	3/2006			N/A	

3.18.5 Quality Assurance

a. Provide three copies of all service records, inspection reports, and certificates to the COR.

3.18.6 Notes

a. None

END OF ITEM

3.19 Item 15831: Fast Rescue Boat Davit Inspection - Annual

3.19.1 Intent

a. Provide all labor, material and equipment to perform the annual inspection/groom on the fast rescue boat davit.

3.19.2 References

a. Tech Manual HB-583-03 (FRV40-225-093-010), "Rescue Boat Handling System"

3.19.3 Government-Furnished Material

a. None

3.19.4 Requirements

a. Provide the services of an OEM certified service technician to perform annual inspection of the FRB davit in accordance with reference (a).

b. Upon completion of inspection, a Certificate of Inspection shall be issued by the equipment manufacturer. Documentation of wire rope inspection and load testing, wire pull tests, and function test of brakes, clutches, and davit shall also be provided.

3.19.5 Quality Assurance

a. In accordance with reference (a).

3.19.6 Notes

a. Davit Manufacturer and Type/Serial No.: Schat-Harding, Type: SA3.5, S/N: 1112/04

b. Winch Manufacturer & Type/Serial No.: Schat-Harding, Type W50RS, S/N 1180/04

c. Hook Manufacturer and Model/Serial No.: Cranston-Eagle, Model: APR-356-CB/CBH, S/N: 1703-05, SWL: 3,500KG (7,715 lbs)

d. Schat-Harding is now owned by Palfinger Marine. Contact information is as follows:

1. Palfinger Marine USA INC., 705 Mt. Vernon Ave.,

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Portsmouth, VA 23707, Tel: 757-399-1633, Attn: Thomas Faison,
Email: Thomas.faison@palfingermarine.com

END OF ITEM

3.20 Item 15910: Hydro Winches Reservoir Cross Connect Pipe Installation

3.20.1 Intent

a. Provide all labor, material and equipment to install a cross connection between the forward and aft hydrographic winches hydraulic reservoirs.

3.20.2 References

a. None

3.20.3 Government-Furnished Material

a. None

3.20.4 Requirements

a. Drain and scrap the hydraulic oil in the forward and aft hydrographic winches hydraulic reservoirs. The winches are located on the 01 deck, starboard side.

b. Open, clean and make the reservoirs safe for hot work. Provide a certified marine chemist to certify the reservoirs safe for hot work.

c. Provide and install two (2) two inch pipe couplings and two (2) two inch pipe nipples, one in each tank similar to Figure 5.6.1, in each reservoir. Provide and install two (2) two inch, 3 piece, stainless steel ball valves and a connecting flexible hose between the two ball valves. See Figure 1.

d. After both reservoirs have been checked for leaks, preserve all new and disturbed steel. The top coat shall be black.

e. After all welding has been completed, thoroughly clean the interior of each reservoir. Reinstall each access cover with new gaskets.

f. Provide and install 92 gallons of Panolin HLP Synth 46 hydraulic oil in each reservoir.

g. After all connections are free of leaks wrap all hose

end fittings with cloth impregnated anti-corrosion grease tape.

3.20.5 Quality Assurance

a. Perform an air test on each hydraulic reservoir to check for leaks. Repair all leaks, if any.

3.20.6 Notes

a. Figure 1 shows the installation of the cross connect piping on a sister ship.

Figure 1 - Hydro Winch Cross Connection



END OF ITEM

3.21 Item 15950: Handling System Maintenance - Trawl Block Overhauls

3.21.1 Intent

a. Provide all labor, material and equipment to overhaul the four trawl blocks.

3.21.2 References

a. None

3.21.3 Government-Furnished Material

a. Trawl Blocks, 4 each

3.21.4 Requirements

a. Remove the two trawl blocks located in the Bigelow gear shed located at 166 Water Street, Woods Hole, MA and transport to the contractors shop.

b. Disassemble the two trawl blocks to allow for the measurement and inspection of all bushings and pins. Provide a condition found report to the COR on the condition of the pins and bushings as well as the measurements (diameters) of each pin and bushing. Provide any recommendations of any pin and/or bushing needing replacement, if any.

c. Thoroughly clean/polish each pin and bushing.

d. With the assistance of ship's force, remove the port and starboard gallows trawl blocks and transport to the contractors shop.

e. Disassemble the two trawl blocks and renew all bushings. Thoroughly clean and polish all pins.

f. Sandblast and preserve each trawl block (4 total). Ensure all bushings and moving parts are completely protected. Preserve the blocks in accordance with reference 2.1.4, page 7 of 34. The top coat will be black.

g. Once all work and additional work, if any, have been completed reassemble the blocks, grease all movable parts and transport the blocks to the ship.

h. With assistance of ship's force, install the two trawl

blocks that were located in the gear shed in Woods Hole on the ship gallows. Ship's force will place the remaining two blocks in the ship's storage area on the pier.

3.21.5 Quality Assurance

a. Ensure that all movable parts of the blocks move freely without any binding.

3.21.6 Notes

a. Below are pictures of the trawl blocks:



NOTE: The blocks shown are the ones currently on the ship.

END OF ITEM

3.22 Item 16340: Decking - Stateroom Carpet Replacement

3.22.1 Intent

a. Provide all labor, material and equipment to replace the carpets in all staterooms.

3.22.2 References

a. 16 CFR 1630 - Standard for the Surface Flammability of Carpets and Rugs (FF 1-70)

b. NOAA Drawing HB-634 FZ04, "Deck Coverings Key Plan & Schedule"

3.22.3 Government-Furnished Material

a. None

3.22.4 Requirements

a. The contractor shall perform all work in accordance reference (a).

b. New carpet shall be USCG/SOLAS approved in accordance with reference (a). All rugs/carpets shall be made of wool or other material having equivalent fire resistive and wear qualities.

c. Provide carpet and cove base samples to the COR during the first week of the availability to choose new carpet.

d. All provided measurements are approximate. Actual measurements are the responsibility of the vendor.

e. Remove existing carpeting from compartments listed in Table 1. Remove existing adhesive materials. Remove all furniture, as necessary, to remove/install the existing/new carpet. Clean and prepare deck and lower portion of bulkheads as required by carpet installer. Furniture to be removed from each room shall be all dressers, desks, lockers and file cabinets. Bunks will not be required to be removed.

f. Visually inspect condition of existing steel deck plating, coating, and underlayment. Provide COR with a condition report if additional repairs are required. If required,

additional work will be negotiated separately.

g. Provide and install new carpeting over entire deck area previously covered. Use reference (b) as a guide. Carpeting shall be IMO approved, Federal Specification DD-C-95, Type II, Class 4, color to be determined by the COR.

h. Carpet shall be installed bulkhead to bulkhead and be fitted closely to all bulkheads, built in furniture bases, and around stanchions, deck fixtures, etc. Carpet shall be glued directly to the finished deck with a manufacturer's approved adhesive.

i. Standard seamless broadloom width shall be used unless seaming is required. Seams in carpeting shall be avoided to the maximum extent possible. Where seams are unavoidable, the location of the seam shall be in a low traffic area and approved by the COR. Seams, where required, are to be sewn or taped. Tape used in making seams shall be a minimum of 2-1/2 inches wide. The finished seams shall be secure and able to withstand conventional commercial rug cleaning processes.

j. Install new cove base around perimeter of compartments. Install finish strips on bases of lockers and wardrobe to cover leveling hardware.

k. Thoroughly clean the spaces upon completion. Wipe down all bulkheads, overheads and surfaces of all equipment/furnishings. Vacuum the space of all debris.

l. Clean all damaged paint to sound paint or bare metal. Clean all exposed metal free of foreign matter and corrosion. Spot prime all damaged paint or exposed metal. Coat all new and damaged areas with 2 coats of finish paint to match the surrounding area. Epoxy paint must be used over galvanized metal.

3.22.5 Quality Assurance

a. As required by references (a) and (b).

3.22.6 Notes

a. Table 1 - Stateroom Carpet List

Stateroom	Approximate Square Ft.	Stateroom	Approximate. Square Ft.	Stateroom	Approximate. Square Ft.
02-21-0	128	01-19-2	128	2-23-1	140

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02-21-1	128	01-24-4	128	2-23-2	104
02-21-2	128	01-28-2	128	2-29-4	116
02-38-2	100	01-30-1	100	2-31-3	116
02-43-1	108	01-33-4	80	2-31-5	116
02-45-1	108	01-37-2	80	2-34-2	140
02-46-2	108	01-19-1	300	2-39-4	104
		01-32-1	150	2-39-5	140
				2-44-1	140
				2-44-2	140

END OF ITEM

4. Basic Items - PAC 20000

4.1 Item 25230: Bridge Wiper System Replacement

4.1.1 Intent

a. Provide all labor, material and equipment to replace the existing window wiper and wash systems on the Bridge and Side Sampling Station Control Booth.

4.1.2 References

- a. NOAA Drawing HB-085 FA02, "General Arrangements"
- b. NOAA Drawing HB-611 FH87, "Windows & Portlights Key Plan & Schedule"
- c. NOAA Drawing HB-300 PE42, "Bridge Deck Arrangement"

4.1.3 Government-Furnished Material

- a. None

4.1.4 Requirements

a. Remove all existing window wipers, motors, controls, etc., and discard. Use references (a), (b) and (c) as guides.

b. Provide and install a complete window wiper system of the following type and construction:

1. All marine grade Aluminum, watertight to the maximum practical extent.

2. "Straight-line" style wiper motion.

c. The window wipers shall at a minimum be provided with the following features:

1. 120 VAC, with externally mounted motors.

2. Variable speed, with return to default location when deactivated.

3. Controls and grouping shall be similar to what is currently installed on the ship.

4. Controllers shall be capable of activating the

window wash booster pump.

5. Optional window wash nozzles and associated controls.

6. Anti-condensation heater inside wiper housings.

d. Select and install a window wash booster pump in the Bridge that meets the following criteria:

1. Pump pressure and output shall be as recommended by the wiper manufacturer to adequately supply wash water to the largest grouping of wash nozzles. All pump components in contact with the wash water shall be non-corrosive.

2. Existing window wash piping and solenoid valves shall be utilized to the maximum practical extent.

3. Pump shall be activated by the wash control buttons on each of the window wiper controls with wash nozzles.

4. Pump shall be 110 VAC with power source location to be directed by the COR. Provide all wiring, breakers, hangers, circuit labels and permanently wire the pump.

5. Pump shall be located on the starboard side of the Bridge where the old wash system was located behind joiner panels. Modify existing foundation to accept pump, if possible, otherwise provide a new foundation.

6. Pump shall be connected to the existing potable water piping at that location with an inline backflow preventer. Suction and discharge isolation valves, and local pressure gauge shall also be provided.

7. Provide and install new piping as needed to connect to the existing potable water and window wash piping. Piping shall be of the same size and material as existing.

e. See references (b) and (c) for exact window sizes, wiper locations and quantities, grouping, control locations, etc. (Note - a ship check shall be performed to confirm existing ship installation).

f. All existing bulkhead penetrations, motor mounts, wiper mounts, control locations, etc. shall be utilized, or adapted to the maximum practical extent. Where not practical, new penetrations, mounts, etc. shall be provided and the

existing shall be removed and restored to match the surrounding area.

g. All existing window wash system tubing, and wiper power supplies shall be utilized as directed by the COR.

4.1.5 Quality Assurance

a. All selected equipment and wiper sizes, locations, grouping, control locations, etc. shall be approved by the COR.

b. Wipers and window wash systems shall be fully commissioned and tested IAW manufacturers' recommendations upon installation completion.

c. Provide technical manuals for the wipers and window wash booster pump, in hard copy and electronically.

d. Check all new and disturbed piping for leaks. Repair all deficiencies, if any.

4.1.6 Notes

a. Existing shipboard installation shall be ship checked prior to final system selection.

END OF ITEM

4.2 Item 25510: Air Compressor Replacement

4.2.1 Intent

a. Provide all labor, material and equipment to remove two existing ship's air compressors, provide and replace with two new air compressors.

4.2.2 References

- a. ABS Rules 4-4-1/9.19 Flexible Hoses
- b. IEEE 45 2002, 11.1.2 a) AC Controllers
- c. IEEE 45 2002, 11.6 Air Compressor
- d. NAVSEA Pub S6430-AE-TED-010 Technical Directive for Piping Devices, Flexible Hose Assemblies
- e. NOAA Drawing HB-551 FP07, "Compressed Air System Diagram"

4.2.3 Government-Furnished Material

- a. None

4.2.4 Requirements

- a. Use references (a), (b), (c), (d) and (e) as guides for procuring new compressors and replacing the existing one.
- b. Notify COR before starting task. Electrical and air system must be locked and tagged out by NOAA ship's engineer before starting work.
- c. Remove two existing air compressors and associated vibration mounts. Contractor is responsible for disposal of both air compressors.
- d. Procure two new air compressors with the following salient characteristics. COR to approve selected air compressor before procurement:
 - 1. Rotary screw compressor;
 - 2. Electrical rating: 480 V, 3 phase, 60 Hz. Ship

has 45 amp breaker supplying each compressor;

3. Ambient noise level must not exceed 72 dBA;
 4. Minimal ambient rating of 120 degrees F;
 5. Minimum of 50 cfm of ship's service air at 125 psi (each compressor);
 6. air cooled;
 7. Maximum exterior dimension - L 45 inches, W 32 inches, H 60;
 8. Controller capable of controlling lead/lag mode of both compressors;
 9. Auxiliary contact for summary alarm output to ship's monitoring system.
- e. Modify foundation raft as necessary for new compressors. Preserve the foundation raft. The top coat shall match the surrounding color.
- f. Procure and install 6 new Christie Grey isolation mounts for raft, replacing 6 existing mounts. The new mounts will be sized for the total weight of the raft, two compressors, and attached piping (before isolation hose to ship's air system).
- g. Install new air compressors on raft.
- h. Connect compressors to electrical supply.
- i. Connect compressors to ship's air piping with vibration isolation hose.
- j. Provide manufacturer's recommended spares including (if not part of recommended spares):
1. Two hard copies and one digital(PDF)version of

the: operating manual, service manual, and parts manual;

2. One complete set of solenoid valves;
3. One complete set of fuses;
4. One complete set of sensors;
5. One compressor/motor coupling or one set of drive belts (whichever is applicable to compressors);
6. One set of hoses and flexible lines;
7. One spare HMI (user interface screen);
8. One compressor end overhaul kit;
9. Procure the services of the compressor manufacturer's authorized technician to approve installation, perform startup/troubleshooting, commissioning and provide crew training.

4.2.5 Quality Assurance

- a. COR and ABS to witness operation of two compressors:
 1. Test each new pipe joint and connection for leaks with soap solution at 125 psi system pressure.
 2. Operate #1 compressor at 125 psi for at least one hour while bleeding air from the receiver or system. Record each power phase amperage to compressor.
 3. Operate #2 compressor at 125 psi for at least one hour while bleeding air from the receiver or system. Record each power phase amperage to compressor.
 4. Demonstrate satisfactory operation of control, indicating, safety, regulating and emergency devices for each compressor including:
 - a) Lead/Lag operation,
 - b) Emergency stops,
 - c) Summary alarm to ship's machinery monitoring

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system.

4.2.6 Notes

4.2.7 The new air compressor installation must meet all ABS requirements for ship's service and starting air.

END OF ITEM

Additional Work Items - ORF 30000 and PAC 40000

5.1: Additional Work [Labor and Material]

5.1.1 Work Description - Additional Work - Labor and Material

5.1.2 References

(a) None

5.1.3 Government Furnished Material

5.1.3.1 None

5.1.4 Requirements

5.1.4.1 This is a place holder only. Refer to the contract clause "1352.271-72 ADDITIONAL ITEM REQUIREMENTS (AIR) - GROWTH WORK (APR 2010)" for all requirements dealing with emergent work and changes associated with this contract.

5.1.4.2 Schedule B provides an estimate of labor hours and material growth for emergent work anticipated for this contract.

5.1.5 Quality Assurance

5.1.5.1 COR Inspection.

5.1.6 Notes

5.1.6.1 None

END OF ITEM

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Additional Work Items - ORF 30000 and PAC 40000

6.1: Additional Work [Labor and Material]

6.1.1 Work Description - Additional Work - Labor and Material

6.1.2 References

(a) None

5.1.5 Government Furnished Material

6.1.3.1 None

5.1.6 Requirements

5.1.4.3 This is a place holder only. Refer to the contract clause "1352.271-72 ADDITIONAL ITEM REQUIREMENTS (AIR) - GROWTH WORK (APR 2010)" for all requirements dealing with emergent work and changes associated with this contract.

5.1.4.4 Schedule B provides an estimate of labor hours and material growth for emergent work anticipated for this contract.

6.1.5 Quality Assurance

6.1.5.1 COR Inspection.

6.1.6 Notes

6.1.6.1 None

END OF ITEM

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1. Option Items - ORF 50000

7.1 Item 55890: Side Sampling Station A-Frame Overhaul

7.1.1 Intent

a. Provide all labor, material and equipment to overhaul the Side Sampling Station (SSS) A-Frame.

7.1.2 References

a. NOAA Standard Specification MOC-573-2, "Overhaul/Repair of Hydraulic Cylinders"

b. NOAA Standard Specification AMC-573-1C, "Testing of Davits and Weight Handling Gear"

7.1.3 Government-Furnished Material

a. None

7.1.4 Requirements

a. In conjunction with Ship's force, follow ship's lockout / tagout procedures to secure all electrical power and hydraulics serving the SSS A-Frame.

b. Provide a crane to facilitate in the removal/installation of the aft A-Frame. Disconnect the A-Frame hydraulic cylinders (lower pins) from the A-Frame frame foundation. Remove the stop tubes (2 total) from the A-Frame. Remove the A-Frame pins to allow for the removal of A-Frame. Disconnect electrical wiring to A-Frame lights. The approximate weight of the A-Frame with the hydraulic cylinders is 11,200 pounds. The approximate weight of the A-Frame **without** the hydraulic cylinders is 10,000 pounds.

c. Remove the two hydraulic cylinders (estimated weight per cylinder is 600 pounds) and overhaul them in accordance with reference (a). Each hydraulic cylinder has a 7 inch bore, 4 inch rod and 38 inch stroke. Renew the counterbalance valves on each cylinder. The existing valves are Sun Hydraulic, Model CWCA-LHN, and are to be set at 2,600 psi. The maximum operating pressure of the cylinders are 2,500 psi.

d. Renew all hydraulic hoses and hose end fittings on the A-Frame hydraulic cylinders. Disconnect and cap each hydraulic

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hose. Ensure containment is provided to prevent spillage of

oil. Hydraulic lines and inlet/outlet ports shall be capped or plugged with threaded fittings to prevent leakage or contamination of the system. After all connections are free of leaks wrap all hose end fittings with cloth impregnated anti-corrosion grease tape. New hydraulic hoses shall be pressure tested to 125% of the rated maximum hose assembly pressure and tagged with engraved or embossed aluminum tags indicating test pressure, date and the contractor or facility that preformed the tests. Provide and install protective nylon sleeves over each hydraulic hose and secure the sleeves in place.

e. Provide the following information on the replaced hydraulic hoses:

1. Parent System;
2. Detail on the hose assembly (make, model, size);
3. Length of hose;
4. Type of hose;
5. Type of adapter;
6. Tag number/Location.

f. Clean and measure the A-Frame pins and bushings. Provide a condition found report to the COR.

g. Power tool clean, down to white metal, all rusted areas on the A-Frame and preserve. Top coat shall match the existing color.

h. Reinstall the A-Frame. Reconnect the hydraulic cylinders to the A-Frame. Thoroughly grease the bushings/pins prior to moving the A-Frame.

i. After all work has been completed clear Tagouts / Lockouts with Ship's Force.

7.1.5 Quality Assurance

a. With the assistance of ship's force operate the A-Frame through its full range of motion to ensure there is not binding of the pins or excessive movement in the pin/bushing area and to check for leaks. Repair all deficiencies, if any.

b. Perform a load test of the A-Frame in accordance with

reference (b). The safe working load (SWL) of the A-Frame is 3,100 pounds. The test load shall be 3,708 pounds (125% of the SWL).

c. Perform a load test of the aft A-Frame large padeye in accordance with reference (b). The safe working load (SWL) of the A-Frame is 30,400 pounds. The test load shall be 30,000 pounds.

7.1.6 Notes

a. None

END OF ITEM

7.2 Item 55910: Oceanographic Winch Shaft Replacement

7.2.1 Intent

a. Provide all labor, material and equipment to replace the drum shaft on the Oceanographic Winch.

7.2.2 References

a. Tech Manual HB-591-02 (FRV40-225-048-010), "Trawling and Scientific Winch System"

7.2.3 Government-Furnished Material

a. Drum Shaft, 1 ea.

7.2.4 Requirements

a. In conjunction with Ship's force, follow ship's lockout / tagout procedures to secure all electrical power and hydraulics serving the Oceanographic Winch.

b. Provide the services of an OEM certified service engineer/technician to oversee/assist with the work on this item.

c. Remove the wire from the drum and store until all work has been completed. Perform a fresh water rinse of the wire as it is being spooled off of the winch.

d. Disassemble the Oceanographic winch to allow for the replacement of the drum shaft, item 7 of reference a. Renew all drum shaft bearings on each side of the drum. Renew all wear rings, seals and o-rings. Renew the slip ring and provide a spare slip ring. Drain all oil out of the gearbox and properly dispose of the oil. Renew the oil once the winch has been reassembled.

e. After all work has been completed clear Tagouts / Lockouts with Ship's Force.

f. Reinstall the removed wire. The wire shall be lubricated as it is being spooled back on the winch with an Environmentally Acceptable Lubricant (EAL). The wire must be spooled onto the drum under tension.

g. Provide the following spare parts to the ship's chief

engineer:

Electric control solenoids

- SB Brake release (1ea)
- SV-51C Brake control (2ea)
- SV 60A SV 60A Haul in and pay out (2ea)
- SV 65 Tension control (2ea)
- SV 51A 2 speed (1ea)

7.2.5 Quality Assurance

a. Perform an operational test of the winch under the supervision of OEM service engineer/technician prior to the reinstallation of the wire.

7.2.6 Notes

a. Rapp Marine is the manufacturer of the Oceanographic Winch. Their contact information is as follows:

Rapp Marine
2260 W. Commodore Way
Seattle, WA 98199
Tel: 206-286-8162

END OF ITEM

7.3 Item 55950: Handling System Maintenance - Crane Overhauls

7.3.1 Intent

a. Provide all labor, material and equipment to overhaul the telescoping boom crane.

7.3.2 References

a. Tech Manual HB-572-03 (FRV40-225-111-010), "Telescoping Boom Crane, Model EB70-60-25S, Appleton"

b. NOAA Standard Specification MOC-573-2, "Overhaul/Repair of Hydraulic Cylinders"

c. NOAA Standard Specification AMC-573-1C, "Testing of Davits and Weight Handling Gear"

7.3.3 Government-Furnished Material

a. None

7.3.4 Requirements

a. In conjunction with Ship's Force, follow ship's Lockout and Tagout Procedures to secure the telescoping crane hydraulic and electrical systems.

b. Remove the main boom, the two telescoping booms and the luff cylinder from the ship and transport to the contractor's facility. Use reference (a) as a guide.

c. Remove the two telescoping boom hydraulic cylinders [items 12 and 13 of reference (a)] and the luff hydraulic cylinder (item 5) and overhaul them in accordance with reference (b). Renew all counterbalance valves in accordance reference (a). Sandblast and preserve the cylinders. The top coat shall be black.

d. Remove and overhaul the gear box, drum assembly, hydraulic brake and the hydraulic motor for the winch, item 6 on drawing AMD-1503 of reference (a). Renew all bearings, bushings, o-rings, seals, back-up rings and friction discs in accordance with reference (a). Inspect/clean all internal parts, checking for excessive wear, and provide a condition report to the COR of the findings.

e. Renew all bronze bushings on the crane. See items 45,

46 and 47 on drawing AMD-1503 of reference (a).

f. Renew all Nylotron pads (wear pads) on the crane boom. See items 62, 66, and 71 on drawing AMD-1503 of reference (a).

g. Renew all bronze slide pads (wear pads) on the crane boom. See items 60 and 68 on drawing AMD-1503 of reference (a).

h. Renew all bronze thrust washers on the crane boom. See items 76 and 77 on drawing AMD-1503 of Reference (a).

i. Renew the thrust bearing and the plastic shim set on the crane boom. See items 38 and 41 on drawing AMD-1503 of reference (a).

j. Renew all hydraulic hoses and hose end fittings on the crane. After all connections are free of leaks wrap all hose and end fittings with cloth impregnated anti-corrosion grease tape.

k. Polish all cylinder pins, sheave pins and the heel pin.

l. Reinstall all removed equipment and torque all bolts in accordance with reference (a).

m. Clear all crane Tagouts / Lockouts with Ship's Force.

7.3.5 Quality Assurance

a. Perform a load test on the crane in accordance with reference (c). The contractor shall provide a dynamometer, certified within the past 6 months, to verify the accuracy of the load test and all test weights. The test weights shall be as follows:

Equipment	SWL (lbs)	125% of SWL (Test Weight)
Telescoping Boom Crane (Retracted)	8,000	10,000
Telescoping Boom Crane (Extended)	5,000	6,250

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7.3.6 Notes

- a. None

END OF ITEM

7.4 Item 56340: Decking - Bridge Deck Covering Replacement

7.4.1 Intent

a. Provide all labor, material and equipment to remove the existing deck covering on the Bridge and install new.

7.4.2 References

a. NOAA Drawing HB-634 FZ04, "Deck Covering Key Plan & Schedule"

b. Flexco IMO Rubber Tile Datasheet

c. Radial-Rubber-Tile-RGT-Submittal

7.4.3 Government-Furnished Material

a. None

7.4.4 Requirements

a. Replace the deck covering on the Bridge deck interior spaces with IMO/USCG approved rubber tile deck covering per the following requirements:

b. 03 Level

1. Bridge (03-34-0): 1,351 Sq Ft

(NOTE: The total square feet noted may not be exact. The contractor is responsible for determining the exact square footage of the deck areas requiring replacement.)

c. Properly seal and protect interferences in place to prevent damage caused by work related to the removal or installation of flooring.

d. Plug the deck drain(s) to preclude introduction of debris resulting from this work. Upon completion of the decking renewal, remove the plug(s).

e. Install protective covering to protect the vessel's equipment and to contain the dust generated by this work item to the affected compartment(s). The COR shall approve the

protective covering prior to the start of productive work.

f. Remove the existing tile deck covering and underlayment in its entirety, around interference. Use reference (a) to determine existing deck covering. Where access is possible, deck covering and underlayment shall be removed under interference such as desk cutouts or under counter tops. Debris shall be removed from the vessel and properly disposed of on a daily basis.

g. Blow down and/or vacuum the compartment to remove all dirt and dust generated by the surface preparation activities.

h. Submit a condition report to the COR listing deteriorated foundations, deck drain retainer rings, etc., found during the inspection after all power tool cleaning has been completed. Additional repairs, if deemed necessary by the COR, shall be the subject of a change order.

i. Prepare surface for underlayment per manufacturer's recommendations.

j. Install lightweight, fiber reinforced underlayment similar to SIKAFLEX CUFADAN S-110 (reference a). The underlayment shall be a minimum thickness per manufacturer's recommendations and shall fair-in irregularities in the deck including weld seams, depressions, etc. Total thickness of the underlayment shall result in deck covering being flush with surface of tie down points and deck drains.

k. Upon inspection and approval of the underlayment by the COR, install Flexco IMO/USCG approved Radial II Profile 18 inch by 18 inch 1/8 inch gauge Rubber Tile (RGT) in the Flextones style with color Windsor 049 (reference (b) and c). The rubber tiles shall be installed with IAW manufacturer's instructions using approved adhesive.

l. Installed floor covering shall be sealed against all interferences and bulkheads to prevent the ingress of moisture and minimize visibility of previous floor covering under interference.

m. When installation of the rubber tiles is completed, blow-down and vacuum the entire compartment, including protective covering and equipment and fixtures in the

compartment.

n. Install Flexco 1/8 inch vinyl wall base in Flextones color 049 Windsor around the entire perimeter of the space.

o. Remove all protective covering. Clean the compartment(s) and leave in a condition ready for use. The COR shall inspect all areas after cleaning.

7.4.5 Quality Assurance

a. Underlayment, deck covering, and sealer are to be intended for installation as a complete deck cover solution. Materials are to be intended or purposed for shipboard use on steel decking and are to be of suitable quality to stand up to heavy foot traffic.

7.4.6 Notes

a. None

END OF ITEM

7.5 Item 56341: Decking - Dry/Chem Lab Deck Covering Replacement

7.5.1 Intent

a. Provide all labor, material and equipment to remove the existing deck covering in the Dry Lab and Chemical Lab rooms and install new.

7.5.2 References

a. NOAA Drawing HB-634 FZ04, "Deck Covering Key Plan & Schedule"

b. Flexco IMO Rubber Tile Datasheet

c. Radial-Rubber-Tile-RGT-Submittal

7.5.3 Government-Furnished Material

a. None

7.5.4 Requirements

a. Replace the deck covering in the Dry Lab and Chem Lab deck interior spaces with IMO/USCG approved rubber tile deck covering per the following requirements:

b. Main Deck

1. Dry Lab (1-47-0): 292 Sq Ft

2. Chem Lab (1-31-1): 279 Sq Ft

Total Sq Ft Main Deck: 571

(NOTE: The total square feet noted may not be exact. The contractor is responsible for determining the exact square footage of the deck areas requiring replacement.)

c. Properly seal and protect interferences in place to prevent damage caused by work related to the removal or installation of flooring.

d. Plug the deck drain(s) to preclude introduction of debris resulting from this work. Upon completion of the decking

renewal, remove the plug(s).

e. Install protective covering to protect the vessel's equipment and to contain the dust generated by this work item to the affected compartment(s). The COR shall approve the protective covering prior to the start of productive work.

f. Remove the existing tile deck covering and underlayment in its entirety, around interference. Use reference (a) to determine existing deck covering. Where access is possible, deck covering and underlayment shall be removed under interference such as desk cutouts or under counter tops. Debris shall be removed from the vessel and properly disposed of on a daily basis.

g. Blow down and/or vacuum the compartment to remove all dirt and dust generated by the surface preparation activities.

h. Submit a condition report to the COR listing deteriorated foundations, deck drain retainer rings, etc., found during the inspection after all power tool cleaning has been completed. Additional repairs, if deemed necessary by the COR, shall be the subject of a change order.

i. Prepare surface for underlayment per manufacturer's recommendations.

j. Install lightweight, fiber reinforced underlayment similar to SIKKA CUFADAN S-110 (reference a). The underlayment shall be a minimum thickness per manufacturer's recommendations and shall fair-in irregularities in the deck including weld seams, depressions, etc. Total thickness of the underlayment shall result in deck covering being flush with surface of tie down points and deck drains.

k. Upon inspection and approval of the underlayment by the COR, install Flexco IMO/USCG approved Radial II Profile 18 inch by 18 inch 1/8 inch gauge Rubber Tile (RGT) in the Flextones style with color Windsor 049 (reference (b) and c). The rubber tiles shall be installed with IAW manufacturer's instructions using approved adhesive.

l. Installed floor covering shall be sealed against all interferences and bulkheads to prevent the ingress of moisture and minimize visibility of previous floor covering under

inference.

m. When installation of the rubber tiles is completed, blow-down and vacuum the entire compartment, including protective covering and equipment and fixtures in the compartment.

n. Install Flexco 1/8 inch vinyl wall base in Flextones color 049 Windsor around the entire perimeter of the space.

o. Remove all protective covering. Clean the compartment(s) and leave in a condition ready for use. The COR shall inspect all areas after cleaning.

7.5.5 Quality Assurance

a. Underlayment, deck covering, and sealer are to be intended for installation as a complete deck cover solution. Materials are to be intended or purposed for shipboard use on steel decking and are to be of suitable quality to stand up to heavy foot traffic.

7.5.6 Notes

a. None

END OF ITEM

7.6 Item 56342: Decking - Preservation Alcove Deck Covering Replacement

7.6.1 Intent

a. Provide all labor, material and equipment to remove the existing deck covering in the Dry Lab and Chemical Lab rooms and install new.

7.6.2 References

a. NOAA Drawing HB-634 FZ04, "Deck Covering Key Plan & Schedule"

b. Flexco IMO Rubber Tile Datasheet

c. Radial-Rubber-Tile-RGT-Submittal

7.6.3 Government-Furnished Material

a. None

7.6.4 Requirements

a. Replace the deck covering on the Preservation Alcove deck interior spaces with IMO/USCG approved rubber tile deck covering per the following requirements:

b. Main Deck

1. Preservation Alcove (1-31-3): 91 Sq Ft

(NOTE: The total square feet noted may not be exact. The contractor is responsible for determining the exact square footage of the deck areas requiring replacement.)

c. Properly seal and protect interferences in place to prevent damage caused by work related to the removal or installation of flooring.

d. Plug the deck drain(s) to preclude introduction of debris resulting from this work. Upon completion of the decking renewal, remove the plug(s).

e. Install protective covering to protect the vessel's equipment and to contain the dust generated by this work item to the affected compartment(s). The COR shall approve the

protective covering prior to the start of productive work.

f. Remove the existing tile deck covering and underlayment in its entirety, around interference. Use reference (a) to determine existing deck covering. Where access is possible, deck covering and underlayment shall be removed under interference such as desk cutouts or under counter tops. Debris shall be removed from the vessel and properly disposed of on a daily basis.

g. Blow down and/or vacuum the compartment to remove all dirt and dust generated by the surface preparation activities.

h. Submit a condition report to the COR listing deteriorated foundations, deck drain retainer rings, etc., found during the inspection after all power tool cleaning has been completed. Additional repairs, if deemed necessary by the COR, shall be the subject of a change order.

i. Prepare surface for underlayment per manufacturer's recommendations.

j. Install lightweight, fiber reinforced underlayment similar to SIKAFLEX CUFADAN S-110 (reference a). The underlayment shall be a minimum thickness per manufacturer's recommendations and shall fair-in irregularities in the deck including weld seams, depressions, etc. Total thickness of the underlayment shall result in deck covering being flush with surface of tie down points and deck drains.

k. Upon inspection and approval of the underlayment by the COR, install Flexco IMO/USCG approved Radial II Profile 18 inch by 18 inch 1/8 inch gauge Rubber Tile (RGT) in the Flextones style with color Windsor 049 (reference (b) and c). The rubber tiles shall be installed with IAW manufacturer's instructions using approved adhesive.

l. Installed floor covering shall be sealed against all interferences and bulkheads to prevent the ingress of moisture and minimize visibility of previous floor covering under interference.

m. When installation of the rubber tiles is completed, blow-down and vacuum the entire compartment, including protective covering and equipment and fixtures in the

compartment.

n. Install Flexco 1/8 inch vinyl wall base in Flextones color 049 Windsor around the entire perimeter of the space.

o. Remove all protective covering. Clean the compartment(s) and leave in a condition ready for use. The COR shall inspect all areas after cleaning.

7.6.5 Quality Assurance

a. Underlayment, deck covering, and sealer are to be intended for installation as a complete deck cover solution. Materials are to be intended or purposed for shipboard use on steel decking and are to be of suitable quality to stand up to heavy foot traffic.

7.6.6 Notes

a. None

END OF ITEM

7.7 Item 56340: Showers/Heads Flooring Replacement

7.7.1 Intent

a. Provide all labor, material and equipment to remove the existing flooring in the showers/heads and install new.

7.7.2 References

a. None

7.7.3 Government-Furnished Material

a. None

7.7.4 Requirements

a. Remove all tiles from the following stateroom shower stalls and head floors. Plug the deck drains prior to removal of the tiles and cover all surrounding surfaces. Remove all mortar and tile adhesion products and clean to the subsurface. Each shower is approximately 27 inches by 36 inches in size. Each head is approximately 4.5 feet by 6 feet (including shower stall).

Stateroom	Approx. Square Ft.	Stateroom	Approx. Square Ft.	Stateroom	Approx. Square Ft.
02-21-0	34	01-19-2	34	2-23-1	34
02-21-1	34	01-24-4	34	2-23-2	34
02-21-2	34	01-28-2	34	2-29-4	34
02-38-2	34	01-30-1	34	2-31-3	34
02-43-1	34	01-33-4	34	2-31-5	34
02-45-1	34	01-37-2	34	2-34-2	34
02-46-2	34	01-32-1	34	2-39-4	34
				2-39-5	34
				2-44-1	34
				2-44-2	34

b. Power tool clean the entire deck, drain pans and six inches up from the bottom of all bulkheads, to an SSPC-SP11 surface condition. Inspect surface preparation with COR.

Provide a condition found report on all drain pans.

c. Prime all decks and drain pans.

d. Install new flooring system in place of all removed tiles. Replacement flooring system shall be American Safety Technologies, ST-100 Honey Brown. Slope new flooring system to the deck drain. Installation of new flooring shall include molding of approximately 3 inches in height. Molding shall be attached to the coaming, not the joiner wall. Caulk the gap remaining between the joiner bulkhead and the shower floor coaming.

e. Provide and install clear non-slip granules in the top coat or the sealer as recommended by the manufacturer.

f. Seal the decking surface with 2 coats of high strength sealer according to manufacturer recommendations. Total thickness of sealing coats shall be 15-20 mils thick. If additional coats are recommended by the manufacturer, provide a CFR to the port engineer with recommendations.

g. Caulk and seal all seams to make the shower watertight.

h. Upon completion of work, reinstall all removed items. Remove protective coverings and clean the bulkheads and overheads.

7.7.5 Quality Assurance

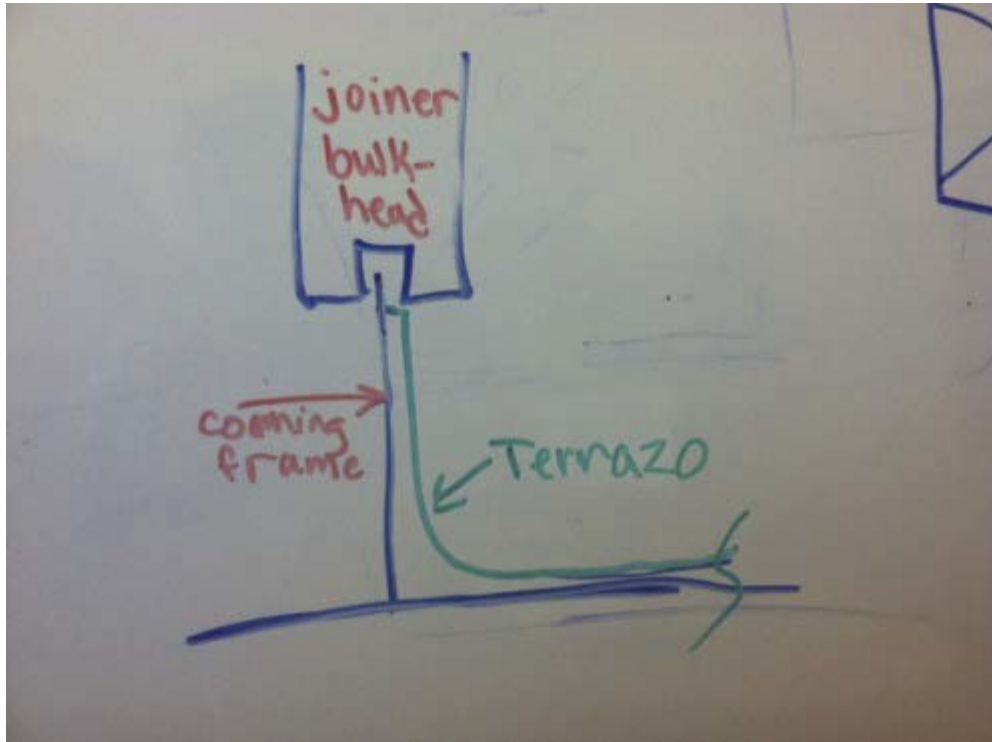
a. Validate all drains are free flowing after flooring is installed.

b. After cleaning is accomplished, inspect space with Government representative to validate cleanliness of space is equal to level of cleanliness prior to commencement of work.

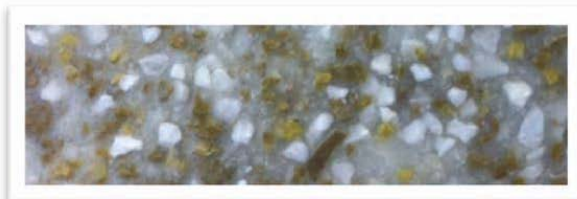
7.7.6 Notes

a. Photograph depicting shower stall coaming frame and joiner bulkhead. New flooring system shall extend as molding to the lower edge of the joiner bulkhead, but shall not be attached

to the joiner bulkhead.



b. Flooring system that will be installed in showers/heads:



END OF ITEM

2. Option Items - PAC 60000

8.1 Item 26410: Galley Equipment Replacement

8.1.1 Intent

a. Provide all labor, material and equipment to remove existing and install new galley equipment, cabinets and counters, flooring, minor plumbing and minor electrical work.

8.1.2 References

a. NOAA Drawing HB-651-001, "Mod to Food Service Areas (07-13-18)"

b. Galley Modification Photos - Dyson

c. NOAA Drawing HB-634 FZ04, "Deck Covering Key Plan & Schedule"

d. MIL-PRF-24613 Performance Specification Deck Covering

Materials, Interior, Cosmetic Polymeric

- e. NOAA Drawing HB-300 FE01, "Power One Line"

8.1.3 Government-Furnished Material

- a. Cabinet (Item 38), 1 ea.
- b. Cabinet (Item 37), 1 ea.
- c. Cabinet (Item 36), 1 ea.
- d. Sheet Pan Rack (Item 35), 1 ea.
- e. Countertop (Item 33), 1 ea.
- f. Center Island (Item 1), 1 ea.
- g. Deep Sink and Countertop (Item 7), 1 ea.
- h. Counter (Item 6), 1 ea.
- i. Cabinets (Item 4), 2 ea.
- j. Shelf (Item 2), 1 ea.
- k. Cabinet (Item 45) 1 ea.
- l. Cabinet (Item 46) 2 ea.
- m. Cabinet (Item 47) 1 ea.

8.1.4 Requirements

a. Relocate/install the following equipment beneath Gaylord Hood. Use reference (a), Section 22-A as reference for dimensions. All equipment and cabinets of this section shall be mounted with front of each in same plane. Use low profile, noncorroding and easy-to-clean fasteners. Final positioning of equipment and cabinets is to be approved by the COR.

1. Fabricate and install new foundation for cabinets and equipment.

- a) Foundation shall be a minimum of 3/16 inch steel angle and shall completely enclose the area below equipment and cabinets to prevent

passage of dirt and water.

- b) Foundation shall be continuous.
- c) Inboard end shall be fitted and welded to existing galley counter serving line foundation. Outboard end shall be fitted and welded to existing Scullery/Galley division joiner bulkhead foundation.
- d) Foundation shall be continuously welded to steel deck and shall be four inches in height.
- e) Foundation shall include additional steel angles to provide a continuous mounting area for cabinets and equipment bases.
- f) Repair disturbed area of deck from installation including previously damaged area beneath old foundation as required.
- g) Remove legs from equipment and fasten directly onto new foundation using bolted stainless-steel fasteners. Modify foundation sections so that equipment working surfaces and cabinet tops are of same height. Final surface height to be approved by COR.
- h) Fastening of equipment and cabinets shall allow for removal of mounting fasteners with the use of a single socket wrench.

2. Install government furnished cabinet (38) and install cabinet against bulkhead. Refer to reference (a), Section 22-A, Cabinet (38).

3. Provide and install cook line rack with three shelves above cabinet of item 3.22.4.a.2. Shelves shall be four-inch deep, and maximum width to fit within roller door frame and forward bulkhead of galley. Each shelf shall have sides four inches tall to contain cooking spice containers. Shelves shall be constructed of 18-gauge 304 grade stainless steel. Shelf sides shall have rolled top with no sharp edges. Final height of each shelf to be approved by COR. See

reference (b), Picture I.

4. Remove existing range and range top and dispose of same.

5. Procure new combination range/griddle top with 2 French plates equivalent to Lang Marine Model R36C-ATAM with sea rails (sea rails for keeping pots in place at sea), 480V, 3 Phase.

a) Install range against cabinet (38) of item 3.22.4.a.2.

b) Connect to electrical power. 480V, 3 Phase, and 40 AT power supply is available (power to original range).

6. Fabricate and install 2 inch tubular grab hand rail at top front of range. Rail shall be sufficiently strong to support man while at sea with rolling and pitching of ship. See Photo A of reference (b).

7. Install government furnished cabinet (37) directly outboard of range of item. Cabinet doors shall have marine type latches that can be operated with one hand and piano type stainless hinges. Refer to Reference (a), Section 22-A, Cabinet (37).

8. Relocate existing deep fat fryer atop of cabinet (37) of item 3.22.4.a.7. Connect to electrical power; if existing power cable is of insufficient length, install new cable from breaker panel to deep fat fryer.

9. Provide and install partition between deep fat fryer and range top. Partition shall be the full depth of the deep fat fryer and extend 24 inches vertically. Material shall be 18-gauge 304 grade stainless steel. Exposed edges shall be rolled with no sharp edges. Corners shall be rounded and rolled with no sharp edges. See picture A of reference (b).

10. Install government furnished cabinet (36) and sheet pan rack (35) directly outboard of cabinet (37) of item 3.22.4.a.7. Refer to reference (a), Section 22-A, Cabinet (36) and Sheet Pan Rack (35).

11. Relocate convection oven atop of cabinet (36) of

item 3.22.4.a.10.

12. Install government furnished counter top and frame (33) directly outboard of sheet pan rack (35) of item 3.22.4.a.10. Refer to reference (a), Section 22-A, Counter Top (33).

- a) Relocate existing steamer below counter top of (33) of item 3.22.4.a.12 and connect to electrical power.
- b) Mount existing steam kettle atop of counter top (33). Reconnect steam kettle to power.

13. As required for equipment, run new power cable(s) from power panel P420, located in Mess Room.

14. Each electrically powered equipment shall have an engraved label indicating equipment name and power source (panel and breaker number).

b. Center Island Replacement

1. Remove existing center island and dispose of same.

2. Install new foundation. Foundation shall be a minimum of 3/16 inch 316 stainless steel angle and shall completely enclose the area below island to prevent passage of dirt and water. Height of foundation shall be 4 inches in height.

- a) Foundation shall be continuous and continuously welded to steel deck.
- b) Fastening of island shall allow for removal of mounting fasteners with the use of a single socket wrench.
- c) Repair disturbed area of deck from installation including previously damaged area beneath old foundation as required.

3. 3. Install new government furnished island (1)

on new foundation.

c. Single Deep Sink

1. Remove and dispose of galley double deep sink and counter top.

2. Install new foundation. Foundation shall be a minimum of 3/16 inch 316 stainless steel angle and shall completely enclose the area below sink to prevent passage of dirt and water. Height of foundation shall be 4 inches.

3. Foundation shall be continuous and shall be continuously welded to steel deck.

4. Fastening of deep sink shall allow for removal of mounting fasteners with the use of a single socket wrench.

5. Repair disturbed area of deck from installation including previously damaged area beneath old foundation as required.

6. Install new government furnished single deep sink (7) and counter top with faucet.

7. Install two outlets in bulkhead, one centered above counter on each side of the deep sink. Each outlet shall be approximately 5 feet above the deck level in location of existing cover plates. Existing plate on bulkhead above aft end may be used for this purpose. Final position of outlets shall be approved by COR.

8. Reinstall existing slicer on forward counter of deep sink and centered on counter. Use new outlet for power. Use CRES fasteners.

9. Reinstall mixer on aft counter of deep sink and centered on counter. Use new outlet for power. Use CRES fasteners.

d. Refrigerator/Freezer Foundation Modification

1. Remove side by side True Refrigerator/Freezer unit from existing foundation.

2. Remove existing foundation.

3. Install new foundation. Foundation shall be a

minimum of 3/16 inch 316 stainless steel angle and shall completely enclose the area below island to prevent passage of dirt and water. Height of foundation shall be 4 inches.

4. Foundation shall be continuous and shall be continuously welded to steel.

5. Repair disturbed area of deck from installation including previously damaged area beneath old foundation as required.

6. Reinstall Refrigerator/Freezer unit on new foundation.

7. Fastening of Refrigerator/Freezer unit shall allow for removal of mounting fasteners with the use of a single socket wrench.

8. Flash-in the top of the Refrigerator/Freezer to the overhead. Flashing shall be screwed not riveted to the overhead and shall roll inward and rest atop of the unit and be held in place with stainless sealant/adhesive. See reference (b), Photo C.

e. Galley Hand Wash Sink Relocation

1. Remove and dispose of existing hand wash sink and faucet.

2. Modify stainless steel bulkhead sheathing beneath portlight at frame 22 to form a recess for relocation of the sink. Decking shall be modified for installation of a 6 inch combing around the interior of the sheathing, to seal sheathing from water intrusion. See reference (a), Plan 11-A and Elevation 27-C for guidance.

3. Install new one piece 18 gauge, 316 stainless steel sink in recess with of 8 inch minimum counters on each side. Counter and sink must be one piece or welded.

a) Sink shall be a minimum of 12 inch x 12 inch and 8 inch deep.

b) Front of sink and counters shall have an elevated radius lip to prevent water from rolling off sink and counter to deck. Front surface shall be 4 inches. Bottom edge

shall be rolled to remove sharp edge.

- c) Front plane of sink shall be same as adjacent sheathing. See reference (a), Plan 11-A for guidance.
- d) Slope all new and modified backsplashes and horizontal surfaces to drain into sink.
- e) Install new hot and cold water faucet that is a hands free type operation. See reference (b), photos G & H.
- f) Modify hot and cold water piping, and gray water drain piping deck penetrations from existing locations to new location underneath sink recess.
- g) Remake all piping connections.

f. Additional Hand Sink Items

1. Relocate existing hand soap dispenser adjacent to sink area.

2. Install two 4 inch deep shelves with 4 inch containment sides (for holding items in place). Shelving shall be fabricated using 18 gauge 304 stainless steel. Edges shall be rolled to prevent sharp surfaces.

3. Relocate hand drier to the bulkhead forward of the deep sink. Make all necessary electrical connections.

4. Final position of these three items shall be approved by COR.

g. Scullery Counter Mod Resulting in Dishwasher Relocation to 9 inches outboard.

1. Remove dishwasher for modification and retain.

2. Crop out angle iron foundation located at deck and outboard of dishwasher. Snipe shall result in the cut being below deck level. Affected deck areas shall be filled in with underlayment.

3. Cut 9 inches of counter surface on dishwasher outboard side. Roll back edge to remove sharp edges. Install

new flashing to dishwasher opening. See reference (d).

4. Relocate dishwasher 9 inches to outboard counter of item 1.4.7.3. Replumb as required. Reconnect to electrical power.

5. Add 9 inches length to counter on dishwasher inboard side, to extend counter to dishwasher. New section shall be same as existing counter with back flashing and front profile curve. Seam between new section and existing counter shall be continuous welded and finished smooth in kind with existing counter. Roll back edge on dishwasher side, to remove sharp edges. Add flashing to opening of dishwasher.

h. Aft Galley Counter and Cabinets

1. Remove and dispose of existing counter, cabinet and shelf.

2. Install new government furnished counter (6).

3. Install new government furnished cabinets (4 & 4) to fit within gussets at bulkhead/overhead area.

4. Install new government furnished shelf (2) to fit within gusset and refrigerator.

5. Install new government furnished cabinets/drawers (45, 46, 47) under the counter (6).

i. Deck Covering Repair, Galley and Scullery

1. Contractor shall consider scheduling of this work before completing other items and while entire deck is exposed and free of respective equipment.

2. Repair damaged galley and scullery decks where cracked or gouged in accordance with the epoxy deck system manufacturer's instructions.

3. Prepare and resurface galley and scullery deck top coat with a flexible urethane coating system in accordance with references (c) and (d). The deck covering shall be provided with decorative vinyl chips incorporated into the upper resin surface. Notify COR upon completion of preparation work and before applying urethane coating.

4. The vinyl chip color shall be Poly Spec IMO Flex

TM-16.

5. Deck top coat color shall be Poly Spec Base TM-16.

j. All disturbed surfaces shall be repaired to original condition.

k. Red line reference (e) to reflect all changes.

8.1.5 Quality Assurance

a. All equipment shall be tested after final installation for proper function in presence of COR.

8.1.6 Notes

a. Reference (a), is for general reference only. Directions of this statement supersede the reference.

b. All new cable installation shall be "hard wired" and not use plugs with the exception of items 3.22.4.c.8 & 3.22.4.c.9. Use Dorn Type stuffing tubes with stainless steel cover plates and gaskets. All new cables shall be one piece extending from breaker panel to the equipment. All new cables shall meet ABS requirements.

c. Contact ship's chief engineer before starting any electrical work to ensure that equipment has been de-energized, and locked and tagged out.

END OF ITEM

3. Appendix

9.1 Standard Specifications

<u>Paragraph</u>	<u>Document Title</u>
2.1.1	NOAA Standard Specification AMC-000-1F, "General Requirements for Contract Repair Work on NOAA Ships"
2.1.2	NOAA Standard Specification MOC-631-2D, "Coating Systems for Steel Surfaces"
3.2.2	NOAA Standard Specification MOC-100-1, "ABS Load Line Survey"
3.8.2	NOAA Standard Specification AMC-505-2, "Hydrostatic Pressure Test"
3.10.2	NOAA Standard Specification MOC-510-1B, "HVAC Cleaning"
3.18.2	NOAA Standard Specification AMC-583-1B, "General Requirements for Lifteraft Inspections"
7.1.2	NOAA Standard Specification MOC-573-2, "Overhaul/Repair of Hydraulic Cylinders"
	NOAA Standard Specification AMC-573-1C, "Testing of Davits and Weight Handling Gear"
7.3.2	NOAA Standard Specification MOC-573-2, "Overhaul/Repair of Hydraulic Cylinders"
	NOAA Standard Specification AMC-573-1C, "Testing of Davits and Weight Handling Gear"

9.2 Drawings

<u>Paragraph</u>	<u>Drawing Number and Title</u>
2.1.3	NOAA Drawing HB-085 FA02, "General Arrangements"
2.1.4	NOAA Drawing HB-631 FF04, "Painting Schedule"
3.3.2	Freeman Marine Drawing #P0007776-001, "Sliding Door" NOAA Drawing FSV6-01, "Wet Lab Door"
3.4.2	NOAA Drawing HB-170 FH22, "Mast, Rigging & Flagstaff Layout & Details"
3.6.2	NOAA Drawing HB-256 FP08, "Main Seawater Cooling System" NOAA Drawing HB-524 FP23, "Auxiliary Seawater Cooling System" NOAA Drawing HB-523 FP17, "Seawater Washdown System"
3.10.2	NOAA Drawing HB-512-FV07, "HVAC General Notes and Construction Details"
3.12.2	NOAA Drawing HB-512-FV07, "HVAC General Notes and Construction Details"
3.15.2	NOAA Drawing HB-985 FA05, "Fire Control Plan"
3.22.2	NOAA Drawing HB-634 FZ04, "Deck Coverings Key Plan & Schedule"
4.1.2	NOAA Drawing HB-085 FA02, "General Arrangements" NOAA Drawing HB-611 FH87, "Windows & Portlights Key Plan & Schedule" NOAA Drawing HB-300 PE42, "Bridge Deck Arrangement"
4.2.2	NOAA Drawing HB-551 FP07, "Compressed Air System Diagram"
7.4.2	NOAA Drawing HB-634 FZ04, "Deck Covering Key Plan & Schedule"
7.5.2	NOAA Drawing HB-634 FZ04, "Deck Covering Key Plan & Schedule"

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7.6.2 NOAA Drawing HB-634 FZ04, "Deck Covering Key Plan & Schedule"

8.1.2 NOAA Drawing HB-651-001, "Mod to Food Service Areas (07-13-18)"

NOAA Drawing HB-634 FZ04, "Deck Covering Key Plan & Schedule"

NOAA Drawing HB-300 FE01, "Power One Line"

9.3 Technical Manuals

<u>Paragraph</u>	<u>Document Title</u>
3.14.2	Tech Manual HB-516 03 (FRV40-225-091-010), "Refrigeration System, Scientific Freezer, Carrier"
3.17.2	Tech Manual HB-561 02 (FRV40-225-128-010), "Steering Gear Model"
3.19.2	Tech Manual HB-583-03 (FRV40-225-093-010), "Rescue Boat Handling System"
7.2.2	Tech Manual HB-591-02(FRV40-225-048-010), "Trawling and Scientific Winch System"
7.3.2	Tech Manual HB-572-03 (FRV40-225-111-010), "Telescoping Boom Crane, Model EB70-60-25S, Appleton"

9.4 Government-Furnished Equipment

<u>Paragraph</u>	<u>Description</u>	<u>Cost</u>
3.3.3	Aluminum Sliding Door, 1 each	\$30,000 ea.
3.18.3	Elliot Liferrafts, 6 each	\$5,000 ea.
	Switlik Liferaft, 1 each	\$2,000 ea.
3.21.3	Trawl Blocks, 4 each	\$5,000 ea.
7.2.3	Drum Shaft, 1 each	\$3,500 ea.
8.1.3	Cabinet (Item 38), 1 ea.	\$1,500 ea.
	Cabinet (Item 37), 1 ea.	\$1,500 ea.
	Cabinet (Item 36), 1 ea.	\$1,500 ea.
	Sheet Pan Rack (Item 35), 1 ea.	\$500 ea.
	Countertop (Item 33), 1 ea.	\$500 ea.
	Center Island (Item 1), 1 ea.	\$5,000 ea.
	Deep Sink & Countertop (Item 7), 1 ea.	\$750 ea.
	Counter (Item 6), 1 ea.	\$500 ea.
	Cabinets (Item 4), 2 ea.	\$1,000 ea.
	Shelf (Item 2), 1 ea.	\$200 ea.
	Cabinet (Item 45) 1 ea.	\$1,500 ea.
	Cabinet (Item 46) 2 ea.	\$1,500 ea.
	Cabinet (Item 47) 1 ea.	\$1,500 ea.

9.5 Miscellaneous

<u>Paragraph</u>	<u>Description</u>
3.1.2	NOAA Ship Henry B. Bigelow (R-225) Resilient Mount Measurement and Inspection (05/17)
3.6.2	Bigelow Flex Hoses - FY19 DS Repairs
3.15.2	Fire System Inventory (01-19-18)
3.22.2	16 CFR 1630 - Standard for the Surface Flammability of Carpets and Rugs (FF 1-70)
4.2.2	ABS Rules 4-4-1/9.19 Flexible Hoses IEEE 45 2002, 11.1.2.a AC Controllers IEEE 45 2002, 11.6 Air Compressor NAVSEA Pub S6430-AE-TED-010 Technical Directive for Piping Devices, Flexible Hose Assemblies
7.4.2	Flexco IMO Rubber Tile Datasheet Radial-Rubber-Tile-RGT-Submittal
7.5.2	Flexco IMO Rubber Tile Datasheet Radial-Rubber-Tile-RGT-Submittal
7.6.2	Flexco IMO Rubber Tile Datasheet Radial-Rubber-Tile-RGT-Submittal
8.1.2	Galley Modification Photos - Dyson MIL-PRF-24613 Performance Specification Deck Covering Materials, Interior, Cosmetic Polymeric

