

Specifications for the
Repair of
USCGC MUNRO (WHEC-724)

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Rev 0

UNITED STATES COAST GUARD
SURFACE FORCES LOGISTICS CENTER
NAVAL ENGINEERING DIVISION
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Definite work items are identified by a “D” preceding the item number in the table above. Optional work items are designated by an “O” and shall be individually priced for possible performance.

CUTTER DESCRIPTION – USCGC MUNRO (WHEC 724)

[Design Class: 378-FRAM-W, WHEC-724 (Pre-FRAM)]

Hull Characteristics:

Length Overall	378' 3"
Length Between Perpendiculars	350' 0"
Maximum Beam (@ 13' 6" DWL)	42' 0"
Beam @ Main Deck	42' 0"
Depth (Main Deck @ side to Baseline @ Sta 14)	26' 0-3/8"
Main Deck Camber	6" in 21' 0"
Frame Spacing	1' 0"
Minimum Berth Depth	30' 0"
Height of highest projection (above DWL)	116' 0"
Draft, Fwd, @ Full Load (Peacetime)	14.78'
Draft, Aft, @ Full Load (Peacetime)	15.61'
Draft, Fwd, @ Minimum Operating (Peacetime)	14.63'
Draft, Aft, @ Minimum Operating (Peacetime)	15.33'
Full Load Displacement (Peacetime)	3313 long tons
Minimum Operating Displacement (Peacetime)	2762 long tons
Light Ship Displacement (Peacetime)	2433 long tons

Maximum Tank Capacities (gallons):

Diesel Oil	(95%)	192,858
Fresh Water	(100%)	17,695
Aviation Fuel	(95%)	27,603

Hull Materials:

HY-100 Steel; Deckhouse, fwd of Frame 96
 HY-80 Steel; Main Deck Frames 183 to 242-1/2 and fwd of FR 96
 HY-80 Steel; 01 Level Frames 183 to 316
 HY-80 Steel; Lower hull around bow thruster, port and starboard Strakes A-3 and A-4, Frames 56 to 96
 Type 5456 Aluminum; Masts and superstructure above the 01 Deck
 The remaining hull is mild steel (ASTM A-131)

Machinery Characteristics:

Type of Propulsion: CODOG
 Two Diesel Engines; Fairbanks Morse 12-cylinder opposed piston 38-TD-8-1/8; 7000 SHP total
 Two Gas Turbines; Pratt and Whitney FT4A-2; 36,000 SHP total
 Two Controllable Pitch Propellers; Escher Wyss 4 blade, 13' 0" diameter; 149 RPM max on Diesel engines; 235 RPM max on Gas turbines
 Two Reduction Gears; Western Gear
 Bridge, local, and Engine Room remote control of turbines, diesels, and propellers

Electrical Characteristics:

Two 550KW-AC Type, 450V, 60 Hz, 3 Phase, 720 RPM GM 8-645 diesel driven ship's service generators (located in the Engine Room)
 One 500KW-AC Type, 450V, 60 Hz, 3 Phase, Solar Model 101506-2001 gas turbine driven emergency service generator
 Two 25 KVA (PF = 0.8), 120V, 400 Hz, 3 Phase Electronic Specialty motor generators
 Two 10 KVA (PF = 0.8), 120V, 400 Hz, 3 Phase Electronic Specialty motor generators

Armament:

One MK 75 MOD 0 76mm Single gun mount
Six 50 cal Machine guns
Two SRBOC Launchers
One MK 15 MOD 1 CIWS
Two MK 38

Complement:

Normal Underway:
20 Officers
16 Chief Petty Officers
143 Enlisted
179 Total
Normal Inport: 160 Total
Total Berths: 186
Crew is comprised of male and female personnel

Controlled Access Spaces:

3-144-01-C
3-120-01-C
3-104-2-C

CIC Room
Secure Radio Room/Crypto
Electronics Equipment Room #1

CONSOLIDATED LIST OF REFERENCES

Drawings

378-FRAM-W 182-2, Rev -, Main Propulsion Foundation Plan & Elevations
378-FRAM-W 182-5, Rev B, Bolt, Chcks Prpln Dsl, Gas Turb & Red Gr Arr & L/M

Applicable Documents

[15 USC §2601 to 2692, Toxic Substance Control Act \(TSCA\)](#)
[16 CFR §1303, Ban of Lead-Containing Paint and Certain Consumer Products Bearing Lead-Containing Paint](#)
[29 CFR §1910, Occupational Safety and Health Standards](#)
[29 CFR §1915, Occupational Health and Safety Standards for Shipyard Employment](#)
[29 CFR §1926, Safety and Health Regulations for Construction](#)
[33 CFR §154, Facilities Transferring Oil or Hazardous Materials in Bulk](#)
[33 USC §1251 to 1387, Federal Water Pollution Control Act](#)
[33 USC §1342, National Pollutant Discharge Elimination System](#)
[33 USC §2701 to 2761, Oil Pollution Control Act of 1990](#)
[40 CFR §112, Oil Pollution Prevention](#)
[40 CFR §204, Noise Emission Standards for Construction Equipment](#)
[40 CFR §261, Identification and Listing of Hazardous Waste](#)
[40 CFR §262, Standards Applicable to Generators of Hazardous Waste](#)
[40 CFR §263, Standards Applicable to Transporters of Hazardous Waste](#)
[40 CFR §279, Used Oil Management Standards](#)
[40 CFR §300, National Oil and Hazardous Substances Pollution Contingency Plan](#)
[40 CFR §61, National Emission Standards for Hazardous Air Pollutants](#)
[40 CFR §761, Polychlorinated Biphenyls \(PCB\) Manufacturing, Processing, Distribution in Commerce, And Use Prohibitions](#)
[42 USC §4851 to 4852, Residential Lead-Based Paint Hazard Reduction Act](#)
[42 USC §4901 to 4918, Noise Control Act \(NCA\)](#)
[42 USC §6901 to 6991\(i\), Resource Conservation and Recovery Act \(RCRA\)](#)
[42 USC §7401 to 7671\(q\), Clean Air Act](#)
[42 USC §9601 to 9675, Comprehensive Environmental Response, Compensation, And Liability Act \(CERCLA\)](#)
[49 CFR §100-199, Hazardous Materials Transportation, Handling, And Storage Regulations](#)
[7 USC §136 to 136\(y\), Federal Insecticide, Fungicide, And Rodenticide Act \(FIFRA\)](#)
CG Tech Pub 3254A, Manufacturer's Instruction Book–SWBS Group(s) 233
CG Tech Pub 3254B, Manufacturer's Instruction Book–SWBS Group(s) 233
CG Tech Pub 3257, Manufacturer's Instruction Book–SWBS Group(s) 241-242
[COMDTINST 6260.21, Hazard Communications for Work Place Materials](#)
[COMDTINST 9077.1, Equipment Tag-Out Procedure, Revision C](#)
[COMDTINST M10360.3, Coatings and Colors Manual, Revision C](#)
[COMDTINST M16478.1, Hazardous Waste Management Manual](#)
[COMDTINST M16478.2, Procurement, Handling and Disposal of Polychlorinated Biphenyls](#)
[COMDTINST M6260.16A, Asbestos Exposure Control Manual, Ch-1](#)
[California Code of Regulations, Title 22, Division 4, Environmental Health and 4.5, Environmental Health Standards for the Management of Hazardous Waste](#)
[California Code of Regulations, Title 23, Waters](#)
[California Health and Safety Code, Divisions 20, Miscellaneous Health and Safety Provisions, 26, Air Resources, 37, Regulation of Environmental Protection, 103, Disease Prevention and Health Promotion, 104, Environmental Health.](#)
[Chapter 173-303, WASHINGTON Administrative Code](#)
[Chapter 340, Oregon Administrative Rules](#)

[Federal Standard FED-STD-595B\(1\), Rev B, Not 1; Color Used in Government Procurement](#)
[MIL-A-22262, Rev B, Amd 2; Abrasive Blasting Media Ship Hull Blast Cleaning](#)
[MIL-DTL-5624, Rev U; Turbine Fuel, Aviation, Grades JP-4 and JP-5](#)
[MIL-PRE-16884, Rev L; Fuel, Naval Distillate](#)
[MIL-STD-1625, Rev C, Chg Not 1; Safety Certification Program for Drydocking Facilities and Shipbuilding Ways for U.S. Navy Ships](#)
[MLCPAC Standard Specification 041, 1/1/2000; Production Control, Gantt Bar Chart](#)
MLCPAC Standard Specification 074, Welding and Allied Processes, 3/21/2003
[MLCPAC Standard Specification 085.1, General Requirements for Drawing Preparation, 3/1/2000](#)
MLCPAC Standard Specification 074, Welding and Allied Processes, 3/21/2003
[National Fire Protection Association NFPA 51 Standard for the Design and Installation of Oxygen-Fuel Gas Systems for Welding, Cutting, And Allied Processes](#)
Naval Ships' Technical Manual, Chapter 074, Volume 1, Chg 5, Welding and Allied Processes Rev 4, 8/1/1999
Naval Ships' Technical Manual, Chapter 074, Volume 3, Gas Free Engineering (Apr 98)
[Nondestructive Testing Handbook, American Society for Non-Destructive Testing, Volume 1, Section 7](#)
[The Society for Protective Coatings SSPC-SP 1, Rev -, 11/1/2004; Solvent Cleaning](#)
[The Society for Protective Coatings SSPC-SP 3, Rev -, 11/1/2004; Power Tool Cleaning](#)
[Title 11, Hawaii Administrative Code](#)
[Title 18, Alaska Administrative Code](#)

CONSOLIDATED LIST OF GOVERNMENT FURNISHED PROPERTY

Description	Manufacturer	Part Number	NIIN	Qty	UOI
ITEM 2: MAIN ENGINE LIFTING AND REALIGNMENT					
Lower Crankshaft Vertical Drive Gear	Fairbanks-Morse			1	ea
Engine Block Lifting Tool (Contractor to provide associated bolts)	Fairbanks-Morse			2	ea
Engine Lift Stands	NESU			4	ea
Lower Crankshaft Main Bearings	Fairbanks-Morse			1	set
Diesel Engine Quill Shaft Bearing	Philadelphia Gear			1	ea
Flex Plates	Fairbanks-Morse			1	set

GENERAL REQUIREMENTS — DOCKSIDE, HOME PORT

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1 INTENT

This document invokes general requirements applicable to ship repair contracts for work performed at a cutter's home port pier. The items discussed in the General Requirements are an amplification of, or are in addition to, the specific items of the Specification. Other sections of the contract establish requirements for work on Coast Guard cutters. The General Requirements are a part of the contract and, as such, compliance is a contractual requirement. The Contractor is responsible for understanding and complying with all requirements established in the Specifications.

Government Furnished Property: NONE

2 REFERENCES

Coast Guard Drawings: NONE

Applicable Documents:

[COMDTINST M6260.16A, Asbestos Exposure Control Manual, Ch-1](#)
[COMDTINST 6260.21, Hazard Communications for Work Place Materials](#)
[COMDTINST 9077.1, Equipment Tag-Out Procedure, Revision C](#)
[COMDTINST M16478.1, Hazardous Waste Management Manual](#)
[COMDTINST M16478.2, Procurement, Handling and Disposal of Polychlorinated Biphenyls](#)
[COMDTINST M10360.3, Coatings and Colors Manual, Revision C](#)
[Federal Standard FED-STD-595B \(1\), Rev B, Not 1; Color Used in Government Procurement](#)
[MIL-A-22262, Rev B, Amd 2; Abrasive Blasting Media Ship Hull Blast Cleaning](#)
[MIL-DTL-5624, Rev U; Turbine Fuel, Aviation, Grades JP-4 and JP-5](#)
[MIL-PRF-16884, Rev L; Fuel, Naval Distillate](#)
[MIL-STD-1625, Rev C, Chg Not 1; Safety Certification Program for Drydocking Facilities and Shipbuilding Ways for U.S. Navy Ships](#)
MLCPAC Standard Specification 997, 3/29/2004; DrydockingMLCPAC Standard Specification 074, Welding and Allied Processes, 3/21/2003
[MLCPAC Standard Specification 085.1, General Requirements for Drawing Preparation, 3/1/2000](#)
[National Fire Protection Association NFPA 51 Standard for the Design and Installation of Oxygen-Fuel Gas Systems for Welding, Cutting, And Allied Processes](#)
Naval Ships' Technical Manual, Chapter 074, Volume 1, Chg 5, Welding and Allied Processes Rev 4, 8/1/1999
Naval Ships' Technical Manual, Chapter 074, Volume 3, Gas Free Engineering (Apr 98)
[Nondestructive Testing Handbook, American Society for Non-Destructive Testing, Volume 1, Section 7](#)
[7 USC §136 to 136\(y\), Federal Insecticide, Fungicide, And Rodenticide Act \(FIFRA\)](#)
[15 USC §2601 to 2692, Toxic Substance Control Act \(TSCA\)](#)
[33 USC §1251 to 1387, Federal Water Pollution Control Act](#)
[33 USC §1342, National Pollutant Discharge Elimination System](#)
[33 USC §2701 to 2761, Oil Pollution Control Act of 1990](#)
[42 USC §4851 to 4852, Residential Lead-Based Paint Hazard Reduction Act](#)
[42 USC §4901 to 4918, Noise Control Act \(NCA\)](#)
[42 USC §6901 to 6991\(i\), Resource Conservation and Recovery Act \(RCRA\)](#)
[42 USC §7401 to 7671\(q\), Clean Air Act](#)

[42 USC §9601 to 9675, Comprehensive Environmental Response, Compensation, And Liability Act \(CERCLA\)](#)
[16 CFR §1303, Ban of Lead-Containing Paint and Certain Consumer Products Bearing Lead-Containing Paint](#)
[29 CFR §1910, Occupational Safety and Health Standards](#)
[29 CFR §1926, Safety and Health Regulations for Construction](#)
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[40 CFR §112, Oil Pollution Prevention](#)
[40 CFR §204, Noise Emission Standards for Construction Equipment](#)
[40 CFR §261, Identification and Listing of Hazardous Waste](#)
[40 CFR §262, Standards Applicable to Generators of Hazardous Waste](#)
[40 CFR §263, Standards Applicable to Transporters of Hazardous Waste](#)
[40 CFR §279, Used Oil Management Standards](#)
[40 CFR §300, National Oil and Hazardous Substances Pollution Contingency Plan](#)
[40 CFR §761, Polychlorinated Biphenyls \(PCB\) Manufacturing, Processing, Distribution in Commerce, And Use Prohibitions](#)
[49 CFR §100-199, Hazardous Materials Transportation, Handling, And Storage Regulations](#)
[California Code of Regulations, Title 22, Division 4, Environmental Health and 4.5, Environmental Health Standards for the Management of Hazardous Waste](#)
[California Code of Regulations, Title 23, Waters](#)
[California Health and Safety Code, Divisions 20, Miscellaneous Health and Safety Provisions, 26, Air Resources, 37, Regulation of Environmental Protection, 103, Disease Prevention and Health Promotion, 104, Environmental Health.](#)
[Chapter 173-303, WASHINGTON Administrative Code](#)
[Chapter 340, Oregon Administrative Rules](#)
[Title 18, Alaska Administrative Code](#)
[Title 11, Hawaii Administrative Code](#)

3 ADMINISTRATION

3.1 FACILITY ENTRY

3.2 DEFINITIONS

3.2.1 Unless otherwise stated, the phrase *as shown*, *as indicated*, *as detailed*, or words of similar import refer to the contractual documents including drawings referenced in the specification.

3.2.2 The phrase *as directed*, *as required*, *as permitted*, *approved*, *acceptance*, or words of similar import refer to the direction, requirements, permission, approval, or acceptance by the Contracting Officer or a properly designated Contracting Officer's Representative (COR).

3.2.3 *Remove/Reinstall* – To remove the original item and then later install the same original item back in its place after performing specified work on it.

3.2.4 *Renew* or *renewal* – To remove the original item and to install a new item in new condition, identical or of like size, material and quality to that removed (i.e. "Renew-in-Kind").

3.2.5 *Replace* – To remove the original item and to install in its place a different item as described in the specification.

3.2.6 *Restore* – To bring back to the former, original or normal condition before alteration or removal.

3.2.7 *Underwater body* includes the external hull, all appendages, and sea chests from the keel up to and including the upper edge of the boot-top area.

3.2.8 The *Contracting Officer's Representative* (COR) is the person delegated by the Contracting Officer as the on-scene representative for matters concerning performance of work. This includes technical correctness, timeliness, and quality of the Contractor's work. Normally the Commanding Officer of the vessel is designated as the COR.

3.2.9 The *Coast Guard Inspector* is the COR or the individual designated by the COR to perform Coast Guard Inspector duties.

3.2.10 *Condition Found Report* (CFR) – See paragraph 3.8 below.

3.2.11 *Vessel* – Either a Coast Guard cutter (sixty-five feet or greater) or a Coast Guard boat (less than sixty-five feet.)

3.3 REFERENCES

3.3.1 All references shall be of the issue and/or revision indicated in the consolidated list of references. It is incumbent on the Contractor to maintain current MLC PAC Standard Specifications. In many instances, the references will be available for review locally aboard the vessel or at the cognizant Naval Engineering Support Unit (NESU). U. S. Government issued Standardization Documents can be found at:
http://stinet.dtic.mil/str/dodiss4_fields.html.

3.3.2 Detail and dimensioned drawings for precision equipment are generally accurate and will give sufficient information for estimating. However, allowance for changes in dimensions should be taken into consideration due to changes of equipment and to the structure and arrangement of the vessel. Actual installations shall conform to the specifications. When it is required that drawings or sketches be prepared, the Contractor shall meet the requirements of MLC PAC Standard Specification 085.1.

3.3.3 All referenced drawings and each piece or page of data that is marked with a Limited Rights Legend is a part of this specification and shall not be used for any purpose other than that contemplated by the specifications or item of work. The Contractor is prohibited from further use, release, or disclosure of this information.

3.3.4 Unless otherwise noted within this specification, hierarchy, priority, or order of precedence of requirements shall be as follows:

- Specification Definite Item or Optional Item
- Specification General Requirements
- Coast Guard Drawings
- Coast Guard Technical Manuals
- Commercial Drawings
- Commercial Technical Manuals
- Coast Guard Standards and Instructions
- Military and Navy Standards, Specifications, and Technical Manuals
- Commercial or Industrial Standards
- Commercial practices

3.3.5 Drawing discrepancies found in performance of work associated with this specification which may adversely affect work in this or future specifications shall be reported using "DRAWING DEFICIENCY ACTION FORM." This drawing feedback form, designed to be used by Contractor and Coast Guard personnel alike, may be downloaded from the Procurement section of the following Coast Guard web site:
http://www.uscg.mil/mlcpac/mlcp/Eng%20Support/mlcpv/files/procurement/Drawing_Deficiency_Action_Form_editable.pdf. The form shall be downloaded, duplicated and completed, as necessary, to inform SFLC technical personnel of drawing & configuration problems, as well as, suggested recommendations which may correct them.

3.4 ARRIVAL CONFERENCE

3.4.1 Within two days of the arrival of the vessel, and usually prior to the start of work, the Contracting Officer or the Contracting Officer's designated representative will meet with the Contractor at either the Contractor's conference facilities near the vessel or aboard the vessel (location to be at the sole discretion of the COR).

3.4.2 Normally this conference will be attended by the COR, designated Coast Guard Inspectors, representatives of the cognizant SFLC Naval Engineering Support Unit (NESU) and SFLC LREPL. For availabilities at Coast Guard facilities, the facility Hazardous Waste Coordinator will be invited to attend. A sample Arrival Conference Agenda can be found at

http://www.uscg.mil/mlcpac/mlcp/Eng%20Support/mlcpv/files/platform_support/Arrival_Agenda_Pkg_Form.doc

3.5 CONTRACTOR'S SUBMITTALS

3.5.1 The Contractor shall provide the following at the arrival conference:

- Subcontractor List
- Technical Representatives List
- Marine Chemist & "Competent Persons" List
- Welders' Qualification List
- List of Qualified Sil-Brazers
- Material Safety Data Sheets
- List of Key Personnel
- List of Emergency Phone Numbers
- Contractor's Inspection And Quality Control System
- Contractor's Property Administration System for GFE
- Certificate of Insurance
- Sample Copy of the Condition Found Report
- Contractor's Fire Emergency Response Plan
- Contractor's Oil Spill Response Plan
- Environmental Submittals (See Section 6)
- Contractor Security Requirements

3.6 VESSEL'S SUBMITTALS

3.6.1 The vessel will provide the following at the arrival conference:

- List of Key Personnel
- List of Emergency Phone Numbers
- List of designated Coast Guard Inspectors

3.7 WORKING HOURS

3.7.1 Except for items specifically authorized by COR, Contractor work shall normally be accomplished between the hours of 7:30 a.m. to 10 p.m. Monday through Saturday, except Federal Holidays.

3.7.2 If the Contractor desires to accomplish work outside of normal working hours, request shall be made to the COR at least 24 hours in advance. Approval will be the sole discretion of the Contracting Officer or the COR.

3.8 PROGRESS MEETINGS

3.8.1 Weekly progress meetings will be held at either the Contractor's conference facilities near the vessel or aboard the vessel, at the sole discretion of the COR. The day of the week and time of day for the weekly progress meeting will be set by the COR at the arrival conference. Representatives for the COR and the Contractor will meet before each progress meeting to review the percentage of completion for each work item and change. Each progress meeting will result in the COR producing a Contract Status Report documenting the percentage completion and documenting areas needing attention by the Contractor in order to complete the contract on time. The COR will

transmit the Contract Status Report to the Contracting Officer, the NESU Representative, and SFLC LREPL the same day. Additional reports/charts shall be presented at each meeting as required by Definite Item "Production Control, Gantt Bar Chart Provide".

3.9 REPORTS/READINGS/AS FOUND CONDITIONS

3.9.1 All readings and inspections are to be taken within twenty-four hours after the machinery or system is opened. The Contractor shall notify the COR of the time and location of inspections requiring Coast Guard verification 24 hours prior to such inspections, **unless** such inspections need to be conducted more than 50 road miles from the primary place of contact performance, in which case 3 working days notice is required, in order to make travel arrangements for the Coast Guard inspectors. Measurements and readings shall be taken with calibrated measurement and test instrumentation. **All reports of readings, operational tests and inspections required by the specifications shall be submitted to the COR in writing, using a "Condition Found Report (CFR)", within twenty-four hours after the readings and/or inspections are made.** Promptness in taking and reporting readings is particularly important for underbody work items such as shaft bearing or rudder bearing clearances. Often during the progress of a work item, conditions are discovered by the Contractor which are considered abnormal for reasons of safety, expected reliability, health, or habitability. These conditions must be brought to the attention of the Coast Guard using a CFR. Details provided by the Contractor in a CFR are important because the CFR may result in a contract change. To speed the contract change process, the Contractor should include in the CFR the following details as a minimum:

3.9.1.1 A sequential number.

3.9.1.2 The contract item which the "CFR" relates to (i.e. D-XX).

3.9.1.3 A clear statement, definition, and description of the condition found, including but not limited to frame numbers, part numbers, materials, and dimensions as appropriate.

3.9.1.4 A proposed or recommended repair to correct the defective condition, including but not limited to frame numbers, part numbers, materials, and dimensions as appropriate.

3.9.1.5 Indicate whether the report requires Coast Guard action or if it is provided "for info" only. If action is required, indicate the time and date when the Coast Guard response is required in order to complete the action within the specified contract performance period. If the action cannot be completed within the specified contract period, so state.

3.9.1.6 A space on the form for the Coast Guard designated representative to make comments.

3.9.1.7 All CFRs shall be signed, dated and submitted by the Contractor's Ship Superintendent. Price proposals for work requests, quick chits, and other change orders shall include, at a minimum, the following information:

3.10 GOVERNMENT FURNISHED MATERIAL/EQUIPMENT

3.10.1 The Contractor shall furnish all equipment, staging, materials, fittings, tools, etc., necessary for proper completion of each item of work unless the specifications indicate the Coast Guard will provide GFM/GFE.

3.10.2 If GFM/GFE is to be furnished by the Coast Guard, it will be indicated in the specification for the specified work item. Unless otherwise noted in the specifications, GFM/GFE will be delivered by the Government to pierside/dockside of the vessel (at the place the vessel is located for the performance of work under this contract). Unless otherwise noted in the specifications, delivery date will be at the Coast Guard's discretion between the start of the contract and up to 5 working days after the start of the contract.

3.10.3 The Contractor shall perform sufficient receipt inspection of the GFM/GFE and then sign for custody of the GFM/GFE by a Coast Guard form DD1149 or comparable Contractor's form. The Contractor assumes the risk of,

and shall be responsible for, any loss or destruction of, or damage to Government property upon its delivery to the Contractor. However, the Contractor is not responsible for reasonable wear and tear to Government property properly consumed in performing this work.

3.10.4 It shall be the Contractor's responsibility to move or rig all GFM/GFE from the point of delivery to the point of storage (if necessary) and then to the point of use.

3.10.5 At the end of the contract, the Contractor shall turn over to the Coast Guard any and all GFM/GFE which was not installed under the terms of the contract.

3.11 SANITARY FACILITIES

3.11.1 Sanitary facilities for Contractor personnel shall be Contractor's responsibility; Contractor's sanitary facilities shall be separate & distinct from sanitary facilities used by vessel personnel. During any period that any or all of the vessel's head facilities are unavailable for use due to Contractor's performance under this contract, the Contractor shall provide clean, sanitary replacement facilities.

3.11.2 If at any time during the performance of the contract, Contractor work will place vessel sanitary facilities out of service, the Contractor shall provide temporary replacement facilities. The minimum replacement facility for up to 18 crew members displaced shall be hot and cold running water with a minimum of 2 showers, 2 sinks, 2 toilets, and 1 urinal located no further than two hundred feet from the vessel's gangway. Facility shall be equipped with electrical lighting and power outlets (110 VAC with ground fault circuit interrupters, GFCI's) for powering of electrical appliances (e.g., blow dryers). If more crew members are displaced, the replacement facilities shall be increased in direct proportion to this ratio. If the crew contains members of both sexes, suitable separate facilities shall be provided for men and women in proportion to their numbers in the crew. The Contractor shall maintain the facilities in a clean and sanitary condition at all times.

3.12 SMOKING AND TOBACCO PRODUCTS

3.12.1 Smoking and use of tobacco products aboard the Vessel or in Vessel office space is prohibited. Exceptions may be permitted if in strict compliance with Vessel rules and regulations (which may include designated smoking time/area).

3.13 CONTRACTOR SERVICES

3.13.1 The Contractor shall provide all services required by the Contractor for the completion of work. These services include but are not limited to electrical power, compressed air, steam, crane services, garbage and refuse, phones, office space, and portable toilet facilities. These services are for the Contractor's use only. Services required by the vessel are found in the "Temporary Services" item of the specification. Regarding crane services, several Coast Guard facilities have weight restrictions at some piers or berths. Notify the COTR seven days in advance of desired lift to coordinate lift, crane size, rigger locations, etc.

3.14 CHANGE ORDER PRICING PROPOSALS

3.14.1 Change orders will be handled in accordance with the terms and procedures spelled out in the contract. Nothing in this section shall be construed to supersede the official contract document.

3.14.2 Change order pricing proposals for monetary deviations from the specification, such as work requests and quick chits, shall be submitted to the KO in electronic format.

3.14.3 The price proposal routing slip submitted by the contractor shall contain, at a minimum, the following information:

3.14.3.1 The work request or quick chit the proposal is in reference to.

3.14.3.2 A labor hour breakdown for the work requested, broken out by task and subdivided by trade. Requests for overtime shall be clearly delineated.

3.14.3.3 A summary of material, travel, and other miscellaneous costs broken out by line item or type of cost.

3.14.3.4 A summary of sub-contractor costs, including a quote or other documentation from the subcontractor.

3.14.3.5 Profit or G&A added to any of the above.

NOTE: The amount of profit added, the items against which profit will be applied, and whether G&A is applied against change orders is specifically outside the scope of this section.

3.14.3.6 The final price proposal.

3.14.3.7 The authorized submission authority.

3.14.4 A sample form, which conforms to all of the above requirements, is available in electronic format from the Coast Guard upon request.

4 WORK CONTROL

4.1 TAG-OUT PROCEDURES

4.1.1 To prevent injury to personnel and/or damage to ship systems equipment tag-outs must be properly conducted. Ship's force will work closely with the Contractor to ensure tag-outs are done in a thorough and efficient manner as outlined below and in more detail in COMDTINST 9077.1, Equipment Tag-out Procedure.

4.1.2 Tag-Out Establishment

4.1.2.1 Prior to start of work on this Item, notify the Coast Guard Inspector in writing of equipment, systems, circuits, components, piping, and valves that require isolation so that tag-outs can be accomplished as required by COMDTINST 9077.1, Equipment Tag-out Procedure.

4.1.2.2 Ship's Force personnel will position equipment and install tags when tag-out of equipment, systems, circuits, components, piping, or valves as required.

4.1.2.3 The Ship's Authorizing Officer (normally the Engineer of the Watch) and the Repair Activity (Contractor's) Representative shall each verify that the tag-out is sufficient to prevent operation of equipment, systems, circuits, components, piping, or valves from all stations that could exercise control. Tags shall also be hung as required by COMDTINST 9077.1, Equipment Tag-out Procedure, paragraph 1.d to control the status of non-permanent jumpers, locking devices, seals, blank flanges, relief valve gags, or similar safety devices.

4.1.2.4 A Contractor's representative shall also verify that each tag is attached to the proper component and that it is in the condition required by the tag-out record sheet. This verification shall be made by witnessing the actions of the Ship's Force member posting or checking the tags and observing devices such as valve position indicators, operating handles, etc.

4.1.2.5 A Contractor's designated representative shall sign and identify his company on each ship's tag-out record sheet and tag prepared to support the Contractor's work.

4.1.3 Tag-Out Clearance

4.1.3.1 To facilitate prompt removal of tags, the Contractor shall notify the Coast Guard Inspector immediately when the Contractor's work is complete and the affected system, piping, or circuit is ready for activation.

4.1.3.2 Tags shall be cleared and removed in accordance with COMDTINST 9077.1, Equipment Tag-out Procedure, before the equipment is operationally tested or operated.

4.1.3.3 The Ship's Authorizing Officer and the Repair Activity (Contractor's) Representative shall each verify that the work necessary to clear a tag-out has been completed prior to authorizing removal of the tags. Both parties shall concur to clearing the tag-out by signing the ship's tag-out record sheet.

4.1.3.4 Ship's Force personnel will remove the tags so authorized for clearance.

4.2 SAFETY REQUIREMENTS

4.2.1 The Contractor shall comply with and ensure compliance to the following for operations which may affect Government personnel or property: 29 CFR Part 1915, "Occupational Safety and Health Standards for Shipyard Employment", 29 CFR Part 1910, "Occupational Safety and Health Standards", and 29 CFR Part 1926 "Safety and Health Requirements for Construction".

4.2.2 The following are deficiencies commonly encountered on safety inspections and are therefore emphasized here:

4.2.2.1 Anti-backflash control valves are required on all welding rigs (NFPA 51).

4.2.2.2 Scaffolds and/or lifelines are required when working above five feet. 29 CFR 1910 and 1915 cover this in detail. The following are commonly encountered problem areas:

4.2.2.2.1 Scaffolds require standard 42" high rails & midrails and 4" toeboards.

4.2.2.2.2 Planking must be scaffold-grade and completely cover the area between the railings and the ship.

4.2.2.3 Lifelines, body harnesses and lanyards are required wherever standard rails are not feasible. Lines must be kept taut, never allowing a fall of greater than six feet.

4.2.2.4 Lifelines must be attached above the worker.

4.2.3 Gear and equipment for rigging and lifting shall be in good working condition and operated according to the regulations set forth in 29 CFR 1915.111-116 and 29 CFR 1910.184. Proper safety precautions shall be practiced in the use of tag lines, mousing of hooks, and moving loads. In addition to the above requirements, all cranes used for work on the vessel or for handling GFM/GFE shall have a current weight handling certification in accordance with local, state and federal laws.

4.2.4 Tools and related equipment are addressed in 29 CFR 1915 Subpart H. Of particular concern is the use of ground fault circuit interrupters (GFCI) with power tools and the use of double insulated power tools. All shore supplied power circuits shall be protected by GFCI'S and have a grounding circuit back to shore. In addition, all power tools shall be approved by Underwriters' Laboratories, or by other testing laboratories approved by the Contracting Officer and either be double insulated or have a grounded circuit.

4.2.5 Personnel protective equipment must be maintained and used in accordance with 29 CFR 1915.151-160.

4.2.5.1 Where personnel exposures can not be maintained below the PEL using appropriate engineering controls, the Contractor shall provide all Contractor personnel with appropriate respiratory protective equipment or other protective equipment specified by the manufacture or where the Contractor/Contractor's industrial hygienist has determined that exposures could exceed the PEL. The Contractor shall also ensure personnel are properly protected

from sensitizing agents/conditions reported by the manufacturer in the Material Safety Data Sheets. These operations include, but are not limited to spray painting and grinding. Selection of respiratory protective equipment should be based on sound industrial hygiene sampling data for the material being worked. Airline hose masks or Self Contained Breathing Apparatus (SCBA) shall be provided to all personnel conducting abrasive blasting or confined space operations, unless an industrial hygienist has determined that exposures can be maintained below the PEL. In addition, respiratory protection for all work which could be immediately dangerous to life and health must consist of either an SCBA or an airline hose mask with an escape bottle as a designed component of the mask assembly.

4.2.5.2 Air line respirators shall be fitted with a pressure regulating valve, a filter which will remove oil, water, and rust particles, and a carbon monoxide alarm. The air intake shall be from a source free from all contaminants, such as the exhaust from internal combustion engines, and air must meet Grade D.

4.2.5.3 Safety harnesses shall be equipped with lifelines which are secured with a minimum of slack when in use. Lifelines must not permit a drop of greater than six feet or contact with any lower level.

4.2.6 Confined space entry requires initial gas free certification by a Marine Chemist in accordance with 29 CFR 1915. The Contractor shall be responsible for monitoring and maintaining the "safe" condition during the entire time work is being performed. Monitoring shall be conducted by a NFPA certified Marine Chemist or a Competent Person. As a minimum, test/certification shall be made before each work shift or daily, whichever is more frequent, and duly recorded on all required certificates.

4.2.7 The Contractor shall provide to the vessel Material Safety Data Sheets for all hazardous materials used under this contract (including petroleum products), at least two working days prior to its use, if not previously submitted per paragraph 3.3. These include, but are not limited to, paints, solvents, cleaners, and abrasive blasting grits.

4.2.8 The Contractor shall ensure paints, solvents, etc., used in, on or around the vessel are used in a manner which prevents personnel exposure to concentrations of vapors exceeding Permissible Exposure Limits (PELs), or Threshold Limit Values (TLVs) for chemicals for which PELs are not listed in OSHA standards.

4.2.9 Each fuel and gas system supplied from shore shall be arranged to be secured by a valve located off the ship and marked to show its purpose. When not in use, fuel and gas hose valves shall be secured at the manifolds and the hoses pulled back to the open deck. Unused manifold valves shall be capped.

4.2.10 The Contractor shall control abrasive blast grit sufficiently to prevent exposure to personnel at or greater than Permissible Exposure Limits (as defined by OSHA). Ensure abrasive blast grit does not contain free silica.

4.2.11 Diving operations must be accomplished in accordance with the requirements of 29 CFR 1910.401 to 440 including appendices. No person may fill more than one assignment if it an emergency response or other incident may require complete dedication to one of the tasks.

4.3 QUALITY CONTROL

4.3.1 The Contractor shall implement the quality control (QC) program submitted in paragraph 3.4.9. Quality assurance is the sole responsibility of the Contractor. The COR may delegate inspection responsibilities to members of the vessel's crew. The designated inspectors monitor the progress of work done by the Contractor. If, during the performance of work the Coast Guard Inspectors witness work that fails to meet the specifications, work that is otherwise unsatisfactory, or conditions which may lead to an unsatisfactory end product, the inspectors will alert the COR who will advise the Contractor informally of the deficiency. If the deficient work is not corrected within a reasonable period of time (as approved by the COR), the COR will officially alert the Contractor via a Contract Deficiency Report. The COR will initiate the report (a sample report may be found at http://www.uscg.mil/mlcpac/mlcp/Eng%20Support/mlcpv/files/platform_support/Arrival_Agenda_Pkg_Form.doc) and submit it to the Contracting Officer with copies to the cognizant NESU and SFLC LREPL. The Contracting Officer will forward the original to the Contractor.

4.4 INTERFERENCES

4.4.1 The prices offered shall include the cost of performing all the necessary removal, relocation, and/or reinstallation of ship's structure, materials, and equipment in connection with the work. The fact that an interference is not shown on a plan or specifically identified in the specification item is not justification for a contract change. A physical check of each job aboard the vessel prior to bidding is strongly encouraged.

4.4.2 Removal and Reinstallation of Interferences. The Contractor shall remove and reinstall all interferences and obstructions necessary to complete the required work without regard to whether interferences are indicated under specification work items. This may include the removal of machinery, piping, ducts, wiring, insulation, structure and anything else which interferes with the proper accomplishment of a work item. Prior to being disturbed or removed and in the presence of the Coast Guard Inspector, the Contractor shall operationally test each interference reporting by Condition Found Report any existing operational defects or deficiencies. While awaiting reinstallation and restoration, the Contractor shall maintain and protect interferences. When determined to be in the best interest of the Coast Guard & the Contractor and upon Coast Guard approval, interferences may be modified or altered and returned to essentially the same configuration and condition. They are then to be retested in the presence of the Coast Guard Inspector to verify proper operation. Otherwise, upon completion of required work, the Contractor shall restore interferences to their original configuration and condition, and in the presence of the Coast Guard Inspector retest for proper operation.

4.5 EXTERIOR/COMPARTMENT PRESERVATION/PROTECTION

4.5.1 To prevent damage arising from the performance of the contracted work, it shall be the responsibility of the Contractor to provide adequate protection to the vessel or any government property in areas where the work under items of these specifications is to be accomplished. Any damage resulting from the Contractor's failure to adequately protect the vessel or government property shall be repaired by the Contractor at no charge to the government.

4.5.2 Compartment Cleaning and Finishing – When the Contractor enters a compartment for the accomplishment of work, the Contractor is to notify the Coast Guard Inspector and jointly inspect the compartment prior to starting the work. All areas in way of the Contractor's work, whether or not directly repaired or altered, are to be restored to as clean and ship shape condition on completion of the work as when work was started. For example, the decks leading to work areas are to be cleaned and, if required due to unusual wear by the Contractor's crew, the work sections are to be either refinished or renewed so that they match the original condition of the decks.

4.5.3 Protective Coverings – All machinery, equipment, deck covering, insulation, and open vent terminals exposed to dust or drifting particles resulting from work under this contract shall be adequately protected. Methods of protection include, but are not limited to fire-retardant blanket (if required due to sparks or slag), canvas, or plastic coverings. All open vent intakes shall be completely covered with air intake screens fitted with 20 pores per inch polyester or polyurethane foam filtering material and shall be maintained by the Contractor to prevent excessive air restriction and/or damage to ventilation motors. Any damage resulting from failure by the Contractor to provide adequate coverings shall be repaired at the Contractor's expense. It shall be the responsibility of the Contractor to provide adequate protection to all deck covering in areas where the work under items of these specifications is being accomplished and on all main access routes to these areas. Acceptable protective covering will be either heavy cardboard, masonite (fiberboard), or plywood installed in sufficient quantities to adequately protect existing deck covering. Any protective coverings which are damaged during the course of work shall be immediately repaired or renewed by the Contractor.

4.5.4 Glass – All glass (port lights, windows, etc.) adjacent to areas interior and exterior where abrasive blasting, burning, or welding is required or accomplished shall be covered to prevent scarring and damage.

4.5.5 Ragged Edges – Care is to be taken to smooth off all ragged edges or burned off edges by grinding or filing to leave a smooth surface. Removal of fixtures, equipment, plating, piping, and fittings shall be made clean to the root and finished off. Where pipes, cables, and fittings are removed, the hole shall be blanked off flush with welded plates of like material and thickness.

4.5.6 Bracket and Supports – All pipes, cables, duct work, installed furniture, and equipment shall be bracketed, supported, and/or secured so as to carry the weight, prevent excessive vibration, and withstand inertia forces resulting from rolling and pitching.

4.5.7 Dirt/Debris/Trash – At the end of the work day, the Contractor shall remove all dirt, debris, trash, grinding dust and excess material from the vessel in areas and access to areas where work is being accomplished. The standard for this daily clean up is that the decks will be broom/vacuum clean, no liquids will be left standing on decks, and items which will not be further used for the work will be removed from the vessel. The goals behind this requirement are to remove fire hazards, to improve access within the vessel for routine and emergency movement of personnel, and to preserve the material condition of the vessel.

4.5.8 Painting

4.5.8.1 All burned or scarred areas, new structure, or plating resulting from any work performed by the Contractor shall be cleaned and repainted in accordance with this specification, the Coatings and Color Manual (Commandant Instruction M10360.3), or vessel paint schedule in that order of priority. The Coast Guard Inspector will inspect surface preparation prior to painting to assure conformance with specifications and COMDTINST M10360.3. Prime bare metal to prevent rusting. Re-preparation due to rust bloom shall be the responsibility of the Contractor at no charge to the Government.

NOTE: Local VOC restrictions may reduce number of paint system options permitted by the Coatings and Color Manual (Commandant Instruction M10360.3). Ensure VOC limits of painting systems used comply with local (where work is performed) requirements.

4.5.8.2 All steel and aluminum installed under this contract shall, prior to installation, be free of mill scale and corrosion. Except where otherwise specified, all steel shall be properly primed with one liberal coat of high build epoxy primer in accordance with the Coast Guard Coatings and Color Manual (COMDTINST M10360.3).

NOTE: Apply all coatings in strict compliance with manufacturer's application instructions.

4.5.8.3 Where new paint is to be merged into the existing paint system, feather into the surrounding paint. Apply paint to surfaces only if they are dry and free of sand, dust, grease, or any foreign material. Apply paint only if surface is five or more degrees F. above the dew point.

4.5.8.4 Paint must have an age less than the manufacturer's recommended shelf life. The Contractor shall supply certified laboratory reports showing product, batch number, and date of manufacture for each batch of paint to the designated Coast Guard Inspector.

4.5.8.5 Store paint for at least 48 hours prior to painting so it is maintained between 65 and 85 degrees F. Issue paint from storage so that it is applied before the paint temperature drops below 50 degrees F. Do not apply paint if the paint temperature is below 50 degrees. When ambient temperature drops below 50 degrees F. or wet weather is encountered, the Contractor shall ascertain whether the paint manufacturer recommends any substitutions of paint, alteration of paint formulas, or modified application instructions. Any substitution of paint is subject to approval of COR. Adhere to all of the manufacturer's recommendations.

4.5.8.6 All paints shall meet the environmental standards for the locale at which they are applied. This includes, but may not be limited to, meeting volatile organic compound (VOC) limits for coating systems.

4.5.8.7 Quality assurance inspections are required for all painting done in accordance with individual work items, and are to be recorded the Paint Log. The Paint Log will be filled out by the Contractor, verified by the Coast Guard Inspector and retained by the vessel for hull history. The forms may be downloaded from the Procurement section of the following Coast Guard web site:

<http://www.uscg.mil/mlcpac/mlcp/Eng%20Support/mlcpv/index.htm>.

4.5.9 Fluid Containers & Piping. The Contractor is responsible for containment, clean up, and disposal of any fluid spilled during course of their efforts (e.g., includes spills resulting from mishandling, disassembly & piping removal).

4.6 HOTWORK/WELDING

4.6.1 The Contractor and Coast Guard Inspectors shall comply with the hot work, atmospheric testing, ventilation, and safety precaution requirements contained in 29 CFR Part 1915, "Occupational Safety and Health Standards for Shipyard Employment", and Naval Ships' Technical Manual, Chapter 074, Volume 3, Gas Free Engineering.

4.6.1.1 The Contractor shall certify that a safe atmosphere exists in and about a compartment before starting any work which may produce the heat of ignition, sparks, or flames. The Contractor shall pump down, wipe up, ventilate, or take any other action required to make the compartment safe for personnel and the work to be performed. To facilitate hot work and upon Contractor request, Coast Guard will pump down bilges, tanks, and voids to their lowest level with installed pumping systems, and shift and/or off-load fuel. The Contractor shall be responsible for any further fluid removal below installed pump's low suction. Unless otherwise provided in the specifications, further fluid removal for any other non hot work purpose (e.g., weight distribution for drydocking) shall be the Contractor's responsibility.

4.6.1.2 Initial gas free certification shall be conducted by a NFPA certified Marine Chemist, except in such cases where a Competent Person is authorized to conduct certification in accordance with 29 CFR 1915. All tests shall be conducted with equipment meeting National Fire Protection Association standards. One current copy of the Gas Free Certificate shall be given to the vessel's Engineer, a copy shall be posted on the ship's quarterdeck, and a copy shall be posted adjacent to all accesses of the space, void, tank, or area where work is being performed.

4.6.1.3 The Contractor shall be responsible for monitoring and maintaining the "safe" condition during the entire time work is being performed. Monitoring shall be conducted by a NFPA certified Marine Chemist or a Competent Person. As a minimum, test/certification shall be made before each work shift or daily, whichever is more frequent, and duly recorded on all required certificates.

4.6.2 NO HOTWORK SHALL BE STARTED WITHOUT THE PERMISSION OF THE VESSEL'S OFFICER OF THE DECK (OOD). Permission to proceed with hot work shall be requested at least 24 hours in advance of planned hot work. The vessel's Quarterdeck Watch usually maintains a hot work log to ensure the OOD knows of ongoing work that can affect the safety of the vessel, where the hot work is taking place, whether a gas-free certificate is required, and whether a firewatch has been assigned. Unless otherwise indicated in the specifications, the Coast Guard will provide all firewatch personnel.

4.6.3 Unless otherwise specified, all welding and hot work shall be in accordance with MLC PAC Standard Specification 074, Welding and Allied Processes. This specification includes requirements for welders, fire watches, equipment, procedures, and safety precautions.

4.6.4 The Contractor shall submit a list of qualified welders, including welder's name, type of qualification, and date of last qualification test, to the COR at the Arrival Conference. All welders will check in at the vessel's Quarterdeck with the Officer of the Deck and have a Coast Guard firewatch assigned prior to commencing any "Hot Work". Prior to arc welding, the Contractor shall ground the hull of waterborne vessels fore and aft in accordance with Naval Ships' Technical Manual, Chapter 074, Volume 1, Welding and Allied Processes.

4.7 MAINTENANCE OF WATERTIGHT INTEGRITY

4.7.1 Upon completion of any work on a water or oil tight boundary (including hull), perform an "air hose test" (also known as liquid film bubble emission leak test) along entire length of affected boundary. This test shall be in addition to any NDT which may be specified. Apply a solution consisting of equal parts of liquid soap or detergent and glycerin, and 4.5 parts water, to one side of affected boundary, while applying air pressure or a jet of dry air to opposite side of affected boundary. For tanks and voids, pressurize compartment to 2 psi. For watertight compartments which are not tanks or voids, direct a jet of dry air on affected boundary. In all cases the nozzle shall

be as close as possible to item under test and the stream directed against all compartment boundaries, plate connections, closures, fittings and boundary penetrations in the manner most likely to reveal leaks. The nozzle diameter shall be 3/8 inch minimum and the pressure at the nozzle shall be 90 psi minimum. Closely inspect low pressure (solution) side of affected boundary in presence of the Coast Guard Inspector. Defects/discrepancies will appear as small bubbles in soap solution. Correct defects/discrepancies and retest. Repeat until a satisfactory bubble emission test is obtained.

4.8 SCRAP/SALVAGE

4.8.1 The COR shall determine which existing materials removed or disconnected are of scrap/salvage value to the Government. Though not indicated or specified for reuse in the new work, those materials shall remain the property of the Coast Guard. The material shall be placed on the deck of the vessel or Government truck, or packed/palletized and shipped by the Contractor (funded by the Coast Guard) as directed by the COR. Material not identified by the COR for retention shall be designated as scrap. The Contractor shall store scrap at no additional cost to the Government and dispose of the scrap upon completion of the contract. The Contractor shall submit a proposal, supported by an invoice from a scrap dealer, to credit the Government for the value of the scrap.

4.9 LABEL PLATES/TAGS

4.9.1 The Contractor shall provide label plates for all new and/or redesignated access fittings, compartments, electrical and electronic equipment and fittings, ventilation blowers and systems, valves, and any other equipment and/or fittings requiring them as indicated on installation drawings. The Contractor shall also provide label plates where they would normally be required as indicated on similar listings in the ship's label plate list. In the absence of guidance regarding the inscriptions, the plates shall be engraved with the inscriptions provided by the COR.

4.10 ABRASIVE BLAST & PAINT OVERSPRAY

4.10.1 The Contractor shall ensure that all abrasive blast material, paint particle/waste, and paint overspray is managed in accordance with all applicable federal, state and local environmental/personal exposure requirements and is contained in the work area, and not allowed to enter the atmosphere or water. This prevention may include, as necessary, the use of vacuum-blasting techniques, the construction of temporary shelters, and covering all openings, open areas, and other possible exits, including, but not limited to, scuppers, railings, freeing ports, ladders, and doorways. The Contractor shall install protective covering on all vessel carpeting and tile when major grit blasting (as determined by the COR) is to be performed during the contract.

4.10.2 Blast material used shall meet the environmental profile specified in Paragraph 3.4.12 (Hazardous Waste Minimization) of Mil-A-22262(SH).

4.11 DISASSEMBLY & INSPECTION ACTIONS

4.11.1 Any additional work resulting from required disassembly and inspection actions is typically disruptive and may cause availability schedule delays. To minimize adverse impact of such work, all required disassembly and inspection actions shall be accomplished before 25% of availability contract period has elapsed. Production schedule submitted to Coast Guard shall clearly show & schedule all disassembly & inspection actions.

4.12 CHANGE ORDER PRICING PROPOSALS

4.12.1 Change orders will be handled in accordance with the terms and procedures spelled out in the contract. Nothing in this section shall be construed to supersede the official contract document.

4.12.2 Change order pricing proposals for monetary deviations from the specification, such as work requests and quick chits, shall be submitted to the KO in electronic format.

4.12.3 The price proposal routing slip submitted by the contractor shall contain, at a minimum, the following information:

4.12.3.1 The work request or quick chit the proposal is in reference to.

4.12.3.2 A labor hour breakdown for the work requested, broken out by task and subdivided by trade. Requests for overtime shall be clearly delineated.

4.12.3.3 A summary of material, travel, and other miscellaneous costs broken out by line item or type of cost.

4.12.3.4 A summary of sub-contractor costs, including a quote or other documentation from the subcontractor.

4.12.3.5 Profit or G&A added to any of the above.

NOTE: The amount of profit added, the items against which profit will be applied, and whether G&A is applied against change orders is specifically outside the scope of this section.

4.12.3.6 The final price proposal.

4.12.3.7 The authorized submission authority.

4.12.4 A sample form, which conforms to all of the above requirements, is available in electronic format from the Coast Guard upon request.

5 ACCESS TO VESSEL

5.1 FUEL OIL OFFLOAD/ONLOAD

5.1.1 The Coast Guard reserves the right to call in an outside contractor to offload/onload fuel oil to the vessel while at the Contractor's facility. The Coast Guard will coordinate the fuel oil transfer evolution with the Contractor to ensure that fuel oil can be offloaded/onloaded prior to conducting any tests or operations that require the vessel to be at a full load condition.

5.2 WORK BY SHIP'S FORCE

5.2.1 The Coast Guard reserves the right for the vessel crew to perform routine maintenance or ship's work and to check all clearances and readings taken on equipment by the Contractor throughout the contract period. The vessel's crew work will not interfere with the Contractor in the execution of the contract. The vessel will refer to the Contractor's Production Control submittals in planning such work to prevent interferences.

5.3 SECURITY/CONTROLLED ACCESS

5.3.1 The Commanding Officer will prevent access to certain "Controlled Access" compartments by individuals with no operational requirement for access and no security clearance. The Contractor shall notify the Commanding Officer of the vessel, in writing, of the names of the Contractor personnel who will be performing work in controlled access compartments. The Contractor shall ensure its employees do not enter controlled access compartments without prior authorization. The procedures for access will be specified by the vessel. Generally, the vessel will prepare the compartment so that Contractor personnel can enter and work.

5.4 TECHNICAL REPRESENTATIVES

5.4.1 Refer to the "Access To Vessels" clause contained in Section H of this contract.

6 ENVIRONMENTAL

6.1 DEFINITIONS

6.1.1 Solid Waste: Rubbish, debris, sanitary waste, and other discarded solid materials resulting from industrial, commercial, and agricultural operations, and from community activities.

6.1.2 Rubbish: A variety of combustible and noncombustible wastes such as paper, boxes, glass, crockery, metal, lumber, cans, and bones.

6.1.3 Debris: Includes combustible and noncombustible wastes, such as ashes, waste materials that result from construction or maintenance and repair work, leaves, and tree trimmings.

6.1.4 Chemical Wastes: Includes salts, acids, alkalis, herbicides, pesticides, and organic chemicals.

6.1.5 Sanitary Wastes:

6.1.5.1 Sewage: Wastes characterized as domestic sanitary sewage.

6.1.5.2 Garbage: Refuse and scraps resulting from preparation, cooking, dispensing, and consumption of food.

6.1.6 Asbestos and Asbestos Materials: Asbestos means actinolite, amosite, antophyllite, chrysotile, crocidolite, and tremolite. Asbestos material means asbestos or any material containing asbestos such as asbestos waste, scrap, debris bags, containers, equipment, and asbestos-contaminated clothing consigned for disposal. Friable asbestos material means any material that contains more than one percent asbestos by weight and that can be crumbled, pulverized, or reduced to powder, when dry, by hand pressure.

6.1.7 Oily Waste: Includes petroleum products and bituminous materials.

6.1.8 PCB (Polychlorinated Biphenyls): Toxic and non-biodegradable materials used extensively under trade names, such as Pyranol or Askarel, as insulating cooling fluids in capacitors and transformers.

6.1.9 Hazardous Material (HM): Chemicals defined by OSHA 29 CFR 1915.1200 or under the U.S. Department of Transportation (DOT) regulations (Title 49 CFR Parts 100 through 199) which are determined by the Secretary of Transportation to present risks to safety, health, and property during transportation. The DOT regulations include requirements for shipping papers, package marking, labeling, transport vehicle placarding, and training of personnel handling hazardous materials.

6.1.10 Hazardous Substance: Substances defined under the Clean Water Act and CERCLA as chemicals which are harmful to aquatic life or the environment and are regulated, if spilled or otherwise released to the environment. The EPA has designated "reportable quantities" for each hazardous substance under CERCLA. If an amount equal to or greater than the reportable quantity of a hazardous substance is released to the environment, that spill must be reported.

6.1.11 Hazardous Waste (HW): Substances which are hazardous and have been discarded are regulated as hazardous waste under RCRA or State Health and Safety Codes and their implementing regulations. A waste is hazardous if it meets certain levels of reactivity, ignitability, corrosivity, or toxicity, or is otherwise listed as a hazardous waste in Title 40 CFR Part 261 or in the respective State Health and Safety Code or Code of Regulations.

NOTE: In addition to the usual Title 40 CFR Part 261 Hazardous Wastes, California manages Waste Oil and Zinc in certain concentrations as Hazardous Waste. Debris from zinc paint removal may be regulated. See the California Code of Regulations, Title 22, section 66261.24

6.1.12 Paint Containing Lead: Paint or other similar surface coating material containing detectable levels of lead or lead compounds. The definition for Paint Containing Lead is the same as that for lead-based paint. Definitions for lead-based paint found in other documents, do not apply to work under this contract.

6.1.13 Post-consumer Material: A material or finished product that has served its intended use and has been diverted or recovered from waste destined for disposal, having completed its life as a consumer item. Post-consumer material is a part of the broader category of "recovered material."

6.1.14 Recovered Material: Waste materials and byproducts which have been recovered or diverted from solid waste including post-consumer material, but such term does not include those materials and by-products generated from, and commonly reused within, an original manufacturing process.

6.2 APPLICABLE REGULATIONS

6.2.1 The statutes and regulations listed in the References section of these General Requirements form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

6.3 TEST RESULTS

6.3.1 Submit all test results taken as required by Section 6 of the General Requirements to the Contracting Officer or COR.

6.4 PERMITS & CERTIFICATES

6.4.1 Submit copies of all permits and certificates required for performance of this contract at the arrival conference.

6.5 HAZARDOUS MATERIAL IDENTIFICATION

6.5.1 Submit Material Safety Data Sheets (MSDS) for any materials defined as hazardous under the most current revision of 29 CFR 1910.1200. One copy of each MSDS shall be submitted to the Contracting Officer's Representative no later than the delivery date of the product. Two copies shall be submitted to the Contracting Officer.

6.6 KNOWN HAZARDS

6.6.1 (See note in paragraphs 6.9.1.6 and 6.9.1.7 for required contract proposal hazard assumptions.):

6.6.2 <<<[PCBs if applicable]
[if applicable] The Coast Guard has reason to believe that PCB's may be found, although not exclusively, in the following locations :>>>

6.6.3 <<<[Asbestos if applicable]
[if applicable] The Coast Guard has reason to believe that asbestos may be found, although not exclusively, in the following locations :>>>

6.6.4 <<<[Lead if applicable]
[if applicable] The Coast Guard has reason to believe that lead paint may be found, although not exclusively, in the following locations :>>>

6.7 SUBMITTALS

6.7.1 Environmental Management Plan: The Contractor shall have a written compliance program (the plan) outlining how the Contractor handles hazardous materials, petroleum products, hazardous substances, and

hazardous waste. The plan shall comply with all local, state, and federal laws and regulations when handling hazardous materials and hazardous or other wastes. For work involving the hazards of lead, the compliance program shall be in accordance with 29 CFR 1915.1025. The program shall include, but is not limited to, the following elements as appropriate: a general storage site plan, methods used to analyze whether generated material (blasting debris, paint waste, etc.) is hazardous, any hazardous waste licenses and permits, air district permits, spill response plans (see paras. 27.14 and 27.15), any permits required by the National Pollutant Discharge Elimination System, 33 U.S.C. 1342, air district permits, noise control plan, identification of hazardous waste and material. The Coast Guard has the right to require removal from the contract any subcontractor whose performance fails to comply with these and any other environmental laws and regulations or who fails to provide appropriate evidence of compliance with them. NOTE: a general format outline of an acceptable Environmental Management Plan can be found on our internet site:

http://www.uscg.mil/mlcpac/mlcp/Eng%20Support/mlcpv/files/procurement/ENVIRONMENTAL_MANAGEMENT_PLAN.doc.

6.7.2 Asbestos Documentation <if required>

6.7.3 Job Specific Statements of Procedures <if required>

6.8 STRICT COMPLIANCE WITH REGULATIONS AND STATUTES

6.8.1 Provide and maintain environmental protection during the life of the Contract to control pollution or to correct conditions that develop during performance of the contract. Comply with all Federal, State, and local laws and regulations pertaining to water, air, and noise pollution.

6.9 CONTROL & DISPOSAL OF WASTES

6.9.1 With the exception of materials specifically indicated or specified to be salvaged for reuse, and turned over to the Government, all non-hazardous wastes and demolished materials become the Contractor's property and shall be removed from the job site daily. Shipboard, store hazardous waste in corrosion resistant containers labeled to identify type of waste and date filled.

6.9.1.1 Hazardous Waste Disposal (for work performed at a Coast Guard facility): Any hazardous waste generated by work under this contract is the responsibility of the Contractor and shall be labeled and packaged in 49 CFR approved containers and in accordance with all other applicable Federal, state, and local laws and regulations. Along with the Government, the Contractor is contractually considered the co-generator of any hazardous waste. The Government shall make available its facility's EPA generator ID number for manifesting of hazardous waste. The Contractor shall identify, arrange and be responsible for the turnover of any hazardous waste, within the confines of the Coast Guard shore facility, to the facility's hazardous waste coordinator. The ship's hazardous waste coordinator shall be notified prior to any transfers of hazardous waste from ship to shore. The Contractor shall comply with applicable parts of 40 CFR 262. A manifest of hazardous waste shall be prepared by the Contractor and signed by the Government Hazardous Materials/Hazardous Waste Coordinator at the facility (hereinafter "HM/HW Coordinator"). The Contractor shall contact the HM/HW Coordinator for turnover of any hazardous waste. No Contractor or Subcontractor shall have the authority to sign a hazardous waste manifest using the facility's EPA generator ID number or remove contract generated hazardous waste from the Coast Guard facility without COR or Contracting Officer approval.

NOTE: Coast Guard facilities do not have Facilities Response Plans (see 33 CFR 154 Subpart F). It is the Contractor's responsibility to furnish the Facility Response Plan (FRP) when required for over the water liquids transfers to and from vessels. This requirement is applicable to transfers to/from vessels with an oil/fuel capacity of 250 barrels or more.

6.9.1.2 HM/HW Spill Response: Spill response shall follow the requirements of 29 CFR 1910. The Contractor shall be responsible for all Contract/Availability related spills. This contractual authority to assume cleanup direction is in addition to, and does not affect, the Coast Guard's regulatory authority to initiate federal spill control and cleanup operations under the National Oil and Hazardous Substances Contingency Plan, 40 CFR 300. Any Contractor provided spill response deemed inadequate by the Coast Guard will then come under the direction of the

Coast Guard and the Coast Guard will be reimbursed by the Contractor for their expenses. Contractor's responsibility includes removal of spill response waste from the work site upon completion of the cleanup. The transfer of hazardous waste shall be handled as noted in 6.9.1.1. For oil and hazardous material spills which are reportable under Federal, State, and local laws and regulations, the Contractor shall immediately notify the vessel's Hazardous Waste Coordinator and Contracting Officer along with the required agencies.

6.9.1.3 Manage and dispose of petroleum products and petroleum contaminated water in accordance with procedures meeting Federal, State, and local laws and regulations. Comply with 40 CFR 761 for removal and disposal of PCB containing articles.

6.9.1.4 Refrigerants: The Contractor shall at all times adhere to the requirements of the Clean Air Act, 42 U.S.C. 7401 et seq., and any implementing regulations. The Contractor may not knowingly vent or otherwise knowingly release or dispose of any Class I or Class II refrigerants, as defined in 42 U.S.C. 7671a, into the environment. The Contractor shall ensure that when servicing small appliances (refrigerators, freezers, water coolers etc.), high pressure systems, or low pressure systems, all servicing and recovery requirements for the appropriate level of equipment are met. Whenever reclaimed refrigerant is used, the Contractor shall provide the Coast Guard Inspector proof that the refrigerant meets the relevant standard of purity. All Contractor servicing technicians must have obtained the required level of Environmental Protection Agency certification necessary to service the equipment (i.e. small appliances, high pressure systems, low pressure systems, etc.) in question.

6.9.1.5 Lead and Chromium: The Contractor shall assume all paint removal operations involve lead-based paint. An adequate survey of the work-area has not been accomplished by the Coast Guard to determine the extent of lead-based paint. The Contractor will be responsible for determining the percentage of operations which involve lead-based paint. Prior to accomplishing any work involving the removal of lead-based paint, the Contractor shall contact the COR or the Contracting Officer and provide copies of the sample results.

6.9.1.5.1 Paint Containing Lead: The Contractor shall comply with all applicable Federal, State, and local laws and regulations regarding paint containing lead, when engaging in lead-based paint activities, or when addressing lead-based paint hazards and disposal. Whenever this contract provides more than one standard for regulating lead-based paint, the Contractor shall comply with the most restrictive law or regulation. Applicable laws or regulations include, but are not limited to: 16 CFR 1303, Ban of Lead-Containing Paint; 29 CFR 1910, Occupational Safety and Health Standards for General Industry; 29 CFR 1915.1025, Lead for Shipyard Employment; 29 CFR 1926.62, Occupational Safety and Health Standards for Construction Industry; 15 U.S.C. 2601, Toxic Substances Control Act, et seq. and the Residential Lead-Based Paint Exposure Reduction Act.

CAUTION: The inorganic zinc primer specified in COMDTINST M10360.3, Coatings and Color Manual may contain concentrations of lead, but not in excess of 0.06% by weight. COMDTINST M10360.3 specifies inorganic zinc for interior steel surfaces including machinery decks, voids, chain lockers, inaccessible areas, and fire zone bulkheads; exterior steel surfaces including weather decks, work areas, deckplates, superstructures, stack casings, freeboards, and inaccessible areas; and steel items subject to condensation. Additionally, zinc in certain concentrations is a hazardous waste in California. Debris from zinc paint removal may be regulated. See the California Code of Regulations, Title 22, section 66261.24.

6.9.1.5.2 Lead-Contaminated and Chromium-Contaminated Material Abatement: The Contractor shall not release lead, lead-contaminated or chromium-contaminated materials into the environment. Periodic air monitoring (as appropriate) for lead and/or chromium in the worker's breathing zone shall be performed during the course of any abatement work involving lead/chromium-containing materials. Submit results to the COR or Contracting Officer for review. The Contractor shall dispose of materials containing lead or chromium and likewise contaminated materials in accordance with any applicable hazardous waste laws and this contract. When handling and storing lead or chromium contaminated materials, the Contractor shall be responsible for compliance with 42 U.S.C. 9601-9675, 42 U.S.C. 6901-6991, and all other applicable Federal, State, and local environmental laws and regulations.

NOTE: The Contractor shall propose a price for this effort as if lead abatement procedures will be required for all paint removal requirements. No equitable adjustment will be granted to any contractor for the removal of any paint containing lead or chromium.

6.9.1.6 Asbestos: The Contractor shall assume all removal work involves asbestos. Prior to commencing work, the Contractor shall obtain all required samples to determine the levels of asbestos present (if any) and the personnel protection required. Copies of the sample results shall be provided to the COR prior to commencing work. In no case, will any asbestos be cut or otherwise treated without compliance with the Coast Guard Asbestos Exposure Control Manual (COMDTINST M6260.16). In addition to COMDTINST M6260.16, any asbestos abatement operations must comply with all federal, state and local laws and regulations including 40 CFR 61.150 and 29 CFR 1915.1001; National Emission Standards for Asbestos. Provide all notices to the EPA as required by 40 CFR 61.145 and other applicable state and local agencies prior to commencing asbestos removal work. Whenever this contract provides more than one standard for asbestos abatement, the Contractor must comply with the most restrictive law or regulation. Note that COMDTINST M6260.21 requires full compliance with OSHA Standards in 29 CFR 1910.1200. The Contractor shall provide forty-eight hours written notice to the Contracting Officer before commencing any asbestos work. Should there be any question as to the existence of asbestos in any material which may be disturbed, the Contractor is responsible for conducting hazard evaluations pursuant to OSHA requirements. The Contractor shall provide the COR with a description, location, and analysis results for all materials samples taken during personnel hazard evaluations before work commences in the affected area. Additionally, asbestos is a hazardous waste in California under certain circumstances, potentially triggering the provisions of sections 6.9.1.1 and/or 6.9.1.2 of this specification. See the California Code of Regulations, Title 22, section 66261.24.

NOTE: The Contractor shall propose a price for this effort as if asbestos abatement procedures will be required for all removal work. No equitable adjustment will be granted to any contractor for the removal of any asbestos.

6.9.1.7 VOLATILE ORGANIC COMPOUNDS (VOC)–REGULATIONS GOVERNING VOC EMISSIONS AND SOLVENT CONTENT IN PAINTS, COATINGS, SOLVENTS, ADHESIVES AND CLEANERS: The Contractor is required to comply with local VOC laws and regulations and shall have an acceptable VOC compliance plan. The plan shall demonstrate that the use of paints, solvents, adhesives and cleaners comply with local VOC laws and regulations. All required permits shall be obtained, prior to starting work involving VOC's, in the air quality district in which the work will be performed. The compliance plan shall be submitted by the Contractor to the COR prior to the start of work. An acceptable compliance plan shall contain, as a minimum: a listing of each material subject to restrictions in the air quality management district in question, the rule governing its use, a description of the actions which the Contractor will use to comply with the laws and regulations, and any changes in the status of compliance during the life of the contract. Alternatively, if no materials are subject to the restrictions in the air quality management district where the work will be performed, or if there are no restrictions, the compliance plan shall so state.

6.9.1.8 PCB (Polychlorinated Biphenyl) Containing Materials: PCBs (which are known to be hazardous to human health) may be present in various locations on board Coast Guard Vessels. These locations include those which contain non-armored electrical cable manufactured prior to 1982 (typically grey PVC jacketed cable), and in "Chromelock Tape" which may be used with some soft patches, sheathing, pipe hangers and lap-riveted joints. If the presence of PCBs is known or suspected in any area of work, comply with the Toxic Substances Control Act (TSCA), 15 U.S.C. 2601-2692; 40 CFR 761 et seq.; COMDTINST M 16478.1, Hazardous Waste Management Manual; COMDTINST M16478.2, Procurement, Handling, and Disposal of Polychlorinated Biphenyls; and all other applicable federal, state, and local laws and regulations related to handling and disposition.

6.10 DUST CONTROL

6.10.1 Keep dust down at all times, including non-working hours, weekends, and holidays. No dry power brooming is permitted. Instead, use vacuuming, wet mopping, wet sweeping, or wet power brooming. Air blowing is permitted only for cleaning non-particulate debris, such as steel reinforcing bars. No abrasive blasting is permitted unless dust is confined. No unnecessary shaking of bags is permitted where bagged material is used.

6.11 NOISE

6.11.1 Make the maximum use of “low-noise-emission products” as certified by EPA and described at 40 CFR Part 204. Comply with applicable portions of the Noise Control Act (NCA). The Contractor is responsible for complying with all other Federal, state, and local noise control laws and regulations.

6.12 OIL SPILL PLANNING

6.12.1 (Applicable to fixed or mobile facilities transferring oil, including fuel and oily wastes, to or from a vessel with a capacity 10,500 gallons or more.) Transfers of any amount of “oil”, as defined by 33 CFR 154.105, between the vessel and the Contractor’s facility, or a mobile tank facility (subcontracted or otherwise arranged by the Contractor) are subject to the oil spill response plan requirements of 33 CFR 154.1010 et seq. NOTE: Coast Guard facilities do not have Facility Response Plans (FRP) (see 33 CFR 154 Subpart F). It is the Contractor’s responsibility to furnish the FRP when required for bulk transfers of oil (as defined in the citation above) to or from vessels. The Contractor shall have an approved and current Facility Response Plan for any fixed or mobile facility transferring oil to or from the vessel whether the transfer is done by the Contractor or Subcontractor. A current USCG MSO COTP-approved Facility Response Plan per 33 CFR Section 154.1017 will be considered acceptable in meeting this requirement. Similarly the Contractor shall have any other applicable Facility Response Plans, required by federal, state, or local requirements. The required plans shall be made available for review by the COR at the arrival conference (See para 3.3).

6.13 USE OF RECOVERED MATERIALS

6.13.1 Vendors shall to the greatest extent possible and at no additional cost to the Coast Guard use recovered materials that meet existing performance standards when performing work under this specification. It is the Government’s policy to use, in a cost-effective manner, products composed of the highest percentage of recovered materials practicable without adversely affecting performance requirements or exposing vendor employees to undue hazards from the recovered materials.

ITEM 1: PRODUCTION CONTROL, GANTT BAR CHART PROVIDE
MI_04100_JSP_0506_GENERAL

1 SCOPE

The intent of this item is to prepare a production control chart for accomplishment of the work items. This document shall be updated throughout the availability and furnished to Coast Guard personnel to track the progress of work and to coordinate Government witnessed inspection and testing.

Government Furnished Property: NONE

2 REFERENCES

Coast Guard Drawings: NONE

Applicable Documents:

[MLCPAC Standard Specification 041, 1/1/2000; Production Control, Gantt Bar Chart](#)

3 REQUIREMENTS

The Contractor shall provide all labor and material to accomplish the following in accordance with the General Requirements.

3.1 Provide all labor and material to prepare a Gantt chart for work items in accordance with the MLCPAC Std Spec 041. The Gantt charts shall show task interdependency (scheduling logic) for the work items.

3.2 Submit weekly progress reports for the entire availability period and any extensions thereof in accordance with the MLCPAC Std Spec 041.

3.3 The Contractor shall submit two paper copies of the Gantt chart or electronics copies in one of the following formats to the Contracting Officer no later than one week after contract award.

Microsoft Word Format

Microsoft Excel Format

Adobe PDF Format

3.4 Inspection and Disassembly Plan: — To minimize adverse impact on the production work, the Contractor shall perform disassembly and inspection as required in the D-Items within initial 25 % of the contract availability. The Gantt chart submitted to the Coast Inspector shall clearly show and schedule all inspection and disassembly as required in the D-Items.

3.5 All work performed under these specifications that affects navigational or electronics equipment normal operation (powered from the ship service diesel generators) shall be completed no later than 72 hours prior to the scheduled completion date of the availability.

3.6 Coordinate all inspections with the designated Coast Guard Inspector to minimize production delays.

ITEM 2: MAIN ENGINE LIFTING AND REALIGNMENT

Snn-nnn_23300_JAH_0307_378W_720

1 SCOPE

The intent of this item is to lift the engine block to allow access to the lower crankshaft ring gear, and then realign the designated main engine to the reduction gear. Only the No. 1 Engine will be repaired.

Government Furnished Property:

Description	Manufacturer	Part Number	NIIN	Qty	UOI
Lower Crankshaft Vertical Drive Gear	Fairbanks-Morse			1	ea
Engine Block Lifting Tool (Contractor to provide associated bolts)	Fairbanks-Morse			2	ea
Engine Lift Stands	NESU			4	ea
Lower Crankshaft Main Bearings	Fairbanks-Morse			1	set
Diesel Engine Quill Shaft Bearing	Philadelphia Gear			1	ea
Flex Plates	Fairbanks-Morse			1	set

2 REFERENCES

Coast Guard Drawings:

378-FRAM-W 182-2, Rev -, Main Propulsion Foundation Plan & Elevations
378-FRAM-W 182-5, Rev B, Bolt, Chcks Prpln Dsl, Gas Turb & Red Gr Arr & L/M

Applicable Documents:

CG Tech Pub 3254A, Manufacturer's Instruction Book–SWBS Group(s) 233
CG Tech Pub 3254B, Manufacturer's Instruction Book–SWBS Group(s) 233
CG Tech Pub 3257, Manufacturer's Instruction Book–SWBS Group(s) 241-242
[The Society for Protective Coatings SSPC-SP 1, Rev -, 11/1/2004; Solvent Cleaning](#)
[The Society for Protective Coatings SSPC-SP 3, Rev -, 11/1/2004; Power Tool Cleaning](#)
[COMDTINST M10360.3, Coatings and Colors Manual, Revision C](#)

3 REQUIREMENTS

The Contractor shall provide all labor and material to accomplish the following work:

3.1 BACKGROUND DATA

During a recent inspection, it was noted that the lower pinion gear and vertical drive gear were damaged. Because the pinion gear and drive gear are matched sets, the lower vertical drive gear must be renewed, as well as the lower pinion gear. In order to replace the lower crankshaft drive gear, the engine must be lifted approximately 2 to 3 ft and the oil pan dropped to allow removal of the gear. The work will be performed in conjunction with on-going work on the engine being performed by the Coast Guard. The Coast Guard will be responsible for draining fluids from the engines and removing most parts as necessary except those noted in the following paragraphs. The contractor will be responsible for lifting the engine, lowering the pan and lower crankshaft, removing and installing new lower ring gears, and restoring the lower crankshaft and oil pan.

The Coast Guard will drain the lube oil, jacket water, and raw water from the engine prior to the contractor commencing work. The upper crankshaft must be disconnected and must be rigged out of the way. Ship's force will disconnect and remove all of the pistons and connecting rods from the engine. Ship's force will disconnect and remove both turbochargers and the roots blower from the engine.

The contractor must remove several remaining piping connections on the engine and cap them. The contractor must remove the coupling guard and the shafting guard between the engine and the reduction gear. The contractor must disassemble the Diesel Engine Clutch to allow removal of the Diesel Engine Quill Shaft. The contractor must remove the Diesel Engine Quill shaft to allow for laser alignment of the diesel engine to the reduction gear. The contractor will also be responsible for removing interferences in way of lifting the engine, installing padeyes as required to lift the engine block, lifting the block, dropping the oil pan, helping the Government Furnished Technical Representative to change out the ring gear, the reinstalling and realigning the engine to the reduction gear. The Coast Guard will complete the rest of the engine overhaul.

3.2 GENERAL

3.2.1 Tag-Outs – Secure, isolate, and tag-out all affected mechanical, piping, and electrical systems. Ship's Force will accomplish tag outs, but contractor shall review and verify all tag outs.

Note: Tag outs must include the No. 1 Main Diesel Engine and the No. 1 Boiler. The boiler will have exhaust system piping removed to allow access to lift the engine block.

3.3 GAS FREE CERTIFICATION

3.3.1 Clean the engine room and engine room bilges around the No. 1 Diesel Engine and Reduction Gear in way of all hot work required by the work in this specification item. Remove all oil, grease and flammables from the hot work areas. Ventilate the designated areas to obtain gas free certification.

3.3.2 Gas free and certify the designated compartments/tanks in accordance with the General Requirements. The designated compartments/tanks must be certified as "Safe for Personnel – Safe for Hotwork" for the duration of work performed on this item.

3.3.3 Gas Free Certificates indicating the current status of each compartment/tank shall be posted on the Quarterdeck and at each open access to the compartments/tanks. Provide one copy to the Coast Guard Inspector.

3.4 OVERHEAD WIPE DOWN

3.4.1 Prior to commencing work, protect the open sections of the engine with a drop cloth to prevent contamination of the engine.

3.4.2 Wipe down the overheads above the No. 1 Main Diesel Engine and above the No.1 Reduction Gear, including all framework, stiffeners, piping, exhaust piping and other items in the overhead to remove dirt and dust which could fall into the engine or reduction gear during work.

3.5 AVAILABILITY LOCATION AND DURATION

3.5.1 The work in this specification item will be performed at the Coast Guard cutter's assigned pier at BSU KODIAK, Alaska. The contractor is responsible for all security and logistics requirements normally associated with working at this location.

3.5.2 The performance period will be as specified in the contract. Because maintaining the performance schedule will require joint cooperation between ship's force and the contractor, performance delays by either party may delay overall contract completion. Any delays in the contract caused by s/f resulting in contract extension will not automatically be grounds for compensation to the contractor. To receive compensation for a contract extension, the contractor must demonstrate that the extension required the performance of additional work above and beyond what

is already required under the specification or resulted in additional mobilization cost (i.e. additional days on the job site, or additional trips required). Inconvenience caused to the contractor that does not result in the performance of work not otherwise required will not be considered justification for payment.

NOTE: The above paragraph should not be construed to limit the government's ability to collect financial recompense from the contractor, in accordance with applicable laws, for delays in contract completion caused by untimely performance of contracted work, poor work quality, or any other delay caused by the contractor.

3.5.3 The contractor's work in this specification item will be broken up into various sections to allow ship's force to perform engine disassembly, inspections, and reassembly. The contractor can anticipate that his work will be broken up in the following manner:

- a. Conduct preliminary engine alignment check.
- b. Rig and remove interferences in Engine room overhead, and lower oil pan. Install and test padeyes in the overhead to allow lifting of engine block. Lifting points and padeye testing and locations are specified in section 3.7. The contractor will be required to rig the engine upper crank to an out of the way location in the engine room.
- c. Break to allow ship's force to disassemble and inspect engine.
- d. Lift the No. 1 Main Diesel Engine. Install GFM Support Stands under engine block. Lower and support lower crankshaft.
- e. Ream new bolt holes and install new lower ring gears.
- f. Restore Lower Crankshaft and lower engine block.
- g. Break to allow ship's force to reassemble engine. Ship's force will be replacing lower crankshaft main bearings during this period. The contractor supplied Fairbanks-Morse Technical Representative will be required to oversee Ship's Force engine disassembly, repair, and reassembly.
- h. Realign main engine. Weld up, ream, and install ten (10) new fitted bolts on engine foundation. Conduct alignment checks only after reassembly of engine components on the engine.
- i. Reassemble interferences.
- j. Clean up contractor waste in engine room.
- k. Break to allow s/f to complete engine reassembly

3.5.4 The period of performance for the above work is as follows. The contractor will be provided with six (6) days to complete (a) and (b); 12 days to complete (d), (e), and (f); 10 days to complete (h); and four (4) days to complete (i) and (j). For planning purposes, s/f intends to use 12 days to complete (c), three (3) weeks to complete (g) and 5 days to complete (k); these days are estimates and may change following contract start.

3.6 INTERFERENCES

3.6.1 The Contractor shall remove, modify, or protect all interferences to the work. All interferences that are removed shall be tagged to facilitate proper reinstallation. Ensure that all removed equipment is kept in a clean, dry, protected location. Obtain verification from the Coast Guard Inspector for the protective measures taken for equipment not removed. Any interference (including SSDG components and piping) removed or protected during the course of this work shall be reinstalled and returned to its original condition in accordance with the General Requirements. All items, except structural members, shall be tested jointly by the Contractor and CG Inspector before removal and after reinstallation. In the presence of the Coast Guard Inspector, inspect and test all equipment and systems that will be disturbed during the performance of this work to document their original condition. Submit

a Condition Found Report for all such equipment and systems noting any existing (pre-work) discrepancies in their operation.

3.6.2 Specific Interferences to Be Removed

Note: The interferences listed below are most of the major interferences that must be removed by the contractor. The list is not intended to be totally inclusive and the contractor is responsible as noted in the paragraph above to remove any additional interferences in way of the work being performed.

3.6.2.1 Miscellaneous Deck Plates and Framing

3.6.2.1.1 Disconnect and remove deck plating and framing located on the deck above the No. 1 Main Diesel Engine. The deck plating framing is bolted in place above the engine. Match mark all pieces to aid in reassembly and transport the pieces to a locations off the cutter.

3.6.2.1.2 After completion of engine block realignment, reinstall the deck plating and framing in its original locations.

3.6.2.2 Exhaust Piping Located in the Overhead Above the No. 1 Main Diesel Engine

3.6.2.2.1 Remove lagging blankets on the flange connections on the exhaust piping in the overhead above the No. 1 Diesel Engine. Disconnect and remove the exhaust piping from the No. 1 Boiler and from the No. 1 Main Diesel Engine which is located in the overhead above the No. 1 Diesel Engine. Rig the removed piping to an out of the way location in the engine room. Cap the exhaust piping where flange connections were broken to ensure that no contamination enters the exhaust systems of the other equipment. Use a minimum 1/4 inch thick plywood cover on each end of the exhaust systems. Store the lagging blankets which were removed from the flange connections in a safe and dry location for later reuse.

3.6.2.2.2 After completion of engine block realignment, reinstall the exhaust piping in its original locations. Use new gaskets. Reinstall the flange blankets.

3.6.2.3 No. 1 Main Diesel Engine Upper Crankshaft

3.6.2.3.1 Contractor shall disconnect and rig the upper crankshaft from the affected engine up over the opposite engine. The contractor shall set the crankshaft over the opposite engine.

3.6.2.3.2 Ensure the crankshaft is properly supported.

3.6.2.3.3 After completion of engine block realignment, rig the crankshaft back to the engine to allow ship's force to reinstall the crankshaft upon completion of engine repairs.

3.6.2.4 Decking on deck above MDE

NOTE: During the previous engine realignment, the contractor needed to install a lifting bar and padeyes in the overhead above the main diesel engines. Welding the padeyes to the overhead damaged the terrazzo type decking of the deck in the area above the MDEs. The contractor is required to renew decking damaged in these areas.

3.6.2.4.1 Remove deck covering in way of welding in the overhead above the affected MDE. Minimum area for removal shall be one square foot. Contractor is responsible for removing all decking damaged during welding. Obtain concurrence from the Coast Guard inspector regarding areas removed.

3.6.2.4.2 Power tool clean areas where deck covering was removed to SSPC SP-3, a tight paint film.

3.6.2.4.3 Coat the deck with one coat of epoxy primer and allow it to dry.

3.6.2.4.4 Provide and install new deck covering templated in type and color from existing. Mate up decking with existing to provide a smooth transition.

3.6.2.5 Plenum Chamber

3.6.2.5.1 Remove the plenum cover for the port plenum chamber. Renew the gasket and associated mounting hardware.

3.6.2.5.2 Remove the “soft patch.”

3.6.2.5.3 Disassemble and remove the intake screen cage, aka the “squirrel cage” and transport to a storage location off the ship.

3.6.2.5.4 Disassemble and remove air inlet ducting from the plenum to the diesel turbo; renew fasteners, gaskets, and renew associated mounting hardware as necessary.

3.6.2.5.5 Restore the above mentioned items following work completion.

3.6.2.6 Main Diesel Engine Quill Shaft Rotating Equipment Guard, and Coupling Guard

3.6.2.6.1 Disconnect and remove the rotating equipment guards between the quill shaft and the engine and on the engine to quill shaft coupling. Rig the guards off the cutter to a safe storage location.

3.6.2.6.2 After completion of engine block realignment and engine repairs, return the engine guards to the lower level of the engine room of the cutter and reinstall the guards.

3.7 LIFTING POINTS

Note: Lifting points or padeyes will be needed to lift the engine block and to suspend the engine block and lower crankshaft while removing the lower crankshaft vertical drive gear. Padeye locations are to include the Engineroom, as well selected locations within the boiler flats.

3.7.1 The contractor shall install and test new lifting points and padeyes prior to lifting the engine block. The quantity and the size of the lifting points or padeyes that are needed beyond those existing shall be based on information gathered during a shipcheck of the Cutter and shall be furnished by the contractor with his bid.

3.7.1.1 Calculate the engine block weight, including the lower crankshaft and lower crankcase compartment (oil pan).

3.7.1.2 Demonstrate to the Coast Guard Inspector and the Technical Representative that there are sufficient padeyes for lifting the engine block as described above.

3.7.1.3 Padeyes shall be sized in accordance with the diameter of the stock directly above the hole or eye of the padeye.

3.7.1.4 Testing: All padeyes installed by the Contractor shall be tested with the test force applied in the same direction as the working load is normally applied as verified by the Coast Guard Inspector.

3.7.1.5 The following proof loads will be used in testing all padeyes installed by the contractor.

Padeye Size	Working Load	Proof Test Load
1/2”	2,000 lbs.	3600 lbs.

3/4"	5,800 lbs	8,700 lbs
1"	9,800 lbs	14,700 lbs.

3.7.1.6 A dynamometer shall be installed in the test lead immediately adjacent to the padeye to record the actual test load being applied. supply a copy of the dynamometer calibration certificate to the Coast Guard Inspector.

3.7.1.7 The test proof loads listed in Table 1 are static loads. Dynamic loading will not be used in this test procedure.

3.7.1.8 Conduct dye penetrant weld inspection on all new welds. Dye penetrant weld inspections shall be in accordance with NAVSEA T9074-AS-GIB-010/271. Test acceptance standards shall be in accordance with MIL-STD-2035. Repair all weld deficiencies and retest until correct.

3.7.1.9 After inspection and testing, prime and paint all new padeyes with one coat of epoxy paint. Repair any disturbed insulation and touch up paint in accordance with COMDTINST M10360.3 to match surrounding area. Affix a label plate, inscribed with the test load and date tested adjacent to each padeye. All padeyes installed by the contractor shall remain in place at the end of the contract unless removal is required to facilitate reinstallation of equipment.

3.8 TECHNICAL REPRESENTATIVE

3.8.1 Provide a Technical Representative specializing in alignment of major equipment to provide procedural direction and technical guidance to the Contractor during the performance of this work item to oversee the alignment of the engine and reduction gear.

3.8.1.1 The Technical Representative will be on-site whenever alignment readings are to be taken and during disassembly of the reduction gear quill shaft and Diesel Engine Clutch.

3.8.1.2 The Technical Representative will attend the cutter during dock and sea trials.

3.8.2 The contractor shall provide a Technical Representative from the Fairbanks-Morse to provide procedural direction and technical guidance to the Contractor during the performance of this work item whenever work on the engines is required. Additionally the contractor supplied technical representative will assist ship's force in disassembly, repair, and reassembly of the engine, including installation of new lower crankshaft main bearings.

3.8.2.1 The Fairbanks-Morse Technical Representative will be on-site when final alignment readings between the engine and reduction gear are taken and during events that require removal and reinstallation of major engine parts.

3.8.2.2 The Fairbanks-Morse Technical Representative will attend the cutter during dock and sea trials.

3.8.3 The contractor will provide a Philadelphia Gear Technical Representative to observe the alignment process and to observe all disassembly and reassembly of the reduction gear in this specification item.

3.8.3.1 The contractor will provide the Coast Guard Inspector with 48 hours prior notice of times when the Fairbanks-Morse Technical Representative will be required.

3.9 GENERAL INFORMATION CONCERNING MAIN ENGINE MOUNTING AND ALIGNMENT AND LASER ALIGNMENT EQUIPMENT

3.9.1 The engine is held in place using chock fast and fitted bolts as described in CG Dwg 378 FRAM W 182-2 and CG Dwg 378 FRAM W 182-5.

3.9.2 The main diesel engines are separated from their respective reduction gear by the diesel quill shaft. The quill shaft will be removed during alignment. The contractor must provide laser alignment equipment which is capable of reading over this distance while the diesel pinion shafts and the diesel crank shafts are turned separately. The equipment must be capable of taking readings as the laser emitter is swept past the target.

3.10 MAIN ENGINE REPAIRS

Note: Take extreme precautions during the work listed below to ensure that no contaminants are allowed to enter the reduction gear housing.

3.10.1 Perform the following work under the guidance of the Fairbanks-Morse Technical Representative using information from the Main Diesel Engine technical manual.

3.10.1.1 Ship's force has disconnected the blower from the aft end of the engine.

3.10.1.2 Ship's force has disconnected and removed the A Bank and B Bank turbochargers from the front of the engine.

3.10.1.3 Remove the Vulcan coupling from the aft end of the engine. Set the coupling aside for later reinstallation.

3.10.1.4 Support the quill shaft during disassembly.

3.10.2 Perform the following work under the guidance of the alignment Technical Representative using information from the Reduction Gear Engine technical manual.

3.10.2.1 Remove the forward and aft oil seals from the reduction gear housing.

3.10.2.2 Disassemble the Diesel Engine Clutch as required to remove the quill shaft.

3.10.2.3 Remove the coupling assembly from the end of the quill shaft.

3.10.2.3.1 Match mark all flex plates to allow reassembly in the same order as removal. Mark the location of the coupling on the quill shaft prior to removal to ensure installation in the same place upon reassembly.

3.10.2.4 Disconnect the quill shaft from the diesel engine and remove the quill shaft from the reduction gear.

3.10.2.4.1 When removing the coupling at the end of the quill shaft, mark where the coupling is attached to the quill shaft, ensure that the coupling is installed at the same location upon reassembly of the quill shaft. The quill shaft will be renewed during this availability.

3.10.3 **PRELIMINARY ALIGNMENT CHECK**—Using laser or optical alignment equipment measure and record the initial alignment of the reduction gear to the main engine. Take alignment readings in the presence of the SWRMC Technical Representative and the Coast Guard Inspector. Provide a CFR to the Coast Guard Inspector.

Note: Engine alignment is to be checked between the hours of 2400 and 0600 to ensure that the foundations have not been affected by temperature gradients caused by uneven heating of the cutter from the sun.

3.10.4 Measure and record the distance between the aft end of the foundation of the diesel engine and the forward end of the foundation of the reduction gear to ensure that the engine is relocated correctly in the fore and aft direction.

3.10.5 After initial alignment readings, install gasketed covers on openings to the reduction gears to ensure no contamination enters the reduction gears.

3.11 MAIN ENGINE LIFTING

Perform the following work under the guidance of the Fairbanks-Morse Technical Representative.

3.11.1 Disconnect remaining lube oil, water, and air piping from the diesel engine.

3.11.2 Remove the flywheel from the crankshaft.

3.11.3 Install the engine block lifting tools (spreader bars).

3.11.4 Remove the engine foundation mounting bolts. Match mark all bolts for later reinstallation in their original locations.

3.11.4.1 Clean and dye penetrant test each bolt. Look for any evidence of cracking and verify that bolts are good for reuse.

3.11.5 Rig the engine and lift the engine as required to remove the lower crankshaft vertical drive gear.

3.11.6 Rig and support the lower crankshaft.

3.11.7 Support the lower crankcase compartment to provide controlled lowering. Disconnect the lower crankcase compartment and lower the lower crankcase compartment as required to remove the flywheel and lower crankcase vertical drive gear.

3.11.8 Remove the lower crankshaft vertical drive gear.

3.11.9 Install the new lower crankshaft vertical drive gear. Purchase new oversized bolts used to install ring gear from Fairbanks-Morse. Ream and install new fitted bolts between the vertical drive gear and the lower crankshaft.

3.11.10 Install the new vertical drive gear on the upper crankshaft. Ream and install new fitted bolts between the vertical drive gear and the upper crankshaft.

3.11.11 Under guidance of the Fairbanks-Morse Technical Representative, lap each of the lower crankshaft main bearing journals. Measure each of the bearing journals. Provide a condition found report (CFR) to the Coast Guard Inspector.

3.11.12 Under the guidance of the Fairbanks-Morse Technical Representative and in the presence of the Coast Guard Inspector, install the set of new lower crankshaft main bearings.

3.11.13 Wipe out the lower crankcase compartment. Inspect the compartment with the Fairbanks-Morse Technical Representative and verify that all dirt and contaminants have been removed.

3.11.14 Renew in kind the gasket(s) between the block and the lower crankcase and the forward and aft crankshaft oil seals. Clean all gasket mating surfaces.

3.11.15 Raise the lower crankcase compartment back into position and bolt it into place.

3.11.16 Lower the engine to its original location to start the realignment procedures.

3.11.17 Reinstall the flywheel.

3.12 FOUNDATION BOLT HOLE REPAIR

The foundation holes have been enlarged to the point where it is necessary to weld up the fitted bolt holes and re-drill the holes.

3.12.1 Weld up ten (10) holes in the engine foundations. Weld up three (3) holes on each side on the aft end of the engine foundation and two (2) holes on each side on the forward end of the engine foundation.

3.12.2 During engine alignment, re-drill and ream these foundation holes to accept the new fitted bolts.

3.13 FOUNDATION PREPARATION

As noted in CG Dwg 378 FRAM W 182-5, the main engine is on a chockfast (resin) base.

Note: This work will be performed prior to lowering the engine.

3.13.1 Remove the existing chockfast.

3.13.2 Solvent clean the entire engine foundation using emulsion or alkaline cleaners in accordance with SSPC-SP 1, to remove all oil, grease, dirt, debris, chemicals, and rust to provide a good clean surface for paint.

3.13.3 Fabricate and weld new jacking plates to assist in engine alignment. Jacking plates are to be made of 4" x 4" gussets from 3/4" plate steel. Drill and tap jacking plates for 7/8" x 9 jacking bolts. Six (6) jacking plates will need to be fabricated and installed. Use the collision blocks on the forward end of the engine to allow adjusting the engine aft by grinding off the fit plate and drilling and tapping jacking screw holes. The jacking plates and modifications to the collision blocks are described in the Rough Log.

3.13.4 Touch up damaged areas of paint on each foundation with one coat of epoxy paint to match the existing paint system in accordance with COMDTINST M10360.3.

3.13.5 Chase the threads on each of the jacking (lifting) screw locations on the engine. The engine has six (6) jacking screw locations in addition to the jacking plates being newly fabricated and installed.

3.14 MAIN ENGINE REALIGNMENT

Note: The following work must be completed after the cutter is afloat with normal operating levels of fuel, water and ballast.

Note: Engine alignment is to be checked between the hours of 2400 and 0600 to ensure that the foundations have not been affected by temperature gradients caused by uneven heating of the cutter from the sun.

Perform the following work under the guidance of the alignment Technical Representative.

3.14.1 Using laser alignment tool and in the presence of the alignment Technical Representative, align the engine to the criteria listed below:

ENGINE TO REDUCTION GEAR ALIGNMENT CRITERIA

	Diesel Engine Location
Align Main Diesel Engine above Diesel Pinion Gear Shaft Center, 0.008 inch	+ 0.008 inch
Align Main Diesel Engine inboard of Diesel Pinion Gear Shaft Center 0.003 inch	Inboard 0.003 inch

ENGINE TO REDUCTION GEAR ALIGNMENT CRITERIA

Angular Off-set	0.0005 inch per inch
Parallel Face	0.005 inch

3.14.2 Measure and record the alignment data for the main engine. Alignment will be witnessed by the alignment Technical Representative and the Coast Guard Inspector.

3.14.2.1 Pour new chockfast resin for new mounts as described in CG Dwg 378 FRAM W 182-5. Allow the chockfast resin sufficient time to properly cure before proceeding with any additional work.

Note: The cure time for Chockfast Orange may be up to 36 hours based on temperatures in the engine room. The contractor shall follow all manufacturer recommended cure times.

3.14.2.1.1 Provide and install surface contact thermometers on the engine block and foundation to assist in determining cure times for Chockfast Resin. Install a hanging thermometer in the vicinity of the engine block.

3.14.2.1.2 Measure and record engine block and foundation surface temperatures and area temperature at the beginning of the chockfast pour and every eight (8) hours until the chockfast has cured.

3.14.2.1.3 Provide a condition found report noting temperatures and cure times to the Coast Guard Inspector.

3.14.3 After pouring the new chockfast resin and allowing the resin to cure, ream new bolt holes in engine foundations.

3.14.4 Fabricate and install new body bound foundation bolts for the engine. Materials and body bound bolt fits are listed in CG Dwg 378 FRAM W 182-5.

3.14.4.1 The contractor shall bid on fabricating ten (10 new bolts).

3.14.4.2 Measure and compare bolt sizes to hole sizes for existing bolts.

3.14.4.3 Ream out chock fast in the bolt holes.

3.14.4.4 Ream ten (10) new holes for the ten (10) new foundation bolts being fabricated.

3.14.5 Install the remaining foundation bolts and torque all foundation bolts.

3.14.6 Allow the engine to sit for 24 hours and re-torque the foundation bolts.

3.14.7 Measure the final alignment of the diesel engine to the reduction gear. Record the data. Alignment will be witnessed by the SWRMC Technical Representative and the Coast Guard Inspector.

3.15 REDUCTION GEAR REPAIR AND REASSEMBLY

Perform the following work under the guidance of the alignment Technical Representative and using the technical manual for guidance.

3.15.1 Prior to reinstalling the quill shaft, inspect the condition of the pinion bearing. Measure and record the depth of the pinion bearing in the pinion bearing bore. Record the amount of overhang on the pinion bearing outside of the pinion bearing bore.

3.15.2 Under the guidance of the Philadelphia Gear Technical Representative, install the new GFM quill shaft bearing.

3.15.2.1 Prior to installing the new bearing, measure and inspect the diesel pinion shaft bore where the bearing fits and measure and inspect the bearing clearance on the quill shaft journal. Verify all dimensions are correct with the Philadelphia Gear Technical Representative.

3.15.2.2 Machine and polish the new GFM quill shaft bearing to dimensions specified by the Philadelphia Gear Representative. Fit the bearing to the quill shaft.

3.15.3 Install new GFM flex plates on the quill shaft.

3.15.3.1 Verify that the number and thickness of the new flex plates is the same as that of the old flex plates.

3.15.3.2 Verify with the Philadelphia Gear Technical Representative that the oil passage in the quill shaft lines up with the quill shaft bearing oil groove when the new flex plates are installed on the quill shaft.

3.15.4 Reinstall the quill shaft in the Reduction Gear. Support the quill shaft prior to connection to the diesel engine. Reinstall the coupling on the end of the quill shaft.

3.15.4.1 Verify that the coupling is in line with the original match marks in the presence of the Coast Guard Inspector.

3.15.5 Measure and record the location of the quill shaft in the pinion bearing bore. Use this measurement to check on the engine alignment. Verify that the quill shaft is located in the pinion bore approximately 0.006 above the center of the pinion bore and 0.003 inch to the right of the center of the pinion bore. Submit a condition found report to the Coast Guard Inspector.

3.15.5.1 Review the location of the quill shaft in the pinion bearing bore with the Coast Guard Inspector and with the Reduction Gear Technical Representative.

3.15.6 Reinstall the forward and aft oil seals on the reduction gear.

3.15.7 Reassemble the clutch.

3.15.7.1 Verify that the clutch hub is in line with the original match marks in the presence of the Coast Guard Inspector.

3.16 MDE REASSEMBLY

3.16.1 Reassembly of the main diesel engine will be conducted by NESU and Ship's Force personnel. No additional contractor services are required for engine reassembly.

3.17 RESTORATION

3.17.1 Prepare and paint all new and disturbed surfaces in accordance with the General Requirements.

3.17.2 Restore all interferences to their original condition in accordance with the General Requirements.

3.17.3 Clearing Tags – Restore all affected systems and clear any remaining tags except where ongoing engine overhaul work by ship's force is involved.

ITEM 3: TEMPORARY SERVICES, DOCKSIDE, HOME PIER
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1 SCOPE

The intent of this item is to make the cutter safe and habitable during the repair availability while work is completed at the cutter's home pier.

Government Furnished Property: NONE

2 REFERENCES

Coast Guard Drawings: NONE

Applicable Documents:

MLCPAC Standard Specification 074, Welding and Allied Processes, 3/21/2003

3 REQUIREMENTS

The Contractor shall provide all labor and material to accomplish the following in accordance with the General Requirements:

3.1 GENERAL

3.1.1 The Contractor shall make all temporary service connections and provide equipment by the end of the first working day of the contract. All connections shall be made so that the hazards to passing personnel are minimal. The Contractor shall provide the services continuously for the entire repair period specified in the contract, plus any extensions thereof that are not resulting from added work. The temporary services shall be disconnected only when necessary to shift the cutter, and shall be restored for normal use within one hour after completion of the evolution. The Contractor shall notify the Coast Guard Inspector a minimum of 24 hours in advance of any scheduled disruption of temporary services.

3.1.2 The Coast Guard Inspector will provide cutter personnel, if necessary, to help the Contractor identify locations aboard the cutter where the Contractor may connect to the cutter's systems for providing services to the cutter.

3.1.3 Monitor all temporary services to identify deficient services before failures occur, and promptly restore any disruptions of services. Upon departure of cutter from facility, the Contractor shall disconnect all temporary services.

3.1.4 The Contractor shall provide all services required for the completion of all Definite and Optional Items. These services include, but are not limited to, compressed air, crane services, garbage and refuse, phones, and portable head facilities. These services are for the Contractor's use only. At no time is the Contractor to jumper into the ship's services.

3.2 ELECTRICAL POWER

3.2.1.1 Electrical power (generally, 440V) will be made available to the Contractor at the pier. The Contractor shall be responsible for providing own matching connectors. The Contractor shall meter all Contractor used

electrical power in the performance of work completed during this availability at the pier. Upon the completion of the availability the Contractor shall submit a CFR documenting the power consumption (kW-hrs) during the completion of work. Metering of electrical power is for Coast Guard information only and the Contractor will not be billed for electrical power.

NOTE: Since pier configurations vary greatly, it is highly recommended that the Contractor conduct a shipcheck to determine what equipment will be required to complete the scope of work in this availability package.

NOTE: At the award of contract, the Contractor is responsible for contacting the Integrated Support Command's Facilities Engineering Department at least two weeks prior to the start of the availability to confirm electrical shore power hook-up for the availability

3.3 ARC WELDING GROUNDING

3.3.1 Two suitable grounding cables, one forward and one aft, shall be installed by the Contractor to ground the cutter's hull whenever electric arc welding is to be performed on board the cutter. The grounding cable installation shall meet the requirements of MLC PAC Std Spec 074. Install these cables at arrival and remove them before departure, restoring the disturbed areas to original condition.

3.3.2 Grounding cables smaller in diameter than 85 MCM (No. 1 AWG) are not permitted. All grounding cables shall have completely insulated copper conductors with cable lugs. The cable lug contact area shall be thoroughly cleaned to base metal and secured tightly. Grounding cables shall not be permitted to drop overboard into the water.

3.3.3 Arc current terminals on electric welding machines shall be insulated from earth and other structures. An arc-welding machine shall not be connected to more than one vessel at a time. Prior to connecting the welding ground cables to the cutter, use an insulation resistance tester (test voltage no less than arc open circuit voltage) to measure and log the insulation resistance readings. All measurements shall be taken in the presence of the Coast Guard Inspector. The insulation resistance between the welding ground cables (connected to the welding machine) and the welding machine frame shall be no less than 0.1 megohms. Repeat this test whenever the grounding leads are disconnected from the cutter, the welding machine is replaced or repaired, or the cutter is relocated to a different berth or drydock.

3.3.4 Ensure that Ship's Force has disconnected any cabling to sensitive electronic components (e.g., computerized main propulsion engine controls) that may be damaged by induced voltages during welding. Notify Ship's Force to reconnect such cables after arc welding is completed and the grounding cables are removed.

3.4 COMPRESSED AIR

3.4.1 Provide dry compressed air via flexible hoses to a manifold aboard the cutter as designated in the enclosed figure "Temporary Services, Dockside, Home Pier." The manifold shall have at least six 3/4" outlets. Provide shutoff valves for the main lines at the manifold and for each 3/4" outlet. Provide air from 0800 to 2000 daily (7 days a week).

3.5 FIRE EXTINGUISHERS

3.5.1 Provide fully charged fire extinguishers as designated in the enclosed figure "Temporary Services, Dockside, Home Pier" to be used by the Coast Guard. Refill any discharged extinguishers by the start of the next work day.

3.6 GARBAGE AND REFUSE

3.6.1 Provide sufficient dumpsters pierside for the cutter's crew to dispose of garbage and refuse. The containers shall be emptied daily and kept clean to prevent them from becoming a health hazard. The Contractor shall meet all local ordinances to ensure that all garbage and refuse is delivered to appropriate disposal facility.

3.7 PROTECTIVE DECK COVERING

3.7.1 Provide and install deck coverings bulkhead to bulkhead with no deck showing on the edges in accordance with General Requirements, and remove the same upon completion of the availability or at the request of the Coast Guard Inspector. Cover all decks in work areas and access routes to work areas. Tape all seams and edges with duct tape. The Contractor shall keep the protective covering in good repair for the duration of the contract and shall repair with like material, before contract completion, all permanently installed deck and deck covering damaged by yard personnel. The Contractor shall inspect the protective covering each morning, and shall repair any deficient areas, prior to commencing work.

3.7.2 If the cutter is equipped with a flight deck, the Contractor shall cover the entire area of the flight deck and hangar with plywood.

3.7.3 Refrigerated storage spaces shall be clean, free of insects and rodents and located within 200 yards of the cutter. Refrigerated storage spaces shall be lockable.

3.7.4 Supply the Coast Guard Inspector with two sets of keys to the refrigerated storage spaces. All refrigerated storage shall be supplied with adequate shelf space so that no food will require storage on the deck. Refrigerated storage spaces shall be for Coast Guard use only.

3.8 INSPECTIONS

3.8.1 Coordinate all inspections with the designated Coast Guard Inspector to minimize production delays.

378' WHEC Temporary Service Requirements, Dockside Home Pier

Shore Tie Requirements

Service	Connection	Demand	Shore Tie Location	Quantity
Compressed Air	N/A	100 psig	N/A	250 CFM

Intermittent Services

Service	Quantity	Requirements
Fire Extinguishers	6: 15# CO ₂ 10: 2.5 gallon H ₂ O	N/A