NOAA SHIP NANCY FOSTER (R-352)

FY 22

DRYDOCK REPAIRS

AUG 2021

NOAA SHIP NANCY FOSTER (R-352)
Dry Dock Repairs
FY22
Work Item Index

INTENT, SCOPE, GENERAL REQUIREMENTS

1.0 ABSTRACT

This Item describes the intent, scope, and general requirements that apply to this Work Package.

2.0 REFERENCES

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

2.2 NOAA Standard Specification AMC-631-2D, “Coating Systems for Steel Surfaces”

2.3 NOAA Standard Specification MOC-300-3, “General Requirements for Electrical/ Electronic Items”

2.4 Drawing NF-085-001, NOAA Ship Foster Booklet of General Plans

2.5 Drawing NF-505-6501097, Standard Piping Details

2.6 American Bureau of Shipping, Rules for Building and Classing Steel Vessels, latest revistion.

2.7 IEEE STD 45-1983, Recommended Practice for Electronic Installations on Shipboard.

2.8 Code of Federal Regulations, Title 46

3.0 REQUIREMENTS

3.1 References 2.1 through 2.8 form a part of these Detail Specifications. All provisions and requirements contained therein are applicable to all work items, including all additional work items which are authorized by the Contracting Officer.

3.2 Provide and maintain a Quality Assurance (QA) TEST AND INSPECTION PLAN applicable to all work items, including all additional work items which are authorized by the Contracting Officer. Provide plan for the maintenance availability kick-off meeting and update the plan weekly for each weekly progress meeting. Include the following minimum information for each work item and additional work item:

1) Specification item and paragraph number
2) Component/Equipment name
3) Test or Inspection description
4) Acceptance Criteria
5) QA Inspection Report

3.3 The design and execution of work items within the work package are the Contractor’s responsibility. Work items and Contract Guidance

INTENT, SCOPE, GENERAL REQUIREMENTS

Drawings provided as part of the work package do not fully describe all work required to meet regulatory requirements or relieve the contrctor from development of detailed working/production drawings & instructions. However, all work performed by the Contractor and Subcontractor, regardless of tier, shall comply with regulatory requirements, and the cost will be borne by the Contractor/Subcontractor. Only the costs of Amercian Bureau of Shipping (ABS) ship surveys/inspections will be borne by the Government using a separate purchase order or IDIQ contract. Scheduling ABS surveys/inspections/call-outs is the Contractor's responsibility.

3.4 Weigh each item removed from and installed on the ship. Provide a summary report to the COR indicating the total weight in pounds of items removed, the total weight in pounds of new items installed, and the locations of weight removals and installations, with reference to deck level, frame number, height above/below main deck level, and distance from centerline.

3.5 Unless otherwise stated in the individual work items, prepare and coat all new steel, all existing steel surfaces identified to be cleaned and painted, and any paint system disturbed while accomplishing work items, in accordance with reference 2.2. Match finish coat system and color with those of the surrounding, unmodified area. In addition, fit all power tools used to prepare internal spaces for painting, such as staterooms, the bow thruster space, engine room, stern thruster rooms and Generator Rooms, with dust collecting equipment to keep air bourne contaminants to a minimum. This does not relieve the Contractor from using protective coverings on equipment in those spaces or from cleaning/removing dust & debris from work area(s).

3.6 Ship's Force will maintain a minimal presence during accomplishment of work to these specifications. Ship's Force availability to operate ship's equipment will be limited. Unless otherwise specified, provide a minimum of one working day prior notice for any equipment operations.

3.7 Schedule and participate in a one day sea trial near the end of the work performance period to witness testing of all repaired or newly installed equipment and machinery. For estimating purposes, anticipate an eight hour sea trial, departing from and returning to same location where repairs were completed. The COR will coordinate the sea trial date with the Contractor with at least 72 hours notice.

3.8 Provide 2 portable restrooms for contractor use and 2 for crew use (1 male/1 female).

INTENT, SCOPE, GENERAL REQUIREMENTS

3.9 When submitting bid for this work package, include list of proposed sub-contractors. Additionally, if specific work items require factory authorized technicians or other specialized credentials, provide proof credentialing along with this list. During project kickoff meeting, a representative from each subcontractor shall be present (teleconference number will be provided for non-local companies to call in).

3.10 Project management requirements:

a. Project Management Documents – Maintain work management project gannt chart, work breakbown structure and critical path documents. Provide an updated copy of each at weekly project progress meeting, to include any additional items. As part of bid package, submit draft of each aforementioned document.

b. Contractor is responsible for managing and coordinating subcontractors, OEM representitives and interfacing and/or consulting w/ ABS to ensure successful performance of work required by this package.

c. Drawings – drawings were developed to depict the overall scope of work required and may not contain all the necessary information or details to complete scope of work. Contractor is responsible for developing their own working drawings to complete necessary work and ***shall take this into account when bidding***. Contractor will be provided AUTOCAD files of contract drawings to use as basis for working drawings. Bill of Materials lists on drawings should not be solely relied upon to show all necessary parts, materials, supplies, etc required to complete work. Contractor is responsible for confirming (contact OEM as necessary) and obtaining materials, parts, supplies, etc required for successful installation, start up and commissioning of new equipment. As part of bid package, include list of long-lead time materials, source(s) and proof source(s) can supply OEM authorized parts/materials/supplies such that work can be completed within proposed period of performance.

4.0 NOTES

4.1 NOAA Ship NANCY FOSTER has ABS ID Number 9101982 and has ABS Class Notations A1, E, AMS, and ACC. The ship is currently in Active Status.

4.2 The following descriptive data of NOAA Ship NANCY FOSTER is provided for information:

Overall length	-	186'- 0"
Beam, Molded	-	40'- 0"
Draft, Design	-	11'- 0"
Draft, Navigational	-	12'- 0"
Displacement (FL)	-	1279 LT
Propulsion Z-Drives	-	2
Propulsion Shafts	-	1

INTENT, SCOPE, GENERAL REQUIREMENTS

Bow Thruster - 1

4.3 NOAA Ship NANCY FOSTER is an ex-YTT class Navy Yard Boat converted in 2002 for service as an Oceanographic Research Vessel. Many of the drawings are the original YTT drawings. There may be differences between the drawings and the ship. Take into account these differences during the bidding.

4.4 Reference documents, technical manuals, and ships drawings are available as attachments posted on Federal Business Opportunities (FedBizOps) at this web site: www.FedBizOpps.com. One exception to these posted references is IEEE STD 45-1983, Recommended Practice for Electronic Installations on Ships [not available on FBO]. Anyone unable to download references or drawings should contact the Contracting Officer, Tiffany Squyres at Tiffany.Squyres@noaa.gov or 757-605-7405.

4.5 Technical Manuals are not supplied with these specifications, and will be available for review on the ship during the prebid inspection or, upon scheduling, in the NOAA Port Office Charleston, 1050 Register St, North Charleston, SC telephone 843-566-9191 or 757-441-6717.

4.5 Drawings are not supplied with these specifications and can be available on a CD in a self executable file which allows viewing and printing of drawings in TIFF format. For a copy of the CD, contact the Contracting Officer, Tiffany Squyres at Tiffany.Squyres@noaa.gov or 757-605-7405.

TEMPORARY SERVICES

1.0 ABSTRACT

This item describes the requirements for temporary services for the duration of the contract.

2.0 REFERENCES

2.1 NOAA Standard Specification AMC-000-2C, "Temporary Services at the Contractor's Facility".

2.2 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION OFFICE OF MARINE AND AVIATION OPERATIONS NOAA SHIP HEALTH PLAN (OCT 2018)

3.0 ITEM LOCATION/DESCRIPTION: See paragraph 7.0

4.0 GOVERNMENT FURNISHED EQUIPMENT/MATERIAL/SERVICES: None.

5.0 NOTES:

5.1 The Contractor and all subcontractors regardless of tier are advised to review other work items under this contract, including but not limited to 1.1 to determine their effect on the work required under this work item. Many of the definitions relating to performance of this work item are found in references included in work item 1.1.

5.2 The ship's drain piping systems from the staterooms and galley (grey water systems) do not have a separate holding tank. All drain piping is routed to the Sewage Holding Tank.

6.0 QUALITY ASSURANCE REQUIREMENTS: None additional.

7.0 STATEMENT OF WORK REQUIRED

7.1 Furnish temporary ship services described below commencing upon the ship's arrival at the Contractor's facility on 18APR2021 until the date of redelivery, sea trials and dock trials. Provide, connect and disconnect all cables, lines, hoses, valve fittings, and gangways required to provide services as described. Material used in providing the services described herein shall be of good material condition and free of tears, cracks, or leaks. Make all connections and provide all services within two hours after the ship arrives at the facility. Disconnect services only when necessary to shift the ship or upon satisfactory completion of all authorized items of the contract. When the ship is shifted, restore services for normal use within one hour after completion of the shifting operation. Provide freeze protection as necessary if temperatures are expected to drop below freezing. Provide all services required in Reference 2.1, with additional requirements, details, and exceptions as follows:

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7.1.1 Electrical Shore Power: rated at 460 VAC, 3 Phase, 60 HZ, 400 amps total service through one 400 amp electrical shore power cable. Provide the shore power cable and connect to the ship's junction box on the 02-Deck starboard side. Route the shore power cable in safe locations preventing trip hazards. If power is lost for any amount of time twice or more during any day, contractor shall place ship's portable generator on pier adjacent to ship, connect shore power cable and provide fuel for generator for remaining period of performance. Ship shall be connected to shore power within 120 minutes of landing on blocks during dry docking.

7.1.2 Potable water: use a 1.5 inch fire hose thread to the ship's potable water connection on the Main Deck, with a minimum of 60 gpm between 45 and 60 psig using an adjustable pressure regulating valve on the pier or Main Deck. Prior to connecting to the ship's system, thoroughly flush the hoses with water from the municipal water system. Whenever water is provided to the ship from a municipal potable water system, comply with local ordinances and the U.S. Public Health Service regulations regarding use of check valves and other automatic closure devices to prevent contamination of the municipal water source. Prior to making the hose connection to the ship, provide documentation to the COR indicating that the water fully complies with the Safe Drinking Water Act (SDWA). As a minimum, include (a) A report from a local health authority or an independent testing lab attesting that the water supply meets safe bacteriological levels, (b) Additional data, attainable from the water supplier, which verifies compliance with physical, chemical, and aesthetic standards of the SDWA. Provide freeze protection.

7.1.3 Sewage Drainage: use a 3 inch cam lock fitting to the ship's sewage connection on the Main Deck. Provide freeze protection.

7.1.6 Internet Connections: provide high speed internet service and modem for the ship and the dockside office spaces for the entire availability.

7.1.7 Camels or Fenders: provide camels or fenders to prevent the ship's sides from chafing against the wharf or pier while the ship is moored at the Contractor's facility. When moving the ship with tugs, ensure that adequate fenders are used to prevent chafing of the ship's hull against the tug. Repair all damage to the ship's hull structure and coating systems which occurs due to lack of adequate protection by the Contractor. No other ship or barge shall be moored alongside the ship.

7.1.8 Gangways: Provide one safe gangway for easy access to the ship as follows:

7.1.8.1 Establish one gangway as the main access to the ship. Clean and clear gangway on a daily basis.

TEMPORARY SERVICES

7.1.8.2 Ensure gangway is OSHA approved with a walking surface not less than 36 inches wide and secured against shifting or slipping.

7.1.8.3 Ensure each side of gangway and the turntable, if used, has railings with a minimum height of 36 inches measured perpendicularly from rail to walking surface at the stanchion, and a midrail. Keep rails taut at all times.

7.1.8.4 Ensure gangway is properly trimmed at all times. When or if a fixed tread accommodation ladder is used and the angle is enough to require employees to walk on the edge of the treads, then provide cleated duck boards laid over and secured to the ladder. Keep supporting bridles clear to permit unobstructed passage while using the gangway. When the upper end of the means of access rests on or is flush with the top of the bulwark, provide substantial steps properly secured and equipped with handrails 36 inches in height between the top of the bulwark and the deck. Prevent obstructions on or across gangways.

7.1.8.5 Ensure the means of access is adequately illuminated for its full length.

7.1.8.6 Unless the construction on the ship makes it impossible, locate the means of access so that cargo lifts do not pass over it. In any event, prevent loads being passed over the means of access while personnel are on it.

7.1.8.7 Provide safety nets secured to the ship and to the pier edge providing complete coverage for the areas between the ship and pier for a distance of 6 feet on either side.

7.1.9 Parking: Provide twelve vehicle parking spaces within the shipyard’s gate for the entire availability, plus five temporary vehicle parking spaces as needed for visitors.

7.1.10 Security Services: Provide a roving security guard on board from 1600 to 0800 Monday through Friday and 24 hours a day on Saturday, Sunday and all Government holidays. Government holiday dates are listed at web site: www.opm.gov/operating_status_Schedules/fedhol Ensure security guards guard against flooding, fire, theft, equipment malfunction and any other hazard which may occur. Report any abnormalities to Ship’s Command, OOD, and the COR immediately. Ensure security guards are state licensed with a minimum of two years experience in security. Inspect all unlocked compartments at least once every two hours, or part thereof, equipped with a Detex watch clock, or equivalent, during compartment inspections. Record all inspections on the clock at key stations securely installed by the Contractor. Anticipate an estimated ten key stations with locations specificed by the ship’s Executive Officer (XO). Provide a copy of the

watch clock recordings for the preceding 24-hour period to the XO daily.

7.9. Provide Air Conditioning cooling water when ship is in dry dock.

7.1.10 Toilet Facilities: Shipyard personnel shall not use shipboard toilet facilities as indicated below. Provide signs to this effect on each shipboard lavatory.

7.1.10.1 Whenever the detail specifications specifies that temporary toilet facilities are required or whenever the Contractor must secure the ship's toilet facilities, provide adequate temporary toilet facilities for NOAA use.

7.1.10.2 Provide one temporary toilet for each 15 persons, or part thereof, in the ship's crew.

7.1.10.3 Portable chemical toilets are acceptable, provided the Contractor empties and cleans them daily.

7.1.11 Waste Oil Removal: Remove an estimated 1000 gallons of waste oil and oily waste from the ship’s oily water waste oil tanks & bilges

7.1.12 Crane Services: Provide an estimated 40 hours of crane and material handling services to support the ship during the performance period, to be designated in 4 hour blocks. These services include, but not limited to, crane operator rigger, forklift, and transportation services required for off loading, on loading and stowage of Government stores, materials, and supplies not related to the work package. Only the COR is authorized to request crane hours. The COR will provide the Contractor with 24 hours notice for crane service. These hours are for ship force use only, and are separate from any Contractor related work.

7.1.13 Golf Cart or Utility Vehicle: Provide a golf cart or utility vehicle for Ship’s Force use and one for COR use during the performance period.

8.0 GENERAL REQUIREMENTS: None Additional.

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ITEM NO. 3.1 **BASIC ITEM** **MED/KRZ**

DRYDOCKING

1.0 ABSTRACT

1.1 This item describes the requirements for drydocking the ship and accomplishing inspections and modifications in drydock.

2.0 REFERENCES:

2.1 NOAA Standard Specification AMC-997-1A, "Drydocking and Routine Drydock Work"

2.2 Drawing NF-085-002 Rev G, Docking Plan

2.3 Drawing NF-461-002 EM-710 Multibeam Echo Sounder Installation

2.4 Drawing NF-424-001 DSN-450 Doppler Speed Log Installation [DS-60]

3.0 ITEM LOCATION/DESCRIPTION:

3.1 Overall length	-	186'- 0"
Beam, Molded	-	40'- 0"
Draft, Design	-	11'- 0"
Draft, Navigational	-	12'- 0"
Displacement (FL)	-	1271 LT
Propulsion Z-Drives	-	2 each
Propulsion shafts	-	1 each
Bow Thruster	-	1 each

4.0 GOVERNMENT FURNISHED EQUIPMENT/MATERIAL/SERVICES

4.1 Government Furnished Equipment: None.

4.2 Government Furnished Services:

4.2.1 The Government will provide payment for the services of an ABS Surveyor using a separate purchase order.

5.0 NOTES

5.1 The Contractor and all subcontractors regardless of tier are advised to review other work items under this contract, including but not limited to 1.1 and 2.1 to determine their effect on the work required under this work item. Many of the definitions relating to performance of this work item are found in references included in work item 1.1 and 2.1.

6.0 QUALITY ASSURANCE REQUIREMENTS: None additional.

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DRYDOCKING

7.0 STATEMENT OF WORK REQUIRED

7.1 Accomplish the drydocking requirements in accordance with Reference 2.1 to drydock the ship in accordance with Reference 2.2.

7.2 Drydock the ship on 24APR2021. Any delay will be subject to a day-for-day extension of the contract period of performance at no cost to the government. Exception to this requirement must be approved by the Contracting Officer.

7.3 Use dry docking position Number 1.

7.4 Use a minimum keel block height of 5.5 feet to accommodate inspections.

7.5 Provide shipyard drydocking plans to the COR at least 48 hours prior to flooding the dock indicating the docking schedule, the ship and relative locations of blocks, block dimensions, and calculations showing bearing loads of keel and bilge blocks.

7.6 Offset keel blocks between the frame numbers listed below:

7.6.1 Frames 19 - 30, offset keel blocks one foot to port. This will provide more clearance for the EM 710 Transducer Pod multibeam fairing assembly located on the starboard side. This new fairing was installed in March 2015.

7.6.2 Frames 34 – 41, offset keel blocks one foot to starboard. This will provide more clearance for the existing 150 & 12 kHz & Simrad ES Transducer Pod located on the port side.

7.6.3 Frames 42 - 43, offset keel blocks one foot to port. This will provide clearance for a new doppler speed log transducer installed in March 2015.

7.6.4 Place and wedge into contact with hull Block #1 after dry dock has been pumped dry.

7.7 Provide diver services to insure that all sea chests, discharges, transducers, diver hand holds, and other appurtenances are clear of all blocks prior to the ship landing on the blocks.

7.8 Ensure the two small drain holes in the EM 710 Transducer Pod multibeam fairing are clear and allow seawater to drain out during the drydocking phase. These drain holes are located aft of both transducer faces, between frames 27 and 28.

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DRYDOCKING

7.9 Use high pressure water with a minimum of 5,000 psig to accomplish a high pressure fresh water wash on the ship's hull above the waterline from the bulwark and rub rail down to and including the boot topping and all of underwater hull below the boot topping.

7.10 Remove all streaking rust and grease adhered to the hull prior to the final high pressure fresh water wash on the underwater hull.

7.11 Ensure removal of all marine growth and the antifouling leached layer.

7.12 Accomplish pressure washing as soon as practical and within 12 hours after drydocking the ship.

7.13 DO NOT pressure wash underwater transducer faces. Pressure washing of this equipment can cause damage. Protect faces of all transducers prior to water washing operations. Contact ship's ET's to obtain wooden transducer covers.

7.14 Accomplish a visual inspection of all zinc anodes, including those in bow thruster, on z drives, on the rudder and in the sea chests. Provide a written Condition Report for the COR listing the location, quantity at each location, and percent of deterioration of the zincs and any recommendations if renewals are required. For estimating purposes, assume $3000 in material costs to replace depleted zincs.

7.15 Renew/repair Kongsburg 2040 sea chest coating system. Coordinate w/ ship's ETs to protect or remove components that may be damaged during this process.

7.16 Provide the services of Sound Propeller (POC: Mike Weigand, mikew@theboatersblacksmith.com, 425-508-4233) technician to inspect Port & Starboard Z-drives. Provide inspection report and recommended repairs (if any). For estimating purposes, budget $35,000 for any needed repairs. Do not include cost of inspection & initial Sound Propeller technician travel costs in this figure.

7.16 Touch-up areas where hull was in contact with blocks during previous dry docking(s) (Previous position was position 2). Apply coating system listed below in these areas (entire system may not be required; apply as necessary):

Underwater Hull
- 1st Coat: Sherwin Williams SEAGUARD 5000 HS Red, 5-7 mils DFT
- 2nd Coat: Sherwin Williams SEAGUARD 5000 HS Grey, 5-7 mils DFT
- 3rd Coat: Sherwin Williams SEAGUARD Ablative Red, 5-6 mils DFT
- 4th Coat: Sherwin Williams SEAGUARD Ablative Black, 5-6 mils DFT

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DRYDOCKING

5th Coat: Sherwin Williams SEAGUARD Ablative Red, 5-6 mils DFT

8.0 GENERAL REQUIREMENTS: None Additional.

END OF ITEM

NOAA SHIP NANCY FOSTER
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ITEM NO. 3.2 **BASIC ITEM** **MED/KRZ**

Z DRIVE Repairs **REV2**

1.0 ABSTRACT

1.1 This item describes the requirement to inspect and repair the port and starboard z drives.

2.0 REFERENCES:

2.1 NF 241-05, Technical Manual for Z Drive, Model 260/370-H

3.0 ITEM LOCATION/DESCRIPTION:

3.1 Location: Stern, FR. 88 port and starboard.
3.2 Quantity: Two (2)
3.3 Description:
Manf: Ulstein Maritime Ltd. (Rolls Royce)
Model: 260/370-H
HP: 300
Port Z drive Serial # 1697 002
Stbd Z Drive Serial # 1697 001

4.0 GOVERNMENT FURNISHED EQUIPMENT/MATERIAL/SERVICE:

4.1 Port Z-drive Lower Leg, Propeller and propeller nut
4.2 Bearings, seals, o-rings necessary to overhaul STBD Z-drive

5.0 NOTES

5.1 The contractor and all subcontractors regardless of tier are advised to review other work items under this contract, including but not limited to **1.1** to determine their effect on the work required under this work item. Many of the definitions relating to performance of this work item are found in references included in work item 1.1.

5.2 In April 2021, Port Z-drive lower unit was removed from the ship and sent to Sound Propeller facility for overhaul due to failure of pinion shaft. A blanking plate was placed on lower unit flange and made water-tight. This specification describes the scope of work required to reinstall and test the Port Z-drive lower unit as well as work require to overhaul STBD Z-drive.

6.0 QUALITY ASSURANCE: NONE ADDITIONAL.

7.0 STATEMENT OF WORK REQUIRED

7.1 Provide the services of Sound Propeller (POC: Mike Wiegand; Office: 206-392-0021, Cell: 425-508-4233, mikew@theboatersblacksmith.com) to provide technical oversight and consultation for the entire duration of these repairs. This technical representative should also be present during dock and sea trial.

7.2 Follow Lockout / Tagout requirements in accordance with NANCY FOSTER's Chief Engineer policies and procedures.

7.3 Under the supervision of the tech representative, repair the starboard z drive lower leg as follows:

7.3.1 Remove propeller cap and propeller. Conduct a visual inspection of the propeller and submit a condition report. Note that there are existing padeyes on the hull that may be utilized for rigging the propellers. Contractor should inspect/weight test the padeyes in accordance with their internal policies prior to their use.

7.3.2 Remove from ship to shop starboard z-drive lower units.

7.3.3 Completely disassemble lower unit to include pressing out all bearings. Neatly lay out parts in order they are removed and offer COR, CME, etc opportunity to inspect all parts. Photograph and provide written narrative of condition via condition report.

7.3.4 Repair any defects and using all new nearings, seals, o-rings, etc. reassemble starboard lower leg.

7.3.5 For estimating purposes assume $10000 budget in labor and materials for machining, fabricating, etc that may be required to repair z-drives.

7.3.6 Measure backlash readings on gears if feasible. Blue gears and check contact pattern in presence of ABS Surveyor and Port Engineer.

7.3.7 Install unit on ship. Conduct pressure testing as directed by technical representative to prove leak-free condition of the gear boxes and seal assemblies.

7.3.8 Install SSTL locking wire as required by service technician.

7.4 Under the supervision of the tech representative, reinstall the port z drives lower unit as follows:

7.4.1 Erect scaffolding to facilitate work described herein.

7.4.2 Remove blanking plate from lower unit flange. A small quantity of gear oil (S2GX 68) was placed in this unit to preserve upper unit components. Ensure containment is placed underneath the plate to catch oil.

7.4.3 Rig into place lower unit. Provide all gaskets, o- rings, seals, etc to ensure water tight integrity of z-drive. Contact Sound Propeller to provide necessary materials for installation of lower unit.

7.4.4 Conduct air test of propeller and steering seals as well as gear box to prove water tight integrity. Correct all deficiencies found during these tests.

7.4.5 Install SSTL locking wire as required by service technician.

7.5 Install the propellers & propeller caps using Ref. 2.1 for guidance.

7.6 Fill both Z Drive gear box assemblies with new Shell Omala S2GX 68 Gear Oil. Each gear box assembly takes about 32 gallons. Open the seal head tank valves to allow oil to the seal areas. Manually rotate both Z Drives for approximately ½ hour.

7.7 Top up both Z Drive seal oil head tanks with new Shell Omala S2GX 150 Gear Oil. Each head tank takes about 15 gallons. This oil is different from the drive gear oil. Do not mix.

7.8 Prior to undocking, accomplish a 1 ½ psig air test on the port and starboard nozzles to test for leaks. Submit report with findings.

7.9 Clean all oil residue from bilges in way of both z-drives.

7.10 Renew round zincs that are bolted to the top side of the kort nozzle support braces on port and starboard z drives (8 total zincs).

7.11 Conduct 4 hour dock trial for each z-drive. Consult technical representative to determine break-in procedure (if necessary). Provide written test and acceptance criteria 24 hours in advance of dock trial. Correct any deficiencies and repeat testing until satisfactory results are obtained. Provide condition report of this testing.

7.12 Conduct 8 hour (minimum) sea trial to test operation of both z-drives. Provide written test and acceptance criteria 24 hours in advance of sea trial. Operate z-drives in all DP modes and full speed for at least 1 hour during sea trial. Correct any deficiencies and repeat testing until satisfactory results are obtained. Provide condition report of this testing.

8.0 GENERAL REQUIREMENTS: None Additional.

END OF ITEM

13AUGL21

ITEM NO. 4.1 **ADDITIONAL WORK** **MED/KRZ**

1.0 References: None

2.0 Government-Furnished Material: None.

3.0 Requirements

3.1 The rate for all man-hours of labor, to be used for emergent work if ordered by the Contracting Officer pursuant to the "Changes - Ship Repair" clause (Section H) or mutually agreed upon by the parties by supplemental agreement to accomplish additional work not required elsewhere in the work items, shall be established using this item. For bidding purposes estimate **400** man-hours worth of emergent work for this item.

3.2 Indicate in the "Bid Schedule" (Section B) the total man-hour rate to be used in evaluation of the proposal and also to be used for negotiating changes as required by the "Changes - Ship Repair" clause. This rate shall be a flat rate to cover the entire effort and shall be burdened to include:

3.2.1 Production man-hours shall be for skilled labor at the journeyman level expended in direct production as exemplified by the following functions: Abrasive Cleaning/Blasting, Blacksmithing, Boilermaking, Carpentry, Crane Operation, Electrical/Electronics Work, Engineering (Production), Insulating/Lagging, Machining (inside and outside), Painting, Pipe Fitting, Rigging, Sheet-metal Work, Shipfitting, Shipwrights, Staging/Scaffolding, Tank Cleaning, and Welding/Burning/Brazing.

3.2.2 Non-production man-hours (whether charged as direct labor or indirect labor by the contractors accounting system) shall be for labor in support of production functions. Necessary support functions should be priced into the burdened rate for production man-hours. Examples of support functions include: Engineering (support), Estimating, General Labor, Firewatch, Material Handling, Planning, Quality Assurance, Security (General), Supervision, Surveying, Testing, and Transportation

3.2.3 Other indirect charges including but not limited to the following: overhead, general and administrative, support functions, facilities, and capital cost of money and profit for the contractor and any subcontractors selected by the prime contractor. The hourly rate will not be used to price work which may be directed to a subcontractor by name in the work specifications.

3.3 All material costs shall be paid based on the contractor's return cost plus the markup identified in the "Bid Schedule". For bidding purposes estimate **$20000** worth of additional material for this item.

3.4 Take into account full award of this item during the development of the Production Schedule. Award of any portion of this item does not in its self justify an extension to the original contract completion date.

3.5 The man-hours and material cost estimates specified herein are for evaluation of proposals only. The provided burdened man-hour rates and material cost rates shall remain in effect for the entire life of the contract. Pursuant to the "Changes - Ship Repair" clause, the Government reserves the right to award or not award any portion up to or beyond the estimates set forth herein.

3.6 Quality Assurance

3.6.1 No additional requirements.

3.7 Notes

3.7.1 The man-hours of labor contained within this item are in addition to those required to accomplish work specified within the remaining specifications.

3.7.2 By definition, there are 8 hours in a man-day. Therefore, the estimated 400 man-hours equates to 50 man-days.