



USCGC SAWFISH (WPB 87357)

SPECIFICATION FOR DRYDOCK REPAIRS

FY2023

Developed By: Patrick Carr

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REVISIONS RECORD

This page is used to record specification revisions, which may have occurred subsequent to a Revision 0 (Rev-0) package. Information listed is intended to provide contractors and field unit personnel a means to ensure all the current specification revision pages are present when reviewing or utilizing this specification package.

DATE	REV#	WORK ITEM#	CHANGES MADE

NOTE : All work item and paragraph numbers listed above for a given revision correspond to same numbers in the previous revision. This revised specification is self-contained with all of the above listed changes incorporated.

CONSOLIDATED LIST OF REFERENCES

The below-listed documents form a part of this specification to the extent specified herein. Approval/publication dates or revision dates/numbers are also identified, to ensure that same document versions are used at the time of specification writing and during contract execution.

All Coast guard drawings, technical publications, and standard specifications will be provided to contractors by the Coast Guard at an appropriate time, or upon request, free of charge. Other Government documents may be accessed – free of charge – from links located on the SFLC website. Commercial sites provide access to their respective documents.

COAST GUARD DRAWINGS

Coast Guard Drawing 87 WPB 085-001, Rev -, Tank Capacity Curves
Coast Guard Drawing 87 WPB 085-011, Rev C, Lifting Slings
Coast Guard Drawing 87 WPB 085-012, Rev A, Lifting Cradle
Coast Guard Drawing 87 WPB 085-013, Rev B, Docking Plan
Coast Guard Drawing 87 WPB 111-001, Rev H, Shell Expansion
Coast Guard Drawing 87 WPB 111-050, Rev A, Updates to DWG 87-WPB-111-001 Exhaust Port Insert Plate Installation and Details
Coast Guard Drawing 87 WPB 113-001, Rev G, Platform Plating & Framing
Coast Guard Drawing 87 WPB 116-001, Rev -, Longitudinal Girders & BHD's
Coast Guard Drawing 87 WPB 122-001, Rev C, Watertight Bulkheads
Coast Guard Drawing 87 WPB 163-001, Rev H, Sea Chest Details
Coast Guard Drawing 87 WPB 165-001, Rev F, Transducer Details
Coast Guard Drawing 87 WPB 171-001, Rev W, Mast Details
Coast Guard Drawing 87 WPB 182-001, Rev C, Main Engine & Generator Foundations
Coast Guard Drawing 87 WPB 243-003, Rev -, Propulsion Shaft Details
Coast Guard Drawing 87 WPB 245-003, Rev A, Propeller Details
Coast Guard Drawing 87 WPB 256-001, Rev AC, Seawater Cooling Piping
Coast Guard Drawing 87 WPB 310-001, Rev J, Ship's Service One-Line Diagram
Coast Guard Drawing 87 WPB 313-001, Rev N, DC System
Coast Guard Drawing 87 WPB 423-001, Rev W, Speed Log & Depth Sounder System
Coast Guard Drawing 87 WPB 526-001, Rev J, Scuppers & Deck Drains Piping
Coast Guard Drawing 87 WPB 561-001, Rev K, Steering System Details
Coast Guard Drawing 87 WPB 562-001, Rev A, Rudder Details
Coast Guard Drawing 87 WPB 583-001, Rev W, RIB Deployment Structure
Coast Guard Drawing 87 WPB 601-001, Rev R, Outboard Profile & General Arrangements
Coast Guard Drawing 87 WPB 602-001, Rev F, Visual ID and Draft Mark Plan
Coast Guard Drawing 87 WPB 631-001, Rev M, Ship's Painting Schedule
Coast Guard Drawing 87 WPB 633-001, Rev A, Cathodic Protection
Coast Guard Drawing 87 WPB 634-001, Rev G, Deck Covering and Details

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Coast Guard Drawing 87 WPB 995-001, Rev -, Jigs and Fixtures for Shaft Installation

Coast Guard Fleet Drawing FL 2804-12, Rev -, U.S.C.G. Emblem

Coast Guard Fleet Drawing FL 2804-22, Rev A, Consolidated Visual ID for Cutters

COAST GUARD PUBLICATIONS

Coast Guard Commandant Instruction (COMDTINST) M10360.3, Jun 2006, Coatings and Colors Manual

Coast Guard Technical Publication (TP) 4499, Jun 2018, SWBS 243, Stern Tube Seal-Model 442C

Coast Guard Technical Publication (TP) 4500, Sep 2017, SWBS 233, Engine Change-Out Guide - Waterborne Main Diesel

Coast Guard Technical Publication (TP) 4500, September 2017, SWBS 233, Engine Change-Out Guide – Waterborne Main Diesel

Coast Guard Technical Publication (TP) 4506, Wartsila TM-EL-68839, Issue A, Mar 2005, Rudderstock Seal Type EL

Coast Guard Technical Publication (TP) 4525, SWBS 202, 2003, Main Diesel Engine Control System Schematics

Coast Guard Technical Publication (TP) 4533, SWBS 233, 2002, Propulsion Internal Combustion Engines, Maintenance Manual

Coast Guard Technical Publication (TP) 4564A, Electronic Steering System

Coast Guard Technical Publication (TP) E-424-0230, SWBS 424, June 2006, Electromagnetic Log User's Manual

Surface Forces Logistics Center Standard Specification 0000 (SFLC Std Spec 0000), 2020, General Requirements

Surface Forces Logistics Center Standard Specification 0740 (SFLC Std Spec 0740), 2020, Welding and Allied Processes

Surface Forces Logistics Center Standard Specification 3041 (SFLC Std Spec 3041), 2020, Shipboard Electrical Cable Test

Surface Forces Logistics Center Standard Specification 3042 (SFLC Std Spec 3042), 2020, Shipboard Electrical Cable Removal, Relocation, Splice, Repair, and Installation

Surface Forces Logistics Center Standard Specification 6310 (SFLC Std Spec 6310), 2020, Requirements for Preservation of Ship Structures

Surface Forces Logistics Center Standard Specification 6341 (SFLC Std Spec 6341), 2020, Install Interior Deck Covering Systems

Surface Forces Logistics Center Standard Specification 8634 (SFLC Std Spec 8634), 2020, Drydocking

Surface Forces Logistics Center Standard Specification 8635 (SFLC Std Spec 8635), 2020, Temporary Services

OTHER REFERENCES

AN/SPS-73V Surface Search Radar (SSR), Sep 1998, Operation, Maintenance, and Installation Manual

ASTM International (ASTM) D1330, 2015, Standard Specification for Rubber Sheet Gaskets

ASTM International (ASTM) F992, 2006, Standard Specification for Valve Label Plates

Commercial Item Description (CID) A-A-59313, Nov 2003, Thread Compound; Antiseize, Zinc Dust-Petrolatum

Commercial Item Descriptions (CID) A-A-59316, Nov 2016 Abrasive Materials for Blasting

Federal Standard (FED-STD) 595, 2008, Colors Used in Government Procurement

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MIL-A-18001, Dec 2015, Anodes, Sacrificial Zinc Alloy (Commercially Accepted - ASTM B418)

MIL-A-22262, Mar 1996, Abrasive Blasting Media Ship Hull Blast Cleaning

MIL-A-46106b, Jun 1992, Adhesive-Sealants, Silicone, RTV, One-Component

MIL-DTL-1222, Dec 2000, Studs, Bolts, Screws and Nuts for Applications Where a High Degree of Reliability Is Required

MIL-PRF-24139, Mar 1987, Grease, Multipurpose, Water Resistant.

MIL-PRF-24635, 2009, Coating Systems, Weather-Resistant, Exterior Use

MIL-PRF-24647, Jan 2018, Paint System, Anticorrosive and Antifouling, Ship Hull

Raytheon Marine Company, Jan 1992, Technical Manual, Radar Set Model R40X/R41X, AN/SPS-69, RMC Document Number G261404

Society of Automotive Engineers (SAE) Aerospace Material Specification (AMS) C6183, 2019, Cork and Rubber Composition Sheet; for Aromatic Fuel and Oil Resistant Gaskets

The Society for Protective Coatings (SSPC) Surface Preparation Specification No.1 (SSPC-SP 1), 2016, Solvent Cleaning

The Society for Protective Coatings (SSPC) Surface Preparation Specification No.11 (SSPC-SP 11), 2012, Power-Tool Cleaning to Bare Metal

The Society for Protective Coatings (SSPC)/NACE International (NACE) Joint Surface Preparation Standard SSPC-SP 12/NACE No.5, 2002, Surface Preparation and Cleaning of Metals by Waterjetting Prior to Recoating

The Society for Protective Coatings (SSPC)/NACE International (NACE) Joint Surface Preparation Standard SSPC-SP WJ-2/NACE WJ-2, 2012, Waterjet Cleaning of Metals – Very Thorough Cleaning

The Society for Protective Coatings (SSPC)/NACE-International (NACE) Joint Surface Preparation Standard SSPC-SP 10/NACE No. 2, 2007, Near-White Metal Blast Cleaning

CONSOLIDATED LIST OF GOVERNMENT-FURNISHED PROPERTY

The following is a list of property, which the Government will furnish. This list supersedes any other material obligations indicated or implied by referenced drawings.

WORK ITEM	MTI	ITEM DESCRIPTION	NSN/PN	QTY	ESTIMATED COST (\$/UNIT)
7	N	Slip Resistant Sheets	NSN: 7220-01-F11-2238	1 KT	5,352.24
10	Y	*Alignment jig	N/A	1 ea.	----
11	N	Thordon bearing, Grade Orange (5.5" OD x 4" ID x 7.87" (200mm) LG)	PN: F54615-02-8-1 NSN: 3120-21-914-2012	2 ea.	525.03
12	N	Thordon bearing, Grade Orange (5.5" OD x 4" ID x 11.41" (290mm) LG)	PN: F54615-02-8-0 NSN: 3120-21-914-2011	2 ea.	558.05
13	N	**Intermediate bearing carrier	NSN: 3130-01-F11-2388 P/N: 87 WPB 243-001, Item 17	2 ea.	591.86
14	N	**Aft bearing carrier	NSN: 3130-01-F11-2200 PN: 87 WPB 243-001, Item 14	2 ea.	1931.31
16	Y	Starboard Propeller (RH)	PN: 706-3351.00 RH NSN: 2010-01-457-0573	1 ea.	9153.07
16	Y	Port Propeller (LH)	PN: 706-3350.00 LH NSN: 2010-01-459-0421	1 ea.	9542.05
16	N	*Propeller Nut Wrench	N/A	1 ea.	200.00
16	N	Propeller Nut	PN: 5317350 NSN: 2010-01-458-9217	2 ea.	322.07
16	N	Propeller Nut, Locking	PN: 5317355 NSN: 5310-01-458-9125	2 ea.	285.10
16	N	Anode, Propeller Nut	PN: 87WPB243001ITEM39 NSN: 5342-01-481-8403	2 ea.	153.06
17	N	3" Ball Valve	NSN: 4810-01-517-8110 PN: LV071A	1 ea.	5625.00
17	N	**Doppler Speed Log Measurement Rod	NSN: 6605-01-470-1266	1 ea.	4984.63
18	N	Iron body/ Stainless steel stem/ bronze disk (flanged) 8 inch	PN: J022929-512431A NSN: 4820-01-613-5021	2 ea.	563.25
18	N	Iron body/ Stainless steel stem/ bronze disk (wafer) 8 inch	PN: 22929-112431A NSN: 4820-01-615-9571	2 ea.	521.46
18	N	Iron body/ Stainless steel stem/ bronze disk (flanged) 3 inch	PN: 22925-5124 NSN: 4820-01-650-0975	2 ea.	226.51
18	N	Iron body/ Stainless steel stem/ bronze disk (wafer) 3 inch	PN: 22925-1124316 NSN: 4820-01-332-6811	2 ea.	214.14
19	Y	Rudder Assembly, port	NSN: 2040-01-461-1944	1 ea.	6113.36

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19	Y	Rudder Assembly, starboard	NSN: 2040-01-461-1943	1 ea.	5971.93
19	N	Upper Roller Bearing	NSN: 3110-01-512-5534	2 ea.	287.43
19	N	Wartsila EL Seals Kit	PN: H75492-01 NSN: 2040-01-565-9776	2 ea.	7243.42
19	N	Lower Bearing	PN: TBF113090 NSN: 3120-20-000-7677	2 ea.	405.81
20	N	**Valve, Counterbalance	PN: CBCA-LAN/AP NSN: 4820-01-687-1295	4 ea.	291.50
20	N	**Manifold, Valve	PN: YVY NSN: 4730-01-687-2581	2 ea.	134.30
21	N	Anode, corrosion preventive	PN: 899Y105 NSN: 5342-00-813-6058	15 ea	57.37
22	Y	*Transducer Cover Plate	N/A	2 ea.	50.00
25	Y	Transducer, sonar, w/ adapter ring	PN: 87-WPB-165-001 NSN: 5845-01-641-9744	1 ea.	1552.41
28	Y	Propeller Shaft	NSN: 2010-01-458-9175	2 ea.	10,195.95
28	N	Kit Rebuild, Seal Assembly	NSN: 5330-01-F18-5383	2 ea.	3543.00
28	N	Kit Rebuild, Inflatable Seal	NSN: 5330-01-F18-5385	2 ea.	1381.00
28	Y	*Alignment Kit	N/A	1 set	5000.00
29	N	Panel Bridge 24 V	NSN: 6110-01-F18-5605	1 ea.	2,548.00
29	N	Alternator	NSN: 6125-01-020-2950	2 ea.	14,668.79
29	N	Regulator Voltage	NSN: 5963-01-623-3549	2 ea.	350.00
29	N	Resistor Thermal	NSN: 5905-01-662-5504	2 ea.	35.00
29	N	Harness, Wiring	NSN: 5995-01-661-5659	2 ea.	75.00
29	N	Seal Plain	NSN: 5330-12-314-3403	2 ea.	56.32
29	N	Coupling Half	NSN: 4730-12-408-7920	2 ea.	1,572.87
29	N	Coupling, Flex	NSN: 3010-01-255-4200	2 ea.	480.44
29	N	Insert, Flexible Coupling	NSN: 3010-12-332-3557	2 ea.	830.23
29	N	Screw Machine	NSN: 5305-01-384-3454	12 ea.	3.71
29	N	Washer, Spring Tension	NSN: 5310-12-125-7798	12 ea.	2.44
29	N	Nut, Plain Hexagon	NSN: 5310-12-156-4982	12 ea.	2.33
29	N	Guard Plate	NSN: 2920-12-408-7817	2 ea.	941.45
29	N	Plate, Mounting	NSN: 5340-12-333-7085	2 ea.	75.00
29	N	Screw, Cap, Hexagon	NSN: 5305-01-240-1274	14 ea.	4.53
29	N	Washer, Spring Tension	NSN: 5310-01-195-9000	14 ea.	1.81
29	N	Screw Cap Hexagon	NSN: 5305-12-142-8243	4 ea.	7.92
29	N	Screw, Cap	NSN: 5305-12-142-8236	4 ea.	3.64
29	N	Washer, Flat	NSN: 5310-12-149-4352	8 ea.	2.35
29	N	Bracket	NSN: 2815-12-408-5547	4 ea.	130.18

*Government-loaned property, which shall be returned to the vessel upon completion of the availability.

**New or refurbished equipment that the Government may provide for installation in place of existing equipment.

***Government-furnished property, which is to be supplied by either the vessel or the C4IT ServiceCenter

CONSOLIDATED LIST OF CRITICAL INSPECTION ITEMS

The following is a list of work items, which contain Critical Inspection reports, which the Contractor must complete within the first 25% of the availability contract period (see SFLC Std Spec 0000, paragraph 3.2.6.5 (Inspection report particulars)):

Work Item	Title
2	U/W Body, Preserve, 100 percent
28	Propulsion Shafts, Renew
18	Sea Water System, Perform Maintenance
19	Rudder Assemblies, Renew
20	Stern Launch Door, Remove, Inspect and Reinstall
22	Drydock

PRINCIPAL CHARACTERISTICS

87' WPB	
PHYSICAL	
Length overall	87'
Length between perpendiculars	81' 7"
Depth	10' 11"
Maximum beam	19.4'
Draft, mean to design waterline	5' 9"
Height of highest projection	50.2'
Full load displacement	93.5 long tons
Minimum operating displacement	83.9 long tons
Displacement, light ship	77.9 long tons
Framing	Longitudinal
Bulkheads	Four watertight bulkheads located below the Main Deck
Anchor	40 lb Fortress with 480 ft. 3 strand 5/8" dia. Line stayset
HULL	
Hull/main weatherdeck material	ABS Grade AH 36
Superstructure	5086 Aluminum
MACHINERY	
Main propulsion	Two MTU 8V396TE94, sequential turbo-charged diesels
Reduction gears	Two ZF Type BW 255
Propulsion shaft	Two AQUAMET 22, 101.6mm
Shaft diameter	4"
Shaft seal	Two Chesterton mechanical seals
Shaft bearing, intermediate	Thordon Elastomeric Bearing
Shaft bearing, aft	Thordon Elastomeric Bearing
Number of propellers	2
Number of blades	5
Diameter of propeller	1040mm
Pitch	1230 mm fixed
Shaft RPM	828
Rudders	Two 316L Stainless Steel
Ship's service generators	Two Man Model D08241F01 diesel with Stanford 60KW Generator
TANK CAPACITIES	
3-9-1-f (fuel oil)	1402 gal
3-9-2-f (fuel oil)	1402 gal
3-12-2-f (waste oil)	86 gal
3-12-1-f (oily water)	86 gal
3-7-0-q (sewage collection)	352 gal
3-7-1-q (grey water)	52 gal
3-12-1-w (fresh water)	200 gal
3-12-2-w (fresh water)	200 gal

General Requirements

1. SCOPE

1.1 Intent. This standard specification invokes general requirements for conducting vessel repairs performed at a commercial contractor's facility for Coast Guard vessels.

1.2 Term interchangeability. The terms 'Contractor', 'CG Yard', 'NAVSTA EVERETT', 'shipyard', 'Base', and 'Coast Guard Industrial' are used interchangeably in this specification. Where the primary service provider is Coast Guard personnel, references to contractor and other noted descriptors within this specification or within drawings, publications, SFLC Standard Specifications or other commercial and military references are deemed the same as prime service provider.

2. REFERENCES

COAST GUARD DRAWINGS

None

COAST GUARD PUBLICATIONS

Coast Guard Commandant Instruction (COMDTINST) M10360.3 (series), Coatings and Color Manual
Surface Forces Logistics Center Standard Specification 0000 (SFLC Std Spec 0000), 2020, General Requirements

Surface Forces Logistics Center Standard Specification 0740 (SFLC Std Spec 0740), 2020, Welding and Allied Processes

Surface Forces Logistics Center Standard Specification 5550 (SFLC Std Spec 5550), 2022, Fire Prevention and Response

Surface Forces Logistics Center Standard Specification 6310 (SFLC Std Spec 6310), 2020, Requirements for Preservation of Ship Structures

OTHER REFERENCES

Code of Federal Regulations (CFR) Title 29, Part 1915, Occupational Safety and Health Standards for Shipyard Employment

NAVSEA Technical Publication T9074-AD-GIB-010/1688, (TP 1688), July 2012, Requirements for Fabrication, Welding, and Inspection of Submarine Structure

3. REQUIREMENTS

3.1 General. The Contractor must conform to all requirements specified in SFLC Std Spec 0000 and in this item, as applicable, during the performance of this availability. The requirements of this WI applies to all work under the scope of this contract, whether explicitly stated in all following work items or not, and to all other work subsequently authorized by changes, modifications, or extensions to the contract.

3.1.1 The Contractor must conform to all requirements specified in SFLC Std Spec 5550 and in the Fire Protection and Response work item, as applicable, during the performance of this availability.

3.1.1.1 Fire Safety Plan submission. The Contractor must submit a copy of the CFR 1915, Subpart P, Fire Safety Plan with the Contractor's bid when work will be conducted in a Contractor-owned facility. Include any MOA(s) with local firefighting facilities.

3.1.1.2 Fire Plan submission. The Contractor must submit a copy of the developed availability specific fire plan as requested in the Fire Protection and Response work item, with the Contractor's bid.

3.1.1.3 SFLC-PBPL Availabilities (87 WPB, 110 WPB, & 154 WPC). The Contractor must conform to SFLC Std Spec 5550 with the following amendments and supplements:

- For contracts executed at a Contractor's facility, submit (pre-award) the facility's Fire Safety Plan document described in 29 CFR 1915.502 – "Fire Safety Plan". For planning assume that Coast Guard personnel will not be available to fight a fire.
- For all contracts at all facilities, submit the following information pre-award, taking into consideration how the maintenance/repairs specified in the work items will affect uninterrupted operation of the subject systems; make all necessary amendments to this submission after discussions with the COR at the arrival conference and during contract execution as emerging conditions warrant:
 - Describe all anticipated needs for fire detection/alarm, fire-fighting, and shipboard lighting and communication systems supplementation (see below) and a description of the proposed remedies/solutions (include pricing for maintaining capability in pre-award quote).
 - Describe how any required temporary/supplemental fire detection/alarm systems will notify fire responders.
 - Describe all anticipated breaches of the cutter's Fire Protection Boundaries and the proposed temporary solutions that will minimize impact on the Fire Protection Boundary's proper function (e.g. removal of cables/hoses/etc. at the end of work day or installation of quick disconnects, installation of temporary fire curtains, etc.).
- Whenever maintenance/repairs described in work items or Change Requests necessitate securing, or making inoperable, all or part of the vessel's fire detection or fire alarm system, submit a proposal to the COR/KO describing an equivalent method(s) for temporarily maintaining all lost functionality of the system(s). Select the most economical option(s) available (i.e. for extended loss of service of the entire system the temporary fire detections/alarm system described in SFLC Std Spec 5550 may be the best option, for shorter durations temporary watch standers may be more economical, etc.). After the COR has agreed to the proposal, maintain the capability of these systems for the duration of the contract to the greatest practicable extent.
- Whenever maintenance/repairs described in work items or Change Requests necessitate securing, or making inoperable, all or part of the vessel's firefighting (e.g. fire main system, P100 and other dewatering

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systems, halon systems, portable fire extinguishers, etc.), lighting, and communications systems, submit a proposal to the COR/KO describing equivalent method(s) for temporarily maintaining all lost functionality of the system(s). Select the most economical option(s) available. After the COR has agreed to the proposal, maintain fire detection/alarm/fighting and lighting/communications capability for the duration of the contract to the greatest practicable extent.

- All Fire Protection Boundaries must be left intact and functional at all times to the greatest practicable extent. Notify the COR in writing whenever a breached Fire Protection Boundary will be left unattended outside of normal working hours (e.g. a door/hatch is made un-closable/un-securable due to repair work, an access cut is made into deck/bhd that is part of a Fire Protection Boundary, etc.). When a Fire Protection Boundary must be breached to facilitate contract work, minimize the impact using industry-standard methods (e.g. fire curtains, quick-disconnect fittings, etc.)

NOTE

NAVSEA drawings listed will be available FOR INSPECTION ONLY from the Coast Guard Port Engineer post-award. SFLC will not redistribute NAVSEA documents. Contractors can apply to NAVSEA headquarters directly for copies.

3.2 Contractor-provided fire watch personnel. The Contractor must provide fire watch personnel and equipment.

3.3 Preservation requirements. The Contractor must accomplish all preservation tasks, including touch-ups, in accordance with SFLC Std Spec 6310.

3.3.1 Brand name approval. Ensure that all contractor-furnished coatings are in accordance with SFLC Std Spec 6310, Appendix C (Authorized Coatings for Use on Cutters and Boats).

3.3.2 Coating colors and system color schemes. The Contractor must obtain a written KO authorization to deviate from any coatings required in SFLC Std Spec 6310 Appendix C before work.

3.3.3 In-process quality control measures. The Contractor must abide by all the safety, preservation, and quality control requirements specified in SFLC Std Spec 0000, paragraph 3.2.4.2 (In-process QC measures for “critical-coated surfaces”).

3.3.3.1 Quality control requirements. The Contractor must abide by the following when performing preservation related inspections. The following measurements must be randomly spaced throughout for the purposes of providing a representation of the entire prepared or coated surface.

3.3.3.1.1 Surface profile measurements. One surface profile measurement must be taken for every 200 square feet for the first 1000 square feet; for each additional 500 square feet or less, one profile measurement must be taken. Profile measurements must be taken in accordance with SFLC Std Spec 6310, paragraph 3.1.8.3 (Surface profile measurements). A “measurement” for surface profile is defined as follows:

- ASTM D4417, Method B: One profile measurement is the average (mean) of 10 individual readings.
- ASTM D4417, Method C: One profile measurement is the average (mean) of 2 individual readings.

3.3.3.1.2 Soluble salt conductivity measurements. 5 conductivity measurements must be taken every 1000 square feet. For submerged (immersed) applications conductivity measurements must not exceed 30 microsiemens/cm.

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For non-submerged (non-immersed) applications conductivity measurements must not exceed 70 microsiemens/cm. If a conductivity check fails, clean the surface in accordance with SFLC Std Spec 6310, paragraph 3.1.8.5 (Soluble salt removal).

3.3.3.1.3 Coating thickness measurements. Three area measurements must be taken for the first 1000 square feet; for each additional 1000 square feet, perform an additional area measurement. A “measurements” for coating thickness is defined as follows:

- SSPC-PA 2 defines an area measurement as 5 separate spot measurements randomly spaced throughout a 100 square foot area.
- SSPC-PA 2 defines a spot measurement as 3 gage readings and each new gage reading the probe must be moved to a new location within a 1.5 inch diameter circle defining the spot.

3.4 Welding and brazing requirements. The Contractor must perform all welding and allied processes, and NDE in accordance with SFLC Std Spec 0740.

3.4.1 HY-130 material substitution. The Contractor must be aware that HY-130 steel plating is no longer commercially available. For the purpose of performing flight deck repairs on US Coast Guard WMEC-270 “B-Class” cutters, Weldox 900 steel plating has been approved as a replacement for HY-130. Due to the similarity in material properties and weldability of HY-130 and Weldox 900, all welding procedures and welder qualifications for welding Weldox 900 must be the same as those outlined in NAVSEA TP 1688 as applicable for welding HY-130.

3.4.2 Standard spec modification. For any welding involving HY-130 on the flight deck of WMEC-270 “B-Class” cutters, perform all welding and allied processes, and non-destructive evaluation (NDE) in accordance with NAVSEA TP 1688. The Contractor must be aware that the welding requirements specified in this document take precedence over paragraph 3.3.6 of SFLC Standard Spec 0000 for the purpose of welding involving HY-130.

3.4.3 Approval to weld HY-130. To obtain Coast Guard approval to weld on HY-130 steel for WMEC-270 “B-Class” cutters, the Contractor must provide written Performance Qualification Records (PQR’s) for each process to be used. The PQR’s must be approved by one of the regulatory agencies affirming that the WPS meets the welding requirements of NAVSEA TP 1688. In addition, the Contractor must ensure that all subcontractors, prior to performing welding operations, have qualified procedures by meeting all the requirements set forth in this document.

NOTE

NAVSEA approval is NOT required for welding procedures submitted but the procedures must be reviewed and shown to satisfy the requirements set forth in NAVSEA TP 1688, by a welding regulatory agency. The requirements for welding Weldox 900 are considered the same as those for welding HY-130.

3.5 Environmental protection requirements. The Contractor must adhere to the following environmental protection requirements in accordance with the SFLC Stand Spec 0000:

3.5.1 Contractor operated (non USCG) facilities. The Contractor must provide and maintain environmental protection as defined in SFLC Std Spec 0000 Appendix A, Requirements for Environmental Protection at Contractor Operated (Non USCG) Facilities, as applicable, during the performance of this availability. Contractor must plan for and provide environmental protective measures to control pollution that develops during normal practice, as well as plan for and provide environmental protective measures required to correct conditions that develop during the project. Contractor must comply with applicable Federal, state, and local laws, codes, ordinances, and regulations in their entirety. Any reference to a specific portion of a Federal, state, or local law,

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code, ordinance, or regulation in this or any other item must not be construed to mean that relief is provided from any other sections of the law, code, ordinance, or regulation.

3.5.2 Test and procedures. The Contractor is required to promptly conduct tests and procedures for the purpose of assessing whether operations are in compliance with applicable Environmental Laws. Analytical work must be done by qualified laboratories; and where required by law, the laboratories must be certified.

3.5.3 Regulatory notifications. The Contractor is responsible for all regulatory notification requirements in accordance with Federal, State and local regulations. In cases where the Coast Guard must also provide public notification, such as storm water permitting, the Contractor must coordinate with the Contracting Officer or COR, and if work is being performed at a USCG Facility, the local Facility Engineer or Engineering Officer. The Contractor must submit copies of all regulatory notifications to the Contracting Officer and the local Facility Engineer or Engineering Officer prior to commencement of work activities. Regulatory notifications must be provided for including but not limited to demolition, renovation, National Pollutant Discharge Elimination System (NPDES) defined site work, and remediation of controlled substances such as asbestos, hazardous waste, and lead paint.

3.5.4 Environmental manager. The Contractor must appoint in writing an Environmental Manager for the project, who is responsible for coordinating Contractor compliance with Federal, State, local, and station environmental requirements. The Environmental Manager must ensure compliance with Hazardous Waste Program requirements, including hazardous waste handling, storage, manifesting, and disposal; implement the Contractors' Environmental Management Plan; ensure that all environmental permits are obtained, maintained, and closed out; ensure compliance with Storm Water Program Management requirements; ensure compliance with Hazardous Materials including storage, handling, and reporting requirements; as well as coordinate any remediation of regulated substances such as lead, asbestos, and polychlorinated biphenyl (PCB). This may be a collateral position; however the individual must be trained to accomplish the following duties; ensure waste segregation and storage compatibility requirements are met; inspect and manage Satellite Accumulation areas; ensure only authorized personnel add wastes to containers; ensure all Contractor personnel are trained in 40 CFR requirements and individual position requirements; coordinate removal of waste containers; and maintain the Environmental Records binder and required documentation, including environmental permits compliance and close-out.

3.5.5 HW disposal. Contractor must comply with SFLC Std Spec 0000 Appendix A, Requirements For Environmental Protection At Contractor Operated (Non USCG) Facilities for HW disposal.

3.6 Local Policy. The Contractor must refer to site (e.g. Base) Regulations and Instructions for details regarding local policies (e.g. crane services, parking, or facility usage).

3.7 SFLC Standard Specification approved changes. The Contractor must be aware that the following are approved changes to published SFLC 2020 Edition Standard Specifications and supersede published content:

3.7.1 SFLC Standard Specification 8636. Add missing paragraphs between 3.2 and 3.5 of Std Spec 8636 as follows:

“3.3 Access cut boundaries. The Contractor shall ensure that access cuts comply with the requirements and restrictions detailed in the following and in SFLC Std Spec 0740, and referenced codes.

3.3.1 Location of boundaries. Boundaries of access cuts and closure plates shall, in general, be located between principal ship framing, bulkheads, and other structural members and shall be at least three inches from any of these members or from the toes of other welds. A reduction in this three inch minimum may be approved by the KO on a

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case by case basis provided sufficient clearance is maintained for welding and inspection requirements. The boundaries of access cuts and closure plates should land on existing butts or seams, wherever practicable. The boundaries of prior access cuts should be utilized wherever possible. Boundaries may extend across one or more frames as required for the size of the opening.

3.3.2 Access hole dimensions and arrangements. Holes or access cuts shall be the minimum size necessary and shall be in accordance with the following:

- Rectangular access cuts and closure plates welded into primary hull structure shall be at least 12 inches wide in the lesser dimension.
- For circular access cuts, the minimum diameter shall be $4T$, where T = thickness of the involved structural member, but not less than three inches.
- Circular closure plates for access cuts less than two feet in diameter shall be dished $1/16$ to $1/8$ inch to allow for shrinkage when welded.
- Corners of rectangular access cuts and closure plates shall have a minimum radius of 6 inches except when a boundary lands on an existing hull longitudinal seam or transverse butt weld.
- Corners at an existing seam or butt shall intersect at a 90 degree angle.
- Cuts that are to cross existing butts or seams shall do so at an angle of 90 degrees plus or minus 15 degrees.
- In primary hull structure, existing welds forming the boundary of a cut shall be cut back 3 inches beyond the toe of the access cut, except that the cut back shall not intersect or cross an existing weld, frame, or structural member. In which case, the cut back may be reduced to a minimum of two inches in length.
- Existing welds crossed by the cut shall not be cut back.

3.3.3 Primary hull structure. Primary Hull Structure includes the shell, main strength decks, principal longitudinal bulkheads, vertical keel, deep web girders and stiffeners designed to withstand the ship bending stress.

3.3.4 Mechanically fastened joints. Welding closer than six inches to a mechanically fastened joint should be avoided. When access cuts cross or come within six inches of a mechanically fastened joint, the fasteners shall be checked for tightness and if necessary, loose fasteners shall be seal welded or removed, and replaced for a distance of 6 inches beyond the edge of the cut. When a cut crosses a mechanically fastened seam the cut plates shall be repaired using single V welds backed with glass tape (MIL-C-20079) to prevent fusion between the mechanically fastened plates.

3.4 Ship integrity maintenance. The Contractor shall maintain safety and ship integrity by installing temporary guarding and coaming, in addition to weathertight and watertight closures. Remove these temporary fabrications after closing the hull access, and grind surfaces flush in way of removals. For shell plating cuts made at or below the waterline where temporary closures are impractical, the Contractor shall secure each vulnerable compartment and subdivision to minimize potential damage to the extent permitted by the scope and urgency of the work.

3.4.1 Guarding. Install temporary guards in accordance with 29 CFR 1915.73.

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3.4.2 Coaming. Ensure that in areas where flammable liquids may be stored, a 4 inch high metal coaming shall be installed on the surface of the deck with tack welds and fully sealed with caulking compound. The coaming shall encircle the access cut in the deck.

3.4.3 Weathertight and contamination closures. Fabricate temporary closures, using fire retardant material, before cutting access openings and install closures whenever access is not in use. Closures shall be:

- Constructed to protect the access from inclement weather and entry of contaminants (shall include a coaming or dam on the deck to redirect rain runoff away from the opening).
- Fitted with fasteners that permit rapid installation and removal.
- Able to support a minimum of 150 pounds per square foot for horizontal deck closures.
- Where the access opening is in way of a removed hatch, scuttle or door, the closure shall be configured to allow normal passage of ship's personnel and equipment.

3.4.4 Watertight closures. Ensure that access openings created four feet or less above the maximum anticipated waterline shall include temporary watertight closures when the vessel is waterborne.

NOTE

NAVSEA S0600-AA-PRO-160/CH16 provides requirements for design, fabrication, and installation of temporary watertight closures."

3.7.2 SFLC Standard Specification 0000. Replace paragraph 3.3.4 Vessel access, as follows:

"3.3.4 Vessel access. During work at the Contractor's facility, provide access and/or egress to and from the vessel in accordance with 29 CFR 1915.74, Subpart E. Provide a minimum of two gangways that have the following:

- Adequate walking surface width and strength and be safely secured.
- A railing, with a mid-rail, on each side of the gangway, and a turn table if necessary.
- Substantial steps properly secured and equipped with at least one handrail, when the upper end of the gangway rests on or is flush with the top of the bulwark of the dock.
- Nets or other suitable protection on both sides, when there is a danger of personnel falling between the ship and the dock. Nets and other suitable protection must extend beyond the projected area of the access and egress points so as to catch a personnel that may be falling outward: i.e., the nets must be wider than the gangway.
- Proper trimming at all times.
- Adequate illumination for their full length.
- Separated by one-fourth the length of the vessel, at a minimum, as to mitigate the possibility that an incident could block both means of escape."

3.7.3 SFLC Standard Specification 8635. Replace and add paragraphs as follows,

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"3.3.10.4.1 Contractor-furnished supporting equipment. Provide all hoses and fittings needed to supply water to the system. Provide pressure gauges at the connection(s) to the ship and the furthest firehose station to allow personnel to clearly read the gage-face to demonstrate or record the required water pressure is available at all energized portions of the system."

"3.2.3 Shipboard access/egress and routing of temporary services. Maintain a primary and secondary means of access/egress for each vessel, where practicable. Pre-plan for the installation of temporary services to minimize the total number of service leads penetrating the hull by maximizing the use of backbones and/or manifolds for industrial services. Pre-planning for the installation of temporary services shall include removal (first in, last out, when no longer required). Pay special attention to transitional spaces (cross passages, top and bottom of stairwells) where services could potentially fall and restrict emergency personnel egress and/or casualty responder access."

"3.2.3.2 Materials used for suspending temporary services. Temporary services shall be suspended at regular intervals, to prevent impeding personnel access/egress and emergency response, using a high temperature line that meets the noncombustibility test requirements contained in reference (e). When using steel wire rope, or other potentially abrasive material, an anti-chafing material shall be used to prevent damage of the temporary service line. When available, temporary service lines may be run through the ship's structural elements (i.e., cable ways, light stanchions, etc.). When the routing of temporary services overhead is not practicable, temporary services, rigging of hoses, welding leads, and temporary lights shall be clear of the decks on temporary "trees" or brackets and be arranged to minimize tripping and other hazards."

"3.2.3.5 Quick Disconnect Fittings. QDFs shall be located within 10 feet of designated vertical and horizontal fire zone boundaries. When practicable, QDFs shall be installed within 10 feet of hull penetrations used for personnel access, to facilitate the deployment of smoke control curtains. QDFs must be capable of being disconnected safely on pressurized or energized systems unless approved for use as described in paragraph 3.2.3.7. Pressurized and disconnected QDFs must prevent wetting of energized equipment. For hull openings used for services only, QDFs are not required, provided the opening is fitted with an air and smoke control "sock" that remains in place around the services. Air and smoke control curtains are not intended to provide an air tight seal of the hull opening. Rather, the curtains or socks, are to ensure that emergency responders can control the flow of air and smoke through the opening to allow for de-smoking of compartments, and minimize "chimney" effects. Curtains shall be made of fire resistant fabric meeting the requirements of NFPA 701."

"3.2.3.7 Service lines crossing fire zone boundaries. When service lines transit a fire zone boundary which cannot be safely disconnected locally (e.g., high voltage cables), the COR shall approve, in advance, the method to safely secure and remove the service."

3.7.4 SFLC Standard Specification 6310.

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3.7.4.1 On page 2, replace REFERENCE “MIL-PRF-24667C, May 2008, Coating System, Non-Skid, for Roll, Spray, or Self-Adhering Application” with “MIL-PRF-24667D, FEB 2021, Coating System, Non-Skid, for Roll, Spray, or Self-Adhering Application”

3.7.4.2 On page 9, replace the NOTE under paragraph 3.1.8.5 as follows:

NOTE

De-ionized water may be used in cases where available fresh water has excessive chloride/chlorine content. Submit a CFR prior to using de-ionized water.

4. NOTES

4.1 QA inspection forms. QA inspection forms (QA-1 thru QA-5), required in SFLC Std Spec 6310 to be completed and submitted during preservation of “critical-coated surfaces”, are provided at the end of this document.

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QA-1 - QUALITY ASSURANCE INSPECTION FORM

(PRESERVATION CHECKLIST)

VESSEL NAME	HULL #	WORK ITEM #	WORK ITEM TITLE
LOCATION OF WORK (INCL. FRAME #'S)		AREA (SQFT)	

CHECKPOINT 1 – COATING SYSTEM COMPLIANCE

Ensure all coatings are in compliance with SFLC Std Spec 6310, Appendix C.

CHECKPOINT 2 - PAINT STORAGE

Ensure all coatings are kept at a temperature of 65 to 85°F at all times, unless otherwise specified by the coating mfg.

CHECKPOINT 3 - AMBIENT CONDITIONS

Ensure surface and surrounding temperatures are each between 50 and 90°F for water-containing coatings, and 35 and 95°F for other coatings, unless otherwise specified by the coating manufacturer(s).

Ensure maximum relative humidity (RH) is as follows, from surface preparations through final curing of topcoat: 50% for tanks, voids, and vent plenum; and 85% for all other areas, unless otherwise specified by manufacturer(s).

Ensure surface temperature is at least 5°F above the dew point, unless otherwise specified by the coating mfg.

CHECKPOINT 4 - PRE-SURFACE PREPARATION

Remove surface contaminants (soluble salts, loose rust, mud, and marine growth) with low pressure fresh water wash down (maximum 5,000 psi). If oil and grease are present, perform solvent cleaning, as per SSPC SP-1.

Verify equipment setup, blast media, and surface preparation methods match designated test coupon.

CHECKPOINT 5 - SURFACE PREPARATION

Verify environmental conditions (see CHECKPOINT 3).

Ensure cleanliness of prepared surface is as per specification (i.e.: SSPC SP-11, SP-10, SP WJ-2...).

Verify surface anchor profile using ASTM D4417-Methods B or C against SFLC Std Spec 6310. Conduct profile readings at a minimum of 5 locations for the first 1000-sqft area, and 2 locations for each succeeding 1000-sqft area.

Measure soluble salt conductivity in accordance with SSPC-Guide 15. Conduct 5 measurements per each 1000-sqft area (max. threshold: 70 microsiemens/cm for non-submerged surfaces, 30 microsiemens/cm for submerged surfaces).

CHECKPOINT 6 - PRIMER COAT APPLICATION

Verify environmental conditions (see CHECKPOINT 3).

Verify proper mixing and stand-in (induction) times.

Ensure no paint is applied when the temperature is expected to drop to freezing before the paint has dried.

Ensure surfaces are completely dry, unless otherwise allowed by the coating manufacturer(s).

Verify wet film thickness (WFT) at random, to prevent under or over application. Verify final DFT.

Brush out all runs, sags, drips, and puddles.

Perform visual inspection for holidays and other defects.

CHECKPOINT 7 – STRIPE COAT APPLICATION

Verify environmental conditions (see CHECKPOINT 3).

Ensure overcoating window is as per manufacturer's instructions.

After primer coat (mist coat after inorganic zinc), brush-apply un-thinned coat of same primer paint over edges, weld seams, cut-outs, and areas of complex geometries @ 3-4 mils wet film thickness (WFT).

CHECKPOINT 8 – TOP COAT APPLICATION

Verify environmental conditions (see CHECKPOINT 3).

Ensure overcoating window is as per manufacturer's instructions.

Verify proper mixing and stand-in (induction) times, as applicable.

Verify wet film thickness at random, to prevent under or over application.

Brush out all runs, sags, drips, and puddles.

CHECKPOINT 9 – FINAL INSPECTION

Verify final system dry film thickness. Conduct 5 sets of 3 readings for each of the first 3 100-sqft areas, followed by 5 sets of 3 readings for each succeeding 1000-sqft area.

Ensure that system cure is in accordance with manufacturer's recommendation for intended service.

Ensure potable water tank exhaust ventilation is maintained continuously from and during coating application through final system cure, to exhaust all solvent to the atmosphere and to prevent solvent entrapment.

For immersion coatings (including tank U/W body), record date and time of the following events:

Final coat application: ____/____; Return to service or removal from environment controls: ____/____

CHECKPOINT 10 – RECORD KEEPING

Complete, sign, and submit all provided QA Inspection Forms.

NAME OF QP-1/NACE INSPECTOR	SIGNATURE	CERT. #	DATE / TIME
NAME OF CG REPRESENTATIVE	SIGNATURE	UNIT	DATE/TIME

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 QA-2 - QUALITY ASSURANCE INSPECTION FORM
 (ENVIRONMENTAL READINGS)

VESSEL NAME	HULL #	WORK ITEM #	WORK ITEM TITLE

Use one sheet for each activity. Record conditions every four hours from before surface preparation to application of final coating system coat.							
DATE & TIME	ACTIVITY (SURFACE PREPARATION, PRIMER COAT, BARRIER COAT, TOP COAT, ETC...)	LOCATION (FRAME & DECK, RELATION TO EQUIPMENT, ETC.)	TEMPERATURE				% REL. HUMIDITY
			DEW PT.	SURFACE	AMBIENT	ΔT DP - SURFACE	
NAME OF QP-1/NACE INSPECTOR		SIGNATURE			CERT. #	DATE / TIME	
NAME OF CG REPRESENTATIVE		SIGNATURE			UNIT	DATE/TIME	

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QA-3a - QUALITY ASSURANCE INSPECTION FORM

(SURFACE PROFILE LOG FOR PROFILE MEASUREMENTS IAW ASTM D4417-METHOD-C)

VESSEL NAME	HULL #	WORK ITEM #	WORK ITEM TITLE
LOCATION OF WORK (FRAME REFERENCES)			AREA (SQFT)

SURFACE PREPARATION METHOD		PROFILE ACHIEVED (MILS)		
		MIN	MAX	MEAN
SSPC-SP-10/NACE No. 2	<input type="checkbox"/>			
SSPC-SP WJ-2/NACE WJ-2	<input type="checkbox"/>			
SSPC-SP-3	<input type="checkbox"/>			
SSPC-SP-11	<input type="checkbox"/>			
SSPC-SP-11 (inaccessible area)	<input type="checkbox"/>			
Brush-blasting (non-metallic substrate)	<input type="checkbox"/>			
ABRASIVE MANUFACTURER:		ABRASIVE SIEVE SIZE:		

PLACE SURFACE PROFILE REPLICA TAPES IN THE SPACES PROVIDED BELOW, TO SERVE AS PERMANENT QA RECORD. MAINTAIN A SEPARATE LOG FOR EACH LOCATION. WHEN AN AREA IS DIVIDED INTO SEPARATE SECTIONS, MAINTAIN A SEPARATE LOG FOR EACH SECTION.

Place Surface Profile Replica Tape Here	Place Surface Profile Replica Tape Here	Place Surface Profile Replica Tape Here
Reading (mils):	Reading (mils):	Reading (mils):
Place Surface Profile Replica Tape Here	Place Surface Profile Replica Tape Here	Place Surface Profile Replica Tape Here
Reading (mils):	Reading (mils):	Reading (mils):
Place Surface Profile Replica Tape Here	Place Surface Profile Replica Tape Here	Place Surface Profile Replica Tape Here
Reading (mils):	Reading (mils):	Reading (mils):
Place Surface Profile Replica Tape Here	Place Surface Profile Replica Tape Here	Place Surface Profile Replica Tape Here
Reading (mils):	Reading (mils):	Reading (mils):
Place Surface Profile Replica Tape Here	Place Surface Profile Replica Tape Here	Place Surface Profile Replica Tape Here
Reading (mils):	Reading (mils):	Reading (mils):
Place Surface Profile Replica Tape Here	Place Surface Profile Replica Tape Here	Place Surface Profile Replica Tape Here
Reading (mils):	Reading (mils):	Reading (mils):
MEAN MIL READING (IAW ASTM D4417-METHOD C) FOR ABOVE 15 READINGS:		

NAME OF QP-1/NACE INSPECTOR	SIGNATURE	CERT. #	DATE / TIME
NAME OF CG REPRESENTATIVE	SIGNATURE	UNIT	DATE/TIME

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QA-3b - QUALITY ASSURANCE INSPECTION FORM

(SURFACE PROFILE LOG FOR PROFILE MEASUREMENTS IAW ASTM D4417-METHOD-B)

VESSEL NAME	HULL #	WORK ITEM #	WORK ITEM TITLE
LOCATION OF WORK (INCL. FRAME #'S)			AREA (SQFT)

SURFACE PREPARATION METHOD		PROFILE ACHIEVED (MILS)		
		MIN	MAX	MEAN
SSPC-SP-10/NACE No. 2	<input type="checkbox"/>			
SSPC-SP WJ-2/NACE WJ-2	<input type="checkbox"/>			
SSPC-SP-3	<input type="checkbox"/>			
SSPC-SP-11	<input type="checkbox"/>			
SSPC-SP-11 (inaccessible area)	<input type="checkbox"/>			
Brush-blasting (non-metallic substrate)	<input type="checkbox"/>			
ABRASIVE MANUFACTURER:		ABRASIVE SIEVE SIZE:		

RECORD MEASUREMENTS TAKEN IN THE SPACES PROVIDED BELOW, TO SERVE AS PERMANENT QA RECORD. MAINTAIN SEPARATE LOG FOR EACH LOCATION. WHEN AN AREA IS DIVIDED INTO SEPARATE SECTIONS, MAINTAIN A SEPARATE LOG FOR EACH SECTION.					
Reading (mils):					
Reading (mils):					
Reading (mils):					
Reading (mils):					
Reading (mils):					
Reading (mils):					
Reading (mils):					
Reading (mils):					
Reading (mils):					
Reading (mils):					
Mean Mils Reading (IAW ASTM D4417-Method B for above 10 readings (by column):					
Mean Reading (mils)					

NAME OF QP-1/NACE INSPECTOR	SIGNATURE	CERT. #	DATE / TIME
NAME OF CG REPRESENTATIVE	SIGNATURE	UNIT	DATE/TIME

QA-4 - QUALITY ASSURANCE INSPECTION FORM
(SURFACE SOLUBLE SALT CONDUCTIVITY LOG)

VESSEL NAME	HULL #	WORK ITEM #	WORK ITEM TITLE
LOCATION OF WORK (INCL. FRAME #'S)			AREA (SQFT)

[illegible]

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QA-5 - QUALITY ASSURANCE DATA FORM
(COATING THICKNESS)

(Use one sheet for each sequence)

VESSEL NAME	HULL #	WORK ITEM #	WORK ITEM TITLE

COATING MFG	PRODUCT NAME	BATCH #	INDUCTION TIME	COATING SYSTEM SEQUENCE (PRIMER/TOUCHUP/3RD COAT, ETC.)

DRY FILM THICKNESS (DFT) MEASUREMENTS IAW SSPC-PA 2.						
SPOT	1	2	3	4	5	AVERAGE VALUE
*BASE METAL READING (BMR)						
*Required, If Magnetic Pull-Off (Type I/Banana) Gauge Is Used.						

LOCATION (FRAME REFERENCE):						
SPOT	1	2	3	4	5	OVERALL AVG. DFT
1						
2						
3						
AVG.						

LOCATION (FRAME REFERENCE):						
SPOT	1	2	3	4	5	OVERALL AVG. DFT
1						
2						
3						
AVG.						

LOCATION (FRAME REFERENCE):						
SPOT	1	2	3	4	5	OVERALL AVG. DFT
1						
2						
3						
AVG.						

APPLICATION METHOD (AIRLESS, CONVENTIONAL SPRAY, ROLLED)	AVERAGE DFT

NAME OF QP-1/NACE INSPECTOR	SIGNATURE	CERT. #	DATE / TIME
NAME OF CG REPRESENTATIVE	SIGNATURE	UNIT	DATE/TIME

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4.2 Tank and Void Assessment form.

SFLC-ESD-25		TANK AND VOID ASSESSMENT FORM	
PRINT	RESET		
GENERAL DATA Note: Use SFLC-ESD-29 for Compartments other than Tanks & Voids.			
Inspector's Name:		Organization:	
Cutter Name:		Cutter Class:	
Tank:		Service:	
Solid Balast:		Access Compt:	
Date:		Assessment Reason:	
ACCESS DATA			
Manhole and cover condition:		Tank Penetration Condition:	
VENT OVERFLOW DATA			
Present: <input type="radio"/> Yes <input type="radio"/> No		Check Valve Installed: <input type="radio"/> Yes <input type="radio"/> No	
		Check Valve Operates Properly: <input type="radio"/> Yes <input type="radio"/> No	
LADDER DATA			
NR of Ladder(s) Present: <input type="radio"/> Yes <input type="radio"/> No		Ladder Damaged: <input type="radio"/> Yes <input type="radio"/> No	
		Ladder Material:	
TANK LEVEL INDICATOR (TLI) DATA			
TLI Present in Tank: <input type="radio"/> Yes <input type="radio"/> No		TLI Damaged: <input type="radio"/> Yes <input type="radio"/> No	
		TLI Type:	
SOUNDING TUBE DATA			
Sounding Tube Present in Tank: <input type="radio"/> Yes <input type="radio"/> No		Sounding Tube Damaged: <input type="radio"/> Yes <input type="radio"/> No	
Striker Plate Damaged (>50%): <input type="radio"/> Yes <input type="radio"/> No			
CATHODIC PROTECTION DATA			
Cathodic Protection in Tank: <input type="radio"/> Yes <input type="radio"/> No		Total Zincs:	
		Number of Zincs > 50% Depleted:	
1-6 Cleanliness & Housekeeping			
Clean to light layer or residue		1-2 (G)	Comments:
Loose accumulation scale		3-4 (Y)	
Impending residue and sediments		5-6 (R)	
% 1-6 Coating Systems			
All Painted Surfaces		1-2 (G)	Comments:
		3-4 (Y)	
		5-6 (R)	
% 1-6 Structural			
Corrosion		1-2 (G)	Comments:
		3-4 (Y)	
		5-6 (R)	
Pitting & Grooving		1-2 (G)	Comments:
		3-4 (Y)	
		5-6 (R)	
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SFLC-ESD-25	TANK AND VOID ASSESSMENT SHEET
<div style="border: 1px solid black; padding: 2px; display: inline-block;">PRINT</div>	

Structural Integrity Data			
Estimated Total Linear Feet of Structure Requiring Repair:		Estimated Total Square Feet of Plating Requiring Repair:	
Cracks/ Fractures Present:	<input type="radio"/> Yes <input type="radio"/> No	Buckling/Deflections/ Distortions Present:	<input type="radio"/> Yes <input type="radio"/> No
Holes Present:	<input type="radio"/> Yes <input type="radio"/> No	Material Wastage Present:	<input type="radio"/> Yes <input type="radio"/> No
All Welds Intact:	<input type="radio"/> Yes <input type="radio"/> No	Structural Evaluation Recommended:	<input type="radio"/> Yes <input type="radio"/> No

PHOTOGRAPHS
Pictures Taken (enter quantity):
Note: To add pictures to this form, Work Station must have Adobe Acrobat (not Reader) installed. Add all photos and photo comments to a word document and save file. Open this form and click "Combine Files". Add the document with photos you've just saved and save as a new combined .pdf files.
Additional Comments:

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WORK ITEM 1: Ultrasonic Thickness Measurements, Perform

1. SCOPE

1.1 Intent. This work item describes the requirements for the Contractor to perform up to 250 thickness measurements (UT shots) of hull plating and frames, by ultrasonic methods.

1.2 Government-furnished property.

None.

2. REFERENCES

COAST GUARD DRAWINGS

Coast Guard Drawing 87 WPB 085-013, Rev B, Docking Plan

Coast Guard Drawing 87 WPB 111-001, Rev H, Shell Expansion

Coast Guard Drawing 87 WPB 111-050, Rev A, Updates to DWG 87-WPB-111-001 Exhaust Port Insert Plate Installation and Details

Coast Guard Drawing 87 WPB 163-001, Rev H, Sea Chest Details

COAST GUARD PUBLICATIONS

Surface Forces Logistics Center Standard Specification 0000 (SFLC Std Spec 0000), 2020, General Requirements

Surface Forces Logistics Center Standard Specification 0740 (SFLC Std Spec 0740), 2020, Welding and Allied Processes

OTHER REFERENCES

None

3. REQUIREMENTS

3.1 General.

3.1.1 CIR.

None.

3.1.2 Tech Rep.

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Not applicable.

3.1.3 Protective measures. The Contractor shall furnish and install all protective coverings to seal off and protect all non-affected vessel's components, equipment, and spaces near the work area against contamination during the performance of work. Upon completion of work, the Contractor shall remove all installed protective measures, inspect for the presence of contamination, and return all contaminated equipment, components, and spaces to original condition of cleanliness.

3.1.4 Interferences. The Contractor shall handle all interferences in accordance with SFLC Std Spec 0000, paragraph 3.3.5 (Interferences). Known interferences include, but are not limited to the following:

- Sea chest grates
- Tight interior spaces

3.2 UT measurements. Using Coast Guard Drawings 87 WPB 085-013, 87 WPB 111-001, and 87 WPB 111-050 as guidance, the Contractor shall perform up to 250 UT measurements in locations designated by the Coast Guard Inspector in accordance with SFLC Std Spec 0740, Appendix C. Submit a CFR.

3.2.1 The Contractor shall conduct 50 of the 250 UT shots over the 1/4" sea chest plating in both sea chests beneath the sea chest grates as shown on Coast Guard Drawing 87 WPB 163-001.

3.2.2 The Contractor shall create a sketch to show all locations selected for measurement and record all measurements in Table 1 (UT Measurements Summary Sheet - Port/Stbd Shell) provided at the end of this item. Submit CFR itemizing all areas requiring repairs along with repair recommendations, including complete work scope proposal, for each area.

NOTE

Where hull repairs are required in the vicinity of the exhaust teardrops, use Coast Guard Drawing 87 WPB 111-050 for guidance on location of stainless steel hull inserts and when planning for plating renewal.

4. NOTES

This section is not applicable to this work item.

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TABLE 1 - UT MEASUREMENTS SUMMARY SHEET PORT/STBD SHELL

SHOT #	STRAKE # PLATE #	FWD/MID/AFT TOP/MID/BOT	ORIG PL THICKNESS	MEASURED PL THICKNESS	PERCENT WASTAGE

WORK ITEM 2: U/W Body, Preserve, 100 percent

1. SCOPE

1.1 Intent. This work item describes the requirements for the Contractor to preserve U/W body surfaces.

NOTES

1. The purpose of the preservation tasks covered by this item is to completely remove all existing coatings and recoat the U/W body surfaces with a new coating system.

2. U/W body surfaces are as defined in 4.1 (Definitions) and exclude areas covered by docking blocks, unless the vessel is fleetted for the express purpose of preserving blocked areas.

1.2 Government-furnished property.

None.

2. REFERENCES

COAST GUARD DRAWINGS

Coast Guard Drawing 87 WPB 583-001, Rev W, RIB Deployment Structure

Coast Guard Drawing 87 WPB 601-001, Rev R, Outboard Profile & General Arrangements

Coast Guard Drawing 87 WPB 602-001, Rev F, Visual ID and Draft Mark Plan

COAST GUARD PUBLICATIONS

Surface Forces Logistics Center Standard Specification 0000 (SFLC Std Spec 0000), 2020, General Requirements

Surface Forces Logistics Center Standard Specification 6310 (SFLC Std Spec 6310), 2020, Requirements for Preservation of Ship Structures

OTHER REFERENCES

The Society for Protective Coatings (SSPC) Surface Preparation Specification No.1 (SSPC-SP 1), 2016, Solvent Cleaning

3. REQUIREMENTS

3.1 General.

3.1.1 CIR. The Contractor must submit a CIR for the inspections listed in the following paragraph(s):

- 3.1.5.1 Fairing Inspection
- 3.2.3 Post-surface preparation cleaning and inspection

3.1.2 Tech Rep. The Contractor must refer to SFLC Std Spec 0000, paragraphs 3.2.4.2.1 (Painting contractor certification program requirement) and 3.2.4.2.2 (Coating Tech Rep), for applicable requirements.

3.1.3 Protective measures. The Contractor must furnish and install all protective measures in accordance with SFLC Std Spec 0000, paragraph 3.3.3 (Vessel component, space, and equipment protection) to the following components, spaces and equipment:

- All scuppers and overboard discharges.
- Waterline area where U/W body coating system interfaces with freeboard coating system (unless freeboard surfaces are also being preserved).
- Fathometer transducer surfaces.
- Sea valve openings.
- Propeller shaft bearings and seals.
- Rudder bearings.
- Propellers.
- Zinc anodes (unless anodes are being renewed).

3.1.4 Interferences. The Contractor must handle all interferences in accordance with SFLC Std Spec 0000, paragraph 3.3.5 (Interferences). Known interferences include, but are not limited to the following:

- Sea chest grating.
- Hydraulic stern door rams.
- Hydraulic hoses and piping.
- Stern door gaskets.
- High density molecular weight plastic pads in the boat ramp.

NOTE

The capastic fairing is not to be removed simply as an interference for 100% near white blasting unless it is found to be failing.

3.1.5 Initial inspection. Prior to removing the existing coating system, the Contractor must inspect and verify whether all draft marks have permanent markings (weld beads or impressions), showing their location on the hull. Submit a CFR.

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3.1.5.1 Fairing inspection. Prior to preservation preparation, inspect the capastic fairing condition. Submit a CFR.

3.1.6 Water used in preparation and washing procedures. The Contractor must ensure that water used in all surface preparation tasks, including pre-surface preparation wash and water jetting, is of sufficient purity and quality that it does not prevent the surface being cleaned from achieving the required degree of surface cleanliness or non-visible contamination criteria.

3.1.6.1 Ensure that surface preparation water does not contain sediments or other impurities that are destructive to the proper functioning of the cleaning equipment.

3.1.6.2 Ensure that all water used in any surface preparation or cleaning procedures is captured, contained, and all spent water disposed of in accordance with all Federal, state and local regulations.

3.1.7 Surface preparation optional methods. The Contractor has the option of using either high/ultrahigh pressure water jetting or abrasive blasting to achieve the required surface preparation, prior to application of the coating system specified in 3.2 (Preservation requirements). The Contractor may add abrasives to the water jet stream, for one or both of the following reasons:

- Achieving greater productivity.
- Achieving the required surface profile.

NOTES

- 1. Existing coating system on the U/W body surfaces may have a nominal thickness in excess of that which was originally installed, because of “patch-coats” applied during past drydock availabilities.**
- 2. Water jetting without abrasive addition does not provide any additional anchor profile to the surface, beyond what was present after the previous surface preparation.**

3.2 Preservation requirements. The Contractor must accomplish the following tasks:

3.2.1 Pre-surface preparation wash. Accomplish low-pressure (less than 5,000 psi) fresh water wash of all affected surfaces, to remove soluble chlorides and other surface contaminants. Refer to SSPC-SP 1, for guidance.

3.2.2 Surface preparation and coating application.

3.2.2.1 Perform a visual inspection of the pad studs in the RHIB notch, making note if there are any missing or damaged. Submit a CFR.

3.2.2.2 U/W body and appendages.

3.2.2.2.1 Prepare the U/W body, appendage surfaces, and RHIB notch wet deck, using the system specified for “Underwater Water (U/W) Body and Boot-Top (U/W Body and Boot-Top, Steel Hulls (Up to 12 Years), in Salt Water”, in SFLC STD SPEC 6310, Appendix A (Cutter and Boat Exterior Painting Systems”.

3.2.2.2.2 Prior to coating application, accomplish surface inspections in accordance with Paragraph 3.2.3.

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3.2.2.2.3 Coat the U/W body and appendage surfaces as specified below, and otherwise in accordance SFLC Std Spec 6310, Appendix A (Cutter and Boat Exterior Painting Systems):

3.2.2.2.3.1 First coat, MIL-PRF-24647 Anticorrosive Epoxy, Grade A or B (Red) at 5-6 mils, DFT.

3.2.2.2.3.2 Second coat, MIL-PRF-24647 Anticorrosive Epoxy, Grade A or B (Gray) at 5-6 mils, DFT.

3.2.2.2.3.3 Third coat, MIL-PRF-24647 Non-copper Ablative, Type I, Class 2, Applications 1 & 4 (Red) at 5-6 mils, DFT (while epoxy beneath is still tacky).

3.2.2.2.3.4 Fourth coat, MIL-PRF-24647 Non-copper Ablative, Type I, Class 2, Applications 1 & 4 (Black) at 5-6 mils, DFT.

3.2.2.2.3.5 Fifth coat, MIL-PRF-24647 Non-copper Ablative, Type I, Class 2, Applications 1 & 4 (Red) at 5-6 mils, DFT.

3.2.2.2.3.6 Boot-top area only, apply an additional coat - MIL-PRF-24647 Non-copper Ablative, Type I, Class 2, Applications 1 & 4 (Black) at 5-6 mils, DFT.

3.2.2.3 Stern door surfaces.

3.2.2.3.1 Prepare the designated aluminum stern door external and internal surfaces (in the boot-top area), using the system specified for “Underwater (U/W) Body/Boot Top, Aluminum Hull,” in SFLC Std Spec 6310 (series), Appendix A.

3.2.2.3.2 Coat the stern door U/W body surface using the system specified under 3.2.2.2.3 Top coat surfaces with scheme as shown in Coast Guard Drawing 87 WPB 602-001 (black boot top and red u/w body beneath the boot top).

3.2.2.4 Stern ladder surfaces.

3.2.2.4.1 Prepare the aluminum stern ladder surfaces using the system specified for “Freeboard/Superstructure /Mast (Freeboard/Superstructure, Aluminum, Option I)” in SFLC STD SPEC 6310, Appendix A (Cutter and Boat Exterior Painting Systems).

3.2.2.4.2 Coat the ladder using the system specified under 3.2.2.2.3. Match the adjacent hull colors and scheme.

3.2.3 Post-surface preparation cleaning and inspection. After completion of surface preparation and prior to coating application, accomplish the following tasks and submit a CFR.

3.2.3.1 Perform a visual inspection of the prepared U/W body steel substrate..

NOTE

Lists of all authorized coating materials and suppliers are listed in SFLC Std Spec 6310, Appendix C (Cutter and Boat Authorized Coatings).

3.2.3.2 Perform solvent cleaning of all prepared surfaces, in accordance with SSPC-SP 1. Capture, contain, and dispose of all wastes from solvent cleaning, in accordance with all Federal, state and local regulations..

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3.3 Draft mark painting. The Contractor must paint all draft marks with two coats of a “Polysiloxane” or “Silicone Alkyd Enamel” coating, at 2.0-3.0 mils DFT, white (17925).

3.4 In-process quality control. The Contractor must abide by all the safety, preservation, and quality control requirements specified in SFLC Std Spec 0000, paragraph 3.2.4.2 (In-process QC measures for “critical-coated surfaces”). Surfaces being preserved are considered “critical-coated surfaces”.

3.5 Stern door removal. The Contractor may elect to remove the aluminum stern door, at no additional cost to the Government, to facilitate door preservation. DO NOT place or store stern door on its arms.

3.6 Precautionary measures. The Contractor must ensure that no aluminum surfaces come in contact with copper coating, due to copper’s corrosive effect on aluminum surfaces.

3.7 AF system protective measures – in the event of prolong atmospheric exposure. If the vessel will not be refloated within the immersion time as recommended by the coating system manufacturer, the Contractor must employ suitable measures - including but not limited to keeping the coating system wet and away from direct sun light, to avoid film damage that may reduce or impact the final performance of the AF coating system when placed into service.

4. NOTES

4.1 Definitions.

4.1.1 U/W Body. The underwater body is defined as the areas from the bottom of the keel to the upper edge of the boot-topping, as shown on Coast Guard Drawing 87 WPB 601-001, including rudders, transducer hull rings, sea chests (including the sea chest inlet up to the final connection with the flange face at the sea chest isolation valve(s)), sea chest riser pipes, bilge keels, struts, skegs, gratings, and rope guards. Also included are the underwater body (boot top) area that extends into the RHIB wet notch deck, shown on Coast Guard Drawing 87 WPB 583-001 (normally submerged and painted black) and portion of aluminum stern door external and internal surfaces (in the boot-top area) that are normally submerged and painted black.

WORK ITEM 3: Hull Plating Freeboard, Preserve, 100 Percent

1. SCOPE

1.1 Intent. This work item describes the requirements for the Contractor to preserve 100% of the freeboard surfaces defined in 4.1 Definition of freeboard surfaces.

1.2 Government-furnished property.

None.

2. REFERENCES

COAST GUARD DRAWINGS

Coast Guard Drawing 87 WPB 583-001, Rev W, RIB Deployment Structure
Coast Guard Drawing 87 WPB 601-001, Rev R, Outboard Profile & General Arrangements
Coast Guard Drawing 87 WPB 602-001, Rev F, Visual ID and Draft Mark Plan
Coast Guard Fleet Drawing FL 2804-12, Rev -, U.S.C.G. Emblem
Coast Guard Fleet Drawing FL 2804-22, Rev A, Consolidated Visual ID for Cutters

COAST GUARD PUBLICATIONS

Surface Forces Logistics Center Standard Specification 0000 (SFLC Std Spec 0000), 2020,
General Requirements
Surface Forces Logistics Center Standard Specification 6310 (SFLC Std Spec 6310), 2020,
Requirements for Preservation of Ship Structures

OTHER REFERENCES

MIL-PRF-24635, 2009, Coating Systems, Weather-Resistant, Exterior Use

3. REQUIREMENTS

3.1 General.

3.1.1 CIR.

None.

3.1.2 Tech Rep.

Not applicable.

3.1.3 Protective measures. The Contractor must furnish and install all protective measures in accordance with SFLC Std Spec 0000, paragraph 3.3.3 (Vessel component, space, and equipment protection) and to the following specific components, spaces and equipment:

- Areas where underwater body coating system interfaces with freeboard coating system (unless u/w body surfaces are also being preserved).
- Adjacent deck surfaces and deck fittings.
- Exhaust ports (port and starboard).
- Deck equipment.

3.1.4 Interferences. The Contractor must handle all interferences in accordance with SFLC Std Spec 0000, paragraph 3.3.5 (Interferences). Known interferences include, but are not limited to the below-listed:

- Limit switches.
- Vertical rub rails.
- Stern door gaskets.

3.2 Initial inspection. Prior to removing the existing coating system, the Contractor must inspect and verify whether or not all hull identification numbers and letters have permanent markings (weld beads or impressions), showing their location on the hull. Submit a CFR.

3.3 Surface preparation optional methods. The Contractor must have the option of using either high/ultrahigh pressure water Jetting or abrasive blasting to achieve the required surface preparation, prior to application of the coating system specified in 3.6 (Preservation requirements). The Contractor may add abrasives to the waterjet stream, for one or both of the following reasons:

- Achieving greater productivity.
- Achieving the required surface profile.

NOTE

Waterjetting without abrasive addition does not provide any additional anchor profile to the surface, beyond what was present after the previous surface preparation.

3.4 Substrate inspection. After completing surface preparation and before coating application, the Contractor must perform a visual inspection of the prepared substrate, and submit a CFR.

3.5 Pre-surface preparation wash. The Contractor must accomplish low-pressure (less than 5,000 psi) fresh water wash of all affected surfaces, to remove soluble chlorides and other surface contaminants. Capture, contain, and dispose of wash water for proper disposal in accordance with all Federal, state and local regulations.

3.6 Preservation requirements. The Contractor must accomplish the following tasks:

3.6.1 System particulars. Prepare and coat 100% of the freeboard surfaces as designated in paragraph 1.1 (Intent) with the system specified for “Freeboard/Superstructure/Mast (Freeboard/Superstructure)” in SFLC Std Spec 6310. Select the following:

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- Select “Option I” system, for the applicable metal substrate.
- White (17925), as the top/finish coat color..

3.6.2 Visual identification markings. The Contractor must paint all distinctive visual safety and identification markings as follows:

3.6.2.1 Decals. The contractor must furnish and install the following decals in accordance with Coast Guard Drawing 87 WPB 602-001: 1. Coast Guard Emblem: 2 ea. 2. US Coast Guard Legend: 2 ea. 3. Vessel Name: 1 ea. 4. Vessel Hull Number: 2 ea.

3.6.2.2 Painted markings. Paint all remaining, non-decal visual identification markings, including the Coast Guard diagonal stripes and draft marks in accordance with SFLC Std Spec 6310, and Coast Guard Drawings FL 2804-12 and FL 2804-22 as applicable.

NOTES

Surfaces being preserved are considered “critical-coated surfaces”.

Although there may be several possible procurement sources for the Coast Guard Emblem decals and vinyl adhesive letters and numbers, one known source is:

**Brace Enterprises
10250 SE 138 Terrace
Dunnellon, FL 34431**

**352-489-4442 / Fax: 352-489-4476
www.braceenterprise.com**

CAUTION

Do not place or store stern door on its arms. The Contractor may elect to remove the aluminum stern door at no additional cost to the Government.

3.6.3 Tear drop. Prepare and coat “Tear Drop” around through hull exhaust ports with the system specified for “Freeboard/Superstructure/Mast (Freeboard/Superstructure)” in SFLC Std Spec 6310. Select Option 1 system for the applicable metal substrate. Select Black (17038) as the top/finish color.

3.7 In-process quality control measures. The Contractor must abide by all the safety, preservation, and quality control requirements specified in SFLC Std Spec 0000, paragraph 3.2.4.2 (In-process QC measures for “critical-coated surfaces”).

4. NOTES

4.1 Definition of freeboard surfaces. For the purposes of this item the freeboard is defined as exterior steel hull surfaces from the upper limit of the boot-topping to the main deck edge, as shown on Coast Guard Drawing 87 WPB 601-001, Sheet 1. Also included are the following:

aluminum stanchions and taffrails

all steel horizontal, angled, and vertical surfaces of the RHIB notch , shown on Coast Guard Drawing 87 WPB 583-001 (normally painted white) up to and including the main deck edge

inboard and outboard surfaces of the aluminum stern door that are not normally submerged (painted white).

WORK ITEM 4: Tank, Dirty Oil, Clean and Inspect

1. SCOPE

1.1 Intent. This work item describes the requirements for the Contractor to clean the tank identified in Table 1:

TABLE 1 - TANK CLEANING AND INSPECTION

TANK	LOCATION	CAPACITY - 95% (GALLONS)
Dirty Oil	2-13-2-F	85

1.2 Government-furnished property.

None.

2. REFERENCES

COAST GUARD DRAWINGS

Coast Guard Drawing 87 WPB 085-001, Rev -, Tank Capacity Curves

Coast Guard Drawing 87 WPB 601-001, Rev R, Outboard Profile & General Arrangements

COAST GUARD PUBLICATIONS

Surface Forces Logistics Center Standard Specification 0000 (SFLC Std Spec 0000), 2020,
General Requirements

OTHER REFERENCES

Society of Automotive Engineers (SAE) Aerospace Material Specification (AMS) C6183, 2013,
Cork and Rubber Composition Sheet; for Aromatic Fuel and Oil Resistant Gaskets

3. REQUIREMENTS

3.1 General.

3.1.1 CIR.

None.

3.1.2 Tech Rep.

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Not applicable.

3.1.3 Protective measures. The Contractor shall furnish and install all protective coverings to seal off and protect all non-affected vessel's components, equipment, and spaces near the work area against contamination during the performance of work. Upon completion of work, the Contractor shall remove all installed protective measures, inspect for the presence of contamination, and return all contaminated equipment, components, and spaces to original condition of cleanliness.

3.1.4 Interferences. The Contractor shall handle all interferences in accordance with SFLC Std Spec 0000, paragraph 3.3.5 (Interferences).

3.1.5 Plug log. The Contractor shall keep a written record of all plugs put in any tanks vents. A separate list shall be kept for each tank being entered.

3.1.5.1 Ensure that all plugs are removed from each tank upon completion of work in the tank.

3.1.5.2 The plug log shall be available to the Coast Guard inspector when the inspector is performing his close-out inspection on each tank.

3.2 Operational test, initial. Prior to commencement of work, the Contractor shall witness Coast Guard personnel perform an initial operational test of all items or shipboard devices to be disturbed, used, repaired, or altered, to demonstrate existing operational condition. Submit a CFR.

3.3 Cleaning requirements. The Contractor shall remove tank cover(s) and clean tank interior surfaces free of all foreign materials, such as sediment or sludge, taking care not to damage the coating system (if applicable). Remove cleaning media and residues continuously during the washing process. Remove any residual wash media; and wipe up residual moisture with clean lint-free cloths.

3.4 Tank content and waste disposal. The Contractor shall dispose of tank contents and all cleaning fluids in compliance with all applicable Federal, state, and local laws, ordinances and regulations. Document a complete chain of custody record of the removed tank contents and generated wastes, from the vessel to the point of final destination or delivery. Submit document to the COR upon completion of work.

3.5 Inspection. The Contractor shall visually inspect all tank interior surfaces, including, but not limited to bulkheads, floor and overhead plating, structural members, manhole cover surfaces, fasteners and gasket seating surfaces. Submit a CFR including the following, as applicable:

- Tank structural condition
- Inaccessible areas
- Condition of tank coating, including measurements taken, percentage, location, and type of coating failure.
- Dirty oil tank - Tank Level Indicator (TLI) and/or float switch condition
- Sounding tube and striker plate condition
- Suction and discharge piping condition
- Fastener material and condition (correct fastener material is stainless steel)
- Strainers – verify that strainers are not touching the hull or tank bulkheads.

3.6 Tank closing. The Contractor shall adhere to the following procedures for tank closing:

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3.6.1 Chase threads on access cover studs to ensure even installation of the access covers. Renew any damaged or missing fasteners. Existing undamaged fasteners may be reused. For purpose of bid, assume 10% of existing fasteners will require renewal. Renew all nylon insert/nylock nuts.

3.6.2 Ensure that the tank(s) remain open for at least 24 hours after completion of all authorized repair and preservation procedures. Notify the COR at least 24 hours prior to closing the tank(s). After satisfactory inspection by the Coast Guard Inspector and completion of all authorized repairs, close tank manhole cover(s) with new gasket material conforming to AMS-C-6183.

NOTE

Coast Guard personnel will operate all shipboard machinery and equipment.

3.7 Operational test, post repairs. After completion of work, the Contractor shall thoroughly test, in the presence of the Coast Guard Inspector and demonstrate all items or shipboard devices that have been disturbed, used, repaired, altered, or installed to be in satisfactory operating condition. Submit a CFR.

4. NOTES

This section is not applicable to this work item.

WORK ITEM 5: Tank, Oily Water, Clean and Inspect

1. SCOPE

1.1 Intent. This work item describes the requirements for the Contractor to clean the following tank:

TANK	LOCATION	CAPACITY - 95% (GALLONS)
Oily Water	2-13-1-F	85

1.2 Government-furnished property.

None.

2. REFERENCES

COAST GUARD DRAWINGS

Coast Guard Drawing 87 WPB 085-001, Rev -, Tank Capacity Curves

Coast Guard Drawing 87 WPB 601-001, Rev R, Outboard Profile & General Arrangements

COAST GUARD PUBLICATIONS

Surface Forces Logistics Center Standard Specification 0000 (SFLC Std Spec 0000), 2020,
General Requirements

OTHER REFERENCES

Society of Automotive Engineers (SAE) Aerospace Material Specification (AMS) C6183, 2013,
Cork and Rubber Composition Sheet; for Aromatic Fuel and Oil Resistant Gaskets

3. REQUIREMENTS

3.1 General.

3.1.1 CIR.

None.

3.1.2 Tech Rep.

Not applicable.

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3.1.3 Protective measures. The Contractor shall furnish and install all protective coverings to seal off and protect all non-affected vessel's components, equipment, and spaces near the work area against contamination during the performance of work. Upon completion of work, the Contractor shall remove all installed protective measures, inspect for the presence of contamination, and return all contaminated equipment, components, and spaces to original condition of cleanliness.

3.1.4 Interferences. The Contractor shall handle all interferences in accordance with SFLC Std Spec 0000, paragraph 3.3.5 (Interferences).

3.1.5 Plug log. The Contractor shall keep a written record of all plugs put in any tanks vents. A separate list shall be kept for each tank being entered.

3.1.5.1 Ensure that all plugs are removed from each tank upon completion of work in the tank.

3.1.5.2 The plug log shall be available to the Coast Guard inspector when the inspector is performing his close-out inspection on each tank.

NOTE

Coast Guard personnel will operate all shipboard machinery and equipment.

3.2 Operational test, initial. Prior to commencement of work, the Contractor shall witness Coast Guard personnel perform an initial operational test of the equipment listed below to demonstrate existing operational condition. Submit a CFR.

- Tank level indicator (TLI)

3.3 Cleaning. The Contractor shall remove tank cover(s) and clean tank interior surfaces free of all foreign materials, such as sediment or sludge, taking care not to damage the coating system (if applicable). Remove cleaning media and residues continuously during the washing process. Remove any residual wash media; and wipe up residual moisture with clean lint-free cloths.

3.4 Tank content and waste disposal. The Contractor shall dispose of tank contents and all cleaning fluids in compliance with all applicable Federal, state, and local laws, ordinances and regulations. Document a complete chain of custody record of the removed tank contents and generated wastes, from the vessel to the point of final destination or delivery. Submit document to the COR upon completion of work.

3.5 Inspection. The Contractor shall visually inspect all tank interior surfaces, including, but not limited to bulkheads, floor and overhead plating, structural members, manhole cover surfaces, fasteners and gasket seating surfaces. Submit a CFR including the following, as applicable:

- Tank structural condition.
- Inaccessible areas.
- Condition of tank coating, including measurements taken, percentage, location, and type of coating failure.
- Oily water tank - Tank Level Indicator (TLI) and/or float switch condition.
- Sounding tube and striker plate condition.
- Suction and discharge piping condition.
- Fastener material and condition (correct fastener material is stainless steel).
- Strainers – verify that strainers are not touching the hull or tank bulkheads.

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3.6 Tank closing. The Contractor shall adhere to the following procedures for tank closing:

3.6.1 Chase threads on access cover studs to ensure even installation of the access covers. Renew any damaged or missing fasteners. Existing undamaged fasteners may be reused. For purpose of bid, assume 10% of existing fasteners will require renewal. Renew all Nylock Nuts.

3.6.2 Ensure that the tank(s) remain open for at least 24 hours after completion of all authorized repair and preservation procedures. Notify the COR at least 24 hours prior to closing the tank(s). After satisfactory inspection by the Coast Guard Inspector and completion of all authorized repairs, close tank manhole cover(s) with new gasket material conforming to AMS-C-6183.

NOTE

Coast Guard personnel will operate all shipboard machinery and equipment.

3.7 Operational test, post repairs. After completion of work and in the presence of the Coast Guard Inspector, the Contractor shall thoroughly test and demonstrate the equipment listed below to be in satisfactory operating condition. Submit a CFR.

- Tank level indicator (TLI)

4. NOTES

This section is not applicable to this work item.

WORK ITEM 6: Tanks, MP Fuel Service, Clean and Inspect**1. SCOPE**

1.1 Intent. This work item describes the requirements for the Contractor to clean and inspect the following tank(s):

TABLE 1 - FUEL SERVICE TANKS

TYPE OF TANK	LOCATION	CAPACITY - 95% (GALLONS)	LOW SUCTION (GALLONS)
Diesel Fuel	3-9-1-F	1450	40
Diesel Fuel	3-9-2-F	1450	40

1.2 Government-furnished property.

None.

2. REFERENCES**COAST GUARD DRAWINGS**

Coast Guard Drawing 87 WPB 111-001, Rev H, Shell Expansion
 Coast Guard Drawing 87 WPB 113-001, Rev G, Platform Plating & Framing
 Coast Guard Drawing 87 WPB 116-001, Rev -, Longitudinal Girders & BHD's
 Coast Guard Drawing 87 WPB 122-001, Rev C, Watertight Bulkheads
 Coast Guard Drawing 87 WPB 601-001, Rev R, Outboard Profile & General Arrangements

COAST GUARD PUBLICATIONS

Surface Forces Logistics Center Standard Specification 0000 (SFLC Std Spec 0000), 2020, General Requirements
 Surface Forces Logistics Center Standard Specification 0740 (SFLC Std Spec 0740), 2020, Welding and Allied Processes

OTHER REFERENCES

Society of Automotive Engineers (SAE) Aerospace Material Specification (AMS) C6183, 2019,
Cork and Rubber Composition Sheet; for Aromatic Fuel and Oil Resistant Gaskets

MIL-DTL-1222, Dec 2000, Studs, Bolts, Screws and Nuts for Applications Where a High Degree
of Reliability Is Required

3. REQUIREMENTS

3.1 General.

3.1.1 CIR.

None.

3.1.2 Tech Rep.

Not applicable.

3.1.3 Protective measures. The Contractor must furnish and install all protective measures in accordance with SFLC Std Spec 0000, paragraph 3.3.3 (Vessel component, space, and equipment protection).

3.1.4 Interferences. The Contractor must handle all interferences in accordance with SFLC Std Spec 0000, paragraph 3.3.5 (Interferences). Known interferences include, but are not limited to the below-listed:

- Fuel
- Piping
- Tank access cover

3.1.4.1 The Contractor must remove up to of 5000 gallons of diesel fuel. Document a complete chain of custody record of the removed tank contents from the vessel to the point of final destination or delivery. Submit document to the COR upon completion of work.

3.1.4.2 Dispose of removed fluids in accordance with all applicable Federal, state, and local regulations (see 4.2 (Tank content restoration)).

NOTE

Vessel may come in with less tank fluid contents than specified above.

NOTE

Coast Guard personnel will operate all shipboard machinery and equipment.

3.2 Operational test, initial. Prior to commencement of work, the Contractor must witness Coast Guard Personnel perform an initial operational test of the equipment listed below to demonstrate existing operational condition. Submit a CFR.

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- Designated tank TLIs

3.3 Plug log. The Contractor must keep a written record of all plugs put in any tanks vents. A separate list must be kept for each tank being entered.

3.3.1 Ensure that all plugs are removed from each tank upon completion of work in the tank.

3.3.2 Ensure the plug log is available to the Coast Guard inspector when the inspector is performing his close-out inspection on each tank.

NOTE

Initial and post repair operational tests apply only to tanks that possess TLIs.

3.4 Cleaning requirements. The Contractor must remove tank cover(s) and clean tank interior surfaces free of all foreign materials, such as residual fuel or water, sediment, sludge, rust, or biological growth, taking care not to damage the coating system (if applicable). Remove cleaning media and residues continuously during the washing process. Remove any residual wash media; and wipe up residual moisture with clean lint-free cloths. The Contractor must refer to Coast Guard Drawings 87 WPB 111-001, 87 WPB 113-001, 87 WPB 116-001, 87 WPB 122-001, and 87 WPB 601-001 for guidance.

3.5 Tank content and waste disposal. The Contractor must dispose of residual tank contents and any cleaning fluids in compliance with all applicable Federal, state, and local laws, ordinances and regulations. Document a complete chain of custody record of the removed tank contents and generated wastes, from the vessel to the point of final destination or delivery. Submit document to the COR upon completion of work.

3.6 Inspection. The Contractor must accomplish the following tasks:

3.6.1 Visually inspect all tank interior surfaces, including, but not limited to bulkheads, floor and overhead plating, structural members, manhole cover surfaces, fasteners and gasket seating surfaces. Submit a CFR including the following, as applicable:

- Tank structural condition.
- Inaccessible areas.
- Condition of tank coating, including measurements taken, percentage, location, and type of coating failure (if tank interior surfaces are coated).
- Tank level indicator (TLI) and/or float switch condition, as applicable.
- Sounding/vent tube and striker plate condition.
- Suction and discharge piping condition.
- Fastener material and condition (correct fastener material is stainless steel).

3.7 Tank closing. The Contractor must accomplish the following after completion of all KO-authorized repairs and/or preservation procedures:

3.7.1 For unpainted fuel tank(s) that are not ballasted, apply a heavy coat of lube oil to the entire tank interior(s).

3.7.2 Ensure that the tank(s) remain open for at least 24 hours. Notify the COR at least 24 hours prior to closing the tank(s). After satisfactory inspection by the Coast Guard Inspector and completion of all

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authorized repairs, close tank manhole cover(s) with new gasket material conforming to AMS-C-6183. Chase threads on studs to ensure even installation of the access covers. Renew any damaged or missing fasteners. Use MIL-DTL-1222 as guidance. Renew all Nylock hex nuts.

NOTES

For cutters with unpainted fuel tanks, the 24 hour tank opening period begins after completing the lube oil coating.

Coast Guard personnel will operate all shipboard machinery and equipment.

3.8 Operational test, post repairs. After completion of work and in the presence of the Coast Guard Inspector, the Contractor must thoroughly test and demonstrate the equipment listed below to be in satisfactory operating condition. Submit a CFR.

- Designated tank TLIs
- Vent check valves

3.9 Ultrasonic thickness (UT) measurement. The Contractor must take up to 50 UT measurements of tank plating, in locations designated by the Coast Guard Inspector, in accordance with SFLC Std Spec 0740, Appendix C. Use Coast Guard Drawing 87 WPB 111-001, Rev H, Shell Expansion as guidance. Submit a CFR.

3.9.1 In addition to the UT measurements, take up to 10 pit-depth measurements within each tank, using a suitable pit depth gauge.

4. NOTES

4.1 Tank content restoration. The Ship's force will procure new fluids and refill all tanks at the appropriate time.

WORK ITEM 7: Decks, Exterior (Main Deck), Preserve

1. SCOPE

1.1 Intent. This work item describes the requirements for the Contractor to prepare and preserve the main deck surfaces. Prepare and coat the following areas:

- All main deck portions and walkways up to bottom of deta couple.
- Life raft, P-100 foundations.
- Ammo locker mount.
- Fuel station deck.
- Boat fueling station deck.
- Stern door A-frame foundations (36 sq-ft each x 2)
- Bitts on main deck (12 bitts total, 10" dia. X 12" tall each)
- Chocks on main deck (2" dia. X 14" length each)
- Winch foundation (6 sq-ft)
- Gun mounts (.50 Cal) – 4 total (4 sq-ft each)
- 01 deck Aft Pilot house (exterior)
- Engine room ventilation (fan) space decks (1-15-1-Q, 1-15-2-Q)

NOTE

Recent changes to this work item include the addition of the following to the scope of repairs.

- Engine room ventilation (fan) space decks (1-15-1-Q, 1-15-2-Q)

1.2 Government-furnished property.

MTI	ITEM DESCRIPTION	NSN/PN	QTY	ESTIMATED COST (\$/UNIT)
N	Slip Resistant Sheets	NSN: 7220-01-F11-2238	1 KT	5,352.24

2. REFERENCES

COAST GUARD DRAWINGS

Coast Guard Drawing 87 WPB 631-001, Rev M, Ship's Painting Schedule

Coast Guard Drawing 87 WPB 634-001, Rev G, Deck Covering and Details

COAST GUARD PUBLICATIONS

Surface Forces Logistics Center Standard Specification 0000 (SFLC Std Spec 0000), 2020, General Requirements

Surface Forces Logistics Center Standard Specification 6310 (SFLC Std Spec 6310), 2020, Requirements for Preservation of Ship Structures

OTHER REFERENCES

Commercial Item Descriptions (CID) A-A-59316, Nov 2016 Abrasive Materials for Blasting MIL-A-22262, Mar 1996; Abrasive Blasting Media Ship Hull Blast Cleaning

The Society for Protective Coatings (SSPC)/NACE-International (NACE) Joint Surface Preparation Standard SSPC-SP 10/NACE No. 2, 2007, Near-White Blast Cleaning

The Society for Protective Coatings (SSPC)/NACE International (NACE) Joint Surface Preparation Standard SSPC-SP WJ-2/NACE WJ-2, 2012, Waterjet Cleaning of Metals – Very Thorough Cleaning

3. REQUIREMENTS

3.1 General.

3.1.1 CIR.

None.

3.1.2 Tech Rep.

Not applicable.

3.1.3 Protective measures. The Contractor shall furnish and install all protective coverings to seal off and protect all non-affected vessel's components, equipment, and spaces near the work area against contamination during the performance of work. Upon completion of work, the Contractor shall remove all installed protective measures, inspect for the presence of contamination, and return all contaminated equipment, components, and spaces to original condition of cleanliness.

3.1.4 Interferences. The Contractor shall handle all interferences in accordance with SFLC Std Spec 0000, paragraph 3.3.5 (Interferences). Known interferences include, but are not limited to the below-listed:

- P-100 pump
- P-6 pump
- Ladder
- Life rafts
- Hydraulic line brackets
- Wiring
- Navigation lights
- Ammunition locker
- Anchor windlass

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- Anchor line and chain
- Anchor
- Anchor pad
- Soft patch bolts
- Engine room ventilation fans and dampers

3.2 Removals. The Contractor shall remove and dispose of all existing slip resistant sheets.

NOTE

Soft patches aft of superstructure are aluminum.

3.3 Surface preparation. The Contractor shall prepare the designated deck surfaces to a SSPC-SP WJ-2/NACE WJ-2/L standard, or by one or a combination of the following surface preparation methods, as applicable.

STEEL SURFACES	ALUMINUM SURFACES
Abrasive-blasting to SSPC-SP10/NACE No. 2, using grit conforming to MIL-A-22262 (to produce a 1.5 to 2.5 mil anchor profile).	Brush blasting with clean, fine aluminum oxide, garnet or equivalent inert material conforming CID A-A-59316, Type I & IV, to remove all existing coatings and rust spots, down to bare metal (and produce a 1.0-1.5 mil anchor profile). -or- Mechanical cleaning, using power sanders and abrasive sandpaper with no metallic contents, to remove all existing coatings and rust spots, down to bare metal.

3.4 Substrate inspection. After completion of surface preparation and before non-skid pad application, the Contractor shall perform a visual inspection of the prepared substrate. Submit CFR.

CAUTION

DO NOT preserve aluminum surfaces (e.g. soft patches) with zinc primer.

DO NOT coat soft patch fasteners. Properly mask soft patch fasteners prior to coating.

3.5 Coating application. The Contractor shall preserve all surfaces specified in paragraph 1.1 as follows:

3.5.1 For exterior steel surfaces, preserve using the system specified for “Weather Deck Slip Resistant Sheets, Option II, Steel” in SFLC Std Spec 6310, Appendix A (Cutter and Boat Exterior Paint Systems).

3.5.2 For exterior aluminum surfaces (e.g. soft patches), preserve using the system specified for “Weather Deck Slip Resistant Sheets, Aluminum” in SFLC Std Spec 6310, Appendix A (Cutter and Boat Exterior Paint Systems).

3.5.3 For interior steel surfaces (e.g. fuel station, fan spaces), preserve using the system specified for “Metal Decks – No Application of Deck Coverings” in SFLC Std Spec 6310, Appendix B (Cutter and Boat Interior Painting Systems).

CAUTION

1. Unless a containment system is used to contain surface preparation dust and debris and coating application overspray during pier side/dockside preservation, the following must be adhered to:

- a. All surface preparation tools/equipment must vacuum-shrouded.**
- b. Coatings must be applied by brushing or rolling.**

2. List of authorized suppliers for all coating and slip-resistant sheet materials is provided in SFLC Std Spec 6310, Appendix C (Authorized Coatings for Use on Cutters and Boats).

3.6 Slip-resistant sheet installation. The Contractor shall install Government-furnished slip resistant sheets; seal per the arrangement shown on Coast Guard Drawing 87 WPB 634-001 as specified for “Weather Deck Slip Resistant Sheets, Option I, Steel” in SFLC Std Spec 6310, Appendix A (Cutter and Boat Exterior Paint Systems).

3.6.1 Slip resistant sheet kit NSN: 01-F11-2238 may no longer include edge sealant. The Contractor shall be responsible for procuring sealant as needed to install slip resistant sheets.

3.7 Touch-up preservation. The Contractor shall prepare and coat all new and disturbed surfaces to match existing adjacent surfaces in accordance with SFLC Std Spec 6310, paragraph 3.1.13 (Touch-ups and minor coating repairs.)

4. NOTES

This section not applicable to this work item.

WORK ITEM 8: Capastic Fairing, Depth Sounder, Renew

1. SCOPE

1.1 Intent. With authorization from the KO, this work item describes the requirements for the Contractor to renew the transducer fairing.

1.2 Government-furnished property.

None.

2. REFERENCES

COAST GUARD DRAWINGS

Coast Guard Drawing 87 WPB 165-001, Rev F, Transducer Details

COAST GUARD PUBLICATIONS

Surface Forces Logistics Center Standard Specification 0000 (SFLC Std Spec 0000), 2020,
General Requirements

Surface Forces Logistics Center Standard Specification 6310 (SFLC Std Spec 6310), 2020,
Requirements for Preservation of Ship Structures

OTHER REFERENCES

None

3. REQUIREMENTS

3.1 General.

3.1.1 CIR.

None.

3.1.2 Tech Rep.

Not applicable.

3.1.3 Protective measures. The Contractor shall furnish and install all protective coverings to seal off and protect all non-affected vessel's components, equipment, and spaces near the work area against contamination during the performance of work. Upon completion of work, the Contractor shall remove all

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installed protective measures, inspect for the presence of contamination, and return all contaminated equipment, components, and spaces to original condition of cleanliness.

3.1.4 Interferences. The Contractor shall handle all interferences in accordance with SFLC Std Spec 0000, paragraph 3.3.5 (Interferences).

3.2 Fairing renewal particulars. The Contractor shall accomplish the following tasks, using Coast Guard Drawing 87 WPB 165-001 as guidance:

3.2.1 Removal. Remove all existing fairing compound, using suitable mechanical tools, to expose the steel U/W hull; exercise extreme care not to damage the hull. Dispose of removed fairing debris.

3.2.2 New installation. Prepare all expose surfaces and apply new transducer fairing compound, using the system specified for “Metal Repair and Hull Smoothing” in SFLC Std Spec 6310, Appendix A (Cutter and Boat Exterior Painting Systems).

3.2.2.1 Application techniques. Ensure that the fairing compound is applied in accordance with the manufacturer’s instructions; and has a smooth and uniform finish when cured, with no porosity.

3.2.2.2 Surface preservation. Prepare and coat the new fairing compound surfaces, using the system specified for “Underwater Water (U/W) Body and Boot-Top, Steel Hulls (up to 12 years), in Salt Water” in SFLC Std Spec 6310, Appendix A (Cutter and Boat Exterior Painting Systems). Select finish/top coat color to match existing adjacent surfaces.

3.3 In-process quality control measures. The Contractor shall abide by all the safety, preservation, and quality control requirements specified in SFLC Std Spec 0000, paragraph 3.2.4.2 (In-process QC measures for “critical-coated surfaces”).

NOTE

Surfaces being preserved are considered “critical-coated surfaces”.

4. NOTES

4.1 Example of proper fairing. (See below)



FIGURE 1. TITLE EXAMPLE

WORK ITEM 9: Mast, Preserve (“100%”) – Contractor Interference Removal

1. SCOPE

1.1 Intent. This work item describes the requirements for the Contractor to 100% preserve the mast.

1.2 Government-furnished property.

None.

2. REFERENCES

COAST GUARD DRAWINGS

Coast Guard Drawing 87 WPB 171-001, Rev W, Mast Details

COAST GUARD PUBLICATIONS

Surface Forces Logistics Center Standard Specification 0000 (SFLC Std Spec 0000), 2020, General Requirements

Surface Forces Logistics Center Standard Specification 6310 (SFLC Std Spec 6310), 2020, Requirements for Preservation of Ship Structures

OTHER REFERENCES

Raytheon Marine Company, Jan 1992, Technical Manual, Radar Set Model R40X/R41X, AN/SPS-69, RMC Document Number G261404

AN/SPS-73V Surface Search Radar (SSR), Sep 1998, Operation, Maintenance, and Installation Manual

MIL-A-46106b, Jun 1992, Adhesive-Sealants, Silicone, RTV, One-Component

3. REQUIREMENTS

3.1 General.

3.1.1 CIR.

None.

3.1.2 Tech Rep.

Not applicable.

3.1.3 Protective measures. The Contractor shall furnish and install suitable covering to seal off and protect all non-affected surfaces/equipment and spaces in the vicinity of the work area against contamination during the performance of work. Upon completion of work, remove protective material and inspect for the presence of contamination. Clean all equipment and spaces, contaminated due to improper protection, to original condition of cleanliness.

3.1.3.1 Coil up electrical cabling down to associated deck/bulkhead penetrations.

3.1.3.2 Mark, seal, and cover all coiled cabling.

CAUTION

**Do not bend any electrical cable to a radius less than 20 times their diameter.
Do not hoist a radar pedestal using its array.**

3.1.4 Interferences. The Contractor shall handle all interferences in accordance with SFLC Std Spec 0000, paragraph 3.3.5 (Interferences). Known interferences include, but are not limited to the below-listed:

- Electronics.
- Navigation lights.
- Cable and wire ways.
- Antennas and mounts.
- Satellite television dome.
- Speaker(s).

3.1.5 Component inspection. Perform visual inspection of the mast, electrical and electronic cables, connectors, equipment, and hardware. Submit a CFR.

3.1.6 Operational test - initial. Prior to commencement of work, the Contractor shall witness Coast Guard personnel perform an initial operational test of all items or shipboard devices to be disturbed, used, repaired, or altered, to demonstrate existing operational condition. Submit a CFR.

3.2 Mast particulars. The Contractor shall accomplish all work herein while referring to Coast Guard Drawing 87 WPB 171-001 for guidance.

3.2.1 Preservation requirements. The Contractor shall prepare and coat the aluminum mast, using the system specified SFLC Std Spec 6310 for "Freeboard/Superstructure/Mast (Freeboard/Superstructure, Aluminum or Galvanized Aluminum), Option I", Appendix A (Cutters and Boats Painting Systems). Select Spar (10371) as the top/finish color.

3.2.2 Post prep, pre-coating inspection. After surface preparation and before the coating application, the Contractor shall perform a visual inspection of all cleaned mast surfaces, including electrical and electronic cables hangers, standoffs, hardware, antenna mounts and safety rail hardware. Submit a CFR.

3.3 In-process quality control measures. The Contractor shall abide by all the safety, preservation, and quality control requirements specified in SFLC Std Spec 0000, paragraph titled "Preservation requirements – general".

NOTE

Surfaces being preserved are considered "critical-coated surfaces".

3.4 Weather proofing of connections and reinstallation. The Contractor shall verify that final electrical re-connections of all removed equipment are weather tight. At a minimum, perform the following.

3.4.1 Weather proofing of coaxial cable connectors. Clean the entire plug. Apply a commercially available dielectric compound (e.g. Dow Corning #4 or equivalent) to the interior and exterior including the insulation portion and the threads. Do not fill the air space in the plug with dielectric compound as this will change the impedance and cause a mismatch. Assemble the plug finger tight and tightly wrap a single layer of a commercially available ¾" wide synthetic resin tape with a 50% overlay over the entire plug and for a distance of two inches on each side. Then apply a layer of friction tape and at least 3 coats of a commercially available sealing compound (e.g. 3M™ Scotchkote™ Electrical Coating or equivalent).

3.4.2 Weather proofing of Non coaxial electrical or electronic connectors. Apply a commercially available dielectric compound (e.g. Dow Corning #4 or equivalent) to the interior portion of the connector threads. Encapsulate the connector termination and at least 3 inches of the interconnecting cable and/or MS series panel mount connector with a commercially available plastic electrical insulating adhesive tape. Seal this transition with a commercially available multi-purpose silicone sealing compound (e.g. Dow Corning 732 Multi-Purpose silicone sealing compound or equivalent) that conforms to MIL-A-46106. Do not apply silicone sealing compound directly to the metal connector surfaces as a slight corrosion will occur.

3.5 Operational test – post repairs. After completion of work, the Contractor shall thoroughly test, in the presence of the Coast Guard Inspector and demonstrate all items or shipboard devices that have been disturbed, used, repaired, altered, or installed to be in satisfactory operating condition. Submit a CFR.

4. NOTES

This section is not applicable to this work item.

WORK ITEM 10: Main Engine/Reduction Gear, Realign

1. SCOPE

1.1 Intent. With authorization from the KO, this work item describes the requirements for the Contractor to realign a designated main diesel engine and its corresponding reduction gear assembly to the propeller shaft.

1.2 Government-furnished property.

MTI	ITEM DESCRIPTION	NSN/PN	QTY	ESTIMATED COST (\$/UNIT)
Y	*Alignment jig	N/A	1 ea.	----

*Government-loaned property, which shall be returned to the vessel upon completion of the availability.

2. REFERENCES

COAST GUARD DRAWINGS

Coast Guard Drawing 87 WPB 182-001, Rev C, Main Engine & Generator Foundations

Coast Guard Drawing 87 WPB 243-003, Rev -, Propulsion Shaft Details

Coast Guard Drawing 87 WPB 995-001, Rev -, Jigs and Fixtures for Shaft Installation

COAST GUARD PUBLICATIONS

Coast Guard Technical Publication (TP) 4500, Sep 2017, SWBS 233, Engine Change-Out Guide
- Waterborne Main Diesel

Surface Forces Logistics Center Standard Specification 0000 (SFLC Std Spec 0000), 2020,
General Requirements

OTHER REFERENCES

None.

3. REQUIREMENTS

3.1 General.

3.1.1 CIR.

None.

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3.1.2 Tech rep.

Not applicable.

3.1.3 Protective measures. The Contractor shall furnish and install all protective coverings to seal off and protect all non-affected vessel's components, equipment, and spaces near the work area against contamination during the performance of work. Upon completion of work, the Contractor shall remove all installed protective measures, inspect for the presence of contamination, and return all contaminated equipment, components, and spaces to original condition of cleanliness.

3.1.4 Interferences. The Contractor shall handle all interferences in accordance with SFLC Std Spec 0000, paragraph 3.3.5 (Interferences).

3.2 Personnel qualification. The Contractor shall ensure that the shaft alignment is performed under the direct supervision of personnel experienced in and regularly engaged in shaft and engine alignment. Personnel performing alignment work shall be:

- familiar with manufacturer's alignment techniques and be able to assist with proper bearing and shaft alignment;
- able to comply with engine/reduction gear manufacturer's installation standards.

3.2.1 Personnel engaged in the supervision of the alignment work shall possess a résumé of demonstrated experience with engine and reduction gear systems.

3.2.2 Submit a copy of the supervisor's résumé and any applicable references to the COR at the Arrival Conference.

3.3 Alignment particulars. Using the references listed under Section 2, the Contractor shall accomplish the following:

3.3.1 Alignment preparation. Prior to shaft realignment, the Contractor shall ensure the following conditions are met for at least 24 hours before the alignment check:

- The vessel is waterborne with fuel and water filled to normal operating levels, a minimum of three-quarters capacity.
- All major equipment and machinery weighing over 1,000 pounds (450 kilograms) are either installed or simulated by equivalent weights appropriately located.

3.3.2 Pre-alignment shaft torque measurement. After the couplings are detached but prior to aligning, using a torque wrench, measure the torque required to turn each shaft. Submit a CFR.

3.3.3 Realignment. The Contractor shall accomplish the following for shaft-to-MDE/reduction gear realignment using Coast Guard Drawings 87 WPB 182-001, 87 WPB 243-003, and TP 4500 as guidance.

NOTES

The following torque values apply:

Chock mounts – Consult chock manufacturer for values.

Shim mounts - torque foot to foundation fasteners to 369 ft-lbs (500 N-m).

Coupling bolts – torque coupling bolts to 317 ft-lbs (430 N-m).

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3.3.3.1 Alignment adjustment. Correct any misalignment by repositioning the propulsion engine/reduction gear; secure the mounts to the foundations.

NOTES

Epoxy-resin chocking shall be used for gaps greater than 3/8" between the bottoms of the mounting feet and tops of the foundation rails.

Use stainless steel shims for gaps less than or equal to 3/8".

CAUTION

Under any individual mounting foot, a combination of both chocking and shim(s) is prohibited!

3.3.3.2 Final readings. Recheck all the final alignment readings as follows and record on the forms under Paragraph 4.2:

- parallel measurements between shaft coupling and reduction gear coupling ODs (concentricity);
- angular measurements between shaft coupling and reduction gear coupling faces;
- shaft coupling to reduction gear coupling gap.

3.4 Operational test. After completion of work, the Contractor shall thoroughly test during sea trials, in the presence of the Coast Guard Inspector, and demonstrate the propeller shaft to be in satisfactory operating condition and operates without binding. Inspect and correct any abnormal noise and vibration generated from the shaft or bearings (see 4.1, Equipment operation). Submit CFR.

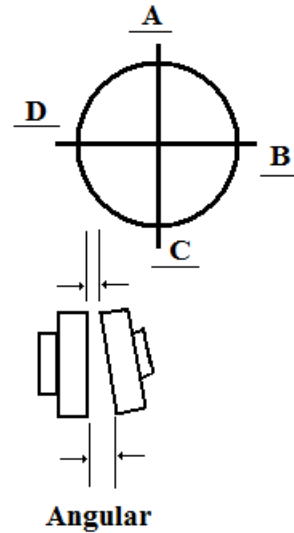
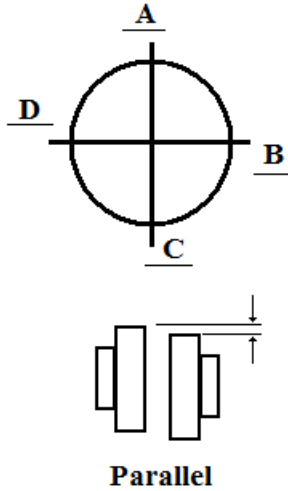
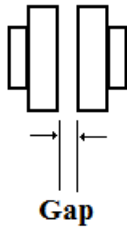
4. NOTES

4.1 Equipment operation. Coast Guard personnel will operate all shipboard machinery and equipment during all tests.

4.2 Alignment inspection form. See below.

CIRCLE ONE: PORT STARBOARD - HUB ALIGNMENT MEASUREMENT FORM

VESSEL NAME AND HULL NUMBER: _____



ALL MEASUREMENTS IN INCHES	SHAFT INITIAL POSITION	SHAFT ROTATED 90°	SHAFT ROTATED 180°	SHAFT ROTATED 270°
Gap				
Parallel A				
Parallel B				
Parallel C				
Parallel D				
Angular A				
Angular B				
Angular C				
Angular D				

Inspection Facility: _____ Date and Time: _____

Inspector Signature: _____

WORK ITEM 11: Intermediate Water-Lubricated Propulsion Shaft Bearings, Renew

1. SCOPE

1.1 Intent. This work item describes the requirements for the Contractor to renew the intermediate water-lubricated bearings.

1.2 Government-furnished property.

MTI	ITEM DESCRIPTION	NSN/PN	QTY	ESTIMATED COST (\$/UNIT)
N	Thordon bearing, Grade Orange (5.5" OD x 4" ID x 7.87" (200mm) LG)	PN: F54615-02-8-1 NSN: 3120-21-914-2012	2 ea.	525.03

2. REFERENCES

COAST GUARD DRAWINGS

Coast Guard Drawing 87 WPB 243-003, Rev -, Propulsion Shaft Details

COAST GUARD PUBLICATIONS

Surface Forces Logistics Center Standard Specification 0000 (SFLC Std Spec 0000), 2020, General Requirements

OTHER REFERENCES

None

3. REQUIREMENTS

3.1 General.

3.1.1 CIR.

None.

3.1.2 Tech Rep.

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Not applicable.

3.1.3 Protective measures. The Contractor shall furnish and install all protective coverings to seal off and protect all non-affected vessel's components, equipment, and spaces near the work area against contamination during the performance of work. Upon completion of work, the Contractor shall remove all installed protective measures, inspect for the presence of contamination, and return all contaminated equipment, components, and spaces to original condition of cleanliness.

3.1.4 Interferences. The Contractor shall handle all interferences in accordance with SFLC Std Spec 0000, paragraph 3.3.5 (Interferences).

3.2 Renewal particulars. Using Coast Guard Drawing 87 WBP 243-003 as guidance, the Contractor shall accomplish all work herein.

3.3 Removal. The Contractor shall remove and perform the following:

3.3.1 Inspect the removed bearings for excessive wear and/or other abnormal conditions and submit a CFR.

3.3.2 Inspect intermediate carriers for damage.

3.3.3 Dispose of the removed bearings and submit a CFR for the above inspections.

3.4 Fitting. The Contractor shall skim machine and fit the new Government-furnished bearings to suit carrier and shaft dimensions as specified on Coast Guard Drawing 87 WBP 243-003 and perform the following:

3.4.1 Cut the bearings to maintain interference fit tolerance between bearings and carriers, and maintain clearance tolerance between shafts and bearings.

3.4.2 Measure and record the final bearing dimensions.

3.4.3 Submit a CFR.

3.5 Installation. The Contractor shall install the new Government-furnished bearings and renew all disturbed fasteners.

3.6 Operational test, post repairs. After completion of work, the Contractor shall thoroughly test, in the presence of the Coast Guard Inspector and demonstrate all items or shipboard devices that have been disturbed, used, repaired, altered, or installed to be in satisfactory operating condition. Submit a CFR.

4. NOTES

This section is not applicable to this work item.

WORK ITEM 12: Aft Water-Lubricated Propulsion Shaft Bearings, Renew

1. SCOPE

1.1 Intent. This work item describes the requirements for the Contractor to renew the aft water-lubricated bearings.

1.2 Government-furnished property.

MTI	ITEM DESCRIPTION	NSN/PN	QTY	ESTIMATED COST (\$/UNIT)
N	Thordon bearing, Grade Orange (5.5" OD x 4" ID x 11.41" (290mm) LG)	PN: F54615-02-8-0 NSN: 3120-21-914-2011	2 ea.	558.05

2. REFERENCES

COAST GUARD DRAWINGS

Coast Guard Drawing 87 WPB 243-003, Rev -, Propulsion Shaft Details

COAST GUARD PUBLICATIONS

Surface Forces Logistics Center Standard Specification 0000 (SFLC Std Spec 0000), 2020,
General Requirements

OTHER REFERENCES

None

3. REQUIREMENTS

3.1 General.

3.1.1 CIR.

None.

3.1.2 Tech Rep.

Not applicable.

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3.1.3 Protective measures. The Contractor shall furnish and install all protective coverings to seal off and protect all non-affected vessel's components, equipment, and spaces near the work area against contamination during the performance of work. Upon completion of work, the Contractor shall remove all installed protective measures, inspect for the presence of contamination, and return all contaminated equipment, components, and spaces to original condition of cleanliness.

3.1.4 Interferences. The Contractor shall handle all interferences in accordance with SFLC Std Spec 0000, paragraph 3.3.5 (Interferences).

3.2 Renewal particulars. While using Coast Guard Drawing 87 WPB 243-003 as guidance, the Contractor shall accomplish all work herein.

3.3 Removal. The Contractor shall remove the existing bearings and perform the following:

3.3.1 Inspect the removed bearings for excessive wear and/or other abnormal conditions.

3.3.2 Inspect aft bearing carriers for damage.

3.3.3 Dispose of the removed bearings and submit a CFR for the above inspections.

3.4 Fitting. The Contractor shall machine and fit the new Government-furnished bearings, as required, to suit carrier and shaft dimensions as specified on Coast Guard Drawing 87 WPB 243-003 and perform the following:

3.4.1 Cut the bearings to maintain interference fit tolerance between bearing and carrier, and maintain clearance tolerance between shafts and bearings.

3.4.2 Measure and record the final bearing dimensions.

3.4.3 Submit a CFR.

3.5 Installation. The Contractor shall install the new Government-furnished bearings and renew all disturbed fasteners.

3.6 Operational test, post repairs. After completion of work, the Contractor shall thoroughly test, in the presence of the Coast Guard Inspector and demonstrate all items or shipboard devices that have been disturbed, used, repaired, altered, or installed to be in satisfactory operating condition. Submit a CFR.

4. NOTES

This section is not applicable to this work item.

WORK ITEM 13: Intermediate Bearing Carriers, Renew

1. SCOPE

1.1 Intent. This work item describes the requirements for the Contractor to renew the port and starboard intermediate bearing carriers.

1.2 Government-furnished property.

MTI	ITEM DESCRIPTION	NSN/PN	QTY	ESTIMATED COST (\$/UNIT)
N	**Intermediate bearing carrier	NSN: 3130-01-F11-2388 P/N: 87 WPB 243-001, Item 17	2 ea.	591.86

**New or refurbished equipment that the Government may provide for installation in place of existing equipment.

2. REFERENCES

COAST GUARD DRAWINGS

Coast Guard Drawing 87 WPB 243-003, Rev -, Propulsion Shaft Details

COAST GUARD PUBLICATIONS

Surface Forces Logistics Center Standard Specification 0000 (SFLC Std Spec 0000), 2020, General Requirements

OTHER REFERENCES

None

3. REQUIREMENTS

3.1 General.

3.1.1 CIR.

None.

3.1.2 Tech Rep.

Not applicable.

3.1.3 Protective measures. The Contractor shall furnish and install all protective coverings to seal off and

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protect all non-affected vessel's components, equipment, and spaces near the work area against contamination during the performance of work. Upon completion of work, the Contractor shall remove all installed protective measures, inspect for the presence of contamination, and return all contaminated equipment, components, and spaces to original condition of cleanliness.

3.1.4 Interferences. The Contractor shall handle all interferences in accordance with SFLC Std Spec 0000, paragraph 3.3.5 (Interferences).

3.2 Carrier renewal. Using Coast Guard Drawing 87 WPB 243-003 as guidance, the Contractor shall accomplish the following:

3.2.1 Removal. Remove and dispose of the existing bearing carrier and chock-fast bed.

CAUTION

Do not cut into the skeg while performing this work.

3.2.2 Renewal. Renew the removed carrier with the Government-furnished stainless steel bearing carrier. Measure and record all final dimensions of the new bearing carrier and submit a CFR.

3.2.3 Alignment. Align and install the new Government-furnished bearing carrier to the propulsion system and renew the chocking material bed. After the chocking material has set, verify the carrier alignment is correct. Minimize thermal effects by performing the alignment late in the evening or before sunrise. Submit a CFR.

4. NOTES

This section is not applicable to this work item.

WORK ITEM 14: Aft Bearing Carriers, Renew

1. SCOPE

1.1 Intent. This work item describes the requirements for the Contractor to renew the port and starboard aft bearing carriers.

1.2 Government-furnished property.

MTI	ITEM DESCRIPTION	NSN/PN	QTY	ESTIMATED COST (\$/UNIT)
N	**Aft bearing carrier	NSN: 3130-01-F11-2200 PN: 87 WPB 243-001, Item 14	2 ea.	1931.31

**New or refurbished equipment that the Government may provide for installation in place of existing equipment.

2. REFERENCES

COAST GUARD DRAWINGS

Coast Guard Drawing 87 WPB 243-003, Rev -, Propulsion Shaft Details

COAST GUARD PUBLICATIONS

Surface Forces Logistics Center Standard Specification 0000 (SFLC Std Spec 0000), 2020, General Requirements

OTHER REFERENCES

None

3. REQUIREMENTS

3.1 General.

3.1.1 CIR.

None.

3.1.2 Tech Rep.

Not applicable.

3.1.3 Protective measures. The Contractor shall furnish and install all protective coverings to seal off and

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protect all non-affected vessel's components, equipment, and spaces near the work area against contamination during the performance of work. Upon completion of work, the Contractor shall remove all installed protective measures, inspect for the presence of contamination, and return all contaminated equipment, components, and spaces to original condition of cleanliness.

3.1.4 Interferences. The Contractor shall handle all interferences in accordance with SFLC Std Spec 0000, paragraph 3.3.5 (Interferences).

3.2 Carrier renewal. Using Coast Guard Drawing 87 WPB 243-003 as guidance, the Contractor shall accomplish the following:

3.2.1 Removal. Remove and dispose of the existing bearing carrier and chock-fast bed.

CAUTION

Do not cut into the skeg while performing this work.

3.2.2 Renewal. Renew the removed carrier with the Government-furnished stainless steel bearing carrier. Measure and record all final dimensions of the new bearing carrier and submit a CFR.

3.2.3 Alignment. Align and install the new Government-furnished bearing carrier to the propulsion system and renew the chocking material bed. Minimize thermal effects by performing the alignment late in the evening or before sunrise. After the chocking material has set, verify the carrier alignment is correct. Submit a CFR.

4. NOTES

This section is not applicable to this work item.

WORK ITEM 15: Stern Tube Interior Surfaces, Preserve, 100 Percent

WORK ITEM 1: SCOPE

1.1 Intent. This work item describes the requirements for the Contractor to preserve stern tube interior surfaces.

1.2 Government-furnished property.

None.

2. REFERENCES

COAST GUARD DRAWINGS

Coast Guard Drawing 87 WPB 243-003, Rev -, Propulsion Shaft Details

COAST GUARD PUBLICATIONS

Surface Forces Logistics Center Standard Specification 0000 (SFLC Std Spec 0000), 2020, General Requirements

Surface Forces Logistics Center Standard Specification 6310 (SFLC Std Spec 6310), 2020, Requirements for Preservation of Ship Structures

OTHER REFERENCES

MIL-A-22262, Mar 1996, Abrasive Blasting Media Ship Hull Blast Cleaning

MIL-PRF-24647, Jan 2018, Paint System, Anticorrosive and Antifouling, Ship Hull

The Society for Protective Coatings (SSPC)/NACE-International (NACE) Joint Surface Preparation Standard SSPC-SP 10/NACE No. 2, 2007, Near-White Metal Blast Cleaning

The Society for Protective Coatings (SSPC) Surface Preparation Specification No.11 (SSPC-SP 11), 2012, Power-Tool Cleaning to Bare Metal

The Society for Protective Coatings (SSPC)/NACE International (NACE) Joint Surface Preparation Standard SSPC-SP 12/NACE No.5, 2002, Surface Preparation and Cleaning of Metals by Waterjetting Prior to Recoating

3. REQUIREMENTS

3.1 General.

3.1.1 CIR.

None.

3.1.2 Tech Rep.

Not applicable.

3.1.3 Protective measures. The Contractor must furnish and install all protective measures in accordance with SFLC Std Spec 0000, paragraph 3.3.3 (Vessel component, space, and equipment protection) and to the following specific components, spaces and equipment:

- Stern tube flange surfaces.
- Engine Room.
- Bearings and bearing housings.

3.1.4 Interferences. The Contractor must handle all interferences in accordance with SFLC Std Spec 0000, paragraph 3.3.5 (Interferences). Known interferences include, but are not limited to the following:

- Deck plates.
- Deck plate framing.
- Stern tube mid bearing access hatch.
- Stern tube aft bearing access hatch.
- Stern tube forward access hatch.

3.2 Preservation requirements. Using Coast Guard Drawing 87 WPB 243-003 as guidance, the Contractor must preserve 100% of the interior tube surfaces as follows:

3.2.1 The Contractor must not prepare or coat waterborne bearing contact areas inside the stern tube. This includes bearing lands, areas in contact with bearing shell, areas in contact with Cutless type bearings, etc. These areas must remain uncoated to provide required fits.

3.2.2 Surface preparation. The Contractor must prepare surfaces by waterjetting to a SSPC-SP 12/NACE No. 5, WJ-2/L standard, or by one or a combination of the surface preparation methods described in Table 1:

TABLE 1 – SURFACE PREPARATION

ABRASIVE BLASTING	MECHANICAL CLEANING
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Abrasive-blasting to SSPC-SP10/NACE No. 2, using grit conforming to MIL-A-22262 (1.5 to 2.5 mil anchor profile). Used reference MIL-A-22262, Mar 1996, Abrasive Blasting Media Ship Hull Blast Cleaning for guidance	Power tool cleaning to a SSPC-SP 11 (1.0 mil anchor profile).
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3.3 Inspection. After surface preparation and before coating application, the Contractor must perform a visual inspection of the prepared stern tube surfaces, and submit a CFR.

3.4 Surface coating. The Contractor must prime and coat the prepared surfaces with two coats of a “High Turbulence Coating”, at 5.0-6.0 mils DFT each. Used reference MIL-PRF-24647, Jan 2018, Paint System, Anticorrosive and Antifouling, Ship Hull for guidance.

NOTE

List of authorized suppliers for “High Turbulence Coatings” is provided in SFLC Std Spec 6310, Appendix C (Authorized Coatings for Use on Cutters and Boats).

3.5 In-process quality control. The Contractor must abide by all the safety, preservation, and quality control requirements specified in SFLC Std Spec 0000, paragraph 3.2.4.2 (In-process QC measures for “critical-coated surfaces”).

NOTE

Surfaces being preserved are considered “critical-coated surfaces”.

4. NOTES

This section is not applicable to this work item.

WORK ITEM 16: Propellers, Renew

1. SCOPE

1.1 Intent. This work item describes the requirements for the Contractor to renew both propellers.

1.2 Government-furnished property.

MTI	ITEM DESCRIPTION	NSN/PN	QTY	ESTIMATED COST (\$/UNIT)
Y	Starboard Propeller (RH)	PN: 706-3351.00 RH NSN: 2010-01-457-0573	1 ea.	9153.07
Y	Port Propeller (LH)	PN: 706-3350.00 LH NSN: 2010-01-459-0421	1 ea.	9542.05
N	*Propeller Nut Wrench	N/A	1 ea.	200.00
N	Propeller Nut	PN: 5317350 NSN: 2010-01-458-9217	2 ea.	322.07
N	Propeller Nut, Locking	PN: 5317355 NSN: 5310-01-458-9125	2 ea.	285.10
N	Anode, Propeller Nut	PN: 87WPB243001ITEM39 NSN: 5342-01-481-8403	2 ea.	153.06

*Government-loaned property, which shall be returned to the vessel upon completion of the availability.

2. REFERENCES

COAST GUARD DRAWINGS

Coast Guard Drawing 87 WPB 243-003, Rev -, Propulsion Shaft Details

Coast Guard Drawing 87 WPB 245-003, Rev A, Propeller Details

COAST GUARD PUBLICATIONS

Surface Forces Logistics Center Standard Specification 0000 (SFLC Std Spec 0000), 2020,
General Requirements

OTHER REFERENCES

None

3. REQUIREMENTS

3.1 General.

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3.1.1 CIR.

None.

3.1.2 Tech Rep.

Not applicable.

3.1.3 Protective measures. The Contractor shall furnish and install all protective coverings to seal off and protect all non-affected vessel's components, equipment, and spaces near the work area against contamination during the performance of work. Upon completion of work, the Contractor shall remove all installed protective measures, inspect for the presence of contamination, and return all contaminated equipment, components, and spaces to original condition of cleanliness.

3.1.4 Interferences. The Contractor shall handle all interferences in accordance with SFLC Std Spec 0000, paragraph 3.3.5 (Interferences). Known interferences include, but are not limited to the below-listed:

- Fairing plate.
- Rudder.

3.1.5 Propeller handling. Propellers shall not be lifted by a single blade at any time and shall be lifted as close to the blade roots as physically possible.

CAUTION

Incidental propeller impact by any object, and/or blade contact with the ground, is strictly prohibited. Report any instances to the Coast Guard Inspector immediately via CFR.

3.2 Renewal particulars. The Contractor shall renew port and starboard propellers as follows while using Coast Guard Drawings 87 WPB 243-003 and 87 WPB 245-003 as guidance:

3.2.1 Government-furnished propeller and crate inspections. The Contractor shall accomplish the following:

3.2.1.1 Upon receipt of the crate Government-furnished propellers, conduct crate inspections and report any notable crate damage. Submit a CFR.

3.2.1.2 When removing the propellers from the crates, conduct a visual inspection of the propeller protection and strippable compound. Immediately report all discrepancies (i.e., damaged and/or missing strippable compound, damaged edge guards, missing accessories, etc.) to the Coast Guard Inspector. Submit a CFR.

CAUTION

Do not remove any propeller protection without KO permission prior to blue fitting and installation.

When blue fitting, remove only a minimum amount of protection to facilitate fitting.

3.2.2 Existing propeller removals.

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3.2.2.1 The Contractor shall scribe-mark the position of the existing propellers to facilitate installation of the new propellers. Remove the existing propellers.

3.2.2.2 The Contractor shall repackage the MTI propellers using the existing propeller containers, mounting plate, edge guards, and hardware, with exception of the strippable compound, in the same manner the new GFP propellers were received.

3.2.3 Propeller installation. The Contractor shall abide by and accomplish the following:

WARNING

Do not machine the shaft tapers.

Do not lift the propellers unless completely detached from the shipping containers. The propellers are fastened to steel plates at the bottom of the containers.

Do not use grease, oil, or other substances on the taper to help drive the propellers.

3.2.3.1 Hand clean the new propeller hub bores and shaft tapers to remove all foreign particles for a clean metal-to-metal fit.

3.2.3.2 Verify hub fits in the presence of the COR and with the keys in place, carefully check the fits of the propeller hub bores to the shaft tapers by applying Prussian blue, 0.0002" to 0.0004" thick, to the shaft tapers. Submit a CFR.

3.2.3.2.1 80 percent contact over the taper area, with a slightly heavier fit on the larger end, is required. Do not heat the shaft tapers to compensate for a poor fit.

3.2.3.2.2 If the fit is less than 80 percent, hand stone the propeller hub bores, as required, to achieve 80 percent contact over taper surfaces.

WARNING

Do not machine the shaft taper.

3.2.3.3 Install the new propellers onto the propulsion shafts in accordance with Coast Guard Drawing 87 WPB 243-003. After the propellers are installed on the tapers, install the propeller nuts using the Government-furnished propeller nut wrench.

NOTE

Some propeller nuts in stock inventory are known to not fit inside the propeller nut wrench. Should this be encountered, the corrective measure to be taken, after obtaining KO authorization, is to machine the outer dimensions of the propeller nut to fit inside the propeller wrench.

3.2.3.4 Lock each propeller nut in place with new Contractor-furnished, stainless steel 3/8" x 6" cotter pins.

3.2.3.5 Reinstall the fairing plates as shown on Coast Guard Drawing 87 WPB 243-003.

3.2.3.6 Renew the propeller nut anodes with the Government-furnished propeller nut anodes.

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3.3 Testing. During sea trials, verify that there is neither abnormal vibration nor problems with making rated speed. Submit CFR.

4. NOTES

This section is not applicable to this work item.

WORK ITEM 17: Speed Log, Skin Valve, Renew

1. SCOPE

1.1 Intent. This work item describes the requirements for the Contractor to renew the speed log skin valve assembly.

1.2 Government-furnished property.

MTI	ITEM DESCRIPTION	NSN/PN	QTY	ESTIMATED COST (\$/UNIT)
N	3" Ball Valve	NSN: 4810-01-517-8110 PN: LV071A	1 ea.	5625.00
N	**Doppler Speed Log Measurement Rod	NSN: 6605-01-470-1266	1 ea.	4984.63

**New or refurbished equipment that the Government may provide for installation in place of existing equipment.

2. REFERENCES

COAST GUARD DRAWINGS

Coast Guard Drawing 87 WPB 165-001, Rev F, Transducer Details

Coast Guard Drawing 87 WPB 423-001, Rev W, Speed Log & Depth Sounder System

COAST GUARD PUBLICATIONS

Surface Forces Logistics Center Standard Specification 0740 (SFLC Std Spec 0740), 2020, Welding and Allied Processes

Coast Guard Technical Publication (TP) E-424-0230, SWBS 424, June 2006, Electromagnetic Log User's Manual

OTHER REFERENCES

None

3. REQUIREMENTS

3.1 General.

3.1.1 CIR.

None.

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3.1.2 Tech Rep.

Not applicable.

3.1.3 Protective measures. The Contractor shall furnish and install all protective coverings to seal off and protect all non-affected vessel's components, equipment, and spaces near the work area against contamination during the performance of work. Upon completion of work, the Contractor shall remove all installed protective measures, inspect for the presence of contamination, and return all contaminated equipment, components, and spaces to original condition of cleanliness.

3.1.4 Interferences. The Contractor shall handle all interferences in accordance with SFLC Std Spec 0000, paragraph 3.3.5 (Interferences).

3.1.5 Cable protection. Protect the transducer from damage and protect all disassembled and disturbed cable ends from weather, moisture and physical damage.

3.2 Work particulars. Using Coast Guard Drawings 87 WPB 165-001, 87 WPB 423-001 and TP- E-424-0230, the Contractor shall accomplish the following:

3.2.1 Inspection. Inspect speed log assembly waterborne prior to docking the cutter. Verify assembly operates properly and does not leak. Determine and record all required repairs. Submit CFR.

3.2.2 Rod removal. Disconnect and remove transducer/sensor rod. Clean all marine growth and corrosion from ball valve passage, spool piece interior, and other all associated accessible surfaces exposed to seawater. Turn transducer/sensor rod over to COR.

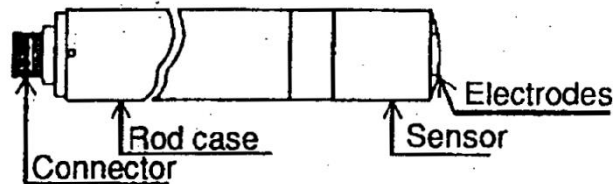


FIGURE 1. ASSEMBLY DIAGRAM

CAUTION

Growth on transducer rod may prevent removal; do not damage transducer rod during disassembly/reassembly. Break flanges to expose rod. Carefully remove growth that may be preventing rod removal with a soft tool (e.g. wooden scraper, etc.). prior to removing rod from housing, as required.

3.2.3 Valve renewal. The Contractor shall renew the speed log skin valve with Government-furnished property listed. Refer to Coast Guard Drawing 87 WPB 165-001 and 87 WPB 423-001 for guidance.

NOTE

Ensure rod is properly oriented within body of valve prior to bolting down valve.

3.2.4 Reassembly. The Contractor shall reassemble all disassembled parts/components. Renew all disturbed software (e.g. seals, gaskets, o-rings, etc.). Renew all disturbed fasteners; material shall be Nickel Copper. Obtain the transducer/sensor rod from the COR, reinstall and reconnect; lubricate transducer/sensor rod in accordance with TP- E-424-0230. Extend and retract rod, simulating in-service operation, verify proper operation with no binding or excessive friction. Verify cable will not chafe during operation. Verify sensor is aligned with ship's heading/bow (dot on sensor). Submit CFR documenting satisfactory installation. Leave transducer/sensor rod in properly stowed position.

3.3 Government's right for changing out the Doppler Speed Log Measurement Rod. The Contractor shall be aware that the Government reserves the right to furnish a new Doppler Speed Log Measurement Rod for installation in place of existing. If the Government exercises this right, the Contractor shall dispose of old rod in accordance with all federal, state, and local regulations.

3.4 Boundary test, water hose. The Contractor shall inspect and perform a water hose test of all affected boundaries in accordance with SFLC Std Spec 0740, Appendix C. Submit a CFR.

3.5 Operational test, post repairs. After completion of work, the Contractor shall thoroughly test, in the presence of the Coast Guard Inspector and demonstrate all items or shipboard devices that have been disturbed, used, repaired, altered, or installed to be in satisfactory operating condition. Submit a CFR.

4. NOTES

This section is not applicable to this work item.

WORK ITEM 18: Sea Water System, Perform Maintenance

1. SCOPE

1.1 Intent. This work item describes the requirements for the Contractor to accomplish the following:

- renew the valves designated below in Table 1;
- concurrently inspect 8" SCH 80 steel riser pipes supplying port and starboard MDE sea water systems and 3" SCH 80 steel riser pipes supplying port and starboard SSDG sea water systems;
- clean and inspect associated strainer assemblies and the HVAC system strainer as designated below in Table 2.

TABLE 1 – VALVES DESIGNATED FOR RENEWAL

SIZE (INCHES)	MATERIAL	DESCRIPTION	FRAME LOCATION/ VALVE NO.	CONNECTION	RATED PRESSURE CLASS (#)
8	Iron body/ Stainless steel stem/ bronze disk	Main Sea Chest Strainer Cutoff	2-14-1	Flanged	200
8	Iron body/ Stainless steel stem/ bronze disk	Main Sea Chest Strainer Cutoff	2-14-2	Flanged	200
8	Iron body/ Stainless steel stem/ bronze disk	Main Sea Chest Shutoff	2-14-4	Wafer	200
8	Iron body/ Stainless steel stem/ bronze disk	Main Sea Chest Shutoff	2-14-5	Wafer	200
3	Iron body/ Stainless steel stem/ bronze disk	Aux Sea Chest Shutoff	2-20-4	Flanged	200
3	Iron body/ Stainless steel stem/ bronze disk	Aux Sea Chest Shutoff	2-20-5	Flanged	200
3	Iron body/ Stainless steel stem/ bronze disk	Aux Sea Chest Strainer Shutoff	2-20-1	Wafer	200
3	Iron body/ Stainless steel stem/ bronze disk	Aux Sea Chest Strainer Shutoff	2-20-2	Wafer	200

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TABLE 2 – STRAINERS DESIGNATED FOR DISASSEMBLY, CLEANING AND INSPECTION

SERVICE	SIZE (INCHES)	QUANTITY
SSDG	3"	2
MDE	8"	2
HVAC	3"	1

1.2 Government-furnished property.

MTI	ITEM DESCRIPTION	NSN/PN	QTY	ESTIMATED COST (\$/UNIT)
N	Iron body/ Stainless steel stem/ bronze disk (flanged) 8 inch	PN: J022929-512431A NSN: 4820-01-613-5021	2 ea.	563.25
N	Iron body/ Stainless steel stem/ bronze disk (wafer) 8 inch	PN: 22929-112431A NSN: 4820-01-615-9571	2 ea.	521.46
N	Iron body/ Stainless steel stem/ bronze disk (flanged) 3 inch	PN: 22925-5124 NSN: 4820-01-650-0975	2 ea.	226.51
N	Iron body/ Stainless steel stem/ bronze disk (wafer) 3 inch	PN: 22925-1124316 NSN: 4820-01-332-6811	2 ea.	214.14

2. REFERENCES

COAST GUARD DRAWINGS

Coast Guard Drawing 87 WPB 163-001, Rev H, Sea Chest Details

Coast Guard Drawing 87 WPB 256-001, Rev AC, Seawater Cooling Piping

COAST GUARD PUBLICATIONS

Surface Forces Logistics Center Standard Specification 0000 (SFLC Std Spec 0000), 2020, General Requirements

Surface Forces Logistics Center Standard Specification 6310 (SFLC Std Spec 6310), 2020, Requirements for Preservation of Ship Structures

OTHER REFERENCES

ASTM International (ASTM) D1330, 2015, Standard Specification for Rubber Sheet Gaskets

ASTM International (ASTM) F992, 2006, Standard Specification for Valve Label Plates

3. REQUIREMENTS

3.1 General.

3.1.1 CIR. The Contractor must submit a CIR for the inspections listed in the following paragraphs:

- 3.3 Pipe and strainer assembly inspection.

3.1.2 Tech Rep.

Not applicable.

3.1.3 Protective measures. The Contractor shall furnish and install all protective coverings to seal off and protect all non-affected vessel's components, equipment, and spaces near the work area against contamination during the performance of work. Upon completion of work, the Contractor shall remove all installed protective measures, inspect for the presence of contamination, and return all contaminated equipment, components, and spaces to original condition of cleanliness.

3.1.4 Interferences. The Contractor shall handle all interferences in accordance with SFLC Std Spec 0000, paragraph 3.3.5 (Interferences). Known interferences include, but are not limited to the below-listed:

- Deck plates
- Copper anode wiring
- Hoses

3.2 Valve renew. The Contractor shall renew all valves listed in Table 1 with the Government-furnished valves. Refer to Coast Guard Drawing 87 WPB 256-001 for guidance.

3.2.1 Valve types and miscellaneous requirements. The Contractor shall install all valves with new gaskets. Renew all valve label plates on all valves in accordance with ASTM F992. Renew all bolting hardware.

NOTE

Significant marine growth may be present in piping adjacent to and downstream of the strainers. Include in the requested CFR, below, a description of any visible marine growth in adjacent piping.

3.3 Pipe and strainer assembly inspection. In conjunction with valve renewal, the Contractor shall completely clean each associated steel pipe (outboard side of strainer, including flange areas) free of all debris and corrosion; inspect all associated pipe, flanges, flange faces, and welded joint surfaces. Then disassemble, clean, and inspect the strainers listed in Table 2 above. Submit a CFR. Specifically report on each flange sealing area condition and the amount of marine growth and debris in the adjacent 8" header/manifold. After completion of all authorized repair work, reassemble all disassembled components. Renew all associated fasteners (material shall be Nickel Copper alloy). Renew all gaskets with material conforming to ASTM D1330 of the same size and configuration as those gaskets removed.

NOTE

The CFR listed in 3.3 shall be delivered to the COR by the 50% point of the period of performance.

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3.3.1 Government's right for changing out strainers. The Contractor shall be aware that the Government reserves the right to furnish new sea strainer(s) for installation in place of the existing strainer(s), at no additional cost to the Government. If the Government exercises this right, the Contractor shall dispose of the old strainer(s) in accordance with all applicable Federal, state, and local regulations.

3.4 Leak test. After completing all authorized mechanical (i.e. threaded, bolted, etc.) joint repairs, the Contractor shall test the disturbed systems' operation using the system fluid at normal operating pressure. Ensure zero visible leakage from or deformation of mechanical parts by repairing all leaks and discrepancies. Submit a CFR.

3.5 Touch-up preservation. The Contractor shall prepare and coat all new and disturbed surfaces to match existing adjacent surfaces in accordance with SFLC Std Spec 6310, paragraph 3.1.13 (Touch-ups and minor coating repairs.)

3.5.1 Prepare and touch-up the bilge area beneath strainers in accordance with SFLC Std Spec 6310 paragraph 3.1.13 (Touch-ups and minor coating repairs).

4. NOTES

This section is not applicable to this work item.

WORK ITEM 19: Rudder Assemblies, Renew

1. SCOPE

1.1 Intent. This work item describes the requirements for the Contractor to renew the port and starboard rudder assemblies.

1.2 Government-furnished property.

MTI	ITEM DESCRIPTION	NSN/PN	QTY	ESTIMATED COST (\$/UNIT)
Y	Rudder Assembly, port	NSN: 2040-01-461-1944	1 ea.	6113.36
Y	Rudder Assembly, starboard	NSN: 2040-01-461-1943	1 ea.	5971.93
N	Upper Roller Bearing	NSN: 3110-01-512-5534	2 ea.	287.43
N	Wartsila EL Seals Kit	PN: H75492-01 NSN: 2040-01-565-9776	2 ea.	7243.42
N	Lower Bearing	PN: TBF113090 NSN: 3120-20-000-7677	2 ea.	405.81

2. REFERENCES

COAST GUARD DRAWINGS

Coast Guard Drawing 87 WPB 561-001, Rev K, Steering System Details

Coast Guard Drawing 87 WPB 562-001, Rev A, Rudder Details

COAST GUARD PUBLICATIONS

Coast Guard Technical Publication (TP) 4506, Wartsila TM-EL-68839, Issue A, Mar 2005, Rudderstock Seal Type EL

Coast Guard Technical Publication (TP) 4564A, Electronic Steering System

Surface Forces Logistics Center Standard Specification 0000 (SFLC Std Spec 0000), 2020, General Requirements

Surface Forces Logistics Center Standard Specification 0740 (SFLC Std Spec 0740), 2020, Welding and Allied Processes

OTHER REFERENCES

None

3. REQUIREMENTS

3.1 General.

3.1.1 CIR. The Contractor must submit a CIR for the inspections listed in the following paragraph:

- 3.3 Measurements.

3.1.2 Tech Rep. The Contractor shall provide the services of a Qualified Technical Representative who is familiar with the rudder seal system to accomplish the following on site:

- Advise on manufacturer's proprietary system information.
- Assist with the proper installation of the seal.
- Ensure compliance with manufacturer's procedures and standards during system disassembly, inspection, and reassembly as applicable.

3.1.2.1 Ensure the Tech Rep has experience with the system/equipment stated above and demonstrated on their résumé.

3.1.2.2 Submit the name and résumé of the Tech Rep to the COR at the Arrival Conference.

3.1.3 Protective measures. The Contractor shall furnish and install all protective coverings to seal off and protect all non-affected vessel's components, equipment, and spaces near the work area against contamination during the performance of work. Upon completion of work, remove all installed protective measures, inspect for the presence of contamination, and return all contaminated equipment, components, and spaces to original condition of cleanliness.

3.1.3.1 Apply protective measures as specified in SFLC Std Spec 0000, paragraph 3.3.3 (Vessel component, space, and equipment protection) to the following components, spaces and equipment:

- Provide suitable covering to protect all exposed rudder and vessel components against contamination during the performance of the work specified herein.
- Ensure that rudder stock/shaft surfaces are supported in a minimum of two locations, at all times, until reinstallation.

3.1.4 Interferences. The Contractor shall handle all interferences in accordance with SFLC Std Spec 0000, paragraph 3.3.5 (Interferences). Known interferences include, but are not limited to the following:

- Steering rams.
- Autopilot potentiometer.
- Autopilot belt.
- Steering feedback units.
- Cabinets and shelving.
- Wiring.
- Steering repeat-back linkages.
- Lighting.

3.2 Renewal particulars. The Contractor shall accomplish all work using Coast Guard Drawings 87 WPB 561-001 and 87 WPB 562-001, and TP 4506 as guidance:

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3.2.1 Prior to removal of port steering arm, with the steering arm at 0 degrees (amidships), mark autopilot potentiometer base and wheel with an alignment mark for reinstallation. Disconnect and remove the rudder assembly.

NOTE

Coast Guard personnel will disassemble and install the autopilot belt.

CAUTION

Ensure a clearance of 5 feet below the vessel when removing the rudder assembly.

Ensure the rudder stock/shaft surfaces are supported in a minimum of two locations at all times until reinstallation.

3.2.2 Remove each EL-type rudder seal.

3.3 Measurements. The Contractor shall measure the alignment between the lower (three places) and upper bearing housings using the taut wire or optical method. Submit a CFR.

3.4 Bearing renewal. The Contractor shall renew all rudder bearings.

3.5 Reassembly. Upon completion of all authorized repairs, the Contractor shall reassemble and install the Government-furnished port and starboard rudder assemblies by accomplishing the following:

3.5.1 Polishing. Polish the rudder stock journal of upper bearing and seal areas to remove burrs and raised metal to 32 micro-inches finish.

3.5.2 Renew parts provided as Government-furnished property.

3.5.3 Renew all lockwashers, seals, and grease fittings.

3.5.4 Lubricate all seals.

3.5.5 Lubricate the upper bearing in accordance with the "General Notes" in Coast Guard Drawing 87 WPB 561-001.

3.6 Alignment. Upon completion of reinstallation, the Contractor shall check the rudder alignment with the pilothouse rudder angle indicator. Ensure that alignment is adjusted to within plus or minus 1/2 degree.

3.7 Steering system groom. Using TP 4564A, Section 3.5, Chapter 5, paragraph 5.2 as guidance, the Contractor shall conduct an electronic steering system groom prior to operational testing.

3.8 Operational test, post repairs. After completion of work, the Contractor shall thoroughly test, in the presence of the Coast Guard Inspector and demonstrate all items or shipboard devices that have been disturbed, used, repaired, altered, or installed to be in satisfactory operating condition. Submit a CFR.

NOTE

Coast Guard personnel will operate all shipboard machinery and equipment.

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During operational testing the steering system is to be operated in all modes of control to test the functionality of the system and the autopilot to ensure the steering feedback system is functioning properly.

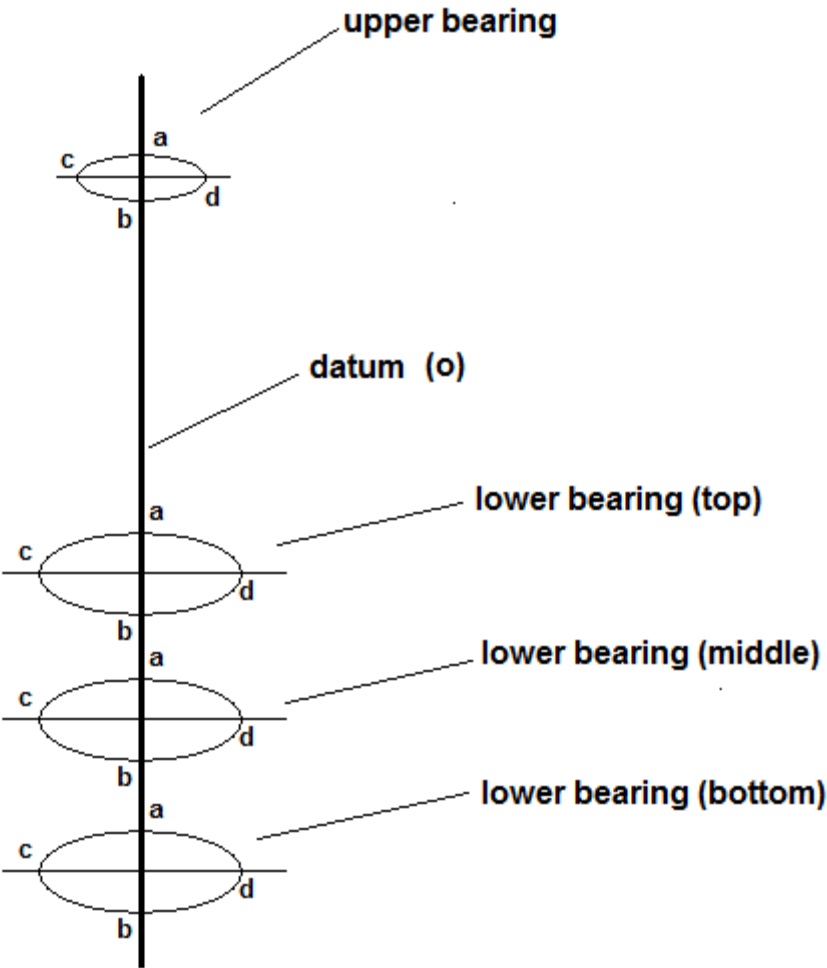
4. NOTES

4.1 Fitting information.

ITEM DESCRIPTION	NSN/PN	QTY	ESTIMATED COST (\$/UNIT)
Relief Fittings	P/N: 1093K21	1 ea.	7.57
SS Grease Fittings	P/N: 1293K32	3 ea.	4.16

4.2 Alignment survey form. Refer to next page.

CIRCLE ONE: PORT STARBOARD



LOCATION	DISTANCES FROM DATUM TO LETTERED POINT			
	A TO O	B TO O	C TO O	D TO O
Upper bearing				
Lower bearing (top)				
Lower bearing (middle)				
Lower bearing (bottom)				

WORK ITEM 20: Stern Launch Door, Remove, Inspect and Reinstall

1. SCOPE

1.1 Intent. This work item describes the requirements for the Contractor to remove, inspect and reinstall the stern launch door, and to inspect the pivot pins, bushings, hydraulic actuators, and washers.

1.2 Government-furnished property.

MTI	ITEM DESCRIPTION	NSN/PN	QTY	ESTIMATED COST (\$/UNIT)
N	**Valve, Counterbalance	PN: CBCA-LAN/AP NSN: 4820-01-687-1295	4 ea.	291.50
N	**Manifold, Valve	PN: YVY NSN: 4730-01-687-2581	2 ea.	134.30

**New or refurbished equipment that the Government may provide for installation in place of existing equipment.

2. REFERENCES

COAST GUARD DRAWINGS

Coast Guard Drawing 87 WPB 583-001, Rev W, RIB Deployment Structure

COAST GUARD PUBLICATIONS

Surface Forces Logistics Center Standard Specification 0000 (SFLC Std Spec 0000), 2020, General Requirements

Surface Forces Logistics Center Standard Specification 6310 (SFLC Std Spec 6310), 2020, Requirements for Preservation of Ship Structures

OTHER REFERENCES

MIL-PRF-24139, Mar 1987, Grease, Multipurpose, Water Resistant.

3. REQUIREMENTS

3.1 General.

3.1.1 CIR. The Contractor must submit a CIR for the inspections listed in the following paragraph:

- 3.3 Removal performance period.

3.1.2 Tech Rep.

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Not applicable.

3.1.3 Protective measures. The Contractor shall furnish and install all protective coverings to seal off and protect all non-affected vessel's components, equipment, and spaces near the work area against contamination during the performance of work. Upon completion of work, the Contractor shall remove all installed protective measures, inspect for the presence of contamination, and return all contaminated equipment, components, and spaces to original condition of cleanliness.

3.1.3.1 Protective measures, hydraulic system. Maintain existing hydraulic system cleanliness and take all necessary precautions to prevent the introduction of contaminants into the hydraulic system.

3.1.4 Interferences. The Contractor shall handle all interferences in accordance with SFLC Std Spec 0000, paragraph 3.3.5 (Interferences). Known interferences are not limited to the following:

- Hydraulic cylinders
- Limit switches
- Hydraulic lines
- Hydraulic cylinder pins
- Taffrail
- Pivot pins
- Pivot pin retaining plates
- Pivot pin plugs
- Washers

NOTE

Coast Guard personnel will operate all shipboard machinery and equipment.

3.1.5 Operational test, initial. Prior to commencement of work, the Contractor shall witness Coast Guard personnel perform an initial operational test of all items or shipboard devices to be disturbed, used, repaired, or altered, to demonstrate existing operational condition. Submit a CFR.

3.2 Work particulars. Using Coast Guard Drawing 87 WPB 583-001 as guidance, the Contractor shall accomplish all work herein.

3.3 Visual inspection – closed position. With the stern launch door in the closed position, the Contractor shall check clearances around all bottom and side edges. Look for signs of rubbing or misalignment. Submit CFR.

3.4 Removal. The Contractor shall remove the stern launch door and accomplish the following:

CAUTION

Adequately support the door at all times. Door may warp/bend/distort if not supported properly.

CAUTION

If weld repairs are required, prevent distortion by minimizing heat transferred to door.

WARNING

Stern door arms are compressed at installation. Brace stern door arms prior to disassembly to prevent unexpected/inadvertent springing.

WARNING

Do not place or store stern door on its arms.

3.4.2 Bracing installation. The Contractor shall temporarily install bracing support(s) between the port and starboard stern door arms to prevent the designed, built-in tension between the arms from relieving, and to protect the door from moving and/or distorting during removal, storage, and reinstallation.

3.4.3 Door storage. The Contractor shall move and store the stern launch door in a safe location.

3.5 Inspections. The Contractor shall accomplish the following and submit a CFR after each inspection.

3.5.1 Visual - stern launch door. Visually inspect stern launch door for corrosion, cracks, dents, or bends. Particular attention shall be given to the stern launch door arms, emergency stops, and pivot interfaces.

3.5.2 Visual - hydraulic cylinder inspection. Visually inspect the hydraulic cylinders for leaks, nicks or burrs. Visually inspect the hydraulic hoses for chafing or cuts.

3.5.3 Visual – counterbalance valve assemblies. Visually inspect the counterbalance valve and manifold assemblies attached to each hydraulic cylinder for corrosion or damage.

3.5.3.1 Government’s right for change out. The Contractor shall be aware that the Government reserves the right to furnish a new counterbalance valve assembly for installation in place of the existing. If the Government exercises this right, the Contractor shall dispose of the removed manifold assembly in accordance with all applicable Federal, state, and local regulations.

3.5.4 Tolerances - Pins, bushings, and washers. Inspect the tolerances on the pivot pins, bushings, and washers as shown on Coast Guard Drawing 87 WPB 583-001.

3.6 Reinstallation. The Contractor shall reinstall the stern launch door to the original configuration in accordance with Coast Guard Drawing 87 WPB 583-001 and accomplish the following:

3.6.1 Gasket renewal. Renew the stern door gasket (part 6 as shown on Coast Guard Drawing 583-001, Sheet 1).

3.6.2 Bushing lubrication. Lubricate stern door bushings with grease conforming to MIL-PRF-24139.

3.6.3 Bracing removal. Remove the support bracing and all material used to attach the supports upon final installation of the stern launch door.

3.7 Touch-up preservation. The Contractor shall prepare and coat all new and disturbed surfaces to match existing adjacent surfaces in accordance with SFLC Std Spec 6310, paragraph 3.1.13 (Touch-ups and minor coating repairs).

NOTE

Coast Guard personnel will operate all shipboard machinery and equipment.

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3.8 Operational test, post repairs. After completion of work, the Contractor shall thoroughly test, in the presence of the Coast Guard Inspector and demonstrate all items or shipboard devices that have been disturbed, used, repaired, altered, or installed to be in satisfactory operating condition. Submit a CFR.

4. NOTES

This section is not applicable to this work item.

WORK ITEM 21: Cathodic Protection/Zinc Anodes, Renew**1. SCOPE**

1.1 Intent. This work item describes the requirements for the Contractor to renew the following cathodic protection anodes:

QTY	TYPE/DESCRIPTION	SIZE	LOCATION
15	ZHC/23.5LBS Plate Anode – provided as GFP.	6" x 12" x 1-1/4"	12 Hull U/W Body 3 Transom
4	Tear Drop Anode With Galvanized Steel Mounting Strap	6-lbs	Sea chests
1	Tear Drop Anode With Galvanized Steel Mounting Strap	6-lbs	Stern Door
8	Threaded/Pencil zinc	N/A	Stern Tube (3 fwd, 1 aft on each stern tube)
10	Rectangular zinc	7/8" x 7- 7/8" x 1- 7/8" x 2.8#	Attached to stern tube access plates. 1 fwd and 1 aft of intermediate bearing 1 port and 1 stbd side of strut, just fwd of aft bearing.

1.2 Government-furnished property.

MTI	ITEM DESCRIPTION	NSN/PN	QTY	ESTIMATED COST (\$/UNIT)
N	Anode, corrosion preventive	PN: 899Y105 NSN: 5342-00-813-6058	15 ea	57.37

2. REFERENCES**COAST GUARD DRAWINGS**

Coast Guard Drawing 87 WPB 633-001, Rev A, Cathodic Protection

COAST GUARD PUBLICATIONS

Surface Forces Logistics Center Standard Specification 0000 (SFLC Std Spec 0000), 2020, General Requirements

Surface Forces Logistics Center Standard Specification 6310 (SFLC Std Spec 6310), 2020, Requirements for Preservation of Ship Structures

OTHER REFERENCES

Commercial Item Description (CID) A-A-59313, Nov 2003, Thread Compound; Antiseize, Zinc Dust-Petrolatum

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MIL-A-18001, Dec 2015, Anodes, Sacrificial Zinc Alloy (Commercially Accepted - ASTM B418)

3. REQUIREMENTS

3.1 General.

3.1.1 CIR.

None.

3.1.2 Tech Rep.

Not applicable.

3.1.3 Protective measures. The Contractor shall furnish and install all protective coverings to seal off and protect all non-affected vessel's components, equipment, and spaces near the work area against contamination during the performance of work. Upon completion of work, the Contractor shall remove all installed protective measures, inspect for the presence of contamination, and return all contaminated equipment, components, and spaces to original condition of cleanliness.

3.1.4 Interferences. The Contractor shall handle all interferences in accordance with SFLC Std Spec 0000, paragraph 3.3.5 (Interferences).

NOTE

TCTO TL1010.0 removes the bilge zinc anodes near frames 14 and 22.

3.2 Renewal particulars. The Contractor shall accomplish all work herein while using Coast Guard Drawing 87 WPB 633-001 as guidance:

3.2.1 Removals. Remove and dispose of all designated anodes (see paragraph 1.1 (Intent)). Accomplish the following additional tasks, as applicable:

3.2.1.1 Inspect all studs and ensure bolt-on configuration compatible. If the cutter is received in the weld-on zinc configuration, the contractor shall convert all zincs to bolt-on configuration via Change Request (approved and authorized by the KO).

3.2.1.2 Renew all anode mounting hardware (nuts and washers).

3.3 Electrical resistance testing. The Contractor shall measure the electrical resistance between each anode surface and an adjacent metal ship structure, utilizing an OHM meter and a scale, to ensure that it is less than 0.1 ohm. Submit a CFR.

CAUTION

Do not paint new anodes.

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3.4 Touch-up preservation. The Contractor shall prepare and coat all new and disturbed surfaces to match existing adjacent surfaces in accordance with SFLC Std Spec 6310, paragraph 3.1.13 (Touch-ups and minor coating repairs). Additionally, the following touch-ups are required:

- External portions of studs, nuts, and washers.
- Hull surfaces in way of removed anodes.
- Anode straps.

4. NOTES

This section is not applicable to this work item.

WORK ITEM 22: Drydock

1. SCOPE

1.1 Intent. This work item describes the requirements for the Contractor to drydock the vessel, undock the vessel, and perform various drydocking-related tasks.

1.2 Government-furnished property.

MTI	ITEM DESCRIPTION	NSN/PN	QTY	ESTIMATED COST (\$/UNIT)
Y	*Transducer Cover Plate	N/A	2 ea.	50.00

*Government-loaned property, which must be returned to the vessel upon completion of the availability.

**New or refurbished equipment that the Government may provide for installation in place of existing equipment.

***Government-furnished property, which is to be supplied by either the vessel or the C4IT Service Center.

2. REFERENCES

COAST GUARD DRAWINGS

Coast Guard Drawing 87 WPB 085-011, Rev C, Lifting Slings

Coast Guard Drawing 87 WPB 085-012, Rev A, Lifting Cradle

Coast Guard Drawing 87 WPB 085-013, Rev B, Docking Plan

COAST GUARD PUBLICATIONS

Surface Forces Logistics Center Standard Specification 0000 (SFLC Std Spec 0000), 2020,
General Requirements

Surface Forces Logistics Center Standard Specification 8634 (SFLC Std Spec 8634), 2020,
Drydocking

OTHER REFERENCES

None.

3. REQUIREMENTS

3.1 General.

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3.1.1 CIR. The Contractor must submit a CIR for the inspections listed in the following paragraph(s):

- The Contractor must submit a CIR for the inspections listed in the following paragraph:
- 3.10.1 Inaccessible voids.

3.1.2 Tech Rep.

Not applicable.

3.1.3 Protective measures. The Contractor must furnish and install all protective measures in accordance with SFLC Std Spec 0000, paragraph 3.3.3 (Vessel component, space, and equipment protection).

3.1.4 Interferences. The Contractor must handle all interferences in accordance with SFLC Std Spec 0000, paragraph 3.3.5 (Interferences). Known interferences include, but are not limited to the following:

- Anchor assembly
- Load conditions
- U/W body appendages

3.2 Key personnel. The Contractor must determine key personnel and require their presence during all drydocking phases as required by SFLC Standard Spec 8634. Submit list of key personnel to the COR.

3.3 Docking and undocking. The Contractor must perform drydock and undock in accordance with SFLC Std Spec 8634, using Coast Guard Drawings 87 WPB 085-011, 87 WPB 085-012, and 87 WPB 085-013 for guidance.

3.4 Cutter conditions. The Contractor must use the Full Load Condition values listed below all in inches, for purposes of performing Pre-Award calculations as described in Appendix A (Requirements for Calculations) of SFLC Std Spec 8634.

- Displacement (LT): 90.39.
- VCG (FT ABL): 7.62.
- LCG (FT aft of Frame Zero): 51.96.
- Length (Molded) (FT): 86.92.
- Length of supported keel (FT): 61.05 (Position 1)
- Length of supported keel (FT): 50.88 (Position 2)

3.4.1 Blocking. The Contractor must facilitate docking the vessel in designated block position by arranging keel and side blocks and ensuring minimum block heights as shown on the vessel's docking plan. Contractor's use of a cradle, built to Coast Guard Drawing 87 WPB 085-12, must require the fitting of keel blocks with soft wood wedges, based on the docking positions noted in Coast Guard Drawing 87 WPB 085-013, after lifting.

TABLE 1 – BLOCKING

POS. #	BLOCK HEIGHT ABOVE DOCKING FACILITY DECK	STEEL PLATE	SITUATION AWARENESS	FIN STABILIZERS	ADDITIONAL
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	MIN.	RUDDER REMOVAL	PROPELLER REMOVAL	SHAFT REMOVAL				
1	48"	NA	NA		NA	NA	NA	None

3.4.2 Cable, sling, or strap tension calculation. If the Contractor plans to use a vertical lift, crane, or travel/mobile lift to haul out the vessel, the Contractor must submit the cable, sling, or strap tension calculation specified in Table A1 and paragraph A2.7.2.7 of SFLC Std Spec 8634 with the Pre-Award calculations, using the loading condition specified in paragraph 3.4.

3.5 Pre-award calculations. The Contractor must provide to the KO a set of pre-award calculations, as described in SFLC Std Spec 8634 Appendix A.

3.5.1 Provide vertical side/bilge block offsets for any side blocks placed in a location where vertical offsets are not already defined by the docking plan.

3.5.2 Submit an alternate blocking arrangement, as part of the pre-award calculation submission, to compensate for any changes from the docking plan.

3.5.2.1 If the alternate blocking arrangement interferes with U/W hull plate inspection or 100% preservation of U/W body surfaces required under separate work items in this specification package, the Contractor must include a plan of how inspection/preservation will be accomplished. Plan must include any modifications necessary to the prescribed docking plan including removing, shifting, repositioning blocks, or fleeing the vessel at no additional cost to the Government.

NOTE

1. The USCG has established several approved alternate docking plans for each vessel-class, to facilitate complete access to the entire U/W body structure, for periodic comprehensive inspection and/or 100% preservation. This inspection and preservation pattern and periodicity is a configuration management concern that is a vital requirement of the contract. Intention to deviate from these plans (fewer blocks, block spacing, additional blocks, etc) is to be identified on pre-award calculations (Paragraph 3.5.2); an alternate docking plan and mitigation strategy will be provided to maintain preservation and inspection configuration.

2. Pre-award calculations may be deemed unsatisfactory - and may adversely affect contract award if they are submitted with the following detrimental factors:

a. No methods have been proposed that meet the requirements for the specified docking plan.

b. Proposed block shifting or fleeing risk-mitigating plan may result in delays in period of performance.

c. Proposed alternate docking plan violates USCG configuration management policies.

3.6 Planned availability, immediate work and routine inspections. The Contractor must perform designated routine drydocking work, in accordance with SFLC Std Spec 8634, paragraph 3.5.4 (within twenty four hours after docking).

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3.6.1 Upon the COR convening the Coast Guard Underwater Hull Inspection Board (UWHIB), the Contractor must facilitate and participate in the UWHIB inspections of the underwater hull. The Contractor must provide a designated hull repair supervisor to accompany the UWHIB and mark on the hull proposed repairs areas, as necessary.

NOTES

1. **The COR will convene the UWHIB as soon as possible after the vessel has been dry-docked and the hull has been cleaned. No other work must take place until the UWHIB completes their inspections.**
2. **The UWHIB will recommend the extent of underwater body coating system preservation required based on the conditions found during the underwater hull survey.**

WARNING

Do not use chemical additives in the freshwater wash. Take extreme care to avoid damaging or removing existing intact underwater body coating.

3.7 Fuel offloading. The Contractor must remove and dispose of up to 1,500 gallons of fuel from the vessel.

3.8 Fleeting. Not required.

3.9 Fluid removal and disposal. MERGEFIELD ADDREQ

3.9.1 The Contractor must drydock the cutter with all tanks empty.

3.9.2 The Contractor must empty all tanks in order to fulfill the drydock requirements, shown on Coast Guard Drawing 87 WPB 085-013. Dispose of all fluids in accordance with Federal, State, and local regulations.

3.9.2.1 Dirty oil and oily water. The Contractor must remove and dispose of up to 85 gallons of dirty oil and up to 85 gallons of oily water from the vessel.

3.9.2.2 Sewage and grey water. The Contractor must remove and dispose of up to 363 gallons of sewage and up to 55 gallons of grey water from the vessel.

3.10 Inaccessible voids.

3.10.1 Inaccessible void inspections. In the presence of the Coast Guard Inspector, the contractor must accomplish the following tasks for all non-accessible voids and submit a CIR:

3.10.1.1 Remove and dispose of the existing drain plugs.

3.10.1.2 Submit a CIR noting any liquids draining from any of the voids – indicating the presence of a leak.

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3.10.1.3 Dispose of any drained liquids in accordance with all federal, state, and local laws and regulations.

CAUTION: Some liquids that are drained may be classified as hazardous materials or hazardous waste depending on state and local regulations. The vessel environmental coordinator may assist with determination of wastecategory.

3.10.2 Plug renewal and interior coating. Upon completion of all work on appendages, the Contractor must accomplish the following:

3.10.2.1 Chase the hull inserts threads of all plugs.

3.10.2.2 Install new stainless steel, Type 316, or Monel drain plugs, in place of original plugs.

3.10.2.3 Coat new plugs prior to installation with a sealing and locking compound conforming to ASTM D5363-AN0123 or a flexible joint compound conforming to MIL-S-45180, Type II.

3.10.2.4 Apply rust preventative compound conforming to MIL-PRF-16173, Class II, Grade 3, to each void and appendage using the fill and drain method. Collect and dispose of all excess compound in accordance with all federal, state, and local regulations. Ensure coated surfaces are left exposed to the atmosphere for 24 hours minimum to allow for adequate drying

4. NOTES

4.1 Arrival conditions. The COR will advise the Contractor of the actual tank and draft readings when the vessel arrives, and will discuss with the Contractor any liquid loading changes necessary.

4.2 Tanks. The tanks identified in Table 1 below require fluid offload.

TABLE 1 – TANK INFORMATION

TYPE OF TANK	LOCATION	MAX CAPACITY (GALLONS)
Diesel fuel	Stbd Centerline	1,450
Diesel fuel	Port Centerline	1,450
Dirty Oil	Port Centerline	85
Oily Water	Stbd Centerline	85
Sewage	Hold Deck between Frames 6 and 8, 3-7-0-W	363
Grey Water	Below Hold Deck between Frames 8 and 9, 3-7-1-W	55

4.3 Potable water pumping. Ship's Force will pump the potable water overboard prior to drydocking in lieu of requiring the Contractor offload the potable water.

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4.4 Cutters normally operate at a minimum 75% fuel capacity during hurricane season and 50% off season.

WORK ITEM 23: Temporary Services, Provide - Cutter

1. SCOPE

1.1 Intent. This work item describes the requirements for the Contractor to provide temporary services to the Cutter, during the performance of this availability.

1.2 Government-furnished property.

None.

2. REFERENCES

COAST GUARD DRAWINGS

None

COAST GUARD PUBLICATIONS

Surface Forces Logistics Center Standard Specification 0000 (SFLC Std Spec 0000), 2020,
General Requirements

Surface Forces Logistics Center Standard Specification 8635 (SFLC Std Spec 8635), 2020,
Temporary Services

OTHER REFERENCES

None

3. REQUIREMENTS

3.1 General.

3.1.1 CIR.

None.

3.1.2 Tech Rep.

Not applicable.

3.1.3 Protective measures. The Contractor must furnish and install all protective measures in accordance with SFLC Std Spec 0000, paragraph 3.3.3 (Vessel component, space, and equipment protection).

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3.1.4 Interferences. The Contractor must handle all interferences in accordance with SFLC Std Spec 0000, paragraph 3.3.5 (Interferences).

3.2 Temporary service particulars. The Contractor must provide the below listed temporary services, in accordance with SFLC Std Spec 8635.

TABLE 1 - SERVICE SELECTION

*SUB-PARAGRAPH	TITLE	Y/N
3.3.1	Office space	Y
3.3.2	Telephone and internet access	Y
3.3.3	Parking	Y
3.3.4	Duty section berthing: 1 male, 1 female. Duty section berthing must be provided for the entire duration of the availability.	Y
3.3.5	Electrical power (including all requirements in associated sub-paragraphs)	Y
3.3.6	Hull grounding straps (not applicable when cutter is waterborne)	Y
3.3.7	Compressed air (including all requirements in associated sub-paragraphs)	N
3.3.8	Hazardous material/hazardous waste disposal (see Tables 2 and 3 below)	Y
3.3.9	Heavy lift equipment: {__day(s)/or __ hour(s)}	N
3.3.10	Water supply	
3.3.10.1	Potable water via shore tie.	Y
3.3.10.2	Hot-circulating water	N
3.3.10.3	Cooling water	N
3.3.10.4	Firemain system (including all requirements in associated sub-paragraphs)	N
3.3.11	Steam (including all requirements in associated sub-paragraphs)	N
3.3.12	Refuse disposal	Y
3.3.13	Sewage and grey water disposal (including all requirements in associated sub-paragraphs)	Y
3.3.14	Storage – General (including all requirements in associated sub-paragraphs):	
3.3.14	Dry stores.	N
3.3.14	Paint and flammable stores.	Y
3.3.14	Refrigerated stores.	N
3.3.15	Small boat storage (including all requirements in associated sub-paragraphs)	Y

*Each sub-paragraph number relates directly to the identical sub-paragraph number in SFLC Std Spec 8635.

TABLE 2 - HAZARDOUS WASTE DISPOSAL – LIQUIDS (GALLONS)

PAINT THINNERS	ENGINE COOLANT	BILGE WATER
5	100	100

TABLE 3 - HAZARDOUS WASTE DISPOSAL – SOLIDS

OILY FILTERS	OILY RAGS (LBS)	EMPTY 1-GAL CONTAINER*	EMPTY 5-GAL CONTAINER*	EMPTY 55-GAL CONTAINER*
10	10	N	N	1

*Previously housed hazardous materials.

3.2 Extended temporary services. If the performance period of the contract is extended by the KO, the contractor must continue to provide all temporary services as specified herein for the extension period.

4. NOTES

This section is not applicable to this work item.

WORK ITEM 24: Sea Trial Performance, Support, Provide

1. SCOPE

1.1 Intent. This work item describes the requirements for the Contractor to provide support for the performance of sea trials.

1.2 Government-furnished property.

None.

2. REFERENCES

COAST GUARD DRAWINGS

None

COAST GUARD PUBLICATIONS

Surface Forces Logistics Center Standard Specification 0000 (SFLC Std Spec 0000), 2020,
General Requirements

OTHER REFERENCES

None

3. REQUIREMENTS

3.1 General.

3.1.1 CIR.

None.

3.1.2 Tech Rep.

Not applicable.

3.1.3 Protective measures. The Contractor must furnish and install all protective measures in accordance with SFLC Std Spec 0000, paragraph 3.3.3 (Vessel component, space, and equipment protection).

3.1.4 Interferences. The Contractor must handle all interferences in accordance with SFLC Std Spec 0000, paragraph 3.3.5 (Interferences).

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3.2 Trial applicability. The Contractor must provide support to the vessel crew to perform sea trials for all work items that require conducting operational tests while the vessel is waterborne or underway, prior to the item certification as being complete. The Contractor must be responsible for ensuring all test procedures are prepared, approved, and distributed for the sea trials, and must be responsible for recording test data and submitting CFRs to the COR.

3.3 Sea trial agenda. The Contractor must prepare an agenda that details the Contractor's plans for ensuring completion of the required sea trials.

3.3.1 Agenda contents. The Contractor must ensure the agenda consists of chronological list of administrative events, inspection events and test events. Events must be arranged to permit expeditious conduct with minimum interference between concurrent events.

NOTE

Mutually compatible events may be scheduled simultaneously.

3.3.1.1 The Contractor must ensure the agenda identifies installation of any test equipment or component modification that could impact the normal operation of equipment or systems during performance of the trials.

3.3.1.2 The Contractor must ensure the agenda identifies any operating instructions or special test procedures that could impact the normal operations of equipment or systems.

3.3.1.3 The Contractor must ensure the agenda includes the full name, title, security clearance, home address, home telephone number and name of next of kin of each Contractor-personnel scheduled to ride the ship during performance of the trials.

3.3.2 Agenda submission requirements. The Contractor must submit four legible copies of the sea trial agenda to the COR two days prior to the scheduled trials. The Contractor must coordinate both the planning and conduct of the post-overhaul ship trials with the ship's force (see 4.1 (Equipment operation)).

3.4 Environmental compliance. The Contractor must abide by the below-listed rules, in addition to all other Federal, state, and local rules governing the overboard discharge of garbage and oil in the water.

3.4.1 Discharge of garbage.

TABLE 1 – GARBAGE RULES

GARBAGE TYPE	RULE
Plastics, including synthetic ropes, fishing nets, and plastic bags	Prohibited in all areas
Floating dunnage, lining and packing materials	Prohibited less than 25 miles from nearest land
Food waste, paper, rags, glass, metal, bottles, crockery and similar refuse	Prohibited less than 12 miles from nearest land
Comminuted or ground food waste, paper, rags, glass, etc...	Prohibited less than 3 miles from nearest land

3.4.2 Discharge of oil. The Contractor must be aware that the Federal Water Pollution Control Act prohibits the discharge of oil or oily waste upon or into any navigable waters of the U.S. The prohibition

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includes any discharge that causes a film or discoloration of the surface of the water or causes a sludge or emulsion beneath the surface of the water.

CAUTION

Violators are subject to substantial civil and/or criminal sanctions including fines and imprisonment.

3.5 Dock trials. The Contractor must conduct dock trials to demonstrate the material readiness of the ship for sea trials. Additionally, all onboard tests conducted after installation and prior to sea trials to prove proper installation and satisfactory operation of equipment must be conducted in accordance with the requirements specified in the work items designated in paragraph 3.1 (Trial applicability). Ensure that the dock trials are begun no later than 12 hours prior to the scheduled sea trials.

3.5.1 The Contractor must provide a pier facility (or allow the cutter to move to a Coast Guard pier) in order to support dock trials. Dock trials may not be conducted while the cutter remains floating inside the dry-dock (not touching the blocks).

3.5.2 During dock trials, the Contractor must ensure the Contractor's personnel observe tests under their cognizance and make such adjustments and repairs, as required.

3.6 Sea trials. As soon as possible after completion of the dock trials, the Contractor must coordinate performance of the sea trials, based on the operational tests, as required in the applicable work items, for the following purpose:

- Performing tests that could not be performed while the ship was moored.
- Serving as final step in proving the success of the overhaul/repair tasks required in the designated work items, and ensuring that Contractor and COR are both satisfied that the ship is in all respects ready for final acceptance.

3.6.1 The Contractor must have representatives on board the cutter to observe the trials for the purpose of observing whether or not the repairs are satisfactory.

3.6.2 The Contractor must ensure the sea trials are carried out in free route, away from other shipping, as designated by the COR.

3.7 Post-trial examination. After the completion of the sea trial, the Contractor must perform a careful and thorough examination of parts of the repaired machinery, as designated by the COR. If any part of the ship or its equipment fails to meet contractual requirements during trials, perform additional trials after corrective measures have been taken.

NOTES

1. Examples of dock trials include conducting cold (pre-light off) and hot checks, cycling machinery (rudders, BPU, turning gear, fin stabilizers), and conducting any post-docking shaft alignment verification checks. This time may also be used to on-load fuel, if needed for operations.

2. The conditions of the trials will be determined largely by the character of the work that has been performed in each case, and as designated by the COR. A full power trial should be run at this time unless the COR elects to defer this run until all new machinery parts are run-in or the training status of the crew permits full power operation without undue hazard.

3. This examination may be conducted by the Engineer Officer of the ship, in which case he will report the results of the examination to the COR, fully describing any defects or improper conditions found.

4. Representatives of manufacturers who have furnished ship components may be invited to witness trials subject to approval of the CO or OINC of the ship.

4. NOTES

4.1 Equipment operation. Coast Guard personnel will operate all shipboard machinery and equipment during all tests.

WORK ITEM 25: Fathometer Transducer, Renew**1. SCOPE**

1.1 Intent. This work item describes the requirements for the Contractor to renew the fathometer transducer.

1.2 Government-furnished property.

MTI	ITEM DESCRIPTION	NSN/PN	QTY	ESTIMATED COST (\$/UNIT)
Y	Transducer, sonar, w/ adapter ring	PN: 87-WPB-165-001 NSN: 5845-01-641-9744	1 ea.	1552.41

2. REFERENCES**COAST GUARD DRAWINGS**

Coast Guard Drawing 87 WPB 165-001, Rev F, Transducer Details

Coast Guard Drawing 87 WPB 423-001, Rev W, Speed Log & Depth Sounder System

COAST GUARD PUBLICATIONS

Surface Forces Logistics Center Standard Specification 0000 (SFLC Std Spec 0000), 2020, General Requirements

Surface Forces Logistics Center Standard Specification 0740 (SFLC Std Spec 0740), 2020, Welding and Allied Processes

OTHER REFERENCES

None

3. REQUIREMENTS

3.1 General.

3.1.1 CIR.

None.

3.1.2 Tech Rep.

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Not applicable.

3.1.3 Protective measures. The Contractor shall furnish and install all protective coverings to seal off and protect all non-affected vessel's components, equipment, and spaces near the work area against contamination during the performance of work. Upon completion of work, remove all installed protective measures, inspect for the presence of contamination, and return all contaminated equipment, components, and spaces to original condition of cleanliness.

3.1.3.1 Protect all exposed ends of transmission lines, control lines, connectors, and cables from weather, moisture, and physical damage while they are disconnected from the transducer.

3.1.3.2 Take all necessary measures to protect transducer from damage during the performance of work specified herein. Inform the COR, in writing, of all damage, if any, that is incurred by the transducer.

3.1.3.3 Contractor shall not use ship's emergency transducer cover plate for protective covering during hull blasting operations. Remove the (8 ea) thread-saver socket head set screws, size 1/2"-13 UNC, in bottom side of hull ring and retain for reinstallation. Submit CFR for any damaged or missing fasteners.

3.1.4 Interferences. The Contractor shall handle all interferences in accordance with SFLC Std Spec 0000, paragraph 3.3.5 (Interferences).

3.2 Transducer renewal particulars. The Contractor shall accomplish the following tasks using Coast Guard Drawings 87-WPB 165-001 and 87-WPB 423-001 for guidance:

3.2.1 Transducer removal. Disconnect and remove the existing fathometer transducer. Retain the mounting hardware for reinstallation. Turn over the existing transducer and adapter plate to designated Coast Guard COR.

3.2.2 New transducer installation. Fit and install new Government-furnished transducer assembly, in place of the removed. Reinstall assembly in accordance with the applicable drawing using new gaskets, mold release coating, and adhesive sealants. Reuse retained mounting hardware, coating all bolt threads with anti-seize compound.

3.2.2.1 Reconnect each transducer cable to its terminal board in the adjacent connection box. Renew all stuffing tube packing and seals. Inspect the connection in the presence of the Coast Guard Inspector.

3.2.2.2 Following completion of transducer installation, fabricate a 3/4" x 3" x 1/4" aluminum label plate, engraved with 1/4-inch high numbers stating the installation date. Affix a label plate, using a suitable epoxy cement. Ensure that the label plate is visible and legible, without the need to move equipment or cables.

3.2.2.3 Following completion of installation, reinstall emergency cover plate thread-saver setscrews. Recess the setscrews 1/8" and cover with beeswax tallow in accordance with Coast Guard Drawing 87 WPB 165-001.

3.3 Transducer seal. The Contractor shall inspect the transducer to ensure that its outer circumference is installed flush to the hull ring and the transducer cover plate forms a tight seal with the hull ring.

3.4 Post installation tests. The Contractor shall, after completion of work, accomplish the following tasks, in the presence of the Coast Guard Inspector:

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3.4.1 Boundary test, water hose. The Contractor shall inspect and perform a water hose test of all affected boundaries in accordance with SFLC Std Spec 0740, Appendix C. Submit a CFR.

3.4.2 Operational test, post repairs. After completion of work, the Contractor shall thoroughly test, in the presence of the Coast Guard Inspector and demonstrate all items or shipboard devices that have been disturbed, used, repaired, altered, or installed to be in satisfactory operating condition. Submit a CFR.

NOTE

Coast Guard personnel will operate all shipboard machinery and equipment.

4. NOTES

4.1. Interior hull adapter plate.



FIGURE 1. INTERIOR HULL ADAPTER PLATE

WORK ITEM 26: Piping, Grey Water, Renew

1. SCOPE

1.1 Intent. This work item describes the requirements for the Contractor to renew a section of grey water piping from the Galley to the Grey Water Tank.

1.2 Government-furnished property.

None

2. REFERENCES

COAST GUARD DRAWINGS

Coast Guard Drawing 87 WPB 526-001, Rev J, Scuppers & Deck Drains Piping

COAST GUARD PUBLICATIONS

Surface Forces Logistics Center Standard Specification 0000 (SFLC Std Spec 0000), 2020, General Requirements

Surface Forces Logistics Center Standard Specification 0740 (SFLC Std Spec 0740), 2020, Welding and Allied Processes

Surface Forces Logistics Center Standard Specification 6310 (SFLC Std Spec 6310), 2020, Requirements for Preservation of Ship Structures

Surface Forces Logistics Center Standard Specification 6341 (SFLC Std Spec 6341), 2020, Install Interior Deck Covering Systems

OTHER REFERENCES

None

3. REQUIREMENTS

3.1 General.

3.1.1 CIR.

None.

3.1.2 Tech Rep.

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None.

3.1.3 Protective measures. The Contractor must furnish and install all protective measures in accordance with SFLC Std Spec 0000, paragraph 3.3.3 (Vessel component, space, and equipment protection).

3.1.4 Interferences. The Contractor must handle all interferences in accordance with SFLC Std Spec 0000, paragraph 3.3.5 (Interferences). Known interferences include, but are not limited to the following:

- Joiner decks/Bulkheads
- Racks
- Furniture
- Electrical wiring
- Galley equipment/cabinets
- Berthing Area carpeting

3.2 Paragraph title. The Contractor must renew approximately 25 linear feet of 1 1/2 inch Schedule 10S, SS pipe (Sheet 1 of 7, Bill of Materials) running from the Galley to the Grey Water Tank (3-7-1-W) located in the Forward Hold (forward of frame 9). This will include all lines from the Galley fixtures to include the Gaylord Hood, sink, dishwasher, grease trap and deck drain. The Contractor must also renew the check valve (listed as Triangle-A) and ball valve (listed as Triangle-D) on Drawing 526-001, Sheet 1 of 7, Bill of Materials.

3.2.1 All welding procedures must be accomplished in accordance with SFLC Std Spec 0740.

3.2.2 The Contractor must renew the previously removed berthing area carpeting in accordance with appendix E of SFLC Std Spec 6341

3.3 Hydrostatic test. After all authorized repairs, the Contractor must hydrostatically test all new and disturbed piping and components of the sewage discharge piping system in accordance with SFLC Std Spec 0740, Appendix C, Hydrostatic Test. Ensure zero leakage from or permanent deformation of pressure-containing parts by repairing all leaks, deformations, and discrepancies. Submit a CFR.

3.4 Touch-up preservation. The Contractor must prepare and coat all new and disturbed surfaces to match existing adjacent surfaces in accordance with SFLC Std Spec 6310, paragraph 3.1.13 (Touch-ups and minor coating repairs.).

4. NOTES

This section is not applicable to this work item.

WORK ITEM 27: Superstructure, Preserve, 100%

1. SCOPE

1.1 Intent. This work item describes the requirements for the Contractor to preserve the aluminum surfaces.

1.2 Government-furnished property.

None.

2. REFERENCES

COAST GUARD DRAWINGS

Coast Guard Drawing 87 WPB 601-001, Rev R, Outboard Profile & General Arrangements

COAST GUARD PUBLICATIONS

Surface Forces Logistics Center Standard Specification 0000 (SFLC Std Spec 0000), 2020, General Requirements

Surface Forces Logistics Center Standard Specification 6310 (SFLC Std Spec 6310), 2020, Requirements for Preservation of Ship Structures

OTHER REFERENCES

Federal Standard (FED-STD) 595, 2008, Colors Used in Government Procurement

3. REQUIREMENTS

3.1 General.

3.1.1 CIR.

None.

3.1.2 Tech Rep.

None.

3.1.3 Protective measures. The Contractor must furnish and install all protective measures in accordance with SFLC Std Spec 0000, paragraph 3.3.3 (Vessel component, space, and equipment protection).

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3.1.3.1 Equipment/components to be protected include, but are not limited to:

- Life lines.
- Bulkheads.
- Windows.
- Deck surfaces.

3.1.4 Interferences. The Contractor must handle all interferences in accordance with SFLC Std Spec 0000, paragraph 3.3.5 (Interferences). Known interferences include, but are not limited to the following:

- Electrical/electronic equipment.
- Junction boxes.
- Fire stations.

NOTE

Existing coating system on the Superstructure surfaces may have a nominal thickness in excess of that which was originally installed, as a result of “patch-coats” applied during past availabilities.

3.2 Substrate inspection. After completion surface preparation and before coating application, the Contractor shall perform a visual inspection of the prepared substrate, and submit a CFR.

3.3 Pre-surface preparation wash. The Contractor shall accomplish low-pressure (less than 5,000 psi) fresh water wash of all affected surfaces, to remove soluble chlorides and other surface contaminants. Capture, contain, and dispose of wash water for proper disposal in accordance with all Federal, state and local regulations.

3.4 General preservation requirements. The Contractor shall prepare and coat the superstructure surfaces, using the system specified for “Freeboard/Superstructure/Mast (Freeboard/Superstructure), in SFLC Std Spec 6310, Appendix A (Cutter and Boat Painting Systems).

3.4.1 The Contractor shall select “Option I” system, for the applicable metal substrate.

3.4.2 The Contractor shall select White (17925) as the finish/top coating color.

3.4.3 The Contractor shall color coat all miscellaneous details and fittings in accordance with the Table 1 below, as applicable.

TABLE 1 - COLORS FOR MISCELLANEOUS DETAILS

COMPONENT	*TOP COLOR COAT
Awning Ridgepoles	White (17925)
Bitts, towing	Spar (10371) except where line lays and runs; do not paint.
Chocks, brass/bronze	Uncoated
Chocks, bulwark	Match bulwark color
Chocks, except bulwark and roller type	Spar (10371)
Chocks, Roller	Black (17038)
Handrails and Lifeline Stanchions	White (17925)
Hatch coamings	Spar (10371) or Blue Grey (16099) if deck mounted

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Knife edges on watertight doors and hatches	Do not paint.
Name Plates	No coating.
Spray shield on bridge, inboard	White (17925) or Blue Gray (16099); Commanding Officer prerogative.
Ventilators, all types, including gooseneck pipe vents, not attached or immediately adjacent to the superstructure.	Spar (10371)
Fire fittings, valves, stations, etc.	Red (11105)

***Numbers indicated are FED-STD-595 colors.**

3.5 In-process quality control measures. The Contractor shall abide by all the safety, preservation, and quality control requirements specified in SFLC Std Spec 0000, paragraph 3.2.4.2 (In-process QC measures for “critical-coated surfaces”). Surfaces being preserved are considered “critical-coated surfaces.”

4. NOTES

4.1 Definition of superstructure. For the purposes of this item, superstructure surfaces are defined as vertical and horizontal surfaces (excluding deck, mast, and stack surfaces) from the main deck Level up including, but not limited to the following: top of the pilot house, exterior shell, bulkheads and all attachments secured or bracketed to bulkheads, doors, ladders, metallic rails, stanchions, stand-offs, brackets, piping, stuffing tubes, vent ducting, structural tees, angles, and gussets. The six-inch dado where the superstructure joins the deck is not included in the definition of superstructure; it is normally preserved with the deck surfaces.

4.2 Unit's responsibility. Unit crew will install new superstructure DC decals, compartment check-off holders, and name plates, after the completion of work.

WORK ITEM 28: Propulsion Shafts, Renew

1. SCOPE

1.1 Intent. This work item describes the requirements for the Contractor to renew the port and starboard propulsion shafts.

1.2 Government-furnished property.

MTI	ITEM DESCRIPTION	NSN/PN	QTY	ESTIMATED COST (\$/UNIT)
Y	Propeller Shaft	NSN: 2010-01-458-9175	2 ea.	10,195.95
N	Kit Rebuild, Seal Assembly	NSN: 5330-01-F18-5383	2 ea.	3543.00
N	Kit Rebuild, Inflatable Seal	NSN: 5330-01-F18-5385	2 ea.	1381.00
Y	*Alignment Kit	N/A	1 set	5000.00

*Government-loaned property, which shall be returned to the vessel upon completion of the availability.

**New or refurbished equipment that the Government may provide for installation in place of existing equipment.

2. REFERENCES

COAST GUARD DRAWINGS

Coast Guard Drawing 87 WPB 243-003, Rev -, Propulsion Shaft Details

COAST GUARD PUBLICATIONS

Surface Forces Logistics Center Standard Specification 0000 (SFLC Std Spec 0000), 2020, General Requirements

Surface Forces Logistics Center Standard Specification 0740 (SFLC Std Spec 0740), 2020, Welding and Allied Processes

Coast Guard Technical Publication (TP) 4499, Jun 2018, SWBS 243, Stern Tube Seal-Model 442C

Coast Guard Technical Publication (TP) 4500, September 2017, SWBS 233, Engine Change-Out Guide – Waterborne Main Diesel

OTHER REFERENCES

None.

3. REQUIREMENTS

3.1 General.

3.1.1 CIR. The Contractor must submit a CIR for the inspections listed in the following paragraphs:

- 3.2.1 Waterborne coupling hub alignment check.
- 3.2.2 Mount measurements.
- 3.4.1 Shaft seal assembly inspections.
- 3.5.2 Alignment survey.
- 3.5.3 Stern tube/shaft seal interface inspection.
- 3.6.1 Shaft measurements.

3.1.2 Tech rep. The Contractor must provide the services of a qualified Tech Rep, who is familiar with and experienced with the Chesterton seal system, to do the following, on site:

- Advise on manufacturer's proprietary information pertinent to the system.
- Advise on seal condition and identify the component that requires renewal.
- Assist with proper disassembly, reassembly, and installation of the seal.
- Ensure compliance with manufacturer's procedures and standards during disassembly, reassembly, and installation.

3.1.2.1 Ensure that the Tech Rep has a résumé of demonstrated experience with the system/equipment stated above.

3.1.2.2 Submit a copy of the Tech Rep's résumé and a list of references to the COR at the Arrival Conference.

3.1.3 Protective measures. The Contractor must furnish and install all protective measures in accordance with SFLC Std Spec 0000, paragraph 3.3.3 (Vessel component, space, and equipment protection).

3.1.4 Interferences. The Contractor must handle all interferences in accordance with SFLC Std Spec 0000, paragraph 3.3.5 (Interferences). Known interferences include, but are not limited to the below-listed:

- Deck plates.
- Deck plate framing.
- Stern tube mid bearing access hatch.
- Stern tube aft bearing access hatch.
- Stern tube forward access hatch.
- Propellers.
- Rudders.

3.1.5 Tolerances. Unless otherwise specified, all measurements must be accurate to within the nearest 0.001 inch.

3.2 Pre-docking measurements. The Contractor must perform the following tasks:

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3.2.1 Waterborne coupling hub alignment check. Using Coast Guard Tech Pub 4500, Enclosure 3 as guidance, and in the presence of the Coast Guard Inspector, the Contractor must measure and record the following prior to docking the vessel and Submit A CIR:

- parallel measurements between shaft coupling and reduction gear coupling ODs (concentricity);
- angular measurements between shaft coupling and reduction gear coupling faces;
- shaft coupling to reduction gear coupling gap.

NOTES

The following methods for obtaining coupling hub alignment measurements are acceptable: 1) Dial indicator to obtain total indicator run-out, 2) Straight-edge/feeler gage.

The Government-provided alignment jig, shown on Coast Guard Drawing 87 WPB 995-001, is required or taking the above measurements per TP 4500, Enclosure 3.

3.2.2 Mount measurements. Measure and record the thickness of shims beneath each engine mount. Submit CIR. Determine if major MDE-related structural components (stern tube, engine foundation) are severely misaligned; evaluate and include recommendations for corrective measures, if any, in the CIR. Major structural misalignment **MAY** exist if any of the following conditions exist:

- Shims or chocks beneath engine/red-gear foundation(s) exceed 0.750 inch.
- Gap between raw water suction inlet and outlet pipe flanges (for expansion joints) exceeds 6-1/2 inches or is less than 5-5/8 inches.

NOTES

Where gaps between the mounting feet bottoms and foundation rail tops are greater than 3/8", epoxy resin chocking must be used.

Where the aforementioned gaps are equal to or less than 3/8", stainless steel shims must be used (brass shim stock is prohibited). The thickness of laminated shim stock installed between engine mounts and engine foundation must not exceed 0.250 inches. If more than 0.250 inches of shim are required, then stainless steel liners must be fabricated and installed to limit the amount of laminated shim stock used.

If machined liners are fabricated and installed, they must be tack welded in place after final installation.

3.3 Initial docked measurements.

3.3.1 Coupling-to-coupling alignment check. To ensure proper docking and minimal hull movement, measure and record the engine/reduction-gear alignment using the Government-furnished alignment kit (shaft support) to ensure final in-water alignment will be achievable (if necessary). Center vertically the shaft in the seal bore, record the following measurements, and submit a CFR (including form titled "Hub Alignment Measurement Form"):

- parallel measurements between shaft coupling and reduction gear coupling ODs (concentricity);
- angular measurements between shaft coupling and reduction gear coupling faces;

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- shaft coupling and reduction gear coupling gap. Submit CFR.

3.3.2 Initial drydocked shaft torque measurement. Prior to removing the propellers and shafts, using a torque wrench, measure the torque required to turn each shaft. Submit a CFR.

3.4 Remove shafts. Using Coast Guard Drawing 87 WPB 243-003 and TP 4499 as guidance, the Contractor must remove each shaft seal, propulsion shaft coupling, and propulsion shaft. Protect all removed components from damage during removal, storage, and reinstallation.

3.4.1 Shaft support while lifting. When lifting, suspend the shaft from at least 2 supports spaced approximately 7 feet apart and from each end. Lift each shaft with a spreader bar, or similar device, to minimize bending stress on the shaft.

3.4.2 Shaft wear inspection. Visually inspect the shaft for wear in the bearing and seal areas. Note the maximum diametrical wear and location(s) in each journal area. Submit a CFR.

3.4.3 Mandatory turn-in shaft repackaging. In the presence of the Coast Guard Inspector, the Contractor must repackage the MTI propulsion shafts, using the existing propulsion shaft containers and wood braces in the same method the new GFP propulsion shafts were received.

3.5 Stern tube and bearing inspections. Within 72 hours after shaft removal, the Contractor must inspect each stern tube assembly (i.e. stern tube, bearings, shaft seal flange). The Contractor must perform the following and submit reports (CIRs and CFRs) as described; in the reports, include descriptions of methods used to obtain the measurements:

3.5.1 Visual inspection and bearing ID check. Visually inspect both stern tube assemblies for damage, corrosion, unusual bearing (and/or seal) wear patterns, and all other symptoms that indicate that repairs are required. Note all discernible bearing wear patterns. Submit CFR.

3.5.2 Alignment survey. In the presence of the Coast Guard Inspector and while using Coast Guard Drawing 87 WPB 243-003 as guidance, the Contractor must conduct the following and submit a CIR. Submit the applicable portions of the alignment survey forms at the end of this work item as part of the CIR.

NOTES

Piano wire may NOT be used unless done in conjunction with either the optical or laser method.

Alignment measurements must be conducted to 0.001”.

3.5.2.1 Conduct the alignment check via optical or laser methods. Minimize thermal effects by performing the following late in the evening or before sunrise.

3.5.2.2 Establish reference line using the two stern tube “Target Points” labeled on Coast Guard Drawing 87 WPB 243-003 (centers of the aft-most end of the stern tube and the forward-most stern tube/seal flange).

3.5.2.3 Measure and record each of the vertical and athwartship bearing positions (fore and aft targets for each stern tube bearing carrier), stern tube/seal flange position, and reduction gear center position, relative to the established reference line.

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3.5.2.4 Provide recommendations, **if any**, (i.e., movement magnitude/direction) for alignment correction.

NOTE

Ensure the final, corrected orientation of machinery will not negatively/prohibitively impact mounting (i.e., engine footing hanging off of foundation rails, etc.), or system interfaces (i.e., exhaust connection point alignment or raw water connections).

3.5.3 Shaft seal – mechanical and inflatable - rebuild. Under the guidance of TP 4499, the Contractor must accomplish the following:

3.5.3.1 Disassemble and inspect all shaft seal mechanical and inflatable shaft seal parts for failure. Submit a CFR.

3.5.3.2 Using the Government-furnished rebuild kits, rebuild each mechanical and inflatable shaft seal with the provided components.

3.5.4 Post-repair alignment survey. In the presence of the Coast Guard Inspector and while using Coast Guard Drawing 87 WPB 243-003 as guidance, the Contractor must conduct the following, and submit a CFR. Submit the applicable portions of the alignment survey forms at the end of this work item as part of the CFR.

3.5.4.1 With new bearings in place, conduct an alignment survey via optical or laser methods. Minimize thermal effects by performing the following late in the evening or before sunrise.

3.5.4.2 Establish reference lines using the “Target Points” as labeled on Coast Guard Drawing 87 WPB 243-003 (i.e., the aft end of the aft-most bearing and the reduction gear output flange center).

3.5.4.3 Measure and record the vertical and athwartship bearing positions (fore and aft targets for each stern tube bearing) and seal flange offsets.

3.6 GFP shaft assembly inspections and installation. The Contractor must inspect and measure the Government-furnished shafts as follows:

3.6.1 Shaft measurements.

3.6.1.1 The shaft must only be supported by two precision rollers (24” from each end) or on lathe centers - no additional supports (i.e., intermediary rollers, etc.) must be used. Prior to measuring shaft machined surfaces, eliminate all non-permanent bending/sagging from handling and storage: spin each shaft on the lathe for approximately two hours at a slow speed (with no accessories attached to the shaft). For inspections and measurements, place the shaft on two precision rollers 24 inches from each end of the shaft or on lathe centers. Measure and record shaft dimensions as described below and Submit A CIR:

3.6.1.2 Measure and record the shaft key, keyway, and journal dimensions described on the forms provided at the end of this work item.

3.6.1.3 Conduct complete propulsion shaft run-out readings via dial indicator survey at the small and large ends of each taper, the fore and aft ends of each bearing position, three equally spaced locations between the bearings, and three equally spaced locations between the intermediate bearing and coupling taper, to determine straightness or any bend including magnitude and location. Each station must be

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marked at the position of the maximum run-out on the periphery of the shaft. Record the run-out survey on the form (titled "Shaft Run-out Measurement Form") at the end of this work item as part of the CIR.

3.6.2 Shaft coupling hub fit check. Prior to reinstalling shafts, the Contractor must blue check the shaft-to-coupling-hub taper fit. With the key in place, perform hand-stoning of the coupling hub ID, as required, to achieve a minimum of 80 percent uniform contact. After all bluing/fitting, and with hub installed, measure and record coupling OD radial run-out, coupling face run-out, and counter bore run-out; using TP 4500, Enclosure 3 as guidance, verify all measurements are in tolerance. Submit CFR.

3.6.3 Install both shaft assemblies.

3.6.4 Bearing clearance checks. Verify shaft OD to bearing ID diametrical clearances (min .033" and max 0.120" allowed) for each shaft and bearing. Submit CFR.

3.6.5 Shaft seal test. Under the supervision of the tech rep, test the shaft seals (mechanical and inflatable) prior to undocking and during sea trials.

3.7 Final drydocked shaft torque measurements. While still drydocked, after reinstalling the propellers and shafts, using a torque wrench, measure the torque required to turn each shaft. Submit a CFR.

3.8 Final waterborne measurements.

3.8.1 Coupling-to-coupling alignment check. After vessel is undocked and liquid laden for 24 hours, determine if engine/reduction-gear alignment is required. If required, using TP 4500, Enclosure 3 as guidance, and in the presence of the Coast Guard Inspector, measure and record the engine/reduction-gear alignment data listed below using the Government-furnished alignment kit (shaft support). Center the shaft in the seal bore, space propulsion shaft coupling and reduction coupling faces 0.25" apart (to ensure complete disengagement), record the following measurements, and submit a CFR:

- parallel measurements between shaft coupling and reduction gear coupling ODs (concentricity);
- angular measurements between shaft coupling and reduction gear coupling faces;
- shaft coupling and reduction gear coupling gap. Submit CFR.

3.8.2 Shaft torque measurements. Prior to fastening the couplings together, using a torque wrench, measure the torque required to turn each shaft. Submit a CFR.

3.9 Operational test, post repairs. After completion of work, the Contractor must thoroughly test, in the presence of the Coast Guard Inspector and demonstrate all items or shipboard devices that have been disturbed, used, repaired, altered, or installed to be in satisfactory operating condition. Submit a CFR.

4. NOTES

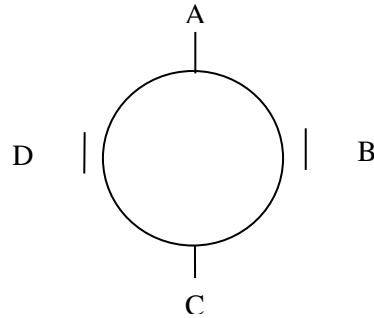
4.1 Equipment operation. Coast Guard personnel will operate all shipboard machinery and equipment during all operational tests.

4.2 Inspection forms. See below.

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CIRCLE ONE: PORT STARBOARD - SHAFT RUN-OUT MEASUREMENT FORM

VESSEL NAME AND HULL NUMBER: _____



POINTS ALONG LENGTH	A	B	C	D	TOTAL INDICATED RUN-OUT (TIR)
Aft Taper (small end)					
Aft Taper (large end)					
Aft Bearing Journal (aft end)					
Aft Bearing Journal (fwd end)					
Aft-Int Brg Journal Location 1					
Aft-Int Brg Journal Location 2					
Aft-Int Brg Fwd Journal Location 3					
Int Bearing Journal (aft end)					
Int Bearing Journal (fwd end)					
Int Journal-Taper Location 1					
Int Journal-Taper Location 2					
Int Journal-Taper Location 3					
Shaft Seal					
Fwd Taper (large end)					
Fwd Taper (small end)					

Inspection Facility: _____

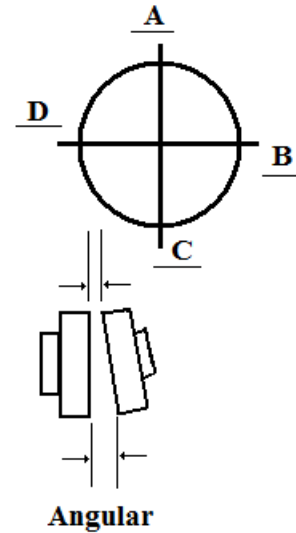
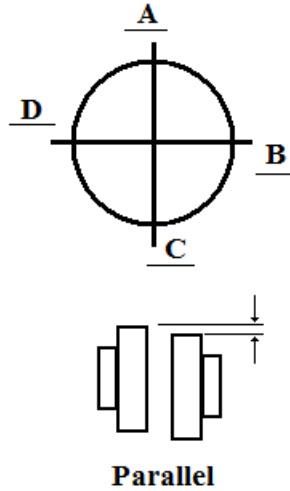
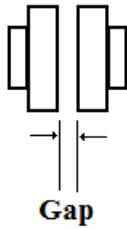
Date and Time: _____

Inspector Signature: _____

CIRCLE ONE: PORT STARBOARD - HUB ALIGNMENT MEASUREMENT FORM

VESSEL NAME AND HULL NUMBER: _____

CIRCLE ONE: PRE-DOCKING DOCKED UNDOCKED

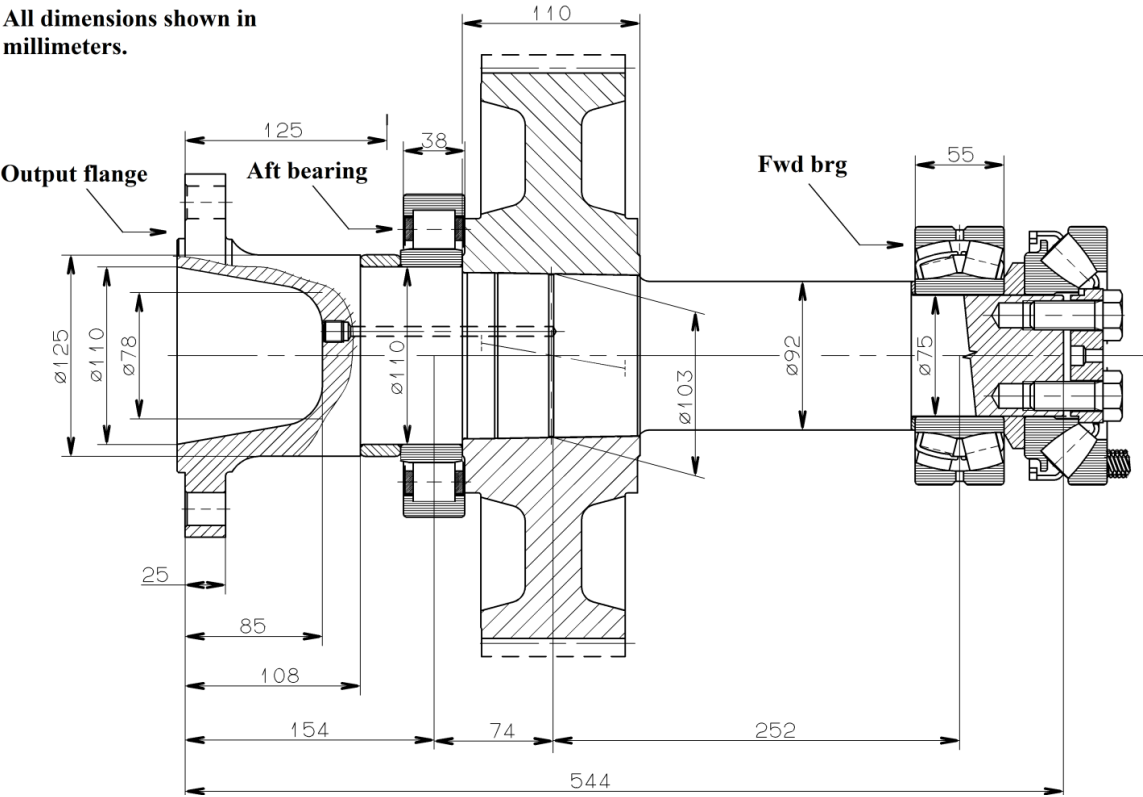


ALL MEASUREMENTS IN INCHES	SHAFT INITIAL POSITION	SHAFT ROTATED 90°	SHAFT ROTATED 180°	SHAFT ROTATED 270°
Gap				
Parallel A				
Parallel B				
Parallel C				
Parallel D				
Angular A				
Angular B				
Angular C				
Angular D				

Inspection Facility: _____ Date and Time: _____

Inspector Signature: _____

All dimensions shown in millimeters.



REDUCTION GEAR OUTPUT SHAFT/FLANGE/BEARINGS

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ALIGNMENT SURVEY FORMS (PRE AND POST-REPAIR)

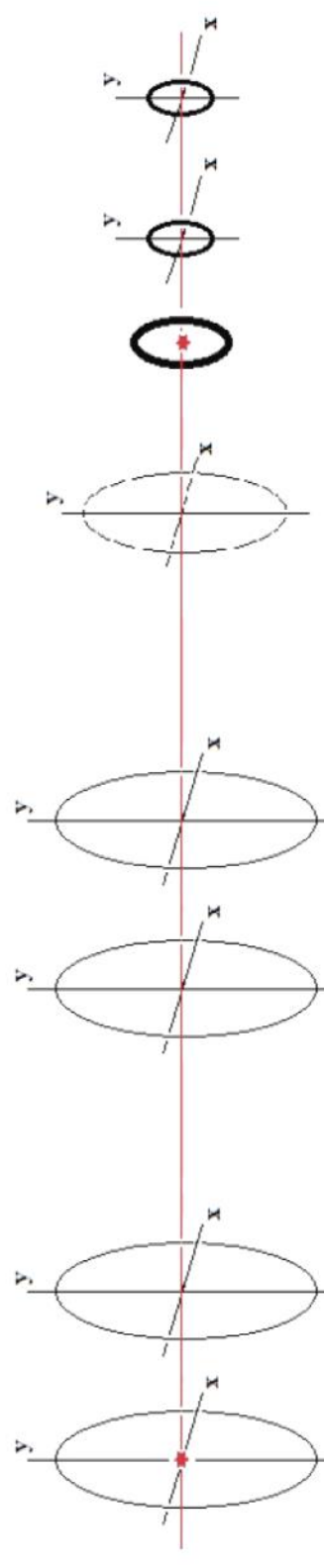
Cutter: _____

Circle one: PORT STARBOARD

Date/Time: _____ / _____

Measurement method: _____

12345678



★ Target points

Offsets measured:

- 1. Aft end of aft bearing
- 2. Fwd end of aft bearing
- 3. Aft end of intermediate bearing
- 4. Fwd end of intermediate bearing
- 5. Shaft seal mounting ring
- 6. Reduction gear flange

Offsets calculated:

- 7. Aft gear bearing
- 8. Fwd gear bearing

Sheet ____ of ____

ALIGNMENT OFFSETS AND BEARING REACTIONS FORMS**NOTE****Negative bearing reactions are prohibited.**

INITIAL ASSESSMENT - PORT			
Location	X offset (negative, outboard)	Y offset (negative, below target x axis)	
1			
2			
3			
4			
5			
6			
7			
8			
RECOMMENDED CORRECTIONS (IF ANY) - PORT			
Location	X offset (negative, outboard)	Y offset (negative, below target x axis)	Expected bearing reactions at bearing axial centers
			R_{resultant} (bearing resultant force)
1			
2			
3			
4			
5			
6			
7			
8			
FINAL VERIFICATION - PORT			
Location	X offset (negative, outboard)	Y offset (negative, below target x axis)	
1			
2			
3			
4			
5			
6			
7			
8			

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INITIAL ASSESSMENT - STARBOARD			
Location	X offset (negative, outboard)	Y offset (negative, below target x axis)	
1			
2			
3			
4			
5			
6			
7			
8			
RECOMMENDED CORRECTIONS (IF ANY) - STARBOARD			
Location	X offset (negative, outboard)	Y offset (negative, below target x axis)	Expected bearing reactions at bearing axial centers
			R _{resultant} (bearing resultant force)
1			
2			
3			
4			
5			
6			
7			
8			
FINAL VERIFICATION - STARBOARD			
Location	X offset (negative, outboard)	Y offset (negative, below target x axis)	
1			
2			
3			
4			
5			
6			
7			
8			

WORK ITEM 29: 24VDC Distribution System, Upgrade

1. SCOPE

1.1 Intent. This work item describes the requirements for the Contractor to perform upgrades to the 24VDC distribution system.

1.2 Government-furnished property.

MTI	ITEM DESCRIPTION	NSN/PN	QTY	ESTIMATED COST (\$/UNIT)
N	Panel Bridge 24 V	NSN: 6110-01-F18-5605	1 ea.	2,548.00
N	Alternator	NSN: 6125-01-020-2950	2 ea.	14,668.79
N	Regulator Voltage	NSN: 5963-01-623-3549	2 ea.	350.00
N	Resistor Thermal	NSN: 5905-01-662-5504	2 ea.	35.00
N	Harness, Wiring	NSN: 5995-01-661-5659	2 ea.	75.00
N	Seal Plain	NSN: 5330-12-314-3403	2 ea.	56.32
N	Coupling Half	NSN: 4730-12-408-7920	2 ea.	1,572.87
N	Coupling, Flex	NSN: 3010-01-255-4200	2 ea.	480.44
N	Insert, Flexible Coupling	NSN: 3010-12-332-3557	2 ea.	830.23
N	Screw Machine	NSN: 5305-01-384-3454	12 ea.	3.71
N	Washer, Spring Tension	NSN: 5310-12-125-7798	12 ea.	2.44
N	Nut, Plain Hexagon	NSN: 5310-12-156-4982	12 ea.	2.33
N	Guard Plate	NSN: 2920-12-408-7817	2 ea.	941.45
N	Plate, Mounting	NSN: 5340-12-333-7085	2 ea.	75.00
N	Screw, Cap, Hexagon	NSN: 5305-01-240-1274	14 ea.	4.53
N	Washer, Spring Tension	NSN: 5310-01-195-9000	14 ea.	1.81
N	Screw Cap Hexagon	NSN: 5305-12-142-8243	4 ea.	7.92
N	Screw, Cap	NSN: 5305-12-142-8236	4 ea.	3.64
N	Washer, Flat	NSN: 5310-12-149-4352	8 ea.	2.35
N	Bracket	NSN: 2815-12-408-5547	4 ea.	130.18

*Government-loaned property, which shall be returned to the Coast Guard Inspector upon completion of the availability.

2. REFERENCES

COAST GUARD DRAWINGS

Coast Guard Drawing 87 WPB 310-001, Rev J, Ship's Service One-Line Diagram

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Coast Guard Drawing 87 WPB 313-001, Rev N, DC System

COAST GUARD PUBLICATIONS

Coast Guard Technical Publication (TP) 4533, SWBS 233, 2002, Propulsion Internal Combustion Engines, Maintenance Manual

Coast Guard Technical Publication (TP) 4525, SWBS 202, 2003, Main Diesel Engine Control System Schematics

Surface Forces Logistics Center Standard Specification 0000 (SFLC Std Spec 0000), 2020, General Requirements

Surface Forces Logistics Center Standard Specification 3041 (SFLC Std Spec 3041), 2020, Shipboard Electrical Cable Test

Surface Forces Logistics Center Standard Specification 3042 (SFLC Std Spec 3042), 2020, Shipboard Electrical Cable Removal, Relocation, Splice, Repair, and Installation

OTHER REFERENCES

None.

3. REQUIREMENTS

3.1 General.

3.1.1 CIR.

None.

3.1.2 Tech Rep. The Contractor must provide the services of an OEM authorized/licensed Tech Rep for the MTU Main Diesel Engines (MDE) to accomplish the following on site:

- Provide manufacturer's proprietary system/equipment information, software, and tools.
- Assist with and ensure compliance with manufacturer's procedures and standards during disassembly, inspection, repair, modification, calibration, and reassembly of the equipment/system.

3.1.2.1 Ensure the Tech Rep is an OEM Certified Representative for the system/equipment stated above and demonstrated on their resume.

3.1.3 Protective measures. The Contractor must furnish and install all protective measures in accordance with SFLC Std Spec 0000, paragraph 3.3.3 (Vessel component, space, and equipment protection).

3.1.4 Interferences. The Contractor must handle all interferences in accordance with SFLC Std. Spec 0000, paragraph 3.3.5 (Interferences).

3.1.5 Electrical work. The Contractor must accomplish all electrical work in accordance with SFLC Std. Spec 3042, and test cables in accordance with SFLC Std. Spec 3041. Utilize the existing wire ways for new cable runs.

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3.1.5 Operational test, initial. Prior to commencement of work, the Contractor must witness Coast Guard personnel perform an initial operational test of all items or shipboard devices to be disturbed, used, repaired, or altered, to demonstrate existing operational condition. Submit a CFR.

NOTE

Coast Guard personnel will operate all shipboard machinery and equipment.

3.2 Work particulars. Using Coast Guard Drawings 87 WPB 310-001 and 313-001 and Coast Guard Tech Pub (TP) 4533 Section 3.86 as reference, the Contractor must perform the following:

3.2.1 Install Government-furnished 90 Amp alternators and accessory components on each of the MTU main diesel engines (MDE's).

3.2.1.1 Install Government-furnished voltage regulator on door of MTU start box shown in Figure 3 below.

3.2.2 Contractor to furnish and install new LSDSGU-50 or equivalent cable from alternators to starters IAW 87 WPB 313-001.

3.2.2 Install Government-furnished 24/12 VDC Panel and associated components in location shown below in Figure 1 and as designated by Coast Guard Inspector in the Pilothouse.

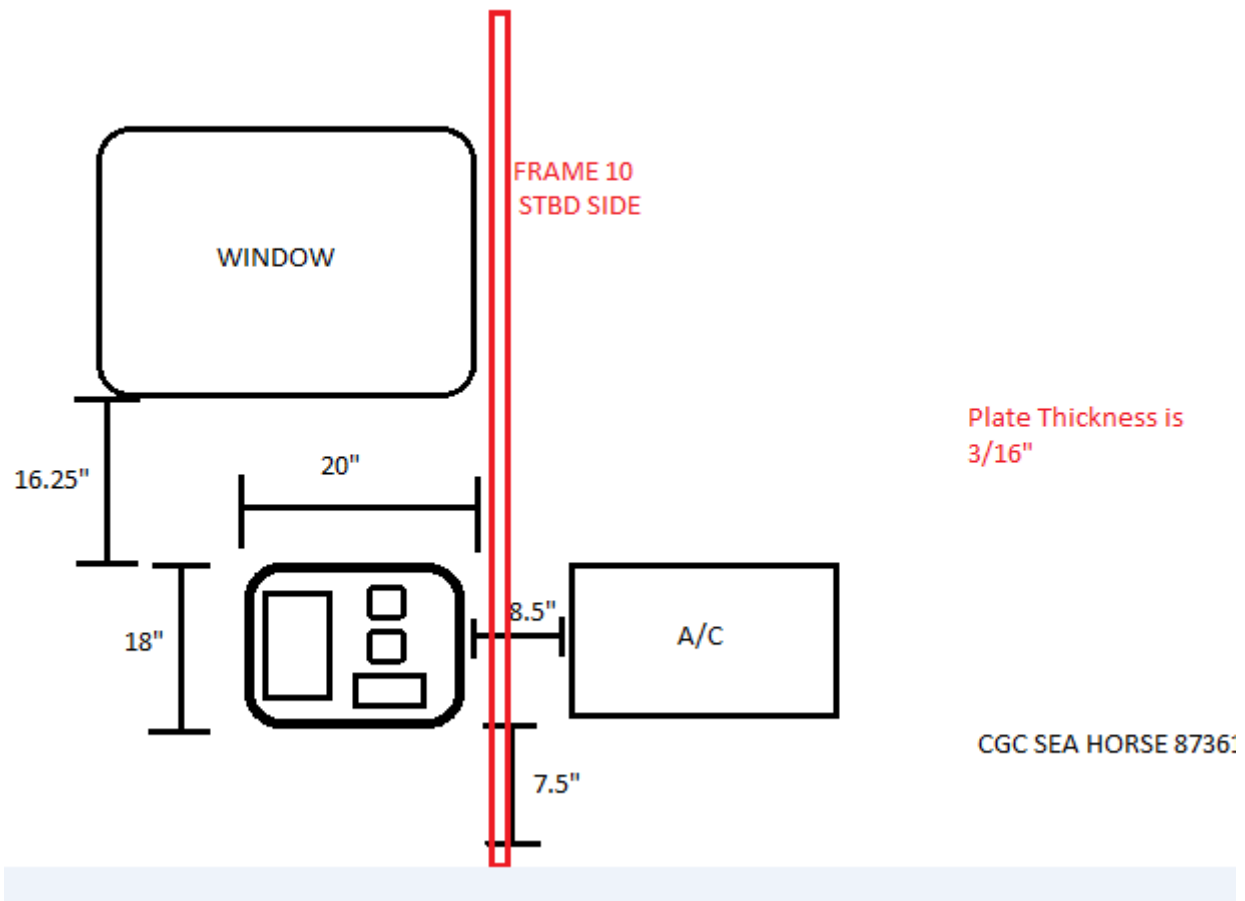


FIGURE 1. ELEVATION VIEW SKETCH

3.2.3 The Contractor must furnish and install new 50A breaker in place of the existing 100A breaker in the 24 volt DC Engine Room Panel.

3.2.4 The Contractor must furnish and install new electric cable, Type LSDNW-14 or equivalent from the 50 amp breaker installed above in the 24 Volt DC Engine Room Panel to new Pilothouse 24/12 VDC Panel.

3.3. Operational test, post repairs. After completion of work, the Contractor must thoroughly test, in the presence of the Coast Guard Inspector and demonstrate all items or shipboard devices that have been disturbed, used, repaired, altered, or installed to be in satisfactory operating condition. Submit a CFR.

NOTE

Coast Guard personnel will operate all shipboard machinery and equipment.

4. NOTES

This section is not applicable to this work item.



FIGURE 2. PILOT HOUSE DC PANEL

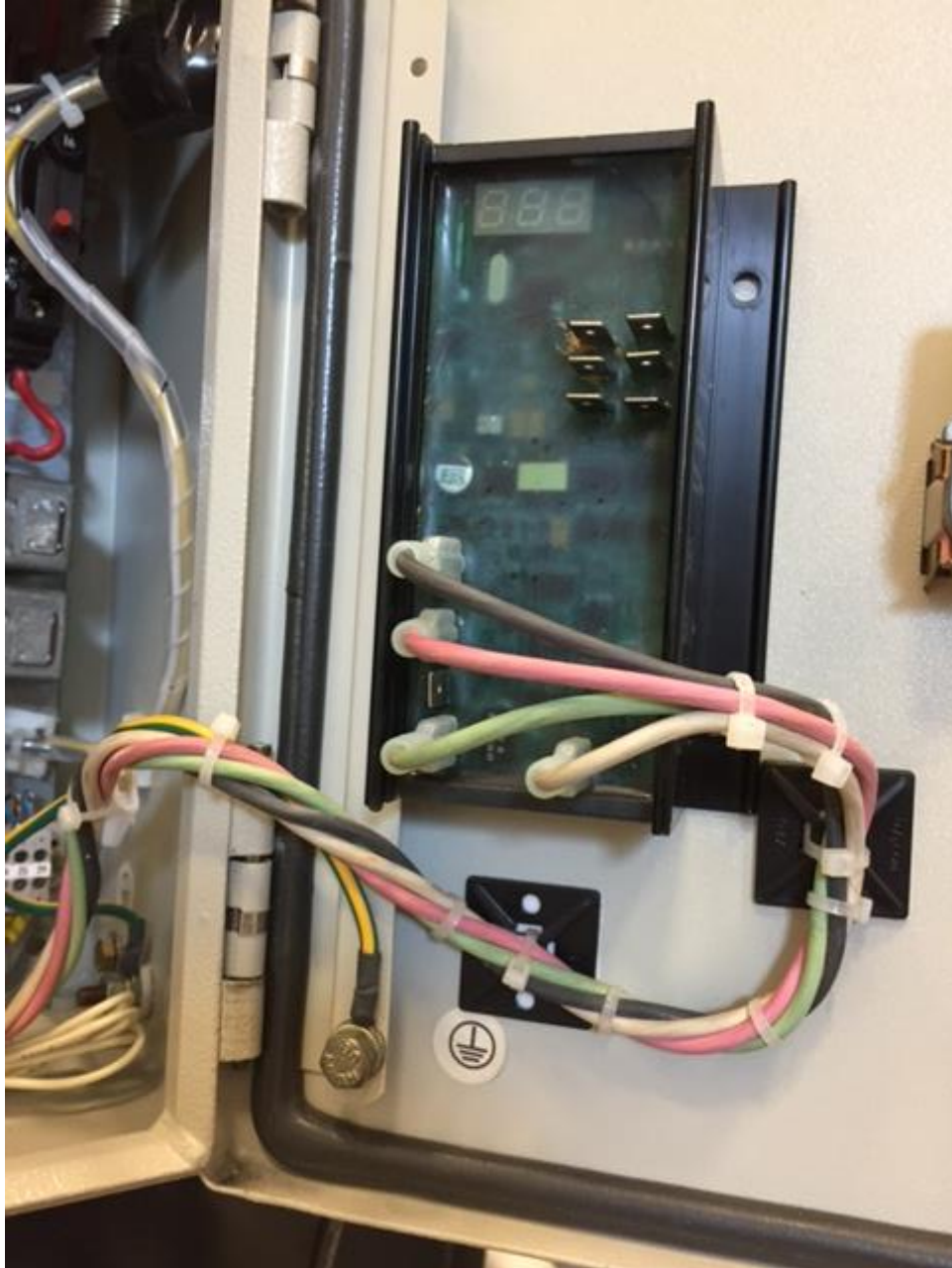


FIGURE 3. VOLTAGE REGULATOR

WORK ITEM 30: Structural Analysis, 3D Laser Scan, Perform

1. SCOPE

1.1 Intent. This work item describes the requirements for the Contractor to perform 3D laser scan of the cutter's exterior hull shell, deck and dock floor locations/deformations and provide results in 3D CAD format.

1.2 Government-furnished property.

None

2. REFERENCES

COAST GUARD DRAWINGS

Coast Guard Drawing 87 WPB 085-013, Rev B, Docking Plan

Coast Guard Drawing 87 WPB 111-001, Rev H, Shell Expansion

Coast Guard Drawing 87 WPB 601-001, Rev R, Outboard Profile & General Arrangements

COAST GUARD PUBLICATIONS

Surface Forces Logistics Center Standard Specification 0000 (SFLC Std Spec 0000), 2020,
General Requirements

OTHER REFERENCES

None

3. REQUIREMENTS

3.1 General.

3.1.1 CIR.

None.

3.1.2 Tech Rep. The Contractor shall provide the services of a Qualified Technical Representative who has the experience and knowledge to conduct a three-dimensional laser scan model identifying hull and deck deformations in 3D CAD format.

3.1.2.1 Ensure the Tech Rep has experience with the system/equipment stated above and demonstrated on

their résumé.

3.1.2.2 Submit the name and résumé of the Tech Rep to the COR at the Arrival Conference

3.1.3 Protective measures. The Contractor shall furnish and install all protective coverings to seal off and protect all non-affected vessel's components, equipment, and spaces near the work area against contamination during the performance of work. Upon completion of work, the Contractor shall remove all installed protective measures, inspect for the presence of contamination, and return all contaminated equipment, components, and spaces to original condition of cleanliness.

3.1.4 Interferences. The Contractor shall handle all interferences in accordance with SFLC Std Spec 0000, paragraph 3.3.5 (Interferences).

NOTE

The USCG conducts structural analysis efforts requiring accurate measurement of the hull shape including both global and local deformations. Measurements of hull global and local deformations are evaluated relative to the design hull lines is a key part of this hull strength analysis and implications on shafting alignment.

3.2 Three dimensional laser scan. The Contractor shall perform a 3D laser scan of the cutter's hull (sides, bottom and transom), shaft skegs (and shafting if in place) and the dock floor to obtain the 3D point cloud and provide a registered, reduced point cloud data set.

3.2.1 The 3D laser scan point cloud accuracy shall be within +/- 2 mm local scans and 5mm global scan alignment for the hull and deck surfaces. A point cloud reduction process shall be conducted to determine the shell plating deformations including an average of the deck nonskid covering to show the underlying plate deformations by averaging points over a 20 mm grid on the hull. The point cloud of hull appendages shall be reduced over a 1mm grid.

3.2.1.1 The Contractor shall convert the 3D laser scan (3D Point cloud) to a point cloud format that can be used in Rhino 3D version 5.0. The Contractor shall digitally remove staging interferences located around the hull of the Cutter.

3.2.1.2 The Contractor shall compare the measured 3D point cloud and meshed surfaces to the hull lines based NURBS surface developed by US Coast Guard SFLC to determine dimensional deviations from the lines based NURBS surface. The dimensional deviations shall be rendered in the Rhino 3D in 1mm increments and colors to show the dimensional gradients. The Contractor shall position the hull relative to the 3D hull surface in coordination with the US Coast Guard.

3.3 Report. The Contractor shall provide a neatly organized model using layers and color contour images of the surface comparisons. The Contractor shall provide the 3D point cloud in Rhino 3D 5.0 format files and deliver them in electronic format by ftp or mailed CDs to the USCG within 2 weeks after conducting the 3D Laser Scan.

3.3.1 The report shall include all photographs, illustrations, charts, graphs, tables, calculations, text, analyses, algorithms, conclusions and recommendation deliverables developed as a part of this project. The Coast Guard will review the report, and may provide feedback or conduct discussions with the Contractor prior to acceptance.

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3.3.2 The report shall be delivered to USCG with a document cover letter to the following address:

Commanding Officer (SFLC-ESD-NAME)

USCG Surface Forces Logistics Center (Mail Stop 25)

2401 Hawkins Point Road

Baltimore, MD 21226-5000

Attn: Mr. Karl Stambaugh

3.3.3 Data rights. All data regardless of form or medium shall be the sole property of the US Coast Guard and shall not be released without the written consent of the US Coast Guard.

4. NOTES

This section is not applicable to this work item.