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MILITARY SEA TRANSPORTATION SERVICE, PACIFIC AREA
Fort Mason
San Francisco, California

SPECIFICATION NUMBER: MSTSP 66-78

28 December 1965

S P E C I F I C A T I O N S

For

REGULAR OVERHAUL

USNS PATRICK (T-AP 124)

The General Conditions dated 15 July 1955 and Amendment No. 1 dated 23 November 1962 to the General Conditions for work under Department of Defense, Department of the Navy, Master Contract for Repair and Alteration of Vessels are a part of these specifications and any conflict between these specifications and the Master Contract for Repair and Alteration of Vessels shall be governed by the provisions of the Master Contract.

These specifications consist of 41 pages and General Conditions referenced above.

SUPT PORT ENGINEER:

Approved: Director, Transport-Tanker Engineering Div.

Approved: Supt Port Engineer

[Signature]
[Signature]

I N D E X

MSTSP 66-78

<u>ITEM</u>	<u>TITLE</u>	<u>PAGE</u>
	INFORMATION PAGE	2
1	SERVICES	3
2	TELEPHONES AND GARBAGE	3
3	CO-2 SYSTEMS, ANNUAL INSPECTION	3-4
4	FIRE DETECTING SYSTEM	4
5	FUSIBLE LINK DAMPERS	4
-6	FIRE HOSES, ANNUAL INSPECTION	5
-7	CARGO GEAR ANNUAL INSPECTION	5
-8	LIFEBOATS EXCHANGE OF	6-7
9	ELEVATORS AND DUMWAITERS	7-8
-10	LIFEFLOAT INSPECTION	8-9
11	AUTOMATIC TELEPHONE SYSTEM	9
12	VHF RADIOTELEPHONE INSTALLATION	10
13	MOTOR STATOR	11
14	VENT MOTOR AND IMPELLER	11
-15	LIFEBOAT DAVITS	11-12
16	DECK AND SHOWER STRAINERS	12
-17	BOAT FALLS	12
18	NAVIGATING PLATFORM	13
-19	THIRD DECK PLATING REPAIRS	13-14
20	VENTILATION SYSTEMS, CLEANING OF	14
-21	WOOD DECK REPAIRS	14-15
22	LAGGING AND INSULATION	15-16
23	VENTILATION DUCTS, REPAIRS TO	16
-24	DAVIT HEADS AND TRACKWAYS	17
25	AIR DUCT EXTENSION	17
-26	CERAMIC TILE REPAIRS	18
-27	MISCELLANEOUS DECK AND BULKHEAD REPAIRS	18-19
-28	WATERTIGHT DOORS, REPAIRS TO	19
29	MOTOR ROOM INTAKE VENT	20
30	AIR FILTER RACKS FORWARD STACK	20
-31	HATCH COAMING REPAIRS	21
32	SLIDING WINDOWS	22
-33	DECK HOUSE COAMING REPAIRS	22
34	FORWARD AND AFTER ENGINE ROOM BILGES	22-23
35	ANNUAL INSPECTION, ENGINE	23-26
36	D. C. HEATERS	27
37	BOILER FOUNDATIONS AND TANK TOPS	27-28
38	BOILER SLIDING FEET	28
39	BOILER REPAIRS	28-29
40	BOILER BRICKWORK	30

(Continued)

I N D E X (Cont'd)

MSTSP 66-78

<u>ITEM</u>	<u>TITLE</u>	<u>PAGE</u>
41	SOOT BLOWER PIPING	31
42	SUPERHEATER FRONT ACCESS DOORS	31
43	STEAM AND WATER DRUM INSULATION; RENEWAL OF	31-32
44	BOILER WATER SAMPLE LINE	32
45	UPTAKE EXPANSION JOINTS	32
46	BOILER REMOTE LIQUID LEVEL INDICATORS	32
47	LIFEBOAT WINCHES NO. 1 AND 2	33-34
48	LIFEBOAT WINCHES NOS. 3,4,5,6,7,8,9 & 10	34-35
49	MISCELLANEOUS INSULATION REPAIRS	36
50	PIPING REPAIRS	36-37
51	FUEL OIL TANK HEATING COIL RENEWAL	38
52	ADDITIONAL SHOWER DRAIN INSTALLATION	38
53	FUEL OIL TANK HEATING COIL REPAIRS	39
54	CROSSOVER VALVES, RENEWAL OF	39
55	SOIL AND SCUPPER VALVES	39-40
56	REDUCING STATION INLET VALVES	40
57	TEMPERATURE CONTROL VALVES	40
58	MAIN FEED PUMP TURBINE	40
59	WATER TREATMENT ROOM	40-41

INFORMATION REGARDING THE INVITATION FOR BIDS INCLUDING THESE SPECIFICATIONS

Prior to the time of bid opening and after award of job order, inquiries should be directed to one of the following:

Procurement and Contractual Matters
(Maintenance and Repair Office)

<u>Title</u>	<u>Telephone</u>
Director, Procurement & Control Division	JO 1 - 6419 or 6221
Head, Contract Branch	JO 1 - 6419 or 6221

Legal Matters
(Office of Counsel)

<u>Title</u>	<u>Telephone</u>
Assistant Counsel	JO 1 - 6250, 6251, 6252
Counsel	JO 1 - 6250, 6251, 6252

Engineering and Technical Matters
(Maintenance and Repair Office)

<u>Title</u>	<u>Telephone</u>
Deputy M & R Officer	JO 1 - 6150, 6491

Statement of Manufacturer's Representative

On any specification item which calls for supervision by the manufacturer's representative the following shall be strictly complied with:

Submit a statement of supervision exercised by the representative, prepared and signed by the representative. The statement shall include certification of work actually performed and certification either that work was performed to the satisfaction of the representative, or that work deficiencies, explicitly identified by the manufacturer's representative, exist. The original plus four copies of each statement shall be delivered to the MSTSP Inspector.

Overtime Policy

The Contracting Officer may require of the Contractor a statement in writing regarding the need for overtime in the performance of the contract in the event of the issuance of a Change Order or a Supplemental Agreement for extra work. No overtime premium pay shall be considered in the price or equitable adjustment to be paid by the Government on account of the Change Order or a Supplemental Agreement unless authorized by the Contracting Officer.

ITEM 1 - SERVICES: (TC)

Upon arrival of the ship in the Contractor's Yard, the Contractor shall coordinate with the Chief Engineer the time required for services and provide the following:

Electric power, 400 Amps, 120/240 DC and 800 Amps, 440 Volts, 3-phase, 60 cycle AC.

Steam - 5000 lbs. per hour at	100 PSI
Fresh Water (potable)	60 PSI
Flushing Water	60 PSI
Firemain	100 PSI
Air - 500 CFM at	100 PSI

Any additional services required, either in quantity or in excess of time required by the applicable items of this specification, shall be furnished only upon the issuance of a Specification Change Order. Cost of any additional services required for the Contractor's convenience will be borne by the Contractor.

ITEM 2 - TELEPHONES AND GARBAGE: (TC)

While the ship is at the Contractor's plant the contractor shall furnish the following services:

Garbage and Debris Removal: (AS)

Remove all garbage and debris generated by the ship daily. Cleanliness of the ship shall be the Contractor's responsibility in accordance with master contract for Repairs and Alteration of Vessels, Clause 5, Para. (j).

Telephones: (5)

One (1) 24-hour telephone for official use only at quarter - deck.
One (1) pay telephone at quarter-deck.
One (1) 24-hour telephone in MSTSP Inspector's office on board ship.
One (1) 24-hour telephone in the Chief Engineer's Office.
One (1) in Master's Office through shipyard switchboard during regular work day hours.

ITEM 3 - CO₂ SYSTEMS, ANNUAL INSPECTION: (AS)

Completely check out the below-listed systems and appliances for conformity with current USCG Rules and Regulations.

- ✓ A. CO₂ Smoke Detecting System (Blow out lines)
B. All fixed and portable CO₂ cylinders and associated operating components.

(Continued)

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ITEM 3 - CO₂ SYSTEMS, ANNUAL INSPECTION: (CONT'D)

The below-listed CO₂ cylinders shall be weighed.

Thirty-two (32) - 100 pound cylinders.

Twenty-four (24) - 50 pound cylinders.

One-hundred-four (104) - 15 pound cylinders.

Ten (10) - 5 pound cylinders.

Tag each cylinder with date of tests and weight.

On completion of servicing, the system and appliances shall be operated as requested and to the approval of the USCG and MSTSP Inspectors.

Provide a report of certification to USCG and MSTSP as follows:

Four (4) copies of each certificate, one (1) to USCG, one (1) to ship's Master and two (2) to MSTSP via the MSTSP Inspector.

All equipment listed in this item shall be placed in design operating condition.

ITEM 4 - FIRE DETECTING SYSTEM: (TC)

Accomplish the following to the Walter Kidde Zonit fire detecting system:

Thoroughly check out, clean, service, adjust and accomplish minor repairs to place the system in design operating condition. Minor repairs shall be construed to include a total of twenty-five dollars (\$25.00) or less of miscellaneous material.

Post certification and obtain U.S. Coast Guard approval of operational test.

ITEM 5 - FUSIBLE LINK DAMPERS:(LJM))

Open up the ship's fusible link ventilation dampers for inspection by the USCG and MSTSP Inspectors.

Renew defective screws and links, free-up and lubricate dampers.

Upon completion of inspection and repairs, close up units and leave ready-for-use.

A total of thirty-nine (39) fusible link dampers located throughout the ship's ventilation systems shall be dealt with.

CATEGORY "A" ITEMS

MSTSP 66-78

ITEM 6 - FIRE HOSES, ANNUAL INSPECTION: (LJM)

✓ Accomplish the following to all fire hoses located at the various fire stations throughout ship:

a. Remove all hoses from ship, including spare hoses to a clean area within the yard.

DECK b. Range all hoses and perform the Annual USCG test and Inspection of the hoses in accordance with Section 71.25-20 (a) (4) of CG-256 rules and regulations for passenger vessels as last amended. Inspection and test shall be accomplished only in the presence of the USCG and MSTIS Inspectors.

c. On completion of inspection and testing of hoses clean the exterior hose fabric and reinstall each length of hose in its original shipboard location.

ITEM 7 - CARGO GEAR ANNUAL INSPECTION: (AS)

Accomplish the following work, as required by National Cargo Bureau, Inc., for annual inspection of ship's cargo gear assemblies listed below:

✓ DECK

<u>Quantity</u>	<u>Capacity</u>	<u>Location</u>
Two (2)	5-Ton	No. 1 Hatch
Two (2)	10-Ton	No. 2 Hatch
Two (2)	5-Ton	No. 3 Hatch
Two (2)	10-Ton	No. 5 Hatch
Two (2)	5-Ton	No. 6 Hatch
Two (2)	5-Ton	No. 7 Hatch
Two (2)	5-Ton	No. 8 Hatch

Rig all cargo gear of the ten (10) 5-ton and four (4) ten (10) ton booms in a ready-for-use condition, for Visual Inspection, as required by and to the satisfaction of the National Cargo Bureau Surveyor and the MSTIS Inspector.

Services of the National Cargo Bureau, Inc. Surveyor will be furnished by the U.S. Government.

All booms shall be left in stowed position.

ITEM 8 - LIFEBOATS EXCHANGE OF: (RRA)

and anti-exposure canopies
Remove all food, water, equipment, including the nesting chocks from all twenty (20) of the ship's lifeboats.

Remove the twenty (20) lifeboats including rudders from ship and deliver to WISCO, Richmond, Calif., between the hours of 0800 and 1400 of a regular work day, notifying WISCO not less than 24-hours prior to delivery time as to mode and time of delivery.

✓ Receive and off-load from U.S. Government transportation on or about 12 January the twenty (20) boats listed below to replace those removed.

DECK
135-Pers. Ten (10) Boats
77-Pers. Eight (8) Boats
43-Pers. Two (2) Boats

Remove the radio and searchlight installations from the Radio House in the two (2) removed 43-person lifeboats and install in the new boats. Removals to include the portable radio battery charging cable, battery box, batteries, etc., but exclude the "Ship Charge-Engine Charge" switch and ammeter. These items have been previously installed in the new boat.

Test operate the radio equipment and searchlight installation in the presence of the MSTS Inspector and insure proper operating condition.

Check out and insure correct connections for proper operation of the battery charging and drying lamp circuit from the ship charging lines.

Connect engine generator charging circuit for correct charging polarity.
Install brackets furnished by ship for anti-exposure canopies
Restow all food, water and equipment removed from the twenty (20) removed boats in the new boats. Place new boats in their respective shipboard davits, *USCG.* modifying the davit puddings, lifeboat falls, keel rests, gripe pads and gripes to form a neat and proper stowage.

Tighten the stern tube packing in each boat.

Stencil new boats as required by the USCG.

Lower the two (2) new motor boats to the water. Fill gasoline tank, transmissions and crankcases and test-operate engines as required by and to the satisfaction of the USCG Inspector.

On completion of tests, refill the gasoline tanks and resecure boats aboard ship.

Secure the releasing devices, falls and davit heads with wire rope while boats are being worked on in davits.

(Continued)

ITEM 8 - LIFEBOATS EXCHANGE OF: (Cont'd)

All boats shall be handled by use of strongback spreaders simulating davit centers.

The ship's force will replace all condemned food, water and equipment while such units are removed from boats.

The exchange of the lifeboats shall be completed prior to the time of ship's departure from the Contractor's yard.

DECK Test of boat davits as outlined in a separate item of the specifications shall be accomplished prior to securing of boats in davits.

The U.S. Department of Labor "Safety and Health Regulations for ship Repairing" provides: "Before employees are permitted to work in or on a lifeboat, either stowed on or in a suspended position, the employer shall ensure that precautions have been taken to prevent the boat from falling due to accidental tripping of the releasing gear, movement of davits or capsizing of a boat in chocks". Compliance with this requirement is a prerequisite to commencing work on this item.

✓ ITEM 9 - ELEVATORS AND DUMBWAITERS: (TC)

Furnish the services of a qualified elevator repair and inspection facility to service, adjust and inspect the below mentioned elevator and dumbwaiters for compliance with all provisions of the American Standard Safety Code of Elevators, Dumbwaiters and Escalators. Perform operational and load tests as necessary to determine conformity with or deviation from the aforementioned code.

Check guide rails for alignment and lubricate.

Renew guide shoe gibs.

Align and adjust brakes.

Clean and adjust hatch and cab doors and gates, hardware, door mechanisms and interlocks.

Lubricate hoisting machines and drive assemblies. Drain, flush and refill machine gear cases with new worm gear lubricant.

Inspect and lubricate wire ropes, fittings and sheaves.

Perform static load tests of 100% over capacity, set brakes at 50% over capacity and perform running load tests of 100% capacity.

Measure and record insulation resistance values of motors, controllers and control circuits. Check and set all safety devices.

Fabricate and install a set of inner doors for the 500 pound dumbwaiter at 5-72-2.

Resurface line contactors and adjust all relays for correct operational sequence.

All work shall be accomplished to the satisfaction of and all testing witnessed by MSTS Representative.

(Continued)

ITEM 9 - ELEVATORS AND DUMBWAITERS: (Cont'd)

Three (3) copies of Load Certificates shall be submitted to MSTIS Inspector and one (1) copy shall be posted within elevator cabs and dumbwaiters.

Furnish written report in triplicate of all work accomplished, of conditions found, and megger resistance readings.

DATA: Otis Elevator Co.

Passenger Elevator	-	Cap.	-	4000#	-	Fr.	110,	01/03	Deck
Freight Elevator	-	Cap.	-	2000#	-	Fr.	80,	3/6	Deck
Dumbwaiter	-	Cap.	-	500#	-	Fr.	72,	3/6	Deck
Dumbwaiter (2)	-	Cap.	-	200#	-	Fr.	138,	3/1	Deck

ITEM 10 - LIFEFLOAT INSPECTION: (AS)

✓ Remove all existing lifefloats from their stowed positions on board ship to a suitable security location ashore and range for inspection by USCG and MSTSP Inspectors. (a total of twenty-seven (27) 25-Person floats and twenty-eight (28) 60-Person floats).

Ships force will remove and restow rations, provisions and equipment.

Strip floats of all polypropylene straps and handlines. Repair an estimated number of six (6) damaged covering areas using plastic patching compatible with fiberglass covering.

Floats found defective will be replaced with new U.S. Government-furnished floats.

Clean surfaces of floats free of all dirt, grease, salts, etc. Hand sand floats in way of cracks, blisters and loose paint. Rub down all surfaces with acetone or other suitable Keytone product, to remove surface sheen, and paint with two (2) overall coats of Plastic Enamel, International Orange color, Fuller Co., No. 1526, or equal.

Shipboard areas in way of and under lifefloats, if wood, shall be thoroughly cleaned to bare wood and given two (2) coats of boiled linseed oil, if steel, clean to bare metal and paint as follows:

Prime all bare metal surfaces with one (1) overall coat of pretreatment wash primer, MSTIS Code 32, followed by two (2) coats of red lead, MSTIS Code 52 followed by two (2) overall finish coats of deck gray, MSTIS Code 35.

Upon completion of inspection, stencil date of inspection and ship's name on each float.

(Continued)

ITEM 10 - LIFEFLOAT INSPECTION: (Cont'd)

Apply one (1) overall coat of gray deck paint, MSTS Code 35 to lifefloat platforms.

Re-rig floats as original utilizing new nylon straps and manila hand lines.

DEC 16
Reinstall lifefloats as original with wood spacers between each lifefloat and between decks and floats.

Reinstall stanchions and leave ready-for-use.

ITEM 11 - AUTOMATIC TELEPHONE SYSTEM: (TC)

Thoroughly clean, checkout, service, adjust, repair and/or replace with new any worn or defective parts for the automatic telephone switchboard and its associated equipment including, ringing machines, trouble alarm signal, ringing machine panel, extension signal relays, attendants cabinet and components, battery charging motor-generator sets and such other associated equipment other than batteries and ships wiring cables.

Replacement parts shall be of manufacturer's design parts.

— If repair parts are to exceed \$50, notify the MSTS Representative of parts required.

— Any repair parts necessary above \$50 will be covered in a separate order.

Upon completion, test several stations and prove satisfactory to the MSTS Inspector.

DATA: Automatic Electric Co.
48 Volts DC

ITEM 12 - VHF RADIOTELEPHONE INSTALLATION: (LM)

Install and connect a Government-furnished V.H.F. Radiotelephone, Raytheon Model RAY 124 ME 28. The set consists of the following units:

- 1 each - Transceiver 32" H. x 22" W. x 12" D.
- 1 each - Transfer switch.
- 2 each - Control units.
- 2 each - Loudspeakers
- 2 each - Antenna, Raytheon M-55, 70" x 1-5/8" diameter.
- 14 feet - Cable, Raytheon Type 237-7174Pl.

All other material including additional Raytheon 273-7174Pl cable required to complete the installation shall be furnished by the contractor.

Install a 2" x 4" x 5 pound angle iron foundation in the Fire Control Room (03-85-2). Use transceiver unit as template for exact foundation dimensions. Install and secure transceiver to foundation and to bulkhead using 5/16-inch cadmium plated steel hardware.

Fabricate two (2) stub masts, nine feet long from extra heavy pipe. Cap tops of masts. Install two (2) 5" x 1 1/4" x 1/4" brackets on each mast spaced 18 inches apart beginning at the top of mast.

Install masts on port and starboard side of top of bridge house, 04 level, frame 77. Install four (4) supporting gussets of 10 pound plate. Secure masts to top of existing railing for additional support.

Install a Raytheon M-55 antenna on the brackets of each mast using two (2) Government-furnished stand off clamps on each antenna.

Install a control unit and its associated loudspeaker on the port bulkhead of the wheelhouse, 03 level.

Install the other control unit and its associated loudspeaker on the aft bulkhead of the Radio Room (03-92) above the Chief Radio Officer's desk.

Install and connect the following cables.

1. A DSGA-4 cable from the 115 VAC distribution panel in the Radio Room (03-92) to a marine receptacle R&S No. 1479LP to be installed adjacent to transceiver unit. Connect transceiver to receptacle with a matching plug.

2. An RG-224/U cable from each antenna (two (2)) to the transceiver unit. Four (4) R.F. connectors needed will be Government-furnished.

3. A Government-furnished Raytheon type 273-7174Pl cable from the transfer switch to the transceiver.

4. A Raytheon type 273-7174Pl cable from the transfer switch to each control unit, (two (2)). Two (2) Cannon Connectors needed at the transfer switch will be Government-furnished.

5. A TTHFWA 1 1/2 cable from each control unit to its associated loudspeaker.

Where panelling exists, cables shall be installed between the panelling and the deckhead.

Prime antenna cables prior to installation.

Identify cables with embossed metal tags. Lug, sleeve and identify wire leads.

Provide services of the manufacturer's representative to check out align and adjust transceiver and prove in design operating condition to satisfaction of MSTIS Inspector.

ITEM 13 - MOTOR STATOR: (TC)

Pick up one (1) motor stator from the electric shop aboard ship.
Rewind the stator, using manufacturer's design coils and insulation.
Dip and bake in approved insulating varnish.
Extend slot insulation out of slot $\frac{1}{4}$ inch both front and rear of stator before laying in of stator windings in slots.
Return to the ship's electric shop.

Motor Data:

General Electric Co.
Model: 5K67BC1197
3/4 HP, 1.1 AMPS: 3450 RPM
440 Volt, 3-phase, 60 cycle

ITEM 14 - VENT MOTOR AND IMPELLER: (TC)

Uncouple, disconnect and remove the motor and impeller of the below-listed vent system from ship to shop.
Disassemble, clean and bench-test all components.
Rewind or repair stator if found necessary upon inspection and bench-test.
Dip and bake in approved insulating varnish.
Build up shaft in way of bearings and machine to design dimensions.
Clean impeller to bare metal and prime coat.
Dynamically balance the rotor and impeller separately and as a unit.
Renew bearings.
Reassemble and shop-test.
Reinstall, realign, and test to the satisfaction of the MSTS Representative.

DATA: Louis Allis Co.
440 Volt, 3-phase, 60 cycle, AC.
1140/570 RPM, 7.5 HP,
For Vent System 01-87-1

ITEM 15 - LIFEBOAT DAVITS: (AS)

OUT OF FILE
Remove all sheaves and pins including idlers and guide rollers from all lifeboat davits throughout the ship, including sheaves in floating blocks of lifeboat falls (a total of twelve (12) stations).
Thoroughly clean all sheaves, sheave brackets and floating blocks free of all grease, rust and debris to clean bare metal.
Renew all worn or defective sheave pins and bearings.
Flush all Trunion Rollers free of all grease and debris, thoroughly lubricate and prove free and rolling.

(Continued)

ITEM 15 - LIFEBOAT DAVITS: (CONT'D) (AS)

Paint out all normally painted surfaces of sheaves, brackets and floating blocks as follows. Prime all bare metal surfaces with one (1) overall coat of pretreatment primer, MSTS Code 32, followed by two (2) coats of red lead, MSTS Code 52, followed by two (2) overall coats of Haze Gray, MSTS Code 45.

Reinstall all removals and prove all units in good operating condition to the satisfaction of the MSTS Inspector.

Free up, clean and lubricate all lifeboat fall turnbuckles.

Disassemble the Nos. 1 and 2 crescent type mechanical davits. Thoroughly clean the bevel gears, sheath screws, bearings, pins and davit arm lower hinge pins and bearings free of all grease, rust and debris. Properly lubricate and reassemble all components with gears and sheath screws in true alignment.

Free-up and adjust the handbrake linkage of all lifeboat davit winches. Weight and operationally test the ship's twelve (12) lifeboat ~~station~~ davit and handling assemblies in accordance with USCG Rules and Regulations as last amended.

Boats removed from the ship to accomplish work specified herein, shall be handled by strongbacks simulating davit centers and shall be placed on suitable chocks while in their stowed position.

Tests shall be witnessed by MSTSP Inspector and Cognizant Ship's Officer. Results of tests shall be forwarded, in triplicate, to MSTSPACAREA via MSTS Inspector.

The U. S. Department of Labor "Safety and Health Regulations for Ship Repairing" provides, "Before employees are permitted to work in or on a lifeboat either stowed or in a suspended position, the employer shall ensure that precautions have been taken to prevent the boat from falling due to accidental tripping of the releasing gear, movement of davits or capsizing of a boat in chocks." Compliance with this requirement is a prerequisite to commencing work on this item.

ITEM 16 - DECK AND SHOWER STRAINERS: (LJM) (WR #36)

Fifty (50) each deck and shower drain strainers shall be cleaned, dipped and plated.

Ships force will remove and reinstall.

ITEM 17 - BOAT FALLS: (LJM) (WR #8)

Location: Boats No. 1 and 2

Boat fall wire on boats No. 1 and 2 shall be removed and replaced with new wire equal to original when new.

Coordinate with another item of these basic specifications titled, "Lifeboat Davits".

ITEM 18- NAVIGATING PLATFORM: (LJM) WR #16

Location: 04 -LEVEL CENTERLINE FRAME 78.

Raised wood and steel navigating platform shall be renewed as follows:

Remove interferences, renew in its entirety the raised wood and steel navigating platform retaining existing brass handrail and canvas wind screen. Renew any deteriorated wood bases under navigational instruments. All new materials shall be equal to original when new.

Binnacle compass, gyro-repeater, steering wheel, engine order telegraph, rudder angle indicator and other related equipment removed, as interferences shall be reinstalled as original and proved in good operating condition.

Paint new and disturbed areas in accordance with COMSTS Instruction 4750.1B.

ITEM 19- THIRD DECK PLATING REPAIRS: (LJM) (WR #12)

Location: Ladderwell Access 3-199-2L and starboard longitudinal side of Passageway 3-195-0L.

Repairs to third deck shall be accomplished as follows:

(1) Remove a section of existing magnesite deck covering from ladderwell access deck from starboard outboard longitudinal bulkhead to starboard outboard bulkhead of No. 8 hatch and between transverse bulkhead Frame 196 1/2 to after transverse bulkhead Frame 204. Inboard longitudinal boundary for removal is parallel to starboard outboard longitudinal bulkhead of No. 8 cargo hatch. Area of removal is approximately 70 square feet.

(2) Remove a section of rubber tile deck covering from starboard longitudinal passageway 3-195-0L bounded by starboard inboard and outboard passageway bulkheads and transverse bulkhead frames 195 and 201. Removal is approximately 50 square feet.

(3) Remove existing coverings as noted above clean decks to clean bare metal with power or hand operated tools up to a height of six (6) inches on bulkheads. Remove all dirt, debris and other foreign matter from cleaned decks and remove all dust and make ready for inspection by MSTIS Inspector.

(4) On completion of inspection a 10.2 pound mild steel doubler plate shall be installed over exposed existing deteriorated steel decks in ladderwell and passageway. Doubler plate shall be seal welded all around and plug welded to deck with 1-inch plug welds on 12-inch centers. Pump doubler with red lead putty.

(5) Ladderwell:

After approval of deck cleaning and installation of doubler plate, install a new magnesite deck covering on entire exposed deck surfaces cleaned as hereinafter specified.

To all deck surfaces, apply a 1/4-inch coat of magnabond sub-coat. Install 90 percent cupric oxychloride cement over magnabond sub-coat, to a finished height of 1 1/4-inch minimum thickness. The cement shall be red in color and finished at all bounding members without a cove base. /

No scratch magnesite of any type will be permitted for installation herein.

Paint disturbed areas in accordance with COMSTS Instruction 4750.1B.

Passageway:

On completion of installation of doubler plate in passageway, flush off plug welds to a smooth surface, prepare deck and install new rubber deck tile equal to and matching original when new, using adhesives as recommended by manufacturer. Fair-in new tile with existing disturbed

RES/ur

ITEM 19- THIRD DECK PLATING REPAIRS: (Cont'd) ~~REPAIRS~~
deck tile in transverse passageway.

Paint disturbed areas in accordance with COMSTS Instruction

4750.1B.
Passageway:

On completion of installation of doubler plate in passageway, flush off plug welds to a smooth surface, prepare deck and install new rubber deck tile equal to and matching original when new, using adhesives as recommended by manufacturer. Fair-in new tile with existing disturbed deck tile in transverse passageway.

Paint disturbed areas in accordance with COMSTS Instruction 4750.1B.

ITEM 20 - VENTILATION SYSTEMS, CLEANING OF: (LJM) WR #38

All interior surfaces of the below listed systems shall be thoroughly cleaned free of all dirt, grease, line scale and other foreign debris, from their beginnings to and including their weather deck terminus. Interior surfaces to be cleaned shall include ducts, trunks, screen and fan casings.

Cleaning shall be accomplished by the vacuum suction system, augmented by the use of hand tools.

Where required, additional clean-out openings may be cut in ducts to facilitate the work. Such openings shall be fitted with suitable metal covers of same thickness as ducts, neatly installed, air-tight with gaskets and securing devices.

Work in way of galley, pantries and food serving spaces shall be accomplished at such times as not to interfere with the normal operation of said areas.

All new and disturbed areas shall be primed and painted to match adjacent surfaces. All dirt, grease and debris shall be removed from ship daily. Areas worked in or traversed by workmen or equipment shall be cleaned and left ready for use.

<u>System No.</u>	<u>Space Served</u>	<u>CFM</u>
E-02-139-1	Troop Galley Exhaust	13950
E-03-133-0	Main Galley Exhaust	12600
E-1-181-2	Ship's Laundry Exhaust	12000
E-03-96-2	Passenger's Laundry	2500

ITEM 21- WOOD DECK REPAIRS: (LJM) (WR #49)

DECK Repairs to existing wood deck planking shall be accomplished as follows:

(1) Renew approximately 600-lineal feet of wood deck planking on 01 deck level and 03-deck level, port and starboard as marked by MSTIS Inspector. Wood planking as marked by MSTIS Inspector shall be removed, including hold down bolts to steel deck and clean exposed steel deck free of all rust, scale, dirt, grease and debris. Apply a heavy coat of rust preventative compound "NO-OX-ID" type GGG or equal as approved.

(Continued)

CATEGORY "A" ITEMS

MSTSP 66-78

ITEM 21 - WOOD DECK REPAIRS (Continued)

Install ~~new~~ douglas fir, grade "Ship Decking" as outlined in the West Coast Lumberman's Grading Rules.

Thickness and width of planking shall be similar to existing when new. New planking shall be rabbitted on the top of one edge to provide a "Chem Seal Flo-Caulk", or equal vertical seam of a 3/8 inch width and a 9/16 inch depth when planks are installed.

New planking shall be installed with Nelson studs or equal and wood plugs for same, similar construction to existing when new, with the exception of seams as heretofore specified.

Clean deck seams and apply one (1) coat of "Chem-Seal" Primer No. 2703 as manufactured by Chem-Seal Corporation, or equal to sides of seams. Allow thirty (30) minutes drying time and again apply another coat of primer and allow to dry not less than four (4) hours nor more than twenty-four (24) hours. Fill the above prepared wood deck seams with "Flo-Caulk" No. 1-302, or equal. "Flo-Caulk" shall conform to the requirements of the specification MIL-C-18255 as last amended.

Caulking compound and the primer shall be from the same manufacturer. After curing of the caulking compound, remove the excess materials and sand new deck to a smooth surface.

During inclement weather, the Contractor shall properly protect all areas during accomplishment of the above mentioned work to prevent moisture from entering open seams, butts and under planking.

(2) Temporary repairs to wood deck on O2-level in areas marked by MSTIS Inspector shall be accomplished as follows:

Repairs to wood deck planking where deck has been worn and scattered deep pitting exists shall be repaired by filling with vinyl trowelling compound, MIL-D-3134, Class II or equal as approved and shall be installed in accordance with manufacturer's recommendations.

An approximate total of 2000 square feet of wood deck area requires repair: as noted above on O2-level between frames 120-140, Port and Starboard.

ITEM 22- LAGGING AND INSULATION: (LJM) WR #55

APPROX 775 Sq. Ft.

Repairs to and renewal of lagging, insulation and refrigerator paneling shall be accomplished as noted and listed below. Exact locations shall be designated by MSTIS Inspector.

(1) Refrigeration thaw box:

Reinsulate with material equal to original when new, the cork insulation on overhead manifold piping lines. Seal and cover with sheet metal as existing. Approximately 50 square feet of insulation required.

(2) Entrance to Refrigeration Flat:

Reinsulate with material equal to original when new, the cork insulation on the overhead Freon suction lines. Seal and cover with sheet-metal as existing. Approximately 50-lineal feet of insulation required.

(3) Chapel air-conditioning room 01-195-0.

Reinsulate the entire air-duct within the air-conditioning room 01-195-0 with new materials equal to original when new. (Continued)

RES/hr

CATEGORY "A" ITEMS

MSTSP 66-78

ITEM 22- LAGGING AND INSULATION: (LJM) WR #55 (Continued)

(4) Port and Starboard Vegetable Box:

Deteriorated plywood sheathing panels, 6 feet by 8 feet in Port vegetable box and 3'-6" inches x 3-feet in starboard vegetable box shall be removed and renewed with new material equal to original when new. Renew any defective exposed furring, insulation and waterproof paper.

(5) Butcher Shop Thaw Box and Steward's Chill Box (5-86-0-A and 6-78-2A)

Deteriorated plywood sheathing panels, one (1) section 4-feet by 8 feet in thaw box and two (2) section 8-feet by 20 feet shall be removed and renewed with new material equal to original when new. Renew defective exposed, furring, insulation and waterproof paper.

(6) General.

All new wood furring shall be "Wolmanized and painted with two (2) coats of "TNEMEC" Diamond -Kote #554 before installation.

All new wood paneling shall be painted overall with one (1) coat of "TNEMEC" Diamond-Kote #554.

Finish paint all new and disturbed surfaces after installation with one (1) coat of "TNEMEC" Diamond-Kote #554.

All disturbed and new areas noted above shall be painted in accordance with COMSTS Instruction 4750.1B

All areas worked in or traversed by workman shall be left in a clean, sanitary, ready for use condition.

ITEM 23 - VENTILATION DUCTS, REPAIRS TO: (LJM) (WR 62)

Renew approximately 200 lineal feet of ventilation duct as original when new. Exact location of ducts in forward and after troop heads, toilet and showers on second and third deck will be designated by MSTIS Inspector.

All renewals shall be as original.

Renew any defective or missing mesh screens, diffusers and dampers.

Paint new and disturbed areas in accordance with COMSTS Instruction 4750.1B.

DATA:

VENT DUCT SIZE

APPROXIMATE LENGTH

12" x 17"
7" x 9"
8" x 16"
8" x 9"
8" x 12"

40 - LINEAL FEET
30 " "
30 " "
70 " "
30 " "

ITEM 24 - DAVIT HEADS AND TRACKWAYS: (LJM) (WR 5)

The following shall be accomplished as specified below and coordinated with another item of the basic specifications titled "Lifeboat Davits".

(1) Renew four (4) each of the track rollers and shafts on the davit heads as noted on the following lifeboat stations.

Station:

- #5 - Forward davit head only. Four (4) each shaft and rollers.
- #6 - Forward and after davit heads. Eight (8) each shaft and rollers.
- #7 - Forward and after davit heads. Eight (8) each shaft and rollers.
- #8 - Forward and after davit heads. Eight (8) each shaft and rollers.
- #10 - Forward and after davit heads. Eight (8) each shaft and rollers.

Dfk All new material for shafts and rollers shall be equal to original when new. New grease fittings shall be installed with new rollers and shafts. New rollers shall be adjusted to suit related rackways.

(2) Reinforcement of all davit trackways boat stations No. 3 to 12 shall be accomplished as follows.

A doubler plate cut from 15 pound mild steel plate shall be installed on the lower outside flanges of each davit trackway channel and shall be seal welded all around. Width of each doubler shall be 3/4 inch less than existing channel width. The length of each doubler shall be fifteen (15) inches under lower track rollers and forty-eight (48) inches under upper track rollers when davit heads are in stowed position. Exact position of each doubler shall be designated by MSTIS Inspector.

Paint new and disturbed areas in accordance with COMSTS Instruction 4750.1B.

ITEM 25 - AIR DUCT EXTENSION: (LJM) (WR 39)

Location: Air intake houses 01-73-1Q and 01-73-2Q.

The vertical air intake ducts in each air intake house shall be extended upward to increase height as follows:

Existing vertical air intake ducts in the interior of the air intake houses shall be extended upward thirty (30) inches in the starboard house and forty-two (42) inches in the port house. New plate shall be installed with a fifteen (15) degree slope outward and upward all around with mitres on all corners to form a rectangular bellmouth opening at new end of air intake duct. New plate installed shall be equal to existing when new.

Clean interior bulkheads, decks and deckheads and exterior of air intake ducts by scraping and scaling and cleaning to bare clean metal with power or hand operated tools. Paint newly cleaned surfaces and new work in accordance with COMSTS Instruction 4750.1B.

ITEM 26- CERAMIC TILE REPAIRS: (LJM) (WR 32-34-64)

Repairs and renewal of ceramic tile shall be accomplished as noted in the following spaces.

(1) Engine Crew Shower 2-46-2-L: Renew approximately two (2) lineal feet of ceramic cove tile with new tile equal to original. RegROUT seams in existing cove tile where original grout is missing. Area worked in or traversed by workmen shall be left clean and ready-for-use.

(2) Engine Department Head 3-98-4-L and Toilet and Shower in Room 1-35-3-L: Remove deck tile and cove base tile and underlay in its entirety in above specified areas. Clean exposed metal surfaces free of all rust, dirt, grease, scale, etc. by power sanding, scaling and wirebrushing to insure a thoroughly clean surface.

Upon approval of preparation install new ceramic deck and cove base tile as follows.

Apply one (1) coat of tar pitch emulsion, equal to "FABERTITE BITUMINOUS COMPOSITION" as manufactured by Briggs Bituminous Composition Corp., to the deck and bottom of surrounding bulkheads, as required to suit the cove base height.

Underlay shall be "Dex-O-Tex" Subecote #1, as manufactured by Crossfield Products Co., or an approved equal. Underlay shall be equal in height to existing and sloped towards drains to give proper drainage.

New ceramic tile and cove base shall be same as and equal to existing.

Areas worked in or traversed by workmen shall be left clean and ready-for-use.

NOTE: Bulkhead repairs will be accomplished on another item of these specifications entitled "Miscellaneous Deck and Bulkhead Repairs."

ITEM 27 - MISCELLANEOUS DECK AND BULKHEAD REPAIRS: (LJM) (WR 32-33-65)

Miscellaneous bulkhead repairs shall be accomplished by cropping out deteriorated sections of bulkheads to good clean metal and inserting new materials equal to original when new in the following locations.

(1) Engineers Crew Washroom 2-42-2-L and Engineers Crew Shower 2-46-2-L: Bulkhead between shower and washroom is deteriorated and holed through; where urinal is located opposite outboard shower stall. Approximately one square foot of area.

(2) Crew Toilet 3-73-2-L: A 6-inch by 12-foot section of lower edge of bulkhead is deteriorated. Section shall be designated by MSTS Inspector.

(Continued)

ITEM 27 - MISCELLANEOUS DECK AND BULKHEAD REPAIRS: (LJM) (WR 32-33-65) (Cont'd)

(3) Special Service Locker 1-63-2: Deck head in special service locker is holed through from 01-level at approximately frame 70 in vicinity of hatch coaming. Exact location shall be designated by MSTIS Inspector. Remove insulation and interference from deckhead in special service locker and install a 15.3 pound mild steel doubler plate over hole in deckhead and seal and weld all around.

DECK (4) Room 3-35-3-L: Renew deteriorated bottom section of interior bulkhead surrounding washroom and water closet.

NOTE: Renewal of deck tile will be accomplished on another item of these basic specifications entitled "Ceramic Tile Repairs."

(5) Replace all interferences as original. Renew any tile damaged by repairs. Paint new installations and disturbed areas in accordance with COMSTS Instruction 4750.1B.

ITEM 28 - WATERTIGHT DOORS, REPAIRS TO: (LJM) (WR 31)

DECK Repairs to fourteen (14) watertight doors shall be accomplished as follows.

(1) Exact location of doors will be marked by MSTIS Inspector. Approximate locations are listed below.

(2) Doors shall be stripped of all dogs, wedges and rubber gaskets. Doors shall be cleaned free of all paint, rust and extraneous substances, to bare metal equivalent to "Commercial-Sandblast." Renew deteriorated sections of door panels and gasket retaining strips. Repair enlarged holes in hinge blades. Check doors for distortion and straighten. Apply one (1) overall coat of wash primer, MSTIS Code 32 followed by one overall coat of red lead primer MSTIS Code 52. Install new rubber gaskets. Renew dogs, wedges, bushings as required, lubricate and assemble. Apply two (2) overall coats of haze gray, MSTIS Code 45 protecting new gaskets from paint.

(3) Repair enlarged holes in hinges, examine knife edge on each door frame in way of removed watertight doors, renew all deteriorated areas of knife edges, straighten new and **distorted** areas and grind to a true surface throughout with radius on edge equal to original when new.

(4) Reinstall watertight doors, renewing hinge pins, adjust all dogs, chalk test and prove tight to MSTIS Inspector. Replace missing hold back hooks and door stops.

Approximate Locations

01-27-2	01-35-1	03-92-1	1-178-1
01-45-1	01-55-1	03-94-0	1-214-0
01-45-2	03-92-2	03-124-1	1-205-2
01-41-1		1-183-1	

ITEM - 29 - MOTOR ROOM INTAKE VENT: (LJM) (WR 27)

Location: 01-level, frame 167, 16 feet starboard of centerline.

Repairs to fixed louvers in motor room intake vent shall be accomplished as follows.

Remove existing deteriorated louvers from outboard side of motor room intake vent and renew with new material equal to existing when new, except installation of louvers shall be modified as follows.

New louvers shall be welded in a portable flat bar frame with overall dimensions equal to original opening. New louvers and frame shall be bolted in place to a new flat bar frame welded on edge inside of intake vent with inside dimensions of frame equal to outside dimensions of new louver frame plus 1/8 inch for clearance, new louver frame shall be installed by bolting through flat bar frames.

Clean interior of intake vent by scraping and scaling with power or hand operated tools.

Paint interior of intake vent, new installation and disturbed areas in accordance with COMSTS Instruction 4750.1B.

Install new gasket equal to original on motor room intake vent manhole cover and prove watertight.

ITEM 30 - AIR FILTER RACKS FORWARD STACK (LJM) (WR 21)

Location: Port side of forward stack 03-level frame 98.

Paper bound air filters shall be removed from racks in stack casing bulkheads and casing bulkhead doors.

Air filter support frames mounted with hinges on doors shall be completely removed and reinstalled with new air filter support frames modified to allow for removal and replacement of air filters in units or groups. Fasten new supports to doors with welded threaded studs and wing nuts.

Louver doors shall be removed and repaired as follows.

Renew hinges on doors with material equal to original when new. Renew hinge studs on stack casing bulkheads and make repairs to deteriorated sections supporting hinges and studs on doors and stack casings.

Clean plenum chamber bulkheads and deck to clean bare metal by scraping and scaling with power or hand operated tools and paint in accordance with COMSTS Instruction 4750.1B.

Renew all deteriorated louvers in doors with new material equal to original.

Reinstall doors on completion of work.

Install new air filter equal to original when new and mount over louvers on doors with new support frames.

Paint new installations in accordance with COMSTS Instruction 4750.1B.

Reinstall interferences removed as original.

ITEM 31 - HATCH COAMING REPAIRS: (LJM) (WR 14)

Deep grooves in upper edges of No. 1, 2 and 5 hatch coamings shall be repaired by clad welding and grinding smooth to a clean, fair surface.

Paint disturbed area in accordance with COMSTS Instruction 4750.1B.

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ITEM 32 - SLIDING WINDOWS: (LJM) (WR-13)

Location: Passenger Lounge and Dining Room.

A total of six (6) vertical sliding windows as designated by MSTS Inspector shall be accomplished as follows.

Remove bulkhead panel interferences, remove sliding windows. Disassemble sliding window operating mechanism, disassemble bulkhead operating mechanism. Overhaul, clean, adjust, renew all parts found defective on window and bulkhead mounted mechanisms. Lubricate and reassemble.

Reinstall windows, bulkhead panels and prove windows watertight and in good operating condition.

DATA: Vertical Sliding, Watertight Window, Torry Roller Bushing Works,
Bath, Maine

ITEM 33 - DECK HOUSE COAMING REPAIRS: (LJM) (WR-17)

Coamings at Ol-level of deck houses listed below, shall be repaired as follows.

Where weather bulkheads form a coaming, at Ol-level of deck houses, crop-out deteriorated sections of coaming to good clean metal and insert new materials equal to original when new. Approximate height of coaming is three (3) inches. Total length of repairs is approximately 120 linear feet. Area of repair shall be marked by MSTS Inspector.

DATA: (1) Centerline Deck House, Frame 177-184. (Fan room and ladder well.)

Deck (2) Centerline Deck House, Frame 201-214. (Fan Room, and resistor room.)

Paint new and disturbed areas in accordance with COMSTS Instruction 4750.1B.

ITEM 34 - FORWARD AND AFTER ENGINE ROOM BILGES: (LJM) (WR-4)

The forward and after engine room bilges shall be cleaned and painted as follows, except as noted in another item of these basic specifications titled "BOILER FOUNDATIONS AND TANK TOPS".

All water in engine room bilges, bilgewells, sumps, tank tops and water trapped by framing shall be removed.

(Continued)

ITEM 34 - FORWARD AND AFTER ENGINE ROOM BILDGES: (LJM) (WR-4) (Cont'd)

All loose flaking paint, rust, scale, grease, oil and foreign matter shall be removed by scaling and scraping to clean bare metal or a good tight paint film from the following areas.

(1) Tank tops, manhole covers, shell plate, framing, structural stanchions, foundations, pump foundations, piping, piping supports, brackets, longitudinals, sumps, bildgewells, bulkheads, strainer plates, floors and all support framing for floor plates. Floor plates are not to be included.

The above areas are limited from tank top to top of floor plate support framing, forward and after bulkheads and shell plate up to limits of floor plate supports.

(2) On completion of scraping and scaling the above areas shall be primed and painted in accordance with COMSTS Instruction 4750.1B.

All debris generated by scraping and scaling shall be removed from the ship daily.

ITEM 35 - ANNUAL INSPECTION, ENGINE: (JAB)

Accomplish annual inspection engine as required by ABS and U.S. Coast Guard Rules and Regulations as last amended and additional work as outlined herein.

Boilers Combustion Engineering, Nos. 1, 2, 3 and 4, P2-SE2-R1 Design:

Remove all access doors from ship to shop, open access to furnace.

Preliminary Hydrostatic Test of Boilers:

Prior to commencement of any work on boilers mentioned in these specifications and when boilers are cooled sufficiently, empty and refill boilers and apply a preliminary hydrostatic test equal to that of boilers' working pressure. In the presence of both the MSTSPAC Inspector and Ship's Chief Engineer conduct a complete survey of the boilers - with particular attention being made to leaking and/or defective tubes, hand hold plates, valves, joints, etc. (Testing shall be held at full pressure during time of survey). All defects found will be plainly marked.

The preliminary hydro shall be accomplished as early as practicable to permit completion of repairs found during hydrostatic test, including known repairs and those that may develop during progress of work.

Submit written report in triplicate to Assistant Port Engineer and one (1) copy to Chief Engineer via MSTS INSPECTOR stating conditions found.

(Continued)

ITEM 35 - ANNUAL INSPECTION, ENGINE: (Continued)

Thoroughly clean the firesides, including the two (2) stacks, uptakes, windboxes, furnaces, superheaters, economizers, induced draft ducts, superheater header vestibules, water wall header vestibules and the economizer vestibules at both the header and loop ends in their entirety by mechanical means, steam lancing and water washing. Provide canvas covers sloped to the drain holes and protecting the insulation.

Remove all manhole plates, handhole plates and steam drum internal fittings.

Thoroughly clean to bare metal all internal surfaces of steam drums, water-drums, waterwall and superheater headers and the steam drum internal fittings, using power wirebrush method.

Do Not turbine boiler tubes or disturb the economizer clean out plugs.

Upon completion of cleaning all drums and headers, thoroughly wash down all waterside surfaces of boiler including tubes.

Dry out, using compressed air, all drums, tubes and headers immediately after boilers are washed down. After the boilers have dried, each cleaned section shall be thoroughly examined internally to determine that all trace of scale or other foreign matter has been removed. If evidence of scale or other foreign matter is present on examination of cleaned surfaces of watersides, the work outlined above shall be repeated.

Reinstall all steam drum internal fittings.

Renew gaskets on internal de-superheater lines, reface flanges and separately hydrostatically test at NOT TO EXCEED 300 PSI.

Thoroughly clean all manhole and handhole plates except economizer clean out plugs, together with all header seating surfaces. Renew all gaskets and install all removals.

Gasket material shall be in accordance with Standard Plan Application packing and gaskets, BuShips B-153-Alt., 8.

Power tools shall not be used in the installation of handhold plates.

Accomplish all removal and reinstallation of boiler insulation and brickwork required for inspection.

VALVES, SAFETY:

The steam drum and superheater safety valves (two (2) steam drum and one (1) superheater safety valve on each boiler) shall be removed from their respective boilers or locations. Completely disassemble and make ready for internal examination by representative of U.S. Coast Guard and MSTSP Inspectors.

Upon completion of examination, valves are to be overhauled, reassembled, shop tested, utilizing steam at the boilers design pressure and temperature and reinstalled, using all new gaskets and heat-treated studs, bolts and nuts.

BOILER MOUNTINGS AND MISCELLANEOUS VALVES:

Open up, resurface, grind in seats and discs, clean and polish stems, rejoin, repack and reassemble the following valves. Replace all disturbed lagging and lagging pads.

CATEGORY "A" ITEMS

MSTSP 66-78

ITEM 35 - ANNUAL INSPECTION, ENGINE: (Continued)

<u>DATA:</u>	<u>VALVES</u>	<u>SIZE</u>
Four (4) Main steam stop valves		5"
Four (4) Bulkhead main steam stop valves		5"
Four (4) Auxiliary steam stop valves		3"
Four (4) Auxiliary steam stop check valves		3"
Four (4) Main feed stop valves		2½"
Four (4) Main feed check valves		2½"
Four (4) Auxiliary feed stop valves		2½"
Four (4) Auxiliary feed check valves		2½"
Four (4) Horizontal economizer check valves		2½"
Four (4) Surface blow valves		1"
Four (4) Bottom blow stop valves		1½"
Four (4) Bottom blow check valves		1½"
Four (4) Main engine intermediate stop check valves		5"
Two (2) Auxiliary generator intermediate stop check valves fwd. Engine room		3" 3"
Two (2) Auxiliary generator cross-over steam stop valves		2½"

SUPERHEATER HEADER DIAPHRAGMS AND INSERTS:

Remove and upon completion of inspection and repairs, reinstall the center rear superheater access door spacing panels and the soot blower heads. Blank off soot blower piping so no foreign matter will enter lines.

Thoroughly clean to bare metal and thoroughly dry the internal header area both top and bottom of the inlet and outlet headers in way of the diaphragms and the internal header area of the inserts at the bottom of both the inlets, outlet and the intermediate headers for U.S. Coast Guard and MSTSP Inspectors.

(Continued)

ITEM 35 - ANNUAL INSPECTION, ENGINE: (Continued)

Close up the watersides. Install necessary steel blind flanges for protection of main and auxiliary equipment and machinery, pressure vessels other than boilers and reducing valves and apply hydrostatic test in accordance with U.S. Coast Guard Regulations as applicable, in the presence of the USCG Inspector. Tests shall include all main and auxiliary steam piping.

Upon completion of all examinations, tests, cleaning and repairs, remove flanges installed for purpose of tests and remake all joints so disturbed, using new gaskets and heat-treated bolts, studs and nuts.

Fair up all access doors, renew all gaskets and reinstall, using 1/8 inch asbestos wire inserted gasket material (beaded or flat as applicable) riveted in place using straight, flat-head copper rivets.

SPLIT TYPE RIVETS SHALL NOT BE USED:

Renew fifteen (15) access door studs, nuts and clamps on each boiler, (A total of sixty (60) required).

Upon initial warming up of boilers, follow-up on all gaskets and joints disturbed during performance of work and make same tight.

When steam is raised to operating pressure, safety valves shall be set to conform to U.S. Coast Guard Regulations as last amended.

ITEM 36 - D. C. HEATERS: (JAB)

Open up and clean the D. C. heaters in Nos. 1 and 2 Engine Rooms for U. S. Coast Guard and MSTS Inspection.

Remove all scale and corrosion. Clean and free up mechanical linkage. Check, test and adjust the nozzle valve and spray valves. Renew the springs and set spring tension so all valves will lift to manufacturer's specifications. Paint interior with one (1) coat of Apexior No. 1, or equal.

Remove the relief and spill-over valves, one (1) each per heater, from ship to shop. Disassemble valves and thoroughly clean all parts for inspection. Grind in the double seats and discs. Reassemble valves, using new packing and gasket material. Shop test at operating temperature and adjust valves to manufacturer's specifications. Reinstall valves in ship. Close up and test heaters, renewing gaskets.

Submit written report, in triplicate to the MSTS Representative, stating condition and setting of valves and spray nozzles and heaters, as found, and any repairs accomplished.

Open up the two (2) vent condensers, thoroughly clean shell and tubes, hydrostatic test and prove units in good operable condition.

Service, clean and calibrate the distant reading D. C. heater level indicators located at operating level on gauge board and place in proper operating condition.

DATA: Mfg: Cochrane Corp.

Dwg: G-1238

Type: Deaerating Feed Heater

Capacity: 78000 P.P.H. from 175° to 240°F

No. Tubes: 63-Size 3/4" O.D. X 18 BWG X 2' 5-5/8" long copper

Relief Valve: 2-1/2" Lonergan Model ODP Set at 25 PSI.

ITEM 37 - BOILER FOUNDATIONS AND TANK TOPS: (JAB)

Accomplish the following work in way of Numbers 1, 2, 3 and 4 Combustion Engineering Boilers P2-SE2-R1 design.

Clean to bare metal all exterior underside surfaces of both the Furnace and economizer sides of boilers, including brick pans, structural members of boilers, drum supports, sliding feet, inner and outer surfaces of all foundations, curtain plating, brackets and tank tops.

After tank top surfaces are cleaned to bare metal, take and record thickness readings of tank top areas at intervals required, using Pulse-Echo type ultra sonic equipment with Oscilloscope type presentation, "Triple-Eye", or equal (Resonant type NOT acceptable), to provide a complete pattern of tank top plating thickness conditions.

(Continued)

ITEM 37 - BOILER FOUNDATIONS AND TANK TOPS: (CONT'D) (JAB)

Tank top readings shall be taken in the presence of the MSTS Inspector. The foregoing readings shall be recorded showing thickness of remaining metal and exact locations where readings were taken.

Submit tank top plan, in quadruplicate, to the MSTS Inspector showing all data.

Upon completion of the above and repairs if any, paint all cleaned surfaces listed in paragraphs (1) and (2) above with one (1) overall coat of unthinned "Wetsall" red primer Number 3240, or equal as approved. It shall be the

Contractors responsibility to keep bilges dry for scalling and painting.

ITEM 38 - BOILER SLIDING FEET: (JAB)

Accomplish the following on numbers 1, 2, 3 and 4 boilers.

Clean, free up and grease the boiler foundation sliding feet, renew all deteriorated grease fittings, bolts and nuts, adjust nuts and secure with cotterpins.

Prove sliding feet free and working.

Buships Standard Plan 810-2145500 MSTSP File No. 112-PAC B2891 will be issued for guidance.

All work and material shall be equal to original when new.

ITEM 39 - BOILER REPAIRS: (JAB)

Accomplish the following repairs on numbers 1, 2, 3 and 4 Boilers:

Renew the packing in the three (3) each Boiler, total of twelve (12) Superheater Nozzle Casing Penetration Soot Sealing Boxes, using loose shredded mineral wool fibers packed tight. Prior to installing new packing vee out and weld cracks and cracked joints on sealing boxes. Renew all disturbed insulation and lagging leaving top and bottom covers of stuffing boxes clear and accessible.

Fabricate, install and pack suitable packing glands for one (1) 1- $\frac{1}{2}$ " Bottom Blow Line, two (2) 3/4" Waterwall Drain Lines, two (2) 3/4" Superheater Drain Lines and two (2) $\frac{1}{2}$ " Superheater Vent Line Casing Penetrations on each Boiler, total twenty-eight (28) Packing Glands.

Renew all insulation and sheathing inside the Superheater Header Vestibules, including renewal of all insulation between and surrounding the Headers on each Boiler.

On No. 1 Boiler Only:

Renew the rear Steam Drum Radial Casing Soot Sealing Gaskets.

Veel out and reweld broken seam on one (1) 1- $\frac{1}{2}$ " forced Draft Pipe Nipple where it enters front Steam Drum Radial Soot Seal.

(Continued)

ITEM 39 - BOILER REPAIRS: (CONT'D) (JAB)

Repair two (2) $\frac{1}{2}$ inch diameter Blow Holes in the Upper, rear, inboard furnace side Outer Boiler Casing, using 4" x 4" x 3/16" Mild Steel Seal Welded Doublers.

Fair up and reweld broken seams on Lower, Center, Outer Economizer Casing. (approximate 25 inches weld required).

Crop out and renew two (2) 38" Long Sections of 20.4 pound Mild Steel Foundation Brackets Flush with Tank Top Thence up 12 inches, located outside foundation directly below rear end of Water Drum.

Prior to any burning or welding on Tank Tops, Fuel Oil Tanks in way of Number 1 Boiler Foundation shall be cleaned and gas freed safe for fire.

Tank will be chemically sea cleaned and pumped down to within limits of Ships Pumps prior to arrival.

DATA: No. 5 Centerline Tank - 132.09 Tons
No. 5 Port Tank - 99.09 Tons

On No. 2 Boiler Only:

Renew the Rear Steam Drum Radial Casing Soot Sealing Gaskets.

On No. 3 Boiler Only:

Renew all insulation and sheathing on side and back walls inside Economizer Soot Box.

Renew the front and rear Steam Drum Radial Casing Soot Sealing Gaskets.

On No. 4 Boiler Only:

Renew the front and rear Steam Drum Radial Casing Soot Sealing Gaskets.

Renew all insulation and sheathing on side and rear walls inside the Economizer Soot Box.

Renew the insulation and sheathing on two (2) lower Rear Superheater Access Doors.

Cut out one (1) 8-inch Round Hole in the Bottom Front Outer Superheater Access Door in way of the Soot Blower Element Removal Hole. Install a $\frac{1}{2}$ " thick x 12" O.D. Seal Welded M.S. Stiffening Ring around hole drilled and tapped for six (6) 3/8" studs and cover with a bolted, gasketed 3/16" thick x 12 inch O.D. Mild Steel Plate.

ITEM 40 - BOILER BRICKWORK

Accomplish the following refractory repairs on Nos. 1, 2, 3 and 4 C.E. Boilers P2 design:

On Boilers Nos. 1, 2, 3 and 4:

Renew the plastic burner fronts, including insulation and anchor bolts, in their entirety. Each burner angle shall be formed and checked to angle 35 degrees with metal sweep, and proved concentric and centered on the centerline of the burner atomizer in the presence of both the MSTS Inspector and Chief Engineer.

Install six (6) anchor bolts meeting Spec. MIL-B-15382 on each side of the tie bars and the section of the support plates below the bottom element on both the front and rear support plates (a total of plates (a total of twenty-four (24) anchor bolts per boiler).

Install castable refractory meeting Spec. MIL-C-717, in sufficient quantity to provide protection for the exposed sections of the support plates and tie bars below the superheater elements.

On Boilers Nos. 2, 3 and 4

Renew the furnace floor and slope in their entirety, including chrome ore corbels and chrome ore over water drum.

Renew all refractory and insulating blocking in the economizer soot box floors and slopes. Blocking shall be installed in two (2) staggered courses.

Prior to installing new floors and slopes, thoroughly clean all brick pan surfaces and conduct a survey of all joints, pans, slopes, drum bars and marginal plates to determine condition.

Submit a written report, in triplicate, with one (1) copy to Engineering Officer and balance to Assistant Port Engineer, via the MSTS Inspector, stating condition found.

Upon completion of survey and repairs, if any, paint all brick pan surfaces with two (2) coats of heat-resistant paint.

Renew all insulation and packing in the lower side and rear waterwall header boxes.

On Boiler No. 1 Only:

Renew the top course of firebrick in the furnace floors, including chrome ore over water drum. Prior to installation of firebrick, level off floor, using firebrick 3/8" to fine, Spec. MIL-B-15606, Class "B".

Renew the chrome ore corbels with NO water or foreign material added.

Renew castable refractory in rear outboard furnace corner.

Repair insulation and reset bottom firetile in economizer soot box front wall.

All materials shall meet the following specifications as amended and approved:

Castable Refractory	MIL-C-717B
Chrome Ore	MIL-P-15384B
Plastic	MIL-P-15731B
Firebrick C. "B"	MIL-B-15606C
Insulating Brick	MIL-I-16703A
Insulating Block, Cl "C"	MIL-I-2819A
Insulating Cement, Cl "B"	MIL-C-2861
Mortar	MIL-M-15842A
Anchor Bolts	MIL-B-15382B

ITEM 40 - BOILER BRICKWORK (Continued)

Detrick Tile

Manufacturer's Design

Jack hammers SHALL NOT be used in removing refractories.

ITEM 41-SOOT BLOWER PIPING: (JAB)

Accomplish the following renewals on Nos. 1, 2, 3 and 4 combustion Engineer Co. boilers, P2-SE2-R1 design.

Renew in its entirety the soot blower and scavenging air system piping and all associated hangers and fittings as shown on guidance plan, starting at and including the 1-1/2 inch root steam stops and terminating at the connecting flange on all ten (10) model G9B Diamond Power Spec. Co. soot blower heads on each boiler, total forty (40) soot blowers; this shall include all drain piping and fittings.

MSTSP Plan No. 200-PAC-B2822 is issued for guidance, fabricate and install as per plan and notes thereon, template all work on ship.

Fabricate new piping so no stress or strain is present on head or elements. Prove piping in proper alignment before bolting to heads or mating flanges to satisfaction of Chief Engineer and MSTS Inspector.

Test ~~completed new installation~~ and prove satisfactory to comply with U.S. Coast Guard and A.B.S. Rules and Regulations.

Lag new ~~sections~~, install new insulation pads as required and renew disturbed lagging on existing piping.

ITEM 42- SUPERHEATER FRONT ACCESS DOORS: (J.A.B.)

Accomplish the following modification on Nos. 1 and 2 boilers.

Fabricate and install new outer front superheater access door panels and framing, three (3) panels per boiler. (Total six (6) panels). Install soot blower element removal holes and covers, one (1) each panel.

MSTSP Plan No. T-AP-S51C2-1085514 Alt. A. will be issued for guidance, template all work from ship.

ITEM 43 - STEAM AND WATER DRUM INSULATION; RENEWAL OF: (JAB)

Accomplish the following on Numbers 3 and 4 boilers.

Renew all steam drum insulations in their entirety.

On boiler No. 1:

Renew all insulation on the front and rear ends of water drum.

On Boiler No. 2:

Renew all insulation on the front end and on the underside of the waterdrum.

On Boiler No. 3:

Renew all insulation on the front and rear ends of waterdrum.

Fabricate and install new asbestos pads in way of all manhole plates on above renewals.

(Continued)

ITEM 43 - (Cont'd) STEAM AND WATER DRUM INSULATION; RENEWAL OF

Wirebrush all exposed steam and water drum surfaces to bare metal and apply two (2) coats of heat resistant, paint to all cleaned surfaces.

Install new Class "C" insulating blocking, meeting Specification Mil-I-2819 A, same thickness as original installation, properly wired and secured in place. Apply an overall coating of insulating cement trowelled to smooth surface and covered with asbestos cloth properly sized.

ITEM 44- BOILER WATER SAMPLE LINE: (JAB)

Accomplish the following on Nos. 1, 2, 3 and 4 boilers.

Fabricate and install one (1) 1/2 inch I.P.S. boiler water sample line for each boiler, by teeing off from the 1 (one) inch surface blow line adjacent to steam drum; extend 1/2 inch line from each boiler to terminate by teeing into boiler water sample coolers, sample water coolers for two (2) boilers are located on outboard side of one (1) boiler in each fire room. Provide and install necessary 1/2 inch 600 P.S.I. globe valves, fittings and pipe hangers.

Test and prove tight to satisfaction of Chief Engineer and MSTS Inspector.

Label lines with boiler numbers and service intended.

ITEM 45 - UPTAKE EXPANSION JOINTS: (JAB)

Accomplish the following on Nos. 1, 2, 3 and 4 boilers:

Crop existing expansion bellows and fabricate and install with continuous weld, new expansion bellows in the uptakes in way of expansion slip joints, between interior economizer casing and uptake breeching. Use 14-gauge stainless steel, mitering all corners. Template all work from ship.

Renew all missing or broken bolts, studs, nuts, washers, etc., in existing expansion joints prior to installing new bellows.

Renew gaskets, reinsulate and make gas tight the uptake access doors.

ITEM 46 - BOILER REMOTE LIQUID LEVEL INDICATORS:

Accomplish the following on Nos. 1, 2, 3 and 4 boilers.

Provide the services of a qualified "Yarway" remote liquid level indicator repair agency to completely check out, overhaul and put in design operating condition the "Yarway" remote boiler water level indicators and Hi-Lo alarm system, including settings for alarms and pointer settings for correct gauge readings.

Perform operational tests to satisfaction of Chief Engineer and MSTS Inspector.

ITEM 47 - LIFEBOAT WINCHES NO. 1 AND 2: (WR-7) (LJF)

Remove Nos. 1 and 2 lifeboat winches from ship to shop.

Disassemble and remove all mechanical component parts of winches from existing structural members.

Renew all structural members complete, including, but not limited to side plates, brackets, covers and foundations.

Renew cable drum ring gears securing cap screws.

Apply exterior coating to new fabrications, cable drums and gear boxes in strict accordance with COMSTS Inst. 9190.4A, Inclosure 6.

Disassemble motors thoroughly clean, bench test and examine all parts.

Fair-up, straighten, under cut, build-up in an approved manner and machine finish armature shafts in way of bearing surfaces to original design dimensions.

Check end bells for bearing fit, undercut, build-up and machine finish bearing housings for correct fit of bearings.

Renew bearing with bearing, equal to manufacturer's specified bearings.

Turn commutators to a true concentric within .001 inch plus or minus, undercut mica, remove feather edges and polish.

Renew all defective or deteriorated motor leads, field and brushrig jumpers.

Preheat, vacuum impregnate, and bake armatures and spray paint field and interpole coils with approved insulating varnish.

Check all coils and connections for correct polarity.

Repair and adjust brushrig assemblies, renewing insulation, springs, and component parts found defective.

Renew all brushes and completely seat to commutator in proper staggered position, with brushholders evenly spaced around commutator circumference, spaced at a maximum of 1/8-inch from commutator and adjusted to load neutral.

Disassemble the gear boxes, thoroughly clean, inspect and renew all defective roller and ball bearings, seals, centrifugal clutch and brake shoes, springs, hand brake band and lining, pinion shaft and pinion extension shafts.

Using an approved method reband the manual brake drums and machine to original dimensions.

Clean and prove clear all grease fittings and passages.

Reassemble gear boxes in accordance with manufacturer's original design specifications.

Reassemble the winches complete with reconditioned gear boxes and electric motors.

Lubricate in accordance with manufacturer's lubrication chart and prepare for installation.

Scale and clean the foundations and exposed areas in way of removals to bare metal and apply two (2) coats of red lead, MSTS Code 52.

Reinstall in accordance with original design, using new galvanized steel bolting.

Renew the kick pipe, material to be extra heavy pipe approximately 36-inches long.

Paint all disturbed surfaces to match existing area.

(Continued)

CATEGORY "A" ITEMS

MSTSP 66-78

ITEM 47 - LIFEBOAT WINCHES NO. 1 AND 2: (WR-7) (LJF) (Cont'd)

Make final adjustments operate and test in accordance with USCG Regulations and satisfaction of MSTS Representative and First Officers.

DATA: Winches:

Mfr. Welin Davit Boat Corp.
Dwg. No. 3030, Mfr. I.D. Type C69
CWB Contract 16454

Motors:

Mfr. Westinghouse Electric Co.
Style 5B5562, 12.5 HP
230 Volt DC @ 1150 RPM
Location: Boat deck, Fr. 71 port and starboard.

ITEM 48 - LIFEBOAT WINCHES NOS. 3,4,5,6,7,8,9 & 10: (WR-9) (LJF)

Remove the Nos. 3,4,5,6,7,8,9 & 10 lifeboat winches from ship to shop.
Disassemble and remove all mechanical component parts of winches from existing structural members.

Renew all structural members complete, including, but not limited to side plates, brackets covers and foundations.

Renew upper and lower cable drum ring gear securing cap screws.

Apply exterior coating to new fabrications, cable drums, and gear boxes in strict accordance with COMSTS Inst. 9190.4A, Inclosure 6.

Disassemble motors, thoroughly clean, bench test and examine all parts.

Fair-up, straighten, undercut, build-up in an approved manner and machine finish armature shafts in way of bearing and impeller surfaces to original design dimensions.

Check end bells for bearing fit, undercut, build-up and machine finish bearing housings for correct fit of bearings.

Renew bearings with bearings equal to manufacturer's specified bearings.

Turn commutator to a true concentric within .001 inch plus or minus.

Undercut mica, remove feather edges and polish.

Renew all defective or deteriorated motor leads, field and brushrig jumpers.

Preheat, vacuum impregnate, and bake armature and spray paint field and interpole coils and with approved insulating varnish.

Check all coils and connections for correct polarity.

Repair and adjust brushrig assemblies, renewing insulation, springs, and component parts found defective.

Renew all brushes and completely seat to commutators in proper staggered position, with brushholders evenly spaced around commutator circumference, spaced at a maximum of 1/8-inch from commutator and adjusted to load neutral.

Disassemble the gear boxes, thoroughly clean, inspect and renew all defective roller and ball bearings, seals, centrifugal clutches and brake shoes, springs, hand brake bands and linings, pinion shafts and pinion extension shafts.

(Continued)

CATEGORY "A" ITEMS

MSTSP 66-78

ITEM 48 - LIFEBOAT WINCHES NOS. 3,4,5,6,7,8,9 & 10: (WR-9) (LJF) (Cont'd)

Using an approved method reband the manual brake drums and machine to original dimensions.

Clean and prove clear all grease fittings and passages.

Reassemble gear boxes in accordance with manufacturer's original design specifications.

Reassemble the winches complete with new fabrications and reconditioned gear boxes and electric motors.

Lubricate in accordance with manufacturer's lubrication chart and prepare for installation.

Scale and clean the foundations and exposed areas in way of removals to bare metal and apply two (2) coats of red lead MSTS Code 52.

Reinstall in accordance with original design, using new galvanized steel bolting.

Renew the kick pipe, material to be extra heavy pipe approximately 36-inches long.

Paint all disturbed surfaces to match existing area.

Make final adjustments operate and test in accordance with USCG Regulations and to satisfaction of MSTS Representative and First Officers.

DATA: Welin Davit Winches

Model BWB complete with General Electric

25 HP motors.

ITEM 49 - MISCELLANEOUS INSULATION REPAIRS: (LJF)

Renew the deteriorated and missing insulation and lagging on the following listed piping, valves and equipment in locations as listed and designated by the MSTS Inspector.

Install insulation and lagging that is equal to deteriorated insulation when new and suitable for each respective service.

The new insulation being installed on boiler steam systems shall be "HIGH TEMP" insulation properly installed and wrapped.

The new insulation being installed on auxiliary steam shall be standard $1\frac{1}{2}$ inch of 85% magnesia insulation properly installed and wrapped with asbestos cloth.

The new insulation being installed on cold water, waste and soil lines shall be sectional $1\frac{1}{2}$ inch wool felt and $1\frac{1}{2}$ inch hair felt properly installed and lagged.

On completion of installation, paint to match surrounding areas and leave the worked in area clean and in a ready-to-use condition.

Sizes and lengths quoted are approximate and contractor shall take exact dimensions from installed locations.

- (a) Forty-eight (48) feet of $1\frac{1}{2}$ inch piping.
- (b) Forty-eight (48) feet of $3\frac{3}{4}$ inch piping.
- (c) One-hundred and twenty-eight (128) of 1 inch piping.
- (d) One hundred and seventy-seven (177) feet of $1\frac{1}{2}$ inch piping.
- (e) Ninety-three (93') feet of 2-inch piping.
- (f) Seventy-three (73') feet of 3-inch piping.
- (g) One-hundred twenty-five (125) blanket type pads of various sizes.
- (h) Fifty (50) valves of various sizes.
- (i) One-hundred twenty-five (125) square feet of insulation and lagging on the contaminated drain tank after engine room, frame 6-132 to 6-134-2.

ITEM 50 - PIPING REPAIRS: (LJF)

Remove all interferences and accomplish the following repairs and renewals to piping as specified:

Remove the deteriorated and leaking sections of below-listed piping.

Fabricate and install new sections using material equal to original when new, complete with flanges, fittings and hangers.

Lengths and sizes specified are approximate and contractor shall take exact dimensions from installed locations aboard ship.

Provide ship with temporary fire protection in locations of firemain pipe removal during accomplishment of repairs.

Shop test all fabricated pipe to one and one-half ($1\frac{1}{2}$) times working pressure, in the presence of the MSTS Inspector.

Install new piping aboard ship using new gaskets, bolting material and sufficient pipe hangers for proper installation to replace piping repaired.

Prove all work tight under ship's load.

Install insulation of proper thickness and type for service intended.

ITEM 50 - PIPING REPAIRS: (Continued)

(a) Contaminated drain return (WR-51)

Fifteen (15) feet of 1 1/2 inch IPS shaped and flanged drain piping
After engine room 6-130 to 6-132-2.

(b) Fire main line (WR-52)

Eight (8) feet of 8 inch IPS shaped and flanged galvanized fire
main piping forward engine room compartment 3-101-1.

ITEM 51 - FUEL OIL TANK HEATING COIL RENEWAL: (LJF)

The below listed fuel oil tanks (four (4) each) will be chemically sea washed and pumped down to within the limits of the ship's pumps, prior to arrival in contractors yard.

Contractor shall remove all remaining oil, sludge, solidified sludge, water and debris from tanks and lines.

Provide and post gas free certificates before commencing and during accomplishment of hot work.

Renew all schedule 80 seamless steel fuel oil tank heating coils and piping complete including tank top penetrations in below listed tanks.

All joints to be of welded construction.

Hydrostatic test new coil installations to 150 PSI and prove all joints tight.

Close-up fuel oil tanks, using new gaskets, wicking, washers and nuts.
Air test fuel oil tanks and prove tank openings and penetrations tight.

DATA:

No. 2 Stbd. F.O. Tank, Frame 42-60	91.91 Tons
No. 6 Stbd. F.O. Tank, Frame 112-128	109.5 Tons
No. 6 Port F.O. Tank, Frame 112-128	109.5 Tons
No. 8 Centerline F.O. Tank, Frame 142-158	150.94 Tons

Approximate Material Required:

1,200 ft. of $1\frac{1}{2}$ inch Sch. 80, Seamless steel pipe.
100 ft. of $\frac{3}{4}$ inch Sch. 80, Seamless steel pipe.
100 ft. of 1 inch Sch. 80, Seamless steel pipe.
150 Socket weld couplings, Sch 80.

ITEM 52 - ADDITIONAL SHOWER DRAIN INSTALLATION: (AMC)

Install in Engineers quarter shower, compartment (2-49-2-L), one (1) additional deck drain equal to and approximately nine (9) feet inboard of existing deck drain complete with approximately sixteen (16) feet of new drain piping connected to existing drain line.

Renew disturbed tile in way of new installation.

Prove drain tight and satisfactory to MSTS Representative.

CATEGORY "A" ITEMS

MSTSP 66-78

ITEM 53 - FUEL OIL TANK HEATING COIL REPAIRS: (LTF)

The below listed fuel oil tanks three (3) each) will be chemically sea washed and pumped down to within limits of the ship's pumps, prior to arrival in Contractor's yard.

Contractor shall remove all remaining oil, sludge, solidified sludge, water and debris from tanks and lines.

Provide and post gas free certificates before commencing and during accomplishment of hot work.

Conduct 150 : PSI hydrostatic test of fuel oil tank heating coils, search out, locate and mark all leaks.

Renew approximately eighty (80) feet of deteriorated and leaking fuel oil heating coil piping in scattered locations designated by MSTIS Inspector.

After repairs hydrostatic test to 150 PSI the fuel oil tank heating piping and coils, inspect for leaks and prove tight. Close -up the three (3) fuel oil tanks, using new gaskets, wicking, washers and nuts.

Air test fuel oil tanks and prove tank openings and penetrations tight.

DATA:

No. 4 Starboard F. O. tank, Fr. 78-98, 101-32 tons.

No. 4 Post F.O. tank, Fr. 78-98 101.32 tons.

No. 7 Starboard F. O. Tank, Fr 128-142 85.9 Tons.

ITEM 54 - CROSSOVER VALVES, RENEWAL OF: (WR-41) (LTF)

Remove a total of two (2) 3-inch IPS, 150 PSI, flanged globe valves located; one (1) in the forward engine room and one (1) in the after engine room.

Furnish and install new replacement valves equal to crane No. 151 XR, complete with new gaskets and bolting.

Alter the piping in the after engine room to suit the new replacement valve.

Install insulation and lagging of type and thickness for service intended.

ITEM 55- SOIL AND SCUPPER VALVES: (WR-43) (LTF)

Open-up a total of eight (8) soil and scupper valves as listed below for inspection by ABS, USCG and MSTIS Representatives.

Renew seats and discs, defective hinge pins and pads.

Thoroughly clean to bare metal and paint interior surfaces with Apexior No. 3 or equal.

Close-up using new gaskets and bolting.

Free-up and lubricate operating rods and leave in ready for use condition.

<u>Location</u>	<u>Type</u>	<u>Size</u>
4-45-1	Single	6 1/2 inch
4-98-1	Single	6 1/2 inch
4-98-2	Single	6 1/2 inch
4-104-1	Single	6 1/2 inch

(Continued)

ITEM 55- SOIL AND SCUPPER VALVES: (WR-43) (LJF) (Cont'd)

<u>LOCATION</u>	<u>TYPE</u>	<u>SIZE</u>
4-59 and 60-1	DOUBLE	5 1/2 and 6 1/2 inch
4-44 and 45-2	DOUBLE	5 1/2 and 6 1/2 inch
4-59 and 60 -2	DOUBLE	5 1/2 and 6 1/2 inch
4-134 and 135-1	DOUBLE	5 1/2 and 6 1/2 inch

ITEM 56 - REDUCING STATION INLET VALVES (WR/44) (LJF)

Remove a total of four (4) high pressure socket welded valves, two (2) size 1 1/4 inch IPS, and two (2) size 2 inch IPS, located: 150 PSI reducing stations forward and after engine rooms.

Alter piping and install replacement flanged type, 600 PSI, 700° F, steam service replacement valves complete with gaskets, bolts and insulation.

ITEM 57 - TEMPERATURE CONTROL VALVES: (WR 45) (LJF)

Provide and install a total of two (2) size 2 1/2 inch IPS suitable type temperature regulating valves complete, in the 2 1/2 inch steam line to the hot water heaters located in the forward and after engine rooms.

Alter the piping to 2 1/2 inch IPS inlet steam line to suit the new valves.

Install insulation and lagging of suitable thickness and type for service intended.

Test and prove satisfactory under all conditions.

ITEM 58 - MAIN FEED PUMP TURBINE: (WR -40 (LJF)

Remove the No. 1 main feed pump turbine from ship to shop.

Disassemble the turbine, thoroughly clean and inspect all component parts for conformance to manufacturer's original design.

Renew the seating surfaces of the hand control and governor steam control valves, including renewal of seats as necessary to prove a steam tight seat.

Fit and install new carbon packing rings.

Reassemble in accordance with design specifications.

Reinstall aboard ship, using new bolting and gaskets.

Conduct operational test and adjust the overspeed trip and governor to satisfaction of MSTS Representative.

Install lagging and insulation of suitable thickness and type for service intended.

DATA:

MFR: Westinghouse Electric Co.

Type CA-20 steam turbine.

ITEM 59 - WATER TREATMENT ROOM: (LJF)

Accomplish work in the water treatment room located on fourth deck, Frames 105-112, Starboard, as hereinafter specified:

(Continued)

ITEM 59 - WATER TREATMENT ROOM: (Cont'd)Fresh Water Purifier Tanks:

Open up and remove the deteriorated "Anthrafilt" ballast and "Hydrodarco" from the five (5) style B.H.D. purifiers.

Clean the tank watersides to bare metal and apply chlorine resistant lining.

Recharge the five (5) purifiers with the correct amounts of "Anthrafilt" ballast and "Hydrodarco" in accordance with manufacturer's Instructions; Chief Engineer has copy.

Wash, sterilize, test, service and place the purifiers in a ready for use condition.

Close up tanks with new gaskets, replacing with new all defective or missing bolting material.

DATA: 36' - 30 BHD Hydrodarco Purifiers
Manufacturer: Infilco, Inc.

Services Normally Available: Bennett Marine Utility Inc.

2. Retention Tanks:

Open up and clean the interior surfaces of the three (3) retention tanks free of all dirt, rust, scale and other foreign matter.

Upon completion of tank cleaning and when notified by the MSTS Inspector, close up tanks with new gaskets, replacing with new all defective or missing bolting material.

Leave tanks in a clean, ready for use condition.