

EXXON COMPANY, U.S.A.

POST OFFICE BOX 1512 • HOUSTON, TEXAS 77001 "STANSHIP HOUSTON"

TO BE FILED
MARINE DEPARTMENT

P. T (6 mo.)

MARINE DEPARTMENT

J. H. SWARTZ
OPERATIONS MANAGER

A. D. MOOKHOEK
FLEET & BRANCH MANAGER

L. H. EARLE
MARINE ADVISOR

H. J. BORGES
MAINTENANCE & SERVICES MANAGER

Master and Chief Engineer
EXXON LEXINGTON
c/o Office

June 27, 1978

EXXON LEXINGTON
Shipyard Period

Gentlemen:

The EXXON LEXINGTON is scheduled to enter Newport News Shipyard on or about August 1, 1978. The U. S. Coast Guard Biennial Inspection, ABS Survey, Drydocking and other specified repairs and betterments will be accomplished at this time. We are attaching a copy of the specifications describing the work which we plan to do. Please review these specifications, which you should be familiar with, and promptly advise the Repair Inspector of any omissions of necessary repair work. We suggest that you conduct the Coast Guard Inspection without any unnecessary delays. Our primary objective is to maintain the EXXON LEXINGTON in operational readiness while giving due consideration to minimizing the cost of the repairs and the out-of-service time incurred.

This objective can be achieved with the mutual cooperation of the ship's officers and the Repair Inspector in attendance. We have evaluated the repair specifications for the forthcoming yard period, and it is expected to take not more than thirty-five calendar (35) days to complete the work. As in the past, extra items should be minimized and should be submitted only through the Repair Inspector. To achieve a smooth work flow and to minimize time in the yard, you are requested to do your utmost to support and aid the Repair Inspector in making inspections on all repairs to assure all items are completed and closed in good order. Near the end of the repair period, all preparations should be made in order to expedite plant start-up and other necessary preparations for getting underway.

Because of the expected length of the repair period, some reduction in the requested number of personnel is probable. However, we will wait for your proposed work schedule before making a final decision. During the course of the overhaul, you are to maintain a detailed list of work actually accomplished by vessel personnel. This list is to be forwarded to the office after shipyard repairs have been completed. Please include in this letter your thoughts on the quality of shipyard repair work.

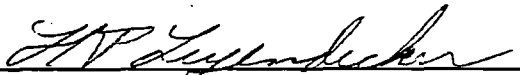
The Repair Inspector acting in behalf of you and the Repair Section will be Mr. W. A. Ingham, Jr. He is prepared to do his utmost to provide you with his talent and cooperation to ensure a successful overhaul in the general interest of the Company.

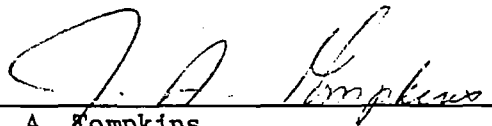
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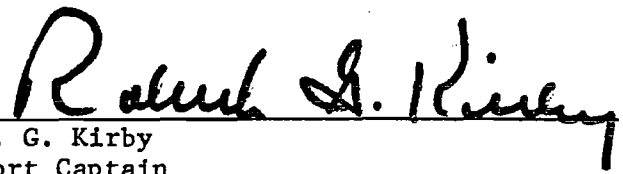
June 27, 1978

Enclosed are check list instructions and a packet of manpower count forms for you to use during the repair period at Newport News Shipyard. Please phone results of manpower counts to Mr. Rod Derby on each Friday during the repair period. If you have any questions about the procedure, please contact Rod in Houston at 1-713-656-5382.

Very truly yours,


H. P. Leyendecker
Repair Superintendent


J. A. Tompkins
East Gulf Coast Fleet Manager


R. G. Kirby
Port Captain


A. T. Fellows
Port Engineer

HPL: bt
attachments

c: Mr. H. J. Borgen
Mr. W. N. Ekstrand
Mr. R. E. Gordon
Mr. L. A. Hanft
Mr. W. A. Ingham, Jr.
Mr. J. A. Tompkins
Mr. E. J. Worrel, Jr.

EXX-MOR-002352

General Specifications

The following are some general specifications pertaining to all work done during this repair period.

- a. Cargo piping 6" or more in diameter to be schedule 40, blasted in and out and coated with RB 191; less than 6" to be schedule 80 and blasted in and out and coated with RB 191.
- b. Steam and exhaust piping to be schedule 80 steel.
- c. All steel installed aboard vessel including brackets, internals, ladders, etc., to be blasted and coated with RB 191.
- d. All pipe hanger bolts and ladder bolts installed on deck or in tanks to be galvanized or cadmium plated.
- e. All steel work to be cleaned and coated with primer at completion. All disturbed areas to be cleaned and coated with primer. All steel work on which the zinc coating has been disturbed due to welding shall be wire brushed and recoated with RB 191.
- f. All disturbed insulation in way of all repairs shall be patched and placed in good order as necessary.
- g. All Rust-Ban 191 specified in these specifications will be supplied by the vessel, until those current supplies presently on board are exhausted.

Equipment Removed from Place Aboard Vessel

Valves, motors, machinery parts, etc. not otherwise designated by Owner's Representative for removal from vessel for repair or shipment, or scrap is to be tagged as to origin and stored in midship house square.

All survey and inspections to be accomplished as soon after arrival as possible.

Valve Specifications (General)

Pressure test all valves removed from place prior to opening up. All valves found tight required pressure to be repacked and replaced. Renew packing on all valves worked on. All valves to be repaired with new gaskets, bolts and nuts and proven tight. Replace and/or repair disturbed insulation.

1. PROTECTIVE PAPER AND TOPSIDE CLEANING - 503

Furnish necessary labor, equipment and material required to complete the following:

- a. Furnish necessary labor and material to install fire retardant protective paper on decks in passageways of quarters. Secure paper with suitable tape.
- b. End of repair period clean house top, bridge wings, and decks down to main deck and remove all fire retardant paper from bulkheads, passageways and stairwells.
- c. All shipyard workers are to stay out of ship's quarters, galley, messhalls, toilets and other similar areas unless conducting authorized work in such areas. The Contractor will be held responsible for all damage to Shand and Jurs tapes and floats in ballast and cargo tanks and all electric probes in ballast and cargo tanks. Suggest all floats, tapes and probes be secured or labeled to prevent damage to same.

2. FOAM SAMPLE - 109

As soon as vessel arrives, draw two (2) samples of foam; one (1) from each foam tank. One (1) pint each. Box and ship same immediately prepared "Air Mail" to:

NATIONAL FOAM COMPANY
UNION AND ADAMS STREETS
WEST CHESTER, PENNSYLVANIA 19380

Mark container
FROM: EXXON LEXINGTON

Send report to:

EXXON COMPANY, U.S.A.
Marine Department
P. O. Box 1512
Houston, Texas 77001

Attention: Mr. H. P. Leyendecker

3. DRYDOCK - 901

Vessel is to be drydocked, keel blocks to be spaced at not less than three-foot centers, except in way of forward and after ends of dock pontoons in order to properly apply paint to keel between blocks. Contractor is to furnish fresh water under pressure to painters for washing off vessel's bottom.

Vessel is to remain on dock sufficient time to permit all testing to be carried out and paint to dry to approval of Owners's Representative.

4. GAS FREE - 902

The Owner will steam, clean and gas-free, or cause to be steamed, cleaned and gas-freed, all cargo tanks, cofferdams, pumproom, compartments and pipelines other than those containing bunker or boiler fuel and such other tanks, cofferdams, compartments, etc., as are specifically exempted by the Contractor's Certified Chemist. The Contractor shall not assume, however, that the vessel and/or its compartment and/or its pumps and/or its piping is or are free from explosive or dangerous gas or gases or oil, but shall at his own expense have such tanks, compartments, pumps, piping, etc. tested by a Certified Chemist engaged by the Contractor who shall furnish the Owner and/or his Representative with a Certificate showing that such compartments and/or pumps and/or piping, etc. have been so tested and found to be free from explosive and/or dangerous gas or gases or oil. Said Contractor shall keep all such cargo tanks, cofferdams, pumprooms, compartments and pipelines free from explosive and/or dangerous gas or gases or oil during the period of repairs and/or alterations. Delivery of such aforementioned Certificate and receipt thereof by the Owner or his Representative shall in no way relieve and/or discharge the Contractor from his obligation to keep these places free from explosive and/or dangerous gas or gases or oil during the performance of this contract or any related additional work. Should, during the course of repairs or alterations, the Contractor's Chemist report the presence of dangerous and/or explosive gases or oil, the Contractor shall immediately stop all work and shall not resume work until such places, etc. are again certified free from explosive and/or dangerous gas or gases or oil.

Burning or other hot work shall not be done by the Contractor on any part of the cargo piping system, gas vent lines or other piping lines which may have contained oil, gas or other inflammable products, unless permission to do so is specifically granted by the Contractor's Certified Chemist.

5. SLOP OIL DISPOSAL - 902

Contractor will be required to accept approximately 8,000 barrels of dirty slop from one (1) tank and dispose of same. Tank is to be gas-freed by Contractor as required to obtain gas-free certificate, together with connecting pipelines and related pumps. There is to be no delay in accomplishing this item in order that repairs may proceed promptly upon vessel's arrival.

6. SAFETY PRECAUTIONS - COATED MATERIALS - 905

The Contractor shall provide adequate exhaust ventilation; shall supply airline respirators, hose masks, or similar accessories; and shall take all other measures necessary to avoid creation of hazards resulting from burning or welding of coated plates, structural members, pipes, or other parts of the vessel or its equipment. The Contractor shall at no time run steam lines, air lines, water lines, acetylene lines, welding cables, light cables or any other lines of any nature through the passage way doors or port holes to the quarters or engine room.

-----THESE PASSAGEWAYS ARE TO BE KEPT CLEAR AT ALL TIMES-----

7. TUG SERVICE - 905

Furnish necessary tug service to assist vessel from stream to pier, and from pier to stream and within yard.

8. LINES AND GANGWAYS - 905

Furnish necessary labor and crane service to handle lines and gangways upon vessel's arrival and departure of vessel.

9. FIREMAIN - 905

Furnish necessary material and labor to connect and disconnect firemain to vessel at pier.

10. SHORE POWER - 905

Furnish necessary material and labor to run necessary shore leads and connect up shore power to vessel. Supply the power to vessel during repair period.

11. SHORE STEAM - 905

Furnish necessary labor and material to run piping and connect up and disconnect shore steam piping to the vessel. Supply shore steam to vessel during repair period.

12. WATCHMAN - 905

Furnish services of watchman to maintain fire watch on vessel during period of repairs.

13. GARBAGE - 905

Furnish containers and necessary labor to dispose of garbage.

14. TELEPHONES - 905

Furnish telephones in engine room and midship's office.

15. SCUPPER PLUGS AND STOCKINGS - 905

a. Before any paint is applied to hull, install wood plugs with extension pipes of sufficient lengths or other approved means in all scuppers and overboard drains throughout vessel to prevent any water running on hull of vessel. Plugs to remain in until painting is completed and dry and then remove.

b. Install stockings on soil lines, scupper drains from washrooms and air conditioner, also ice machine overboard discharges, while vessel is on drydock to enable ship's personnel to use toilets and washrooms, preventing any water running on shell during painting.

16. FRESH WATER, COOLING WATER FOR ICE MACHINE AND AIR CONDITIONING CONDENSERS - 905

Furnish necessary labor and material to supply fresh water as required (wash and drinking.) Also run hoses and connect up and disconnect hoses to the vessel for ice machine and air condition cooling water; supply water to vessel during repair period.

17. CARGO TANK, MACHINERY SPACE, ENGINE ROOM CLEANING - 902

Contractor to provide necessary labor to clean and remove debris, resulting from repairs, modifications, and/or alterations during this yard period, from all machinery spaces, pumprooms, cargo and ballast tanks including bilge areas of aforementioned spaces. These spaces to be in the same condition when vessel departs as when vessel entered shipyard.

18. CATHODIC PROTECTION - 115

While vessel is on drydock, thoroughly examine all hull anodes and reference cells. Remove, replace, renew if required. Stage as necessary. Owner supplies new parts required. Sandblast approximately 200 sq. ft. of defective calcium deposits from capastic shields and recoat two (2) coats of new capastic on blasted areas. Remove staging. Check out internal electronic panel aboard vessel. Renew defective parts, reset and place in good order. New parts will be Owner supplied. Require services of Englehard engineer to supervise repairs. Services of Engineer to be for Contractor's account.

19. MAIN AND EMERGENCY SWITCHBOARDS - 804

Thoroughly clean and blow out with dry air, all busses, circuit breakers, terminal strips and insulators on main and emergency switchboards. Examine and tighten all connections, nuts and screws for terminals in front and behind switchboards. Check insulation of mountings for exciter rheostats, and renew as required. Work to be carried out when galley not in use. Tighten all connections in all power control boxes, including steering gear controls. This includes both sides of panels. Check and reset reverse power relays for main generators. Prove in good order.

20. HEAT LAMPS - 805

Furnish and install heat lamps on all motors, generators, converters, automation console and switchboard. Keep in service during repair period. Upon completion of repairs, remove all wiring and heaters.

21. MEGGER TEST READINGS - 809

Test and deliver to Owner's Representative as soon as possible after vessel's arrival in yard five (5) typewritten megger readings on all generators, motors, controllers, and electrical circuits throughout the vessel. Locate and demonstrate breakdown of all low readings. Allow for removal of twenty (20) grounds from circuits as designed by Exxon Repair Inspector and/or Chief Engineer.

22. SHIP'S TELEPHONE AND GENERAL ALARM CIRCUITS - 851

Overhaul, check all circuits, remove all readings, free up frozen cranks, check all bells, renew defective sound powered units in headsets. Prove system in good order. Parts requiring renewal will be supplied by Owners. Test out general alarm circuits and call bells and prove all to be in good order. Test steering gear power failure alarm and prove same in good order.

23. CRANE SERVICE - STORES - 905

Furnish crane service from time to time as requested by the Owner's Representative to place stores aboard vessel.

Rig vessel stores from ashore to vessel as delivered by Vendors. Ship supply engine, deck and stewards stores.

24. RECEIVING, SHIPPING, HANDLING AND STORAGE OF OWNER'S MATERIAL - 905

Furnish labor and equipment to receive Owner's materials, as delivered to shipyard. Pay any collect freight charges, Custom House brokerage fees, etc. due on shipments. Properly store material and, when directed, convey to location on vessel as designated. Receive any material removed from vessel. Properly store and/or ship as directed by Owner's Representative, paying any freight charges, Custom House brokerage fees, etc. on prepaid shipments.

25. ENGINEER ROOM BILGES - SHAFT ALLEY - 905

Furnish labor and material for pumping out and disposal of engine room and shaft alley bilge water preferably designated port and stbd wing tanks of vessel.

26. SKYLIGHT REMOVAL - 102

Furnish labor and material to remove the skylights from the engine room and after pumproom.

Reinstall using new gasket and bolting material as necessary, upon completion of all work in way of same.

27. CARGO PIPING SURVEY - 407

Upon arrival of vessel in shipyard provide manpower and material to conduct a hydrostatic test of all cargo piping including ballast and stripper piping test pressure approximately 125 psi, mark all leaks with white or yellow paint and report findings in writing to Repair Inspector. Five (5) copies.

Upon completion of repairs and just prior to ship departing shipyard, set up and test all cargo piping to Chief Mate's and Repair Inspector's satisfaction.

28. CARGO TANKS INSPECTION - USCG & ABS: - 107

- a. Provide necessary labor to assist USCG and ABS representatives to conduct survey and search out cargo tanks for fractures. Report in writing all fractures found to Owner's Representative for examination. (5) five copies.
- b. Check condition of Shand and Jurs "U" bolts - total (60) in (30) cargo tanks. Defective or wasted bolts found to be dealt with in addendum to this item.

29. MAIN TURBINE AHEAD AND ASTERN THROTTLES - 206

Open main turbine ahead and astern throttle valves. Renew Owner furnished balance piston rings. Fit to recommended vertical height and gap clearance. Machine discs (as found necessary), grind and lap in and make tight. Hone and polish shoulders from cylinder. Check and set to correct clearance between disc and valve stem and renew spacer between disc and valve stem. Renew stainless steel fillister head locking screw, tack weld the screw to nut. Renew defective ball bearings in gear train bonnet assembly. Ream all holes true and make and install new pins and bushings in control valve linkages

to remove all excessive slack. Reassemble with new gaskets, renew valve stem packing with approved packing. Prove in good order. Harden up all nuts after throttle is hot. Replace or renew all disturbed insulation. The vessel is to be tied up sufficiently so that throttle valve can be tested out by running the main engine. While ahead throttle is disconnected, remove bonnet of oil governor assembly and renew bonnet gasket. Reassemble governor after renewal of gasket. All of the above to be supervised by Newport News Service Engineer for Owner's account.

30. RUDDER - ABS - 105

Carry out necessary work to obtain a certified chemist's gas free certificate on the rudder before starting any hot work. Remove inspection plates for examination of pintle pin nuts and bushings and taking of bushing clearances. Test nut in presence of USCG, ABS and Owner's Representative. Reinstall inspection plates and pintle nut retainer stops. Weld solid inspection plate. Examine rudder and rudder horn for erosion and leaks, make all necessary repairs to leaks. Pitted areas are to be sandblasted and covered with red hand cement prior to painting.

31. RUDDER STOCK PACKING - 105

Provide necessary labor and material to remove all old packing and renew packing in top and bottom of glands on rudder stock. Prove grease connections clear.

Repack rudder post using John's Manville NAVALON Packing Style 1 - 5, Form C-175. Renew defective gland studs and nuts, size 7/8" x 6" stainless steel material.

32. PROPELLER POLISHING - 116

Clean, sand and polish all four (4) propeller blades, all areas including hub. Dress and fair minor dents in all four (4) blades.

33. AFTER PEAK AND FORE PEAK TANKS - 102 - ABS SURVEY - HOLD UNTIL AUTHORIZED

Open the after peak and fore peak tanks for ABS survey and examination. Hydrostatic test tanks to ABS requirements. Upon completion drain tanks as directed, close up in good order using new gaskets as necessary.

34. CARGO TANK STRUCTURAL REPAIRS - 102

Allow for erection and subsequent removal of required staging.

Furnish services of audio gauge technician to audio gauge as directed and furnish copies of results.

Allow for cropping and insert renewal of approx. total of 40 ft. x 60 ft. of 1/2" blasted and RB-191 coated Longitudinal bulkhead plating.

Allow for "Veeing out" and welding from both sides an approximate total of 150 cracks.

Allow for cropping and renewing of side shell and/or under deck longitudinals, each approx. 10 ft. long x 15" x 1/2" flanged plated welded to shell or under deck - total of twelve (12).

Allow for cropping and insert renewal of horizontal and vertical brackets on longitudinal and transverse frames for an approx. total of 100 ft. x 50 ft. x 1/2" plate.

35. COFFERDAMS - ABS - 103 - HOLD UNTIL AUTHORIZED

Open the following cofferdams for ABS survey and examination. Upon completion of survey, chip wirebrush and scrape all rusty areas of the five cofferdams. Upon completion of satisfactory cleaning, apply one (1) touch up coat of red lead primer to entire areas of cofferdams.

- a. One (1) fwd. cofferdam port and starboard.
- b. One (1) aft. cofferdams port and starboard.
- c. One (1) engine room cofferdam port.
- d. One (1) engine room cofferdam starboard.
- e. One (1) engine room lube oil sump cofferdam.

Close up in good order, renewing defective gaskets, bolts, nuts.

36. PRESSURE VACUUM RELIEF VALVES - 408 - USCG SURVEY

Open up for inspection of USCG and Owner's Representative all pressure vacuum valves to cargo tanks. Thoroughly clean, machine seats and discs, grind in and renew defective flame screens using 30 x 30 brass screen. Close up valves in good order after being passed by USCG and Owner's Representative. Renew all defective studs, nuts, screws, and screens. A total of thirty (30) valves.

37. FLAME ARRESTORS 408

Open up six (6) flame arrestors for cargo vent system for examination by USCG. Thoroughly clean and free up. Renew defective flame screens using 30 x 30 brass screen. Close up in good order, renewing all defective studs on flame arrestors.

38. SPILL VALVES - 408 - USCG SURVEY

Open up seven (7) spill valves located on vent piping for inspection in accordance with USCG requirements. Thoroughly clean, machine seats and discs as found necessary and grind in. Renew defective flame screens using 30 x 30 brass screen, gaskets, also defective or missing brass capscrews and close up in good order.

39. FIRE DAMPERS - USCG - 110

Furnish necessary labor, equipment and material to complete the following:

- a. Free up, put in good working order, and grease all fire dampers to spaces covered by fixed fire extinguishing system, including fore and after pumphrooms and after machinery space.

Allow for eight (8), no staging required.

40. FIRE EXTINGUISHERS AND CO₂ SYSTEM - USCG: - 110

Furnish necessary labor, equipment and material required to complete the following: Goldsmith Chesapeake - 804.543

- a. Weigh all main cylinders and portable cylinders for CO₂ Kidde firefighting system. Recharge all underweight cylinders. Check with compressed air and assure free operation of all pullers, controls, pipelines, nozzles, alarm sirens, etc., and prove everything in good working condition.

Supply Owner's Representative with six (6) certified copies of weights of cylinders and also attesting to full efficiency of system.

41. BOILER SAFETY VALVES - 315 - USCG - ABS

Furnish necessary labor, equipment and material required to complete the following:

- a. Disconnect and remove two (2) superheater relief valves and four (4) safety valves from two (2) boilers. Valves are to be repaired by an approved safety valve service shop. Valves are to be thoroughly cleaned, including all working parts. Seats and discs are to be machined as found necessary, ground in defective parts including nozzles, etc., renewed. Test and prove valves steam tight at working pressure with proper relief and blow back pressures. Reinstall valves on boiler renewing gaskets, defective studs and nuts. Test out valves and make all necessary adjustments after steam has been raised on boiler. Prove all in good order according to USCG and ABS requirements. Connect up lifting gear and replace all removals in good order. Cost of repairs for Contractor's account.
- b. On vessel's arrival at yard, and before plant is shut down, arrange for USCG and ABS inspectors' attendance to test all safety valves in place. Arrange for necessary labor to gag and make any required adjustments during the tests.

42. FOXBORO CONTROLS FOR MAIN FEED PUMPS - 311

Overhaul and service the Foxboro controls for the main feed pumps renewing all worn parts furnished by vessel. Test and prove in satisfactory working order.

43. INTERNAL CLEANING - MAIN BOILERS - 302

Open up two (2) Babcock and Wilcox boilers for internal examination and cleaning, including steam and water drums, waterwall headers and superheater tube headers. Remove all handhole plates on each boiler for examination and cleaning boiler tubes and headers. Thoroughly wash out boilers with fresh water. Clean and remove all sludge and sediment from drums and tube headers. Build up by welding in way of defective handhole seat landings, a total of thirty (30) handholes. Set up and machine landings true. Renew all removed gaskets. Close up boilers with new gaskets on doors after boilers are steamed to 400 psi and plates have been hardened up. Replace all removals. Apply working pressure hydrostatic test prior to steaming. Report all tube leaks to Owner's Representative.

44. EXTERNAL CLEANING - MAIN BOILERS - 303

Scrape, wirebrush and thoroughly clean all external heating surfaces of two (2) Babcock and Wilcox boilers, including stack, uptakes, fan damper vanes, casing, air ducts, air heater tubes, economizer, generating and superheater tubes. Wash air heater, economizer, generating and superheater tubes with fresh water under pressure and at approximately 150 deg. F temperature. Special attention to be given to the cleaning of superheater, economizer and generator tubes, hand lancing when found necessary. Upon completion of cleaning, remove all sludge and sediment from boilers and vessel and replace all boilers casing access doors renewing asbestors tape gaskets as necessary plus air tight. Renew all missing or defective studs and bolts. Special attention to completely cover electric and mechanical equipment in shaft alley under boilers before washing is started. The shipyard is to provide all the necessary drain hoses and pumps to keep the shaft alley bilges and engine room bilges pumped out during entire shipyard period. During the washing process on boilers the furnace fronts in way of the burners are to be covered with waterproof material. The Bailey board fireroom and engine room Peabody console are to be boxed in with plywood to prevent damage to same.

45. BOILER REFRACTORY - 304

Repair brickwork and refractory in furnaces of two boilers. Repair or renew front wall of each furnace including burner arches in way of eight burner openings. Renew defective short bladed grids and flame diffusers. Grids and diffusers to be supplied by vessel. Remove blades in grids and cut proper openings in diffusers for ignition and flame detectors before installation. Renew missing or defective studs, bolts, and nuts. Repair refractory in way of side back and roof tubes and superheater supports. Renew bottom baffles and repair top with Crome Ore. Renew two (2) baffles. Repair floors. Floor level to be 3'9" from center of bottom burner. Renew corbel in way of front wall, side wall, rear wall, lower drum and top rear wall header.

NOTE: Make sure of opening above lower drum. See Babcock and Wilcox Boiler Drawing.

If existing floors have pebbles, they are to be renewed with Oceanite pebbles and binder to a depth of 2-1/2".

46. INTERNAL DESUPERHEATER TEST - TWO (2) BOILERS - 307

While boilers are opened up for internal cleaning, remove necessary baffles, grating, etc. from top drums for examination of internal desuperheater, pipes and connections. Apply hydrostatic working pressure of maximum 150# to desuperheater, pipes and connections and locate all leaks. Repair as directed. Prove tight. Replace all removals in good order.

47. PEABODY AUTOMATIC FIREMAN - 311

Individually clean, dehydrate and keep dry three console cabinets. Furnish and install protective covering during repair period.

48. PEABODY BOILER CONTROLS - 311

Check out entire system and repair as required for proper operation. This work to be performed and supervised by Smith Marine Service Technician. Charge Owner's account.

49. FUEL AND BALLAST TANK - 102 - ABS SURVEY - HOLD UNTIL AUTHORIZED

Open the following fuel and ballast tanks for ABS survey and examination. Fill and test to ABS requirements.

No. 1 deep tank, port and stbd. Upon completion of test, the tanks are to be drained and wiped dry and closed up in good order.

50. CLAPPER VALVES - SHIPSIDE - ABS SURVEY - 126 - HOLD UNTIL AUTHORIZED

Open for examination by ABS surveyors all shipside clapper valves. Overhaul all valves, prove free, renew defective pin and clapper valve discs as found necessary.

Thoroughly clean and coat inside surfaces with two (2) coats of Coal Tar Epoxy. Renew gaskets, close up in good order renewing studs, bolts and nuts where necessary. A total of twelve.

51. ANCHOR CHAINS - ABS - 107

Range on dock, forward port and starboard anchor and chains, unshackling same at bitter end connections, for examination by USCG and ABS. Chain lockers to be thoroughly cleaned and dirt removed from vessel and suction pipes to be proven clear. Sandblast and remove all scale, rust and dirt from all chains, shackles, links, anchors, etc. Remark with paint all shots of chain. Harden up on anchor shackle pins, crown pins and patent link pins. Free up three (3) anchor chain swivels (one swivel each chain). Reinstall and stow chains in lockers in good order with coating of fish oil.

52. MAIN TURBINE - H.P. & L.P. UNITS - 26500 HP - 201-202 - ABS SURVEY - HOLD UNTIL AUTHORIZED

Make necessary removals and remove upper half of both H.P. and L.P. turbine casings, secure and raise both turbine rotors for examination and ABS survey. Check all blading. Examine all labyrinth seals and packing, straighten any bent packing, prove free. Examine all nozzle ring allen head bolts, prove same tight and sound. Prove diaphragms free. Upon completion, reinstall rotors, take and record all blade and bearing clearances, check and adjust to proper thrust bearing clearance. Close up turbines in good order, renewing any defective bearings, etc., (furnished by vessel). Supply Owner's Representative with five (5) typewritten copies of all readings taken prior to and after all adjustments are made. Prove all in good order after running dock trial of four (4) hours. After exposed to heat, reharden all casing flange and pipe joint bolts, proving same tight. Replace all insulation and lagging in good condition as original. Work to be done under constant supervision of Newport News Service Engineer for Contractor's account. Replace all removals in good order.

53. MAIN TURBINE HP AND LP HIGH SPEED COUPLINGS - 201 - ABS SURVEY - HOLD UNTIL AUTHORIZED

Open up and remove for inspection two (2) high speed couplings for HP and LP turbines. Thoroughly clean couplings and check same for wear. Remove shoulders and wire edges by stoning as directed. Remove and clean oil supply pipes and nozzles. Reassemble couplings, bearings, oil lines, and nozzles in good order. Renew neoprene rubber seal at forward end of coupling covers top and bottom.

54. MAIN THRUST - 106 - ABS SURVEY - HOLD UNTIL AUTHORIZED

Take clearance of main thrust bearing. Give reading to Repair Inspector.

55. MAIN REDUCTION GEARS - 205 - ABS SURVEY - HOLD UNTIL AUTHORIZED

Open inspection plates of main reduction gears for examination by ABS. Upon completion of examination, close inspection plates in good order, renew defective cover gaskets.

56. LINE SHAFT BEARING - 106 - ABS SURVEY - HOLD UNTIL AUTHORIZED

Open for examination and ABS survey one (1) designated line shaft bearing, after examination close up leaving in good order. Renew oil, clean oil sump. Oil furnished by vessel.

57. MAIN CONDENSER - 230 - ABS SURVEY - HOLD UNTIL AUTHORIZED

Open main condenser, removing access cover plates for examination. Wire brush and thoroughly clean tube sheets and tubes. Test condenser to 15 lbs. hydrostatic pressure and prove tight with spectrotest. Plug all leaking tubes and tighten all leaking packing and renew any defective tube packing found.

Renew swedish iron plates and any defective studs, nuts and washers. Harden up on leaking exhaust flange joints.

Shore up condenser for hydrostatic test. Upon completion of work, condenser to be drained and shores removed. Close up in good order, renewing cover gaskets, defective studs and nuts.

Chip, power wire brush, thoroughly clean all pitted spots in covers and water box of condenser, fill areas with red hand cement. Remove all defective neoprene coating, thoroughly clean areas. Apply two (2) coats of Coal Tar Epoxy to all areas not coated with neoprene.

58. AUXILIARY CONDENSER - 230 - ABS SURVEY - HOLD UNTIL AUTHORIZED

Open auxiliary condenser for examination. Wirebrush and thoroughly clean tube sheets and tubes. Clean heads, test condenser to 15 lbs. hydrostatic pressure and prove tight. Repair any damaged areas of neoprene coating. Renew swedish iron plates and any defective studs and nuts. Harden up on all leaky joints, prove tight. Upon completion of work, condenser to be drained and closed up in good order.

59. LUBRICATING OIL COOLERS (MAIN UNIT) DAVIS ENGINEERING CORPORATION - 233 - ABS SURVEY - HOLD UNTIL AUTHORIZED

Open for examination two (2) main lubricating oil coolers. Wirebrush and air lance, clean tubes, also clean tube sheets, wirebrush, clean and apply one (1) coat of apexior #3 paint to water boxes and heads. Renew zinc plates, test tubes to working pressure, prove tight and close coolers in good order, renew gaskets, defective studs, bolts and nuts.

60. DEAERATING TANK - 237 - ABS AND USCG SURVEY - HOLD UNTIL AUTHORIZED

Open up deaerating tank for examination and cleaning. Thoroughly wirebrush and clean all internal surfaces, including dome. Remove all sediment and wash down inside of tank with fresh water. Test floats for leaks and make tight, also free-up and adjust all linkage for make-up and dump valves. Blow out, prove clear and tight all air lines. Remove spray nozzle valve assemblies, overhauling as required or if necessary, renew valve assemblies, supplied by vessel. Reinstall assemblies in good order.

Machine seats and disc, grind in, test and prove tight relief valve on deaerating tank and set valve to lift at 60 lbs. pressure. Remove, clean, test and make tight and reinstall vent condenser. Upon completion of work and examination, close up in good order using new gaskets. Renew all defective studs, nuts and bolts. Replace disturbed insulation and blankets in way of repairs.

61. EVAPORATOR - 219 - ABS AND USCG SURVEY - HOLD UNTIL AUTHORIZED

Open for examination one (1) make-up feed evaporator. Remove all coils and baffles, thoroughly scale, wirebrush and clean all surfaces of shell and headers. Remove all coils to shop, clean, test to working pressure, repair all leaking coils by brazing, anneal all coils, free-up spud nuts, replace all coils in good order, test coils and headers to working pressure and prove tight.

Renew defective zinc plate. Close evaporator in good order, renewing all gaskets, defective studs, bolts and nuts. Test, prove all connections tight.

Machine seats and discs, grind in, test, adjust, prove tight relief valve to requirements of USCG. Repair or renew as original all disturbed insulation and blankets.

62. FEED PUMP WARREN - SIZE 4-TMH-6, GPM 660 - 207 - ABS SURVEY - HOLD UNTIL AUTHORIZED

Open casing and bearings of No. 1, 2, and 3 feed pumps for examination and ABS survey. Disconnect and remove impeller assembly. Check and record all casing and impeller wearing rings, also inner stage clearance, check sleeves in way of packing, renew worn or defective parts. Renew worn or defective bearings. Reassemble and reinstall impeller assemblies, clean casing faces, and renew casing gasket (giving special attention to thickness of gasket). Open up oil pump, check and renew defective and worn parts, clean, test, close up in good order. Repack glands with approved packing. Test out pumps and prove in good working condition. Parts for pumps, bearing and packing also oil pumps furnished by vessel. Work to be under supervision of Warren Service Engineer for yard's account.

63. CENTRIFUGAL PUMPS - WARREN - 209 - ABS SURVEY - HOLD UNTIL AUTHORIZED

Open up the following centrifugal pumps for examination and ABS survey. Remove impeller assemblies to shop as found necessary. Machine and true up impeller in way of sealing rings and renew sealing rings. Renew casing rings, interstage seal and liner on shaft. Work to be under supervision of Warren Service Engineer for yard's account.

Renew sleeves in way of packing, renew bearings (pack with approved grease) adjust to proper clearances. Reassemble, rejoin, repack and prove pumps in good working order:

One (1) fire pump - size 2 1/2 DB6 - 400 GPM

Two (2) first stage heater drain pumps - size 2-2CV-11-130 GPM

One (1) auxiliary condensate pump - size 4-2CVP-13-380 GPM

One (1) auxiliary circulating pump - size 14-DVB-16-GPM-6500, renew casing studs, bolts and nuts

Two (2) main condensate pumps - size 4-2CYP-13-380 GPM parts, shipped by vessel

64. MAIN CIRCULATING PUMP - WARREN - SIZE 30SLMV - 210 - ABS SURVEY - HOLD UNTIL AUTHORIZED

Open up main circulating pump and remove impeller assembly for ABS survey and examination. Adjust impeller on shaft for correct vertical height. Fit the new casing rings to casing. Close up circulator in good order, using manufacturer's prescribed thickness gaskets. Prove grease fitting clear, repack, prove free and in good order. Renew defective studs, bolts and nuts. Test and prove in good working order. Spare rotating element on board.

65. ROTARY PUMPS - DE LAVAL - 217 - ABS SURVEY - HOLD UNTIL AUTHORIZED

Remove the following designated rotary pumps to shop. Open for examination and ABS survey. Remove rotors, housings, bearing, washers and so forth. Build up original size. Renew worn sleeves, bushings, bearings, washers and end plates. Check and adjust end clearances. Reassemble in good order, using new gaskets, renewing defective studs, bolts and nuts. Reinstall and connect up pumps and motors in true alignment. Pack couplings with approved grease. Test out and prove units in good operating condition. Repack glands with approved packing. All work to be under supervision of De Laval Service Engineer for yard's account.

Two (2) lubricating oil service pumps - Type A422AV #350, GPM 550

Two (2) fuel oil service pumps - Type A 314X #250, GPM 45

66. BILGE PUMP - WORTHINGTON HORIZONTAL - DUPLEX - SIZE 8 1/2" x 10" - 215 - ABS SURVEY - HOLD UNTIL AUTHORIZED

Open bilge pump in machinery space for examination and ABS survey. Open liquid end, renew liners, renew plungers and rods, machine plungers to fit new rods, renew plunger packing, parts furnished by vessel. Repack rods, close up using new gaskets, renew defective or worn studs, bolts and nuts. Renew bushings if found necessary. Overhaul, machine and grind in seats and discs on suction and discharge valves, renew broken or worn springs and guide studs. Open up gear case for examination, clear out gear case, renew gaskets and renew oil furnished by vessel. Test and prove pump in good working order.

67. PUMPS - WARREN DUPLEX - 215 - ABS SURVEY - HOLD UNTIL AUTHORIZED

Open for examination and ABS survey the following designated duplex valve chests. Thoroughly clean all parts, machine suction and discharge valves and seats, renew damaged or broken valves, springs and stems furnished by vessel. Close up pumps in good order, renew gaskets, repack rods and valve stems with approved packing, renew defective studs, bolts and nuts. Test out and prove in good operating condition. Replace all insulation, renewing all missing or damaged insulation as original.

One (1) bilge and general service pump, 16" x 14" x 18" machinery space. Renew seats and disc liquid end, furnished by vessel. Renew liquid end plunger packing.

One (1) fuel oil transfer pump, 10" x 7" x 12" machinery space

One (1) bilge and fire pump, 14" x 14" x 12" forward pumproom

68. LUBE OIL COOLER CIRCULATING PUMP - WARREN - 1500 GPM - 233 - ABS SURVEY - HOLD UNTIL AUTHORIZED

Open up lube oil cooler circulating pump and remove impeller assembly for examination and ABS survey. If found necessary remove coupling and install same on spare assembly. Adjust impeller on shaft for correct vertical height. Fit casing rings to casing as necessary. Close up pump in good order using gaskets of correct thickness. Prove grease fittings clear, repack, prove free and in true alignment. Renew defective studs, bolts and nuts.

69. TWO (2) GENERATOR TURBINES AND GEARS - 750 KW DE LAVAL - 240 - ABS SURVEY

Make necessary removals and raise upper casing of two (2) generator turbines for examination and ABS survey. Check all blading, rotor and bearing clearances, hone shaft in way of bearings. Free up diaphragms, clean and straighten all damaged labyrinth seals and packing.

Renew defective packing, also defective or worn bearings, furnished by vessel. Check, adjust if found necessary turbine rotor and pinion shaft alignment, also adjust nozzle and thrust bearing clearances, when ready reassemble, replace all removals. Clean flexible coupling.

Open for examination nozzle valve chest, clean and free up all nozzle valves, adjust to proper clearances. Close up nozzle chest in good order. Harden up on all casing bolts after steam is on turbine and replace all insulation to its original good condition.

Open reduction gear casing for examination and survey. Check and adjust alignment of gear and generator shaft coupling. Check and record all clearances. Renew worn bearings and adjust to proper clearances.

Open up lube oil pump, check all parts for wear and defects, renew defective parts, examine all orifice plates in lube oil system for wear, open for examination nozzle strainer for gears, clean, renew gaskets and replace in good order, renew all enlarged orifice plates, also overhaul and adjust all relief valves. Open up governors and controls, check relays, valves, etc., for wear and renew worn or defective parts. Open up bearing on generator shaft, check clearances, renew defective bearings, clean out bearing housings and shaft seals.

Upon completion of work close up all in good order. Clean oil sump on completion of all work and close immediately after being inspected by Owner's Representative. Vessel to furnish necessary parts and bearings. Lube oil to refill sump furnished by Owners. Furnish five (5) typewritten copies of all readings before and after adjustments are made to Owner's Representative. Test and adjust overspeed trip and prove turbines and gear in good operating condition under load. Replace all removals in good order.

Thoroughly clean, test and prove lube oil coolers tight, renew zinc plates.

All repairs under supervision of De Laval Service Engineer for yard's account.

70. TWO (2) 750 KW GENERATORS AND 7.5 KW EXCITERS - 801 - ABS SURVEY

Remove covers and shields from two (2) 750 KW generators and 7.5 KW exciters. Thoroughly clean windings, rotor, field and armature if necessary with approved solvent. Check air gap and binding wires. Bake until satisfactory megger readings are obtained. Apply one (1) coat of approved insulation varnish. Machine slip rings of generator and commutator of one (1) 7.5 KW exciter after above work. Reinstall cover and shield in good order, test and prove in good working condition under load.

Open for examination air cooler, wirebrush and air lance. Clean tubes, also clean tube sheets, scrape, wirebrush, clean and apply one (1) coat of Apexior #3 paint to water boxes and heads. Renew zinc plates or rods, test tubes to working pressure, prove tight, and close coolers in good order, renew gaskets, defective studs, bolts and nuts.

71. FIRE AND BUTTERWORTH TURBINE - 213 - ABS SURVEY - HOLD UNTIL AUTHORIZED

Raise top half of casing of fire and butterworth turbine for examination and ABS survey. Clean packing boxes and renew packing. Clean top and bottom casing joint faces. Replace turbine casing in good order. Test and prove tight.

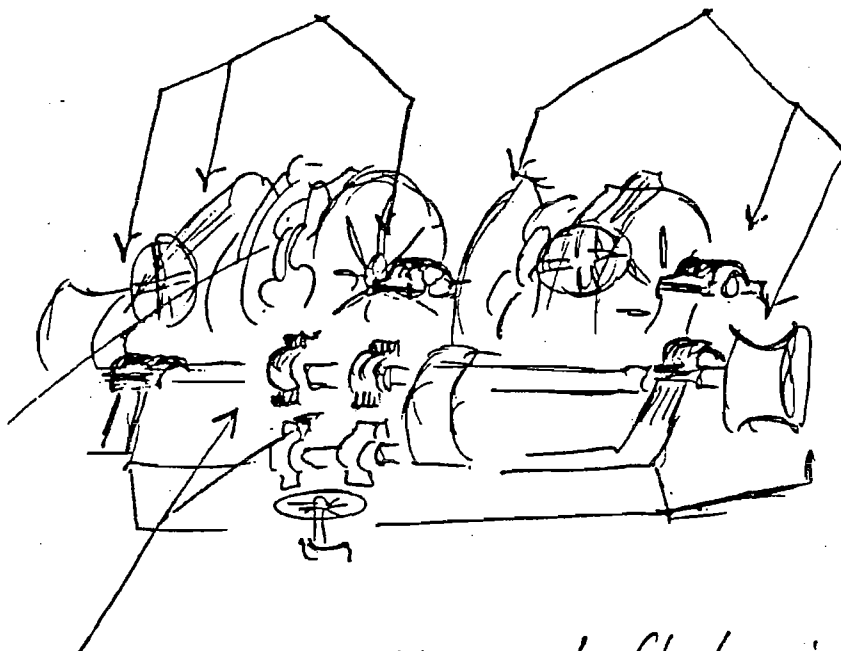
72. SHELL GAUGING - 103 - ABS SURVEY - HOLD UNTIL AUTHORIZED

Supply necessary labor, staging and equipment to take two (2) complete belts of audio gauge readings as required by ABS to complete hull survey. Supply Owner's Representative with five (5) copies of all readings taken.

73. ANCHOR WINDLASS BEARING CAPS AND ENGAGING BLOCKS - 113

- a. Disconnect total of four (4) engaging blocks from starboard side (too much lost motion). Build up blocks and machine to nominal clearance. Reinstall as original and prove satisfactory.
- b. Remove eight (8) bearing caps from anchor windlass renew wasted studs and nuts with cadmium plated material. See Drawing Below.

ANCHOR WINDLASS BEARING CAPS



4~~ea~~ Windlass shaft bearings
2~~ea~~ Head shaft bearings
2~~ea~~ Counter shaft bearings

74. CARGO SYSTEM PUMP RELIEF VALVES - USCG - 405

Remove the following valves to shop. Open, clean, overhaul, test and prove satisfactory, tight, set to proper relief pressure and reassemble as original.

- a. (4) Main cargo pump relief valves, aft pumproom.
- b. (1) Ballast pump relief valve, aft pumproom.
- c. (2) Stripper pump relief valves, aft pumproom.
- d. (3) Cargo pump relief valves, fwd pumproom.

75. CARGO BALLAST PUMP ROTATING ELEMENT - AFT PUMPROOM - 401 - ABS SURVEY

Open pump, remove impeller, survey casing for needed repair, install Owner furnished spar impeller. Re-check coupling alignment, test with air controls, remove all debris from vessel.

Spare impeller on order.

76. VERTICAL DUPLEX STEAM CARGO PUMPS - 401 - ABS SURVEY

- a. Port stripper pump AFT pumproom. Disassemble liquid ends sufficiently to install Owner-furnished "darcova" piston cups. Reassemble, test prove satisfactory. 16 x 14 x 18.
- b. Vertical duplex steam solvent pump - portside forward pumproom. Disassemble sufficiently to install Owner-furnished "darcova" piston cups. Reassemble, test and prove satisfactory. 16 x 14 x 18.
- c. Vertical duplex steam lube pump - stbd side forward pumproom. Disassemble liquid end. Renew damaged liners, spare liners aboard. Install "darcova" Owner-furnished piston cups. Reassemble, test and prove satisfactory. 16 x 14 x 18.
- d. Vertical duplex steam aux pump - aft stbd side of fwd pumproom. Disassemble liquid end sufficiently and install Owner-furnished "darcova" piston cups, remove one (1) cylinder head and wasted studs. Build up by welding and install new studs. Reassemble, test and prove satisfactory. 16 x 14 x 12.
- e. On all above pumps, overhaul operating valves and adjust and set valve linkage and prove satisfactory.

77. ENGINE ROOM GASKETS - 225

Renew nine (9) various size gaskets from 3" to 8" located under the high pressure turbine. Renew bolts and nuts. Test and prove tight.

78. LUBE OIL DISCHARGE STRAINERS - 226 HOLD UNTIL AUTHORIZED

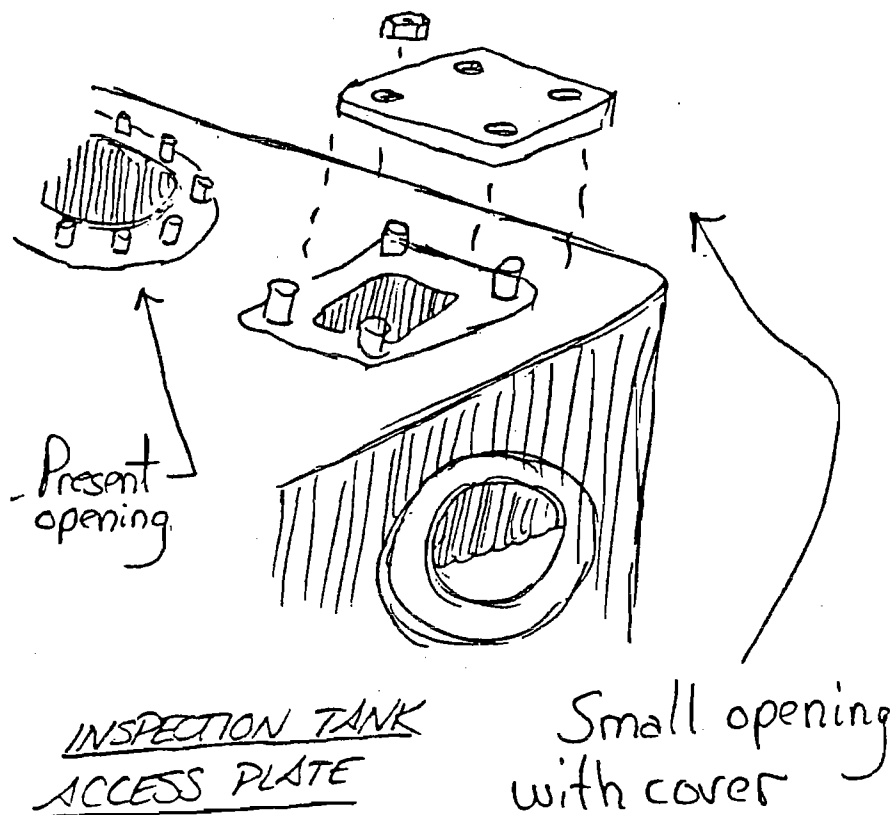
Open, free up, and repair as necessary the duplex strainer change over mechanism. Prove satisfactory operation. (Lube oil system must be secured)

79. CHEMICAL CLEANING OF FEED WATER HEATERS - 228

Remove necessary fittings, blank off, and acid clean the steam and water sides of the third and fourth stage feed water heaters located on starboard side of engine room. After cleaning, reassemble and prove in satisfactory working order.

80. INSPECTION TANK ACCESS PLATE - 227

Crop and install small access plate in top of inspection tank. Present plate is at wrong end of tank to facilitate cleaning sight glasses. Opening need be no larger than 1 foot square. Tank is on operating flat in engine room. See drawing below.



81. PROPELLER - 116 - DO NOT START UNTIL AUTHORIZED BY OWNER'S REPRESENTATIVE

Furnish necessary labor, equipment and material required to complete the following:

- a. Heat, fair and dress edges of all four (4) propeller blades.
- b. Drill stopper holes at ends of all cracks, heat, braze and dress also in way of old repairs. Allow for repair of three (3) cracks.
- c. Upon completion of any repairs, polish entire propeller and hub to satisfaction of Owner's Representative.
- d. Prior to any paint application, coat wheel lightly with grease in order that paint does not adhere to wheel.

82. DOMESTIC WATER TANKS - PORT - 48 TON CAPACITY AND STBD - 103

Chip and scale all loose material from entire internal surface of port fresh water tank. Wooden plugs to be inserted in all suction and discharge connections prior to cleaning to prevent line from being clogged. Remove plugs prior to securing tank. Clean tank and remove all debris from vessel. Apply one (1) spot coat cement wash to all bare areas and one (1) full coat for the entire internal area of both tanks. Flush out both tanks with fresh water. Chlorinate tank, fill and dump tank twice. Refill tank and leave tanks ready in all respects for human consumption as per USPHS requirements. Renew all disturbed manhole plate gaskets and replace all defective nuts and studs as required.

83. CARGO SYSTEM GAUGES AND GAUGE LINES - USCG - 401 HOLD UNTIL AUTHORIZED

- a. Disconnect, send to shop and calibrate following 97 gauges. Affix test date to gauges and reassemble to place.

After pumproom lower - (29)
After pumproom upper - (29)
Deep well pump - (4)
Risers - mid ships - (10)
Fwd pumproom lower - (12)
Fwd pumproom upper - (13)

- b. Test gauge lines to above gauges and prove tight or renew only sections found leaking.

84. ENGINE DEPARTMENT MOTORS - 805 - ABS SURVEY

Disconnect following motors. Identify leads and send to shop. Open, clean, machine slip rings, renew bearings, coat windings, bake, reassemble. Give repair inspector five (5) copies of before and after megger readings and reassemble and prove tight.

- a. Air conditioning compressor motor - aft.
- b. Large air compressor motor.
- c. #1 and #2 fuel oil service pump motors.
- d. Exhaust fan motor - fireroom - boat deck level stbd side - staging required.
- e. Exhaust motor and fan - aft pumproom port side.
- f. Main circulator pump motor.

85. TAILSHAFT BEARING CLEARANCE - 106 - DO NOT START UNTIL AUTHORIZED BY OWNER'S REPRESENTATIVE

Furnish necessary labor, equipment and material required to complete the following:

- a. Take aft tailshaft bearing clearance with centimeter gauge in presence of Owner's Representative. Drain oil from aft seal, catch in clean container. Flush and refill seal; oil furnished by vessel. Replace removals in good order.

86. SEAVALVES AND STRAINERS - 126 - USCG AND ABS

Open up all sea valves in engine room, fire room, pumproom, and cofferdams, including bilge injection, all steam blow-out valves and all overboard discharge valves for examination by USCG and ABS. Machine seats and disc as necessary, grind in, repack, rejoin and close up valves in good order. Remove all sea strainers for examination of sea chest; thoroughly scrape and wirebrush sea chests to bare metal and apply two (2) coats of Coal Tar Epoxy. Replace sea strainers and renew defective and missing lugs, bolts, studs, nuts and cotter pins. Clean out and prove steam blow lines clear between valves and sea chest. While above valves are open, clean and coat with two (2) coats of Coal Tar Epoxy. Note some sea valves are coated with neoprene. All damaged surfaces are to be scaled and wirebrushed and thoroughly cleaned and apply Coal Tar Epoxy to all bare areas. Secure aft pumproom sea valves discs to stem lock nuts by track brazing (3).

- a. One (1) 3-1/2" gate, air conditioning cooling water overboard, aft stbd side shaft alley.
- b. One (1) 5" angle low sanitary sea suction - stbd side shaft alley.
- c. One (1) 3/4" angle steam out valve at low sanitary sea suction - stbd side shaft alley.
- d. One (1) 5" angle high sanitary sea suction - port side shaft alley.
- e. One (1) 3/4" angle steam out valve at high sanitary sea suction - port side shaft alley.
- f. One (1) 4" gate bilge overboard - stbd side shaft alley.
- g. One (1) 3" gate cooling water overboard, fire and butterworth pumps and #3 feed pump - stbd shaft alley.
- h. One (1) 10" angle fire and butterworth suction - port side shaft alley.
- i. One (1) 6" angle bilge and ballast suction - port side shaft alley.
- j. One (1) 6" gate fire and butterworth overboard - port side shaft alley.
- k. One (1) 3" gate cargo pump cooling water overboard - stbd side forward engine room - lower level.
- l. One (1) 4" air cooler and generator cooler overboard - stbd side forward engine room - lower level.
- m. One (1) 16" angle aux. circulator sea suction - stbd side lower engine room.

SEAVALVES AND STRAINERS (continued)

- o. One (1) 6" angle fire pump sea suction - stbd side lower engine room.
- p. One (1) 1" globe steam out valve at fire pump sea suction - lower engine room.
- q. One (1) 16" gate aux. circulator overboard - stbd side lower engine room.
- r. one (1) 2-1/2" gate electric fire pump overboard - stbd - lower engine room.
- s. One (1) 4" low pressure evaporator feed suction - port side lower engine room (renew).
- t. One (1) 28" gate main cond. high sea suction - port side lower engine room.
- u. One (1) 3/4" globe steamout at high sea suction - port side lower engine room.
- v. One (1) 30" gate main cond. low sea suction - port side lower engine room.
- w. One (1) 3/4" globe steamout valve at low sea suction - port side - lower engine room.
- x. One (1) 30" gate main cond. overboard - port side - lower engine room.
- y. One (1) 6" gate lube oil cooler overboard - port side lower engine room.
- z. One (1) 8" angle lube oil cooling water pump suction - port side lower engine room.
- aa. One (1) 6" angle general service pump suction - port side - lower engine room.
- bb. one (1) 3/4" globe steamout valve at service pump suction - port side lower engine room.
- cc. One (1) 5" gate general service pump overboard - port side lower engine room.
- dd. One (1) 3" gate cargo oil heating coil drain cooler overboard - port side lower engine room.
- ee. One (1) 2" globe make up evaporator overboard - port side lower engine room.
- ff. One (1) 3-1/2" globe low pressure evaporator overboard - port side lower engine room.
- gg. One (1) 3-1/2" globe distiller overboard - port side - lower engine room.
- hh. One (1) 3-1/2" boiler blow - port side - fire room.
- ii. One (1) 28" emergency bilge suction - globe - engine room port side lower - fwd.

87. FORWARD PUMPROOM

- jj. One (1) 5" gate - bilge pump overboard - stbd side.
- kk. One (1) 6" bilge pump suction - stbd side.
- ll. One (1) 3/4" globe steam valve at pump suction - stbd side.
- mm. One (1) 10" ballast pump suction - port side.
- nn. One (1) 3/4" globe steamout valve at pump suction - port side.
- oo. One (1) 10" gate ballast pump overboard - port side.

88. AFTER PUMPROOM

- pp. One (1) 16" angle cargo pump suction - port side.
- qq. One (1) 3/4" globe steamout valve at pump suction - port side.
- rr. One (1) 3/4" globe steamout valve at pump suction - stbd side.
- ss. One (1) 4" gate stripper overboard - port side.

89. LIFEBOATS - 108 - USCG SURVEY

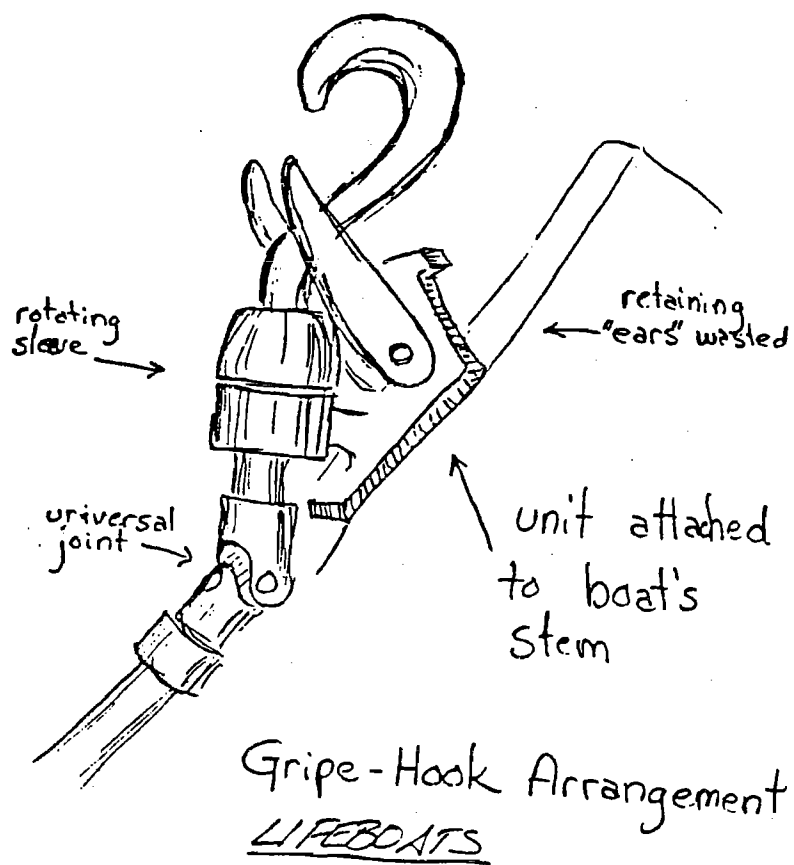
Furnish necessary labor, equipment and material required to complete the following:

- a. Remove all gear from four (4) lifeboats, including air tanks, provision boxes, etc., for inspection in accordance with USCG and ABS requirements. Provide storage boxes with locks and keys for stowing above gear. Keys for boxes to be given to Chief Mate and will be returned to yard upon completion of restowing lifeboats. Restow lifeboats as directed by Chief Mate.
- b. Test, make necessary repairs, and prove tight all air tanks.
- c. After all gear is removed from lifeboats, remove four (4) lifeboats from vessel to sandblasting area. Sandsweep entire hull of each boat to remove all paint and scale. Survey hull plates upon completion of this operation and repair as directed by Owner's Representative. Upon completion of repairs, coat entire hull as directed. (Two lifeboats are diesel-powered and will require protection of diesels during sandblasting and painting.) Apply one (1) coat of approved primer to entire hull allowing recommended drying time before finish coat is applied. Apply one (1) coat of approved color coat to inside of hull and one (1) coat of approved color coat to outside of hull. Restencil lifeboats as original and return them to vessel.
- d. Allow for the renewal of four (4) hull plates (shaped) in each lifeboat (total of sixteen (16) plates 1/8" galvanized sheet metal, approx. 4' x 8').
- e. Repair as necessary releasing gear in lifeboats. Gear is made up of solid bar stock. Renew gripe arrangement.

90. LIFEBOAT WEIGHT TEST - 108 - USCG

Furnish necessary labor, equipment and material required to complete the following:

- a. Make necessary preparations as required and weight test four (4) lifeboats and related equipment as per USCG requirements.
- b. Free up, grease and prove in good working order releasing gear on all four (4) lifeboats.
- c. Open as required by USCG for inspection, limit switches, disconnect switches and motor controllers. Renew defective cover gaskets. While above switches and controllers are open, clean and free up and prove in good working order.
- d. Adjust limit switches on all four (4) boats.



91. LIFERAFTS - 108 - USCG

Provide necessary labor and crane service to remove two (2) liferafts from vessel to service truck (liferafts to be sent out for servicing cost of which is to be for Owner's account). Upon redelivery of liferafts, restow as original in liferaft racks.

92. LIFEBOAT - 108

Allow for renewal of 20% of internal wood structure in each of four (4) lifeboats.

93. LIFEBOAT RUDDERS - #1, #2, #3, #4 - 108

Rebuild and/or renew lifeboat rudder gudgeons and tiller assembly per USCG specifications.

94. BAILEY AIR OPERATED FEED WATER REGULATORS - 307

Disconnect and remove to shop two (2) automatic feed water regulators, size 4". Open up, machine seats and discs, grind in, repack, rejoin, test, prove tight at working pressure. Renew defective cages, disc, valve stems, and diaphragms using only Bailey parts, replace on vessel in good order, renewing gaskets, defective studs and nuts.

Make necessary adjustments and prove in good working order when boilers are operating under light and full load capacity. Repairs to be carried out under supervision of Bailey service engineer. Follow up on nuts when valves are hot. Replace insulation as original.

95. HULL PAINTING (SPECIAL COATING SYSTEM) - 61-501

General

- a. The entire exterior shell surface from turn of bilge to rail, oil and grease to be removed using Owner-supplied cleaner, and entire area; then wash down with fresh water under pressure. No. 8555 Exxon Chemical Company Cleaner.
- b. Before any paint is applied to hull, install wood plugs with extension pipes of sufficient lengths or other approved means on all scuppers and overboard drains throughout vessel to prevent any water running on hull of vessel. Plugs to remain in until painting is completed and dry and then removed.
- c. Install stocking on soil lines, scupper drains from washrooms and air conditioner, also ice machine overboard discharges while vessel is on drydock to enable ship's personnel to use toilets and washrooms, preventing any water running on shell during painting.
- d. Paint will be supplied by Owners.
- e. Paint may be sprayed on. Drying time allowed between each coat of paint to be in full accordance with manufacturer's recommendations. All surfaces are to be inspected and approved by Owner's Representative before applying painting coat and before applying each additional coat. All painting to be done only during clear and dry weather.

NOTE: Before starting abrasive sweeping or painting, cover transducer, hull anodes and reference cells. Upon completion, remove in good order.

Keel to Light Load Line

- a. Abrasive sweep entire bottom to light load line to remove all fouling, grass.
- b. Apply one (1) spot coat of Devalum Alum. Barrier MD 2548 Bottom Composition (Light) or equal to a thickness of 5 wet mils (2 mils dry).
- c. Apply one full coat of Devalum Alum. Barrier MD 2548 Bottom Composition (Dark) or equal to a thickness of 5 wet mils (2 mils dry).
- d. Apply one full coat of DeVoe Raynold Super Tropical Antifoul MD 2771 or equal to a thickness of 3 wet mils (1.8 mils dry).

NOTE: External hull areas in square feet
Bottom - light load line - 68,100
Boot top - 26,100
Deep load line - rail - 25,240

Light Load Line to Deep Load Line

- a. Abrasive blast to near white metal all rusty and bare areas including rusted weld seams, port and stbd (see below). Apply the following Rust-Ban paints.
- b. Apply one (1) coat of Cathacoat 302 Inorganic Zinc to a thickness of 4 mils dry to all blasted areas. Minimum recoat interval is 8 hours at 77° F., and 50% relative humidity.
- c. All areas not covered by spot blasting in section (a) of Part 3 will be given an extra heavy abrasive sweep to remove all rust stains, loose and brittle coatings.
- d. Apply one (1) full coat DeVoe Special Primer MD 4368, one component epoxy, to a thickness of 5 wet mils (1.0 mil dry). Product may be thinned up to one (1) pint per gallon as required. Minimum drying time before recoating is 4 hours at 77° F., and 50% relative humidity.
- e. Apply one (1) full coat of DeVoe Polyurethane Red Oxide (MD 4622/4619) to a thickness of 6 wet mils (2.5 mils dry).

Deep Load Line to Rail

- a. Abrasive to near white metal all rusty and bare areas including rusted weld seams, port and stbd. Apply the following Rust-Ban paints.
- b. Apply one (1) coat of Cathacoat 302 Inorganic Zinc to a thickness of 4 mils dry to all blasted areas.
- c. All areas not covered by spot blasting in section (a) of Part 4 will be given an extra heavy abrasive sweep to remove all rust stains, loose and brittle coatings.
- d. Apply one (1) full coat DeVoe Special Primer MD 4368, one component epoxy, to a thickness of 5 wet mils (1.0 mil dry). Product may be thinned up to one (1) pint per gallon as required. Minimum drying time before recoating is 4 hours at 77° F., and 50% relative humidity.
- e. Apply one (1) full coat of DeVoe Polyurethane Dark Grey (MD 4620/4619) to a thickness of 6 wet mils (2.5 mils dry).
- f. While vessel is on drydock, blast to near white metal bilge strake rivets and rivet seams (a total of 2,000 ft. approx. 15" wide) between fwd bulkhead of #1 port and stbd and thru after bulkhead of #12 port and stbd. Coat blasted area with coating supplied by Owner (matcoate). Coating to be applied under supervision of Owner-furnished serviceman.

Hailing Port, Vessel Name, and Draft Marks

- a. Paint in above markings using Devthrane 4618/4619 White.

96. BOTTOM WELDING - 103 - DO NOT START UNTIL AUTHORIZED BY OWNER'S REPRESENTATIVE

Furnish necessary labor, equipment and material required to complete the following:

Chip out and reweld 300' of eroded welds on bottom shell seams and butts.

97. CONVERSION OF EXISTING DINING AND GALLEY FEEDING SYSTEM TO NEW CAFETERIA MODE SYSTEM

The following are general notes concerning the refurbishment (betterment) of the ship's galley and Officers' and Crew's Mess:

General Criteria:

Removed equipment and furnishings are to be held for reuse or disposition by the Owner. All interior surfaces are to be prepared and prime coated. Exposed interior surfaces shall be color coated. Exterior surfaces shall be coated with inorganic zinc and appropriate colors. Refrigerated spaces are located below the galley and mess area. These spaces shall be inerted prior to and during all adjacent hot work, if necessary. New galley and mess room equipment shall be stored and protected until time of installation. All contractor furnished materials shall be in accordance with the applicable plans.

Removals:

Remove all galley, pantry, officer mess, CPO mess, crew mess equipment and furnishings ashore and hold for reuse or disposition. Remove all piping and electricals not required for new installations. Rip out transverse bulkhead in its entirety. Remove all bulkhead and overhead sheathing within the area created port and starboard. Remove joiner doors and frames located on bulkhead to port and stbd passageways. Crop openings in the following locations to receive new doors and frames:

Bulkhead at - port and starboard as per plan.

Transverse Bulkhead on stbd side.

Crop openings in bulkhead plate for passing windows in accordance with plans.

Remove existing port light located in aft galley bulkhead, starboard.

Messrooms Port & Starboard & Galley:

Furnish and install closure bulkheads in port and starboard passageways.

Furnish and install new joiner doors with view ports and hydraulic closures in way of these bulkheads. Doors to be non-locking type.

Relocate vent piping as necessary, starboard, and blank off penetrations.

Relocate radiators and modify air conditioning system ducts as necessary.

Existing insulation to be retained. Install new insulation on bulkheads,
and overhead as necessary.

Relocate general alarm and telephone systems to suit new compartments.

Install foundations for new Owner's equipment port and starboard. Install new Owner's equipment and secure. Supply and install stainless steel tables, shelves, storage and counters in accordance with plans.

CONVERSION OF EXISTING DINING AND GALLEY FEEDING SYSTEM TO NEW CAFETERIA MODE SYSTEM (Continued)

Furnish and install new drop ceiling in port and starboard messrooms in accordance with plans.

Messroom:

Furnish and install new formica bulkhead system in port and starboard messrooms in accordance with applicable plans. Port lights, doors, and passing windows to be framed out with stainless steel.

Galley:

Install foundations for new equipment. Modify electrical systems and piping and install new insulation and sheathing as required.

Furnish and install new stainless steel shelves, sinks, shelves and counter surfaces in accordance with plans.

Install Owner-furnished ranges, refrigerators, dishwasher, and associated equipment and secure properly.

Existing galley exhaust duct is to be modified for use as a supply system. Install supply fan and ducting complete with all electrical switches and vent risers as necessary. Existing exhaust riser shall be held for reuse.

Install galley exhaust system in way of fryer and ranges complete with fan, hoods, filters, gaylord shutdown and dampers. Re-use exhaust riser relocated above.

Upon completion of renewals and installations, existing deck is to be repaired and resurfaced. All equipment is to be covered and galley painted out with gloss white enamel.

Electrical:

To the extent that is possible, existing cable shall be utilized and re-located to suit the above installations. Supply and install cable, outlets, panels, circuit breakers and switches new and existing to be as shown on isometric plans.

Piping (General):

In way of removals, existing piping shall be removed to header and blanked. Galley piping is to be rerouted and connected to suit the new installations. Supply all necessary piping, fittings, valves and fixtures necessary to complete this work. All installations, new and existing, to be as shown on as built schematic.

Fire Plan:

Vessel's fire plan shall be modified to show new compartments created by this modification. Furnish two (2) framed copies of revised plans and install as directed by the Chief Officer.

CONVERSION OF EXISTING DINING AND GALLEY FEEDING SYSTEM TO NEW CAFETERIA MODE
SYSTEM (Continued)

Provide manpower and material to accomplish refurbishment (betterment) of the ship's galley and Officers' and Crew's Mess in accordance with shipyard's drawings and Owner's instructions.

Time and material charges are to be made to proper items as noted below:

Material Procurement:

Procure all contractor-furnished material required to accomplish refurbishment modifications.

Engineering Requirements:

Provide engineering services to develop drawings and procedures for approval by ABS, USCG representatives, and U.S. Public Health Service.

Sheetmetal Shop Fabrication:

Provide labor and material as required to shop fabricate sheetmetal components. (To include vent ducting, stainless steel bulkhead sheathing, counter tops and equipment racks.)

Sheetmetal Shipboard Installation:

Provide labor and material as required to install and relocate shipyard and Owner-furnished equipment. (To include all shipboard removals and installations.)

Piping Modifications to Ship's Galley, Officers' and Crew's Mess:

Provide labor and material as required to accomplish shipboard piping modifications. (To include removals, relocation and shipboard tests.)

Electrical Modifications to Ship's Galley, Officers' and Crew's Mess:

Provide labor and material as required to accomplish electrical modifications. (To include removals, relocation, electrical maintenance and shipboard test.)

Shipfitter Modifications to Ship's Galley, Officers' and Crew's Mess
(S/F/Welders):

Provide labor and materials to accomplish removals, shop fabrications and shipboard hull modifications. (To include equipment foundations, bulkhead removals, strengthening after removals, if required.)

Rigging Services:

Provide all rigging and crane service for refurbishment modifications. (To include shop and shipboard requirements, and from receiving department to vessel.)

CONVERSION OF EXISTING DINING AND GALLEY FEEDING SYSTEM TO NEW CAFETERIA MODE
SYSTEM (Continued)

Transportation:

Provide labor and equipment to transport all material and equipment during refurbishment modifications.

Overhead Ceiling Installations:

Provide labor and material to accomplish overhead ceiling installation.
(Provide shipyard assistance as directed by Ship Superintendent.)

Decking Requirements:

Provide labor and material to accomplish decking modifications as required.
(Provide shipyard assistance as directed by Ship Superintendent.)

Paneling Installation:

Provide labor and material to accomplish paneling modifications as required.
(Provide shipyard assistance as directed by Ship Superintendent.)

Reefer Box Relocation:

Provide subcontractor to assist shipyard in the relocation of the non-self-contained reefer box.

Clean-up (P/L):

Provide labor, make removals, clean up and remove debris from work areas during modifications.

Painting Touch-up (P/L):

Provide labor and material to prime coat and touch up all disturbed areas.

Removals and Preparation of New Layout:

Remove bulkhead between PO mess (old) and crew mess pantry (old). Level deck of new larger room. Remove table, PO mess, all buffets, ice maker (retain for new location, ice maker), coffee stand dresser, sink dresser, dishwasher, dish racks, etc. and dispose of according to instructions of Exxon Representative.

Remove framing of serving window, door to galley. Enlarge door opening for installation of serving window to new Officers' mess horizontally, and fill in under serving window installation with bulkhead material as required.

Bulkheads are to be covered with formica wood grain (African teak, Honeytone oak, Cherry) panels or equal as selected by Owner's Representative.

CONVERSION OF EXISTING DINING AND GALLEY FEEDING SYSTEM TO NEW CAFETERIA MODE
SYSTEM (Continued)

Removals and Preparation of New Layout: (Continued)

Overhead is to be covered with acoustic type material. Fluorescent lighting, as instructed by Owner's Representative to be installed in overhead.

Crew mess (old) - Remove framing for serving window. Enlarge vertically, to accept door framing in same location. Remove tables. Remove bulkhead for serving window opening.

Galley - Remove equipment for relocation or disposal as per instructions of Owner's Representative. Only cook's sink dresser remains in place. Other items relocated. Present 24" wide dresser in middle of galley may be incorporated in 24" wide dress new installation forward side of galley if acceptable to Owner's Representative, or other alternative as described under cook's serving dresser.

Old officers' mess - Remove tables as required, or other items, to provide an area as per instructions of Owner's Representative for installation by gym equipment or other recreation items.

Remove coffee maker from present location, old crew mess pantry, and install in old Officers' mess pantry (new night lunch pantry) as per instructions of Owner's Representative.

Remove Scotsman ice flaker from present PO mess and relocate to old Officers' mess pantry, or mess room, as per instructions of Owner's Representative. Relocate scoop holder if on bulkhead to site adjacent to flaker.

Relocate drinking fountains, crew mess and new Officers' mess to location as instructed by Owner's Representative.

Relocate dish racks, old crew mess pantry, to new location galley, on aft bulkhead near dishwasher, as per instructions of Owner's Representative.

Relocate can opener, Galley, to new location.

Relocate slicer, Hobart 1612, to new location.

Relocate hand sink, paper towel dispenser, soap dispenser to new location as shown in layout. Relocate soiled paper towel holder, or provide new one adjacent to new location.

Relocate exhaust hoods, or replace with new as per Owner's Representative's instructions, so as to provide suitable exhaust air from galley. Disconnect exhaust going to old dishwasher. Hoods to be extended or relocated over new location of new ranges and fryer.

Remove Hobart A-200 mixer from galley, relocate in Butcher shop on deck below, as per Owner's Representative's instructions.

CONVERSION OF EXISTING DINING AND GALLEY FEEDING SYSTEM TO NEW CAFETERIA MODE
SYSTEM (Continued)

Removals and Preparation of New Layout: (Continued)

Relocate Toaster, 4-slice Toastmaster Institutional type from present location to between Officers' and Crew's serving shelves, setting on Cook's serving dresser.

Owner-Furnished Equipment:

(Amount)

- (2) General Electric Marine Model MRO7 ranges, 230/60/3 phase, SS front and sides (no overhead panel, controls on range); (3) 12" x 24" hotplates.
- (1) Hobart AM 12 dishwasher.
- (1) Traulsen Model RHT 2-32 N UT Refrigerator, remote condensor and compressor.
- (1) Traulsen Model RLT 2-32 N UT Freezer, remove condensor and compressor (Remote installation of compressor in lower passageway).
- (2) Cory IFW-248-U-2 500-watt infrared overhead heating device for installation over serving windows for keeping served food hot.
- (2) ALLMETAL refrigerated salad and dessert display #1215-30 S, with SS sides and base.
- (2) Kelvinator or approved equal 2 SF ice cream cabinets.
- (2) Shelleymatic or approved equal SD 757 dish dispenser.
- (2) Round Dipwell or approved equal ice cream dipping sink.
- (1) Bunnomatic F-20 coffeemaker, with sea rails and sea legs 120/AC/20 amp.
- (2) Litton System 70/15 microwave ovens.
- (2) Bloomfield 1096 stainless steel silva-tainers, with 6 1086-N cylinder inserts.
- (32) L & B chairs, #6422-A (GE-15 rawhide upholstery, padded back and set, Dark Oak #5 wood finish).
- (1) Gym set, Owner-furnished, to be installed in old Officers' mess as per instructions of Owner's Representative.

CONVERSION OF EXISTING DINING AND GALLEY FEEDING SYSTEM TO NEW CAFETERIA MODE
SYSTEM (Continued)

Owner-Furnished Equipment:

(Amount)

- (2) Litton System 70/15 Radar ovens, to be mounted on top of display cases ALLMETAL 1215-30 S, one in crew mess, one in officers' mess.
- (1) Shelleymatic #SD 1013H drop in dish dispensers, 110 Volt for 9-3/4" dinner plates (#SD1013H).
- (1) Shelleymatic #SD 813H drop in dish dispensers, 110 Volt for 7" side plates.

Shipyard Furnished Equipment:

- (1) T & S spray for scraping dishes, to be installed in accessible location at back of dish scraping sink.
- (1) Dresser, RANGE, 3' x 30", (1) stainless steel perforated shelf under, to be installed between ranges, modularly fitted to ranges, at a height from deck of upper surface of approximately 36" (matching level of range top). To have marine rolled edge on aisle sides. All stainless steel construction.
- (1) Dish scraping dresser, 6' 9" long (approximate) x 24" wide, stainless steel construction, with marine rolled edge on aisle side, flashed to bulkhead on bulkhead side. To have 24" x 20" x 14" deep dish scraping sink as shown in layout. Hot and cold water supply to be provided, drains.
- (1) Stainless steel backsplash to be installed on bulkhead in dishwasher area as required to fill in areas not now protected by backsplash, in area above dresser. Most of area now protected. Dresser must be contoured and fitted for entry and removal of trays of soiled and clean dishes to and from dish washer (AM 13 Hobart). Dresser to have area under for placement of dish scraping garbage can under dresser, so no braces should obstruct removal or placement of garbage can under dresser. Opening to be starboard side of sink.
- (1) Alter as required, edge of old cook's dresser, and install stainless steel addition as required, with proper entry of trays of soiled and clean dishes into and out of dishwasher, AM 13 Hobart, port side.
- (1) Stainless steel stand or shelf for mounting General Electric HK-3 fryer as shown, adjacent to Fryer/Range Dresser.
- (1) Stainless steel construction, 24" x 36" dresser, modularly fitted to adjacent range, top level of dresser level with range, marine rolled edge on other sides. (1) stainless steel perforated shelf under.

CONVERSION OF EXISTING DINING AND GALLEY FEEDING SYSTEM TO NEW CAFETERIA MODE
SYSTEM (Continued)

Shipyard-Furnished Equipment:

(Amount)

- (1) 10' x 24" wide stainless steel dresser, with marine rolled edges on aisle sides, flashed as per USPHS on bulkhead sides, to be installed as the Cook's Serving Dresser as shown in layout. AS PER INSTRUCTIONS OF Owner's Representative, utilize present dresser in place, and add as required; or utilize center serving dresser (old layout), adding or deleting material as required; or build all new construction. (1) stainless steel perforated shelf under, (1) cook's drawer.

Shipyard-Furnished Material and Equipment:

- (1) Serving shelf, stainless steel 12" wide x 4' long approximately, depending on final serving opening, to be installed at a height of approximately 12-13" above level of cook's serving dresser, Crew mess side. 1/2" smoothed or rolled retaining edges for rough weather. Shelf extends over bulkhead, forward side of shelf approximately even with bulkhead (finished, if covered) of Crew's Mess.
- (1) Serving shelf, stainless steel, 12" wide x 4' 6-9" approximate length, installed as detailed for Crew's Mess serving shelf, on Officers' mess side.

NOTE: Structural supports may alter suggested dimensions of serving openings. Intent is to provide convenient and ample area for Chef to serve food to crew members, and as long as this criteria is met, adjust serving openings to structural support requirements.

- (1) Provide door, with door frame, and enclosure of area to create janitorial area, also serving as opening to port side of galley to deck. Provide wall mounted hooks, brackets, etc. for mops, brroms, mop bucket, etc. Remove inner screen or plastic fitted door in this area if required.
- (2) OPTION 1 - Purchase and install 30" x 5' buffet/dresser, formica or stainless steel top.

OPTION 2 - Provide and install 30" x 5' stainless steel construction dresser, 2 shelves under, stainless steel. Upper surface to have smoothed retaining edges (or marine rolled edge). Shelves to have 1/2" approximate smoothed or rolled retaining edges on aisle sides.

Silva-tainers, coffee warmers, coffee makers, etc. are to be mounted on upper surface of dresser, and construction should be suitable for that purpose. These items should be placed near bulkhead insofar as possible to permit possible use of aisle side for sliding trays if used.

CONVERSION OF EXISTING DINING AND GALLEY FEEDING SYSTEM TO NEW CAFETERIA MODE
SYSTEM (Continued)

Shipyard-Furnished Material and Equipment:

(Amount)

(2) Tray slides, stainless steel sheet, with smooth or rolled retaining edges on aisle sides, to be installed at a height from deck of approximately 36". To be approximately 4'6" long x 15" wide. (No slotted or pipe construction, Marine use).

(1) Officer's Mess Table, 14' long x 42" wide, storm rails, surface to be flat without interruption, installed on pedestals secured to deck as per approval of Owner's Representative, using old pedestals from tables removed with renovation as per instructions.

(1) Crew Mess Table, 14' long x 36" wide.

Option 1. Use 8' table combined with 6' table from crew mess to make 14' table. (8' table from old PO mess). Combine according to instructions of Owner's Representative.

Option 2. At discretion of Owner's Representative, build 14' long x 36" wide crew mess table, storm rails, pedestal mounted as per instructions of Owner's Representative.

Upper surface of table to be covered with formica or equal.

(2) Stainless steel shelves, 11" wide x 5' long, with 2-1/2" smoothed or rolled retaining edges on sides other than bulkhead side, to be installed as shown in layout. Care should be taken that supporting braces should not interfere with placement of equipment under.

NOTE: If USPHS requires excessive area for cleaning under equipment, such as the coffee maker, it would be preferable to shorten shelf, rather than raise it because of this clearance problem to a height such that it would be hard to reach. Approximate height of 15" to 18" from upper surface of dresser could be usually considered convenient for average person.

Lighting, Crew and Officers' Mess - Fluorescent lighting; lighting to be installed as per instruction of Owner's Representative.

(2) Stainless steel dresser/buffets 24" x 24" top surface, fitted against adjacent ice cream cabinet, bulkhead, and salad display. Marine rolled edge, or smooth-rolled retaining edge on aisle side, to be mounted even with top surface of ice cream cabinet adjacent. To have (2) stainless steel shelves under and doors at front. (No shelf required in area, middle shelf where dipping sink and dish dispenser are present at back). 12" backplash against bulkhead.

CONVERSION OF EXISTING DINING AND GALLEY FEEDING SYSTEM TO NEW CAFETERIA MODE SYSTEM (Continued)

Shipyard-Furnished Material and Equipment:

(Amount)

In addition to power supply for aforementioned items, provide double 110 volt receptacles as shown in layout, for use with small portable items such as toasters, etc.

- (4) Two outlets each, on bulkhead behind Buffet item
- (2) One outlet each, ice cream dipping dresser on bulkhead item
- (2) Two outlets on bulkhead behind cook's serving dresser item
- (1) One outlet, at back of range dresser item
- (1) One outlet, on bulkhead behind dish scraping dresser, stbd area item
- (1) One outlet, on bulkhead behind fwd side of old cook's dresser item (sink and pot washing, which remains in place.)
- (2) One outlet, on bulkhead behind ALLMETAL 1215-30S salad display, above display area, for possible use with stereo equipment which may sit on display cabinet. One on each of Salad Display items.

98. GENERAL ELECTRIC THIN FILM EVAPORATOR - 219

Make necessary removal of piping to distillate condensor. Remove head. Remove tube bundle to shop. Remove all tubes from tube sheets. Make any required repairs to tube sheets. Install total of ninety-six (96) Owner-furnished 5/8" O.D. "U" tubes - 90-10 CuNi. Tube hydro 112 psig, shell hydro 22.5 psi. Test both and prove tight. Reinstall with new gaskets. Replace all removed equipment. Test and prove satisfactory.

Tubes ordered - 9/22/77 - DC #7185.

99. STIFFENERS FOR PORT BOILER STEAM LINE - 315

Survey and install stiffening pipe bracket supports to superheater inlet line on port boiler. (This line currently vibrates excessively at sea, and has only one hanger along its length.)

100. PORT BOILER INTERNAL (CENTER) SUPERHEATER DOOR - 319

Remove and renew total of three (3) 5/8" x 1" heat-treated studs for securing dogs to hold bottom door closed.

101. PORT & STBD IK SOOT BLOWER SUPPORTS - TOP LEVEL OVER PORT & STBD BOILERS - 305

Crop off existing wasted supports - two (2). Weld in two (2) vessel-supplied spare supports.

102. DRAIN LINE FROM INSPECTION TANK TO ATMOSPHERIC DRAIN TANK - 227

Renew existing wasted section of 5" pipe, approx. 10' long, flanged ends. Located engine room bilge near aft engine room bulkhead - shaped. On completion, prove tight.

103. ATMOSPHERIC DRAIN LINE PIPE - LOCATED AT ATMOSPHERIC DRAIN TANK - UNDER FIRE PUMP - 227

Renew section of 5" drain pipe. Line has three (3) bends, one (1) branch, three (3) flanges. Overall length approx. 11'.

104. MAIN CARGO PUMP EXHAUST VALVES - 225

Remove to shop four (4) six inch 60# exhaust valves from main cargo pumps and overhaul as found necessary. Reinstall with new gaskets, bolts and nuts. Prove tight. Valve markings: NNF; 6; 60; 1-197954; V-49; 645-3553.

105. HYDRO MAIN CARGO PUMP EXHAUST LINES - 227

Install blanks and pressure test the six inch exhaust lines from main cargo pumps to 100# pressure to search for possible vacuum leak.

106. AIR EJECTOR DRAIN TO ATMOSPHERIC DRAIN TANK - 227

Located at atmospheric drain tank. Renew approx. 6' of shaped and flanged pipe with two (2) 90° bends.

107. BUTTERWORTH SUCTION LINE FROM MAIN CONDENSER - INLET SIDE OF BUTTERWORTH INLET MANIFOLD - 227

Renew approx. 56" of 8" wasted pipe. Pipe has one (1) 90° bend.

108. MAIN STEAM STOP - WARM-UP LINE - 225

At main steam stop valve in engine room. Warm-up line has been removed. Flanged spud flange is steam cut. Crop, flange and have certified welder weld cap on spud and prove satisfactory.

109. SANITARY PIPELINE - LOWER ENGINE ROOM - UNDER & AFT OF STEAM FUEL OIL SERVICE PUMP - 227

Remove existing defective section of pipe. Fabricate, install and prove tight new section of cupro-nickle pipe - 4" diam., 2' 4-1/2" long with one (1) 3/4" spud. Prove tight.

110. 30# STEAM SYSTEM - WELDED FLANGES - 227

a. Remove existing defective two (2) flanges - flanged joint above aux. condensor where feed pump exhaust ties into main line. Replace with VESSEL FURNISHED new flanges. Prove tight.

b. Fabricate and install insulation blanket for same.

NOTE: Flanges stored in Chief Engineer's gold locker.

NOTE: 150# flanges, welded type - 10" diam., 8 bolt holes for 3/4" bolts, 8-1/2" bolt circle.

111. BUTTERWORTH PUMP SUCTION LINE - 56" OF 8" PIPE - 232

Renew wasted section of Butterworth suction line from main condenser overboard line. Has 90° bend.

112. SALTWATER COOLING WATER LINE PIPE - 227

Located in bilge under fwd spring bearing in shaft alley.

Renew wasted section of 3" diam. x approx. 6" long. Cupro-nickle brazed pipe. On completion, prove tight.

113. SALTWATER COOLING WATER PIPE AFTER AIR CONDITIONING SYSTEM - 702

Remove seven (7) lengths of pipe from salt water lines on after air conditioning system. (NOTE: current lines have been patched awaiting repairs.) Replacements shall be of cupro-nickel and fitted with "Van Stone" type steel flanges.

114. AFT PORT QUARTERS AIR CONDITIONING - FAN ROOM - 702

- a. Disconnect and remove existing defective cooling coil, blower motor, transition piece between blower motor and coil, drain pan, piping and supports. Fabricate new pan and supports for same. Fabricate deck doubler 1/2" thick and 9' x approx. 17'2". Install new Owner-furnished blower and cooling coil. Make up all components as original plus electrical connections. Weld up support brackets. Bleed system of air and recharge with Freon-12. Insulation to be repaired or renewed as necessary. Test and prove satisfactory.

115. JOHNSON HARNESS STORAGE BOX - AFT PUMPROOM - STBD SIDE - 102

Crop out existing wasted box. Fabricate and weld to place new box as original as per sketch.

116. HIGH PRESSURE EVAPORATOR FEED LINE FROM BOILER - 219

Renew spud on interior feed line from boiler (spud has soft patch on holes now) - 1-1/2" pipe.

Renew 50 3/4" studs on door casing. Studs are crystallized.

Renew door gasket (asbestos).

117. MAIN CIRCUIT BREAKERS - 806

Remove circuit breaker for machinery vents #P-28 to shop. Open for inspection, including tripping device. Prove in good order.

118. EXTERNAL DESUPERHEATER & INLET STOP VALVE TO DESUPERHEATER - 317

Disconnect and remove to shop inlet stop valve, external desuperheater and mixing chamber for examination and/or repair. Repair or renewal to be determined after examination by concerned parties.

119. 180# EXTRACTION VALVE - ENGINE ROOM - 300# - 5" ANGLE VALVE - 227

Disconnect, remove to shop. Overhaul, shop test and prove tight and replace as original.

120. VENT DUCT & BULKHEAD FWD PUMPROOM - PORT SIDE & PORT SIDE UNDER FOCSLE HEAD
- 102

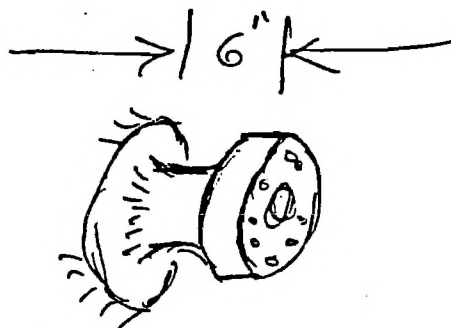
- a. Crop existing wasted vent duct from deck to overhead inside focsle head port side approx. 8'6" high, shaped, x 27 1/2" x 13" x 1/4" and renewed.
- b. Crop and renew wasted bulkhead (pumproom port side immediately behind above duct work) approx. 9' x 9' x 1/2".

121. STEAM LINE PENETRATIONS AMIDSHIP HOUSE

Remove old penetration of forward midship house. Fabricate new units with flanges and weld in place. Make up joint and renew insulation.

1. Deck steam line: size 5", 300#
2. Deck exhaust line: size 8", 150#

See Drawing Below.



Penetration extends
6 inches out
STEAM LINE
PENETRATIONS to flange
AMIDSHIP HOUSE

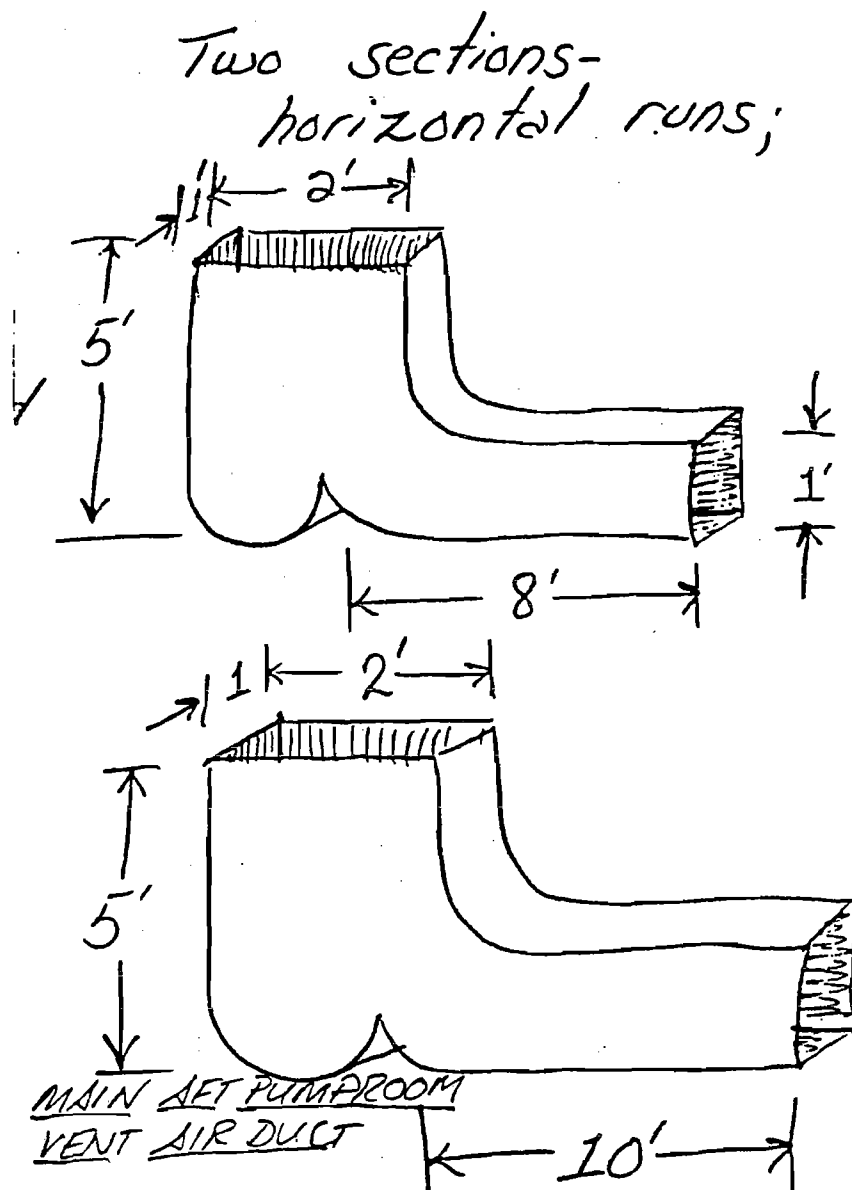
122. FWD PUMPROOM WATERTIGHT DOOR - 120

Remove door to shop. Blast and Rust-Ban 191 coat. Renew gasket channel and gasket. Replace as original and prove tight.

123. MAIN AFT PUMPROOM VENT AIR DUCT - 408

a. Crop out 6 ft. of 12" O.D. eroded pipe duct, under grating, third layer of pipe down at #1 main cargo pump suction strainer box, by 1/8" thick with 1" ring flanges for connection - one (1) 45° bend. Fabricate new section in two (2) sections for ease of installation.

b. Remove rusted ventilation ductwork. Fabricate new from galvanized sheet metal. Coating all welds and bends with zinc primer. See Drawing Below.



124. DIESEL OIL TANK - STACK DECK - 102

Wash off tank saddle foundations (wasted) at deck. Disconnect and remove entire unit to shop. Wash off saddle foundations from tank, clean interior of tank. Blast and coat exterior of tank, fabricate new saddles and weld to tank. Scale and prime deck underneath tank location.

Renew vent line branch line - 1/2" pipe - and contour new line to curvature of tank.

Weld unit to place as original and prove satisfactory and tight.

125. DECK - AFT - OVER 3RD ASST. ENGINEER'S ROOM - STBD SIDE - 102

Install doublers - two (2) over holed areas:

- a. One (1) doubler 18" x 16" x 1/4"
- b. One (1) doubler 16" x 16" x 1/4"

Currently red hand patched. Prove tight.

126. ACCESS TRUNK 10" DIAM., ULLAGE - 102

a. Openings - total of twelve (12)

#1 center, #1 stbd, #2 port, #2 center, #3 port, #3 stbd, #6 port, #6 stbd, #8 center, #9 center, #9 stbd, and #10 center.

Crop at dome. Fabricate and reweld to place new ullage openings reusing existing covers which are also to be blasted, coated and regasketed. Reuse associated hardware which is good. Renew if worn or defective. Renew all screen retainer rings. On completion, prove satisfactory, all to be original height and prove tight.

b. Allow for additional twelve (12) designated 10" ullage openings.

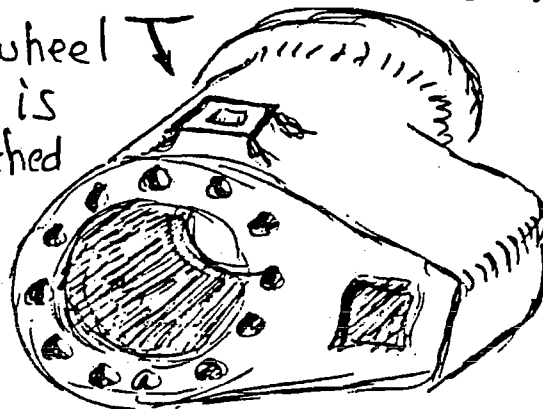
127. STRIPPER PUMP OVERBOARD VALVE - 412

Remove and replace 4" gate valve, owner furnished, from stripper pump overboard discharge located in starboard cofferdam.

128. MOORING WINCH CYLINDERS - 114

Remove and renew steam cylinders from #1P, #2S, #3 and #4 forward and after. Renew gaskets, bolts and nuts. Cylinders will be owner furnished. Test and prove satisfactory working order. See Drawing Below.

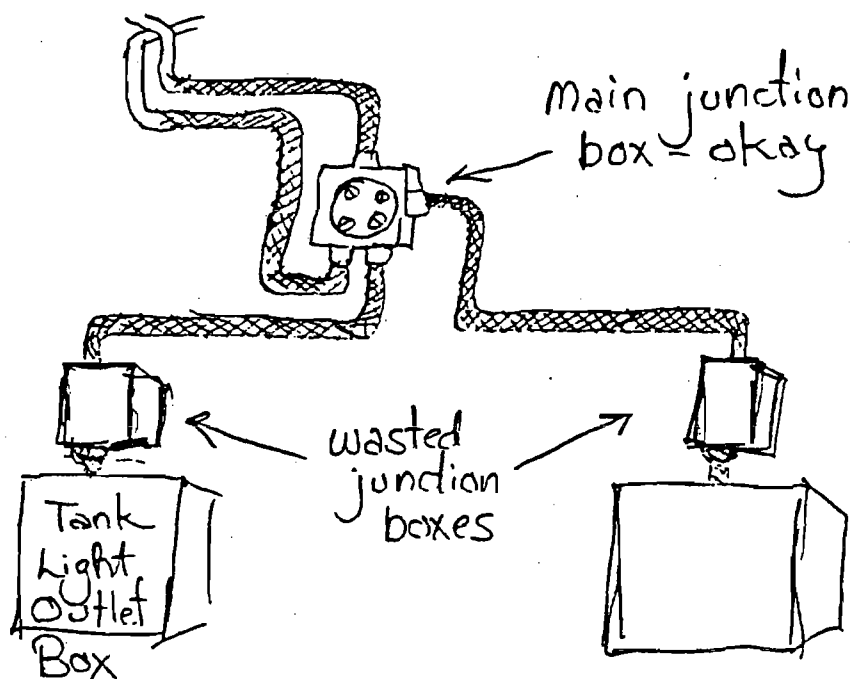
cylinders are both
cracked in area of raised
portion to which control
handwheel
gear is
attached



MOORING WINCH CYLINDERS

129. SUPPLY CABLE TO TANK LIGHT BOXES - 809

Remove and renew entire run of electrical cable under catwalk for tank light boxes. Requires approximately 600' of lead and armored 10-12 AWG 3 wire cable. Also replace any wasted junction boxes.



Detail of each
of 5 outlet stations
SUPPLY CABLE TO TANK LIGHT BOXES

130. FWD ANCHOR P&S HAWSE PIPE COVER HOLD DOWN - "U" BOLTS - FOCSLEHEAD - 102

Crop off total of eight (8) wasted "U" bolts - (4) each side. Fabricate new "U" bolts as per attached sketch and weld to place as original.

131. #2 & #3 MOORING WINCH - REVERSE VALVE PEDESTAL - 114

Crop off reverse valve pedestal at deck. Cut 6" diam. hole in top of pedestal to prevent build up of scale under reverse valve. Install four (4) bolts and nuts through legs of reverse valve and align pedestal with bolts. Reweld pedestal to deck.

132. HATCHCOVERS - STACK DECK - FIRE ROOM - 102

Remove and renew existing wasted total of two (2) each 50 1/2" x 32 1/2" x 1/2" hatchcovers.

133. QUARTERS MUSHROOM VENTILATORS - PORT & STBD SIDE - MIDSHIP - BOAT DECK - TOTAL OF TWO (2) - 236

Crop and renew two (2) wasted 14" diam. port and stbd quarters mushroom ventilators approx. 3' high.

134. AFTER HOUSE - POOP DECK - STACK DECK - MIDSHIP HOUSE - 102

Furnish labor, staging, equipment and material and sandblast to near white metal. Prime and coat the following areas:

- a. Aft poop deck - in its entirety.
- b. Stack deck - in its entirety.
- c. Midship house - in its entirety.
- d. Lazarett deck - in its entirety.

Additional repairs if required to be included in addendum to this item.

135. AFT PEAK TANK - 102

- a. Open tank, sand blast and/or scale interior of tank. Remove debris.
- b. Audio gauge fwd bulkhead and internal strength members and repair as required.
- c. Allow for 30' x 30' x 1/2" bulkhead insert.
- d. Allow for renewal of vertical and horizontal stiffeners and brackets approx. 15% of tank.
- e. Make access hole in shell for removal of residue and reweld to place on completion and prove tight.
- f. Coat tank with approved primer. Tank to be used for spare feed water.

136. OPEN #1 PORT & STBD ENGINE ROOM DOUBLE BOTTOM TANKS - 110 TONS EACH - 102

Chip, scale and/or sandblast to satisfaction of Repair Inspector. Prime and coat tanks with approved coating. Close up after inspection. Renew gaskets.

137. FUEL OIL SETTLING TANK STBD - 102

Repair leaks in settling tank at weld where settler tank joins wing tank on vertical, approx. 4' from bottom.

138. FORWARD #1 PORT & STBD DEEP TANKS - FRAMES 122-139 - 102 - HOLD UNTIL AUTHORIZED

- a. Clean and scale the interior of these tanks and make suitable for carrying bunker fuel. If vessel is to be used in trans-Panama trade, tanks must be scaled if bunker oil to be carried in same.
- b. Heating coils in same to be tested and proven satisfactory and/or repaired as necessary.

139. POOP DECK - STERN ANCHOR WINDLASS - 113

- a. Disconnect, uncouple and remove windlass to shop. Protect bearings, piston rods, and running gear. Sandblast and Rust-Ban 191 coat.
- b. After blasting and coating, windlass to be examined and determination made as to structural support member renewals, including brake bands.
- c. Foundation under windlass to be cleaned, scaled and prepared for reinstallation on completion of repairs, i.e., prime-coated, coaming to be repaired as required. On completion, prove satisfactory.

140. STACK FLOOD LIGHT ELECTRICAL CABLE VERTICAL - HOLDING PLATE - 811

Renew plate.

141. UNIVERSAL ROLLER CHOCKS - 129

Remove existing defective sheaves and pins for same. Replace with total of eight (8) Owner-furnished sheaves and pins as original at designated chocks.

142. LAZARET ACCESS HATCH POOP DECK - PORT SIDE - AFT - 102

Crop and renew wasted hatch and deck access coaming.

143. FWD ANCHOR WINDLASS ENGAGING BLOCKS - 113

Disconnect total of four (4) from stbd side (too much lost motion). Build up blocks and machine to nominal clearance. Reinstall as original and prove satisfactory.

144. KING POSTS AFT BOAT DECK LEVEL - P & S - 102

Crop off and remove from vessel to storage area for Owner's disposition:

- a. P & S king posts - weld cap plates to stubs at rail level.
- b. Stays and padeyes
- c. Booms and boom rests.

Grind smooth in way of removals and prime coat.

145. SINGLE SIDE BAND RADIO ANTENNA - FLYING BRIDGE - 609

Fabricate and weld to place two (2) additional antenna supports, one (1) top of railing and one (1) at deck level.

146. MIDSHIP HOUSE DOOR JAMS - 102

Renew following defective door jams:

- a. Bridge deck - three (3)
- b. Mates deck - two (2)

147. TWO (2) WINDOW LEDGES - STBD FWD SIDE OF WHEELHOUSE - 102

Remove wasted bottom sheet metal ledges. Fabricate and install new ledges, each approx. 3" x 24" x 12 gauge - galvanized.

148. CO₂ ROOM BULKHEAD PENETRATION SALTWATER LINE - 223

Disconnect two (2) flanges on midship saltwater line in CO₂ room. Crop out bulkhead and remove 12" x 3" flanged section of wasted pipe. Furnish and install extraheavy pipe with two (2) flanges. Furnish and weld flanged pipe section. One flange will have to be welded in place. Seal weld bulkheads. Install two (2) new rubber gaskets and eight (8) 5/8" x 2 1/2" bolts and nuts. Prove tight.

149. BUTTERWORTH CONNECTION PIPE - ON "D" LINE DROP ABOVE DECK PENETRATION - 415

Crop and renew 8" section of 2 1/2" pipe welded to "D" line, welded one end, flanged other end.

150. GALLEY SCUPPER DRAIN - 131

Disconnect after port scupper drain line; blank off connection to main.
Reroute aft and connect with deck scupper main in crew's laundry room. At
present, scupper will not drain when ship is in ballast. Must be hooked up
to drain in an after direction.

151. STEAM LINE TO CARGO HEATING COILS - 409

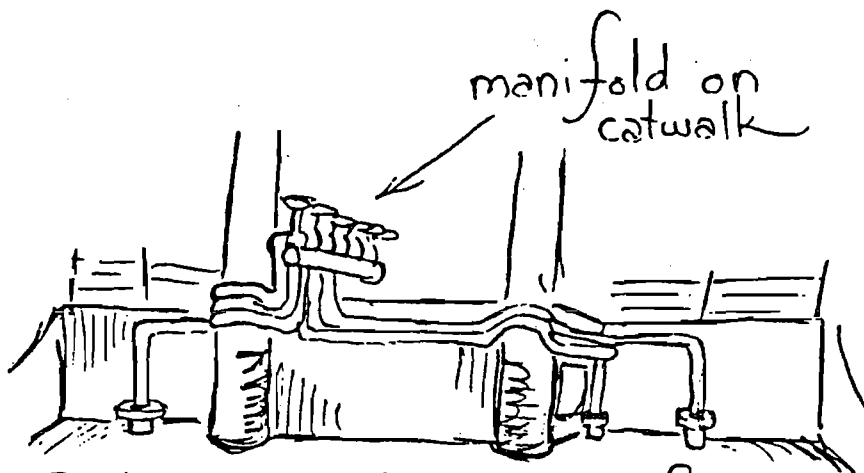
Remove manifolds and valves as follows:

- #1 Steam and Exhaust
- #2 - 3 Steam and Exhaust
- #4 - 5 Steam and Exhaust
- #7 - 8 Exhaust only
- #9 - 10 Both

Sandblast all rust. Renew nuts and bolts in flanges and valve bonnets. Note; some valves are relatively new, and will not need renewal of bolts and nuts. Coat all parts with rust preventative. Total of 9 manifolds and 48 valves.

152. STEAM SMOTHERING SYSTEM - 409

Remove all steam piping from master valve to tank penetration, including manifold and valves. Fabricate new 1-1/2" schedule 80 pipe on all six branches, using primer coated material. Renew hangers and brackets as necessary. Prove tight. See Drawing Below.



STEAM SMOTHER- 1 1/2" pipe is formed
ING SYSTEM to follow configuration
ON DECK of king posts, pump-
room, etc.

153. FIRE STATION #32 - INSIDE LOCKER - LINEN UPPER DECK - PORTSIDE - 123

Crop and renew approx. 42" of 1 1/2" pipe at fire station #32.

154. FIREMAIN PIPING MAIN DECK - 123

Renew following wasted sections of 8" pipe. Sections are flanged:

- a. (1) section 10' long.
- b. (1) section 17' 2-1/2" long
- c. (1) section 14' 10" long, shaped with 2-1/2" outlet
- d. (1) section 11' 2" long
- e. (1) section 7' 8" with 2-1/2" outlet
- f. (1) section 16' 6" with two (2) 2-1/2" outlets
- g. (1) section 9' 8" with 2-1/2" outlet
- h. (1) section 10' 6" long with 4" 90° outlet
- i. (1) section 8' 1" long with one (1) 4" and one (1) 2-1/2" outlet
- j. (1) section 10' 8" long, shaped with 2-1/2" outlet
- k. (1) section 10' long.

On completion, prove tight.

155. 8" FIRE LINE EXPANSION JOINTS - TOTAL OF THREE (3) - 123

Renew total of three (3) 8" expansion joints at "A" frames #13, #23, and #31.

Expansion joints to be furnished by Owner. (On order)

156. #3 CENTER MAIN CARGO TANK HEATING COILS - 409

Furnish labor, material, equipment and staging. Place 300# hydro test to cargo tank (#3 center). NOTE: Various leaks have been located and patched.

Allow for complete renewal of approx. 587' of 2" extra-heavy steel tubing - 2.375 O.D. (See NPN Dwg. - 275-1443). Make up all pipe hangers as original. On completion, prove tight and remove staging.

157. #6 CARGO TANK - HEATING COIL RETURN MANIFOLD SUPPORTS - 409

Crop off two (2) wasted manifold supports. Crop off two (2) wasted pipe hangers.

- a. Fabricate and install two (2) angle steel supports 3" x 3" x 1/2" thick angle.
- b. Furnish and weld to place two (2) double leg pipe hangers to the new supports.

158. 12" BALLAST LINE PIPE IN #10 CENTER CARGO TANK WITH TWO (2) 45° BENDS - 407

Dresser couplings both ends approx. 50' long.

159. #8 CENTER CARGO TANK PORT 8" STRIPPER LINE PIPE - 407

Crop approx. 7' of 8" stripper line pipe, one (1) 45° bend. Dresser couplings both ends. (Furnished by vessel) Crop and renew and prove tight.

160. 2-1/2" FLANGED SPUD ON 16" "D" LINE 90° FLANGED DECK PENETRATION DROP LINE - 407

Crop and renew (wasted, patched) 2-1/2" x 8" - flanged one end, welded other end - spud and prove tight.

161. 1-1/2" AIR LINE PENETRATION THRU BULKHEAD FROM CO₂ ROOM TO OUTSIDE OVER AFT PUMPROOM DECK HEAD - 131

Crop existing wasted section, flanged both ends. Fabricate and install new extra-heavy pipe approx. 1' long and prove tight.

162. DECK STEAM LINE BULKHEAD PENETRATING DOUBLER - 107

Crop existing red hand patched bulkhead penetration doubler. Fabricate new doubler plate approx. 10" x 10" x 3/4" thick. Weld to place and prove tight.

163. FWD PUMPROOM VERTICAL DISCHARGE LINE OF FIRE PUMP - 15' X 5" PIPE - 131

Renew section of wasted pipe, two (2) 90° bends, flanged both ends.

164. AFT PUMPROOM PORT STRIPPER PUMP - RELIEF VALVE TO PUMP SUCTION - 131

Renew wasted section of 6" pipe approx. 5' long, flanged both ends with two (2) 90° bends.

165. AFT PUMPROOM PORT STRIPPER PUMP - DISCHARGE VALVE SEAT LANDINGS - 412

Open for examination and inspection of all discharge seat landings. Allow for renewal of approx. ten (10) parts to be furnished by vessel. On completion of reassembly, prove satisfactory.

166. BALLAST PUMP SUCTION LINE PIPE LOCATED AFT PUMPROOM BILGES - 407

Renew existing wasted section of 12" pipe approx. 30" long, through longitudinal frame to ballast pump suction. Two flanges with one (1) 90° bend, as per sketch. On completion, prove tight.

167. BALLAST PUMP DISCHARGE CROSSOVER 12" PIPE - 407

Disconnect and remove to shop wasted flanged section of 12" pipe as per sketch.

To facilitate removal, two (2) hand rails, one (1) section of 44" x 12" flanged pipe tee and one (1) 12" gate valve will have to be removed and replaced.

168. PORT STRIPPER PUMP - AFT PUMP ROOM EXHAUST LINE PIPE - 407

Furnish extra-heavy 3/4" NPT spud and weld to exhaust line at outlet side of exhaust valve over pump. Prove tight. Bypass line between steam and exhaust line.

169. MAIN STRIPPER PUMP PORT EXHAUST LINE - AFT PUMPROOM - 407

Crop existing wasted spud. Fabricate extra-heavy 3/4" NPT one end and weld other end at the outlet side of exhaust valve over port stripper pump.

170. AFT BUNKER FILL LINES - DECK PENETRATIONS TO STBD SETTLER & STBD WING BUNKER TANKS - STBD SIDE ONLY - 226

Main deck at entrance to aft pumproom. NOTE: 150# flanges.

Remove two (2) shaped sections off flanged 6" wasted pipe. Fabricate new sections - one (1) approx. 8' long, one (1) approx. 4' long, and weld and connect to place as original and prove tight.

171. CATWALK SUPPORTS BETWEEN AFT & MIDSHIP HOUSES & BETWEEN MIDSHIP HOUSE & FOCSLE-
HEAD - 102

Crop and renew as herein indicated. See attached reference sheet and sketch.

- a. (4) each $3/8"$ x $2\ 1/2"$ x $4"$ x $30"$ in length channel
- b. (2) each $1/2"$ x $18"$ x $42"$ flat plate
- e. (12) each $1/2"$ x $4"$ x $9"$ $44"$ in length angle
- f. (1) each $1/2"$ x $4"$ x $6"$ x $53"$ angle
- g. (1) each $1/2"$ x $4"$ x $6"$ x $53"$ angle
- h. (3) each $3/8"$ x $2\ 1/2"$ x $4"$ x $30"$ channel
- j. (1) each $1/2"$ x $3\ 1/2"$ x $3\ 1/2"$ x $8\ 1/4'$ angle
- k. (3) each $1/2"$ x $2\ 1/2"$ x $2\ 1/2"$ x $6\ 1/3'$ angle
- l. (3) each $1/2"$ x $2\ 1/2"$ x $2\ 1/2"$ x $6\ 1/3'$ angle

Intermediate catwalk grating supports:

- (62) each $3/8"$ x $2\ 1/2"$ x $2\ 1/2"$ x $42"$
40' stringer support member

This is a conservative estimate due to inaccessability. This figure could run as high 100'.

172. BRACKET SUPPORTING BUTTERWORTH PIPING ATOP KEELSON, FWD END #3 CENTER CARGO TANK
- 415

Reweld broken support.

172. REACH RODS - 413

Survey reach rods in all cargo tanks and pumprooms, free up as required. Renew various sleeves, bushings and hangers. Some staging required. Allow for:

Renewal of (10) reach rod forks
(50) Lignum Vitae bushings
(50) sleeves
150' of 1 1/4" reach rod

173. #6 STBD CARGO TANK - HAND RAIL - 128

Weld broken handrail at first level platform from top.

174. #4 CENTER CARGO TANK - STRIPPER VALVE SUCTION BELLMOUTH - BRACKET - 407

Weld broken bracket on 8" stripper valve suction bellmouth.

175. TELEMOTOR HYDRAULIC LINE GUARD - STBD SIDE OF DECK CATWALK - SUPPORTS - 238

a. Furnish and weld to place following pieces on inboard side of guard plate:

6' x 5 1/2" x 3/8" thick at #4 and #5 return manifold
12" x 5 1/2" x 3" at #6 tank
3' 6" x 5 1/2" x 3/8" thick at #6 tanks port & stbd vents
5' x 5 1/2" x 3/8" thick at cargo riser - midships
9' x 5 1/2" x 3/8" thick at main deck king post
9' x 5 1/2" x 3/8" thick at #5 at center tank

176. HYDRAULIC STEERING GEAR GUARD - TOP DOUBLER - STBD SIDE OF CATWALK - 238

Fabricate and weld doubler on hydraulic guard.

One (1) 53" x 4" x 3/8" at midship king post
One (1) 6" x 4" x 3/8" at #6 cargo heating coil return manifold.

177. PIPE HANGERS FOR STEERING HYDRAULIC LINES STED SIDE OF CATWALK - 131

Crop existing wasted double leg pipe hangers at A frame's #32 and #33, #30 and #31. NOTE: 1/2" pipe

NOTE: Fabricate new hangers, extra-heavy, 1 1/2" wide x 5/16" thick, lead-lined, double leg.

- a. One (1) aft of frame #31
- b. Two (2) fwd of frame #30
- c. Two (2) aft of frame #30
- d. Two (2) at frames #32 and #33

178. INBD 16" CARGO LINE SUPPORT AT A FRAME #23 - 407

Crop broken support. Fabricate and weld to place extra-heavy 4" x 9" x 19" x 3/4" thick steel support.

179. 6" BUNKER LINE BRACE - A FRAME #23 - 226

Crop and renew 6" bunker line brace supports two (2). Also weld cross support.

180. DECK STEAM LINE - A FRAME #29 - PIPE HANGER - 117

Weld broken 5" pipe hanger leg.

181. FOAM LINE PIPE HANGER - A FRAME #27 - 123

Weld broken 6" pipe hanger leg.

182. STEERING GEAR HYDRAULIC LINE GUARD - 238

Fabricate and supply - and weld to place - the following steel plates:

- a. 9' x 6" x 3/8" thick @ #2 firemain hose rack, #5 tank
- b. 2' 6" x 6" x 3/8" thick @ #4 and #5 cargo return manifold.
- c. 7' x 6" x 3/8" @ #6 cargo heating coil return manifold. Crop and renew three (3) double leg pipe hangers.
- d. 8' x 6" x 3/8" thick @ midship riser
18' 10" x 6" x 3/8" thick @ #6 tank
7' 9" x 6" x 3/8" thick @ ladder to deck
7' x 6" x 3/8" thick @ #7 tank - Frame A - #23
11' x 6" x 3/8" thick between #24 and #25 "A" frames
9' 3" x 6" x 3/8" thick between #25 and #26 "A" frames

183. VERTICAL BULKHEAD STIFFENER - 1ST ONE FWD OF MIDSHIP HOUSE - PORT SIDE @ SHIPS SIDE - MAIN DECK - 127

Reweld to deck.

184. 10" VENT LINE PIPE HANGER FOCSEHEAD - STBD SIDE - 408

Weld broken 10" vent line pipe saddle hanger fwd of catwalk.

185. VENT LINE ANGLE IRON SUPPORT BRACKETS - 408

Between catwalk frames #11 and #12, renew existing wasted brackets. Weld both ends. Two (2) each - 2 1/2" x 3" x 3/8" angle iron.

186. MOORING WINCH - STEAM & EXHAUST LINE PIPE HANGERS - 117

a. #3 Winch Steam Line Pipe Hangers

Crop existing wasted hangers. Fabricate and bolt to place two (2) 2" wide x 3/8" thick x 3".

b. #3 Mooring Winch Exhaust Pipe Hangers

Crop existing wasted hangers. Fabricate and install one (1) 5" pipe hanger 2" wide x 3/8" thick x 12". 5/8" bolt holes. Fabricate and install two (2) 2" x 3/8" x 3" long fasteners and weld to deck. Bolt pipe hangers to fasteners to make steam and exhaust lines portable for future repairs.

c. #4 Mooring Winch

Crop existing wasted pipe hangers. Fabricate and install:

One (1) 3" x 2" x 3/8" extra-heavy steel x 12" high pipe hanger, double leg. Drill for 5/8" bolts.

Four (4) 3" high x 2" x 3/8" extra-heavy steel fasteners and weld to deck. Fasteners to be drilled for 5/8" bolts. Bolt above hangers to fasteners.

187. KING POST - PORT SIDE - MAIN DECK - FLOOD LIGHT CABLE SUPPORTS - 811

Renew by welding total of twenty-six (26) cable supports along the horizontal run of cable for flood lights. Existing supports wasted.

188. HAND RAILS & LADDERS - 128

- a. Allow for heating and fairing of approx. 80' of hand rails and associated rail stanchions.
- b. Allow for renewal of approx. 200' of 1 1/4" top hand rails.
- c. Allow for renewal of approx. 200' of 1" mid rails.
- d. Allow for renewal of approx. 100' of 1/2" diam. cable and approx. 30 padeyes and 20 clamps.
- e. Hand rail port side poop deck to Panama chock - Reweld to broken handrail.
- f. Ladder hand rail port side fwd of poop deck leading to boat deck.
- g. Reweld broken bracket hand rail, fwd end midship house, main deck, port side.

189. FIRE STATION HOSE RACKS #19 & #22 - 123

Crop and renew total of two (2) existing wasted fire hose racks.

36" x 32" x 7" x 3/8" flat plate.

Weld to place as original. See attached sketch.

190. RACK DOOR FIRE STATION #1 - 123

Renew wasted rack door as per sample. See attached sketch.

191. PORTSIDE AFT POOP DECK - METAL DOOR LEADING TO LOWER DECK - 102

Remove existing wasted door. Fabricate new door with new hardware and install as original door - 1 1/2" thick x approx. 76" x 28".

192. FOCSLEHEAD LEAK INTO FWD PUMPROOM AT HORIZONTAL PORT VENT LINE - 102

Remove bracket. Furnish 6" x 6" x 1/2" doubler and weld to deck over hole. Reweld ventline bracket to place.

193. BULKHEAD LEAK #6 STBD CARGO TANK - APPROX. 20 FT. DOWN - 127

See out and weld two (2) approx. 4" cracks in fwd bulkhead, stbd side, approx. 18" inboard of shell.

- a. One (1) crack on 9th bulkhead stiffener from bottom.
- b. One (1) crack on 11th bulkhead stiffener from bottom.
- c. One (1) crack on bulkhead 6 stbd to 5 stbd.

NOTE: Staging required.

194. BULKHEAD CRACK - FWD SIDE OF MIDSHIP HOUSE WHERE DECK EXHAUST & FIRE LINE BULKHEAD PENETRATIONS EXIST - 127

Repair existing crack in bulkhead between these two (2) penetrations.

195. CO₂ ROOM BULKHEAD DOUBLER - 127

Remove existing red hand patch. Fabricate new 10" x 10" x 3/4" doubler to wasted bulkhead area over deck steam line penetration. Prove tight.

196. GALLEY WATERTIGHT DOOR STBD SIDE BULKHEAD - 127

Under watertight door, fabricate and weld to place 24" x 8" x 1/2" doubler.

197. WHEELHOUSE PORT SIDE BULKHEAD LEAK ADJACENT TO WHEELHOUSE DOOR - 127

Fabricate and weld to place doubler over bulkhead leak approx. 6" x 6" x 1/2".

198. FWD PUMPROOM - AFT BULKHEAD LEAK - ABOVE MAIN DECK - INBD OF WT DOOR ACCESS - 127

Furnish and weld to bulkhead 8" long x 4" x 1/2" thick doubler over holed area.

9. AFT PORT SIDE BOAT DECK VENTILATOR SERVING CREW'S LAUNDRY, LOWER DECK STORE ROOMS
- 236

Disconnect and remove to shop. Fabricate as per sample in attached sketch:

One (1) new section from boat deck to and including ventilator cowl and install to place as original.

VENTILATION DUCT WORK - ENGINE ROOM - 236

Allow for an additional 60' of duct renewal and insulation for same - approx.
4" x 12".