

RF

Mr. S. M. English

REPAIRS - SS "ESSO BOSTON"

J. B. Ireland, Jr.

September 24, 1970

02-408-9 (P)

The following repairs were carried out on subject vessel at Newport News Shipbuilding & Dry Dock Co., Newport News, Virginia.

The vessel arrived at Yard 0715 August 10, 1970 and work started immediately.

Vessel was in drydock 0700 August 18, 1970 until 1217 August 24, 1970.

Temporary Certificate of Inspection and Safety Equipment Certificate issued August 31, 1970. USCG inspectors were F. L. Brittan (in charge), Heath and Newhoff.

#2 ABS Survey was completed and Ship Safety Construction Certificate issued; also International Loadline endorsed August 29, 1970. A. Bourneuf ABS surveyor.

Pressure vessels were inspected.

Anchor chains and sea valves were inspected. Tailshaft was drawn, Waukesha bearings inspected and seals renewed. Renewed rope guard. Centimeter gauge readings: top 109.8, bottom 109.6. Pintle bushing clearance, .149. Renewed pintle bushing retaining ring. Boilers were cleaned externally and internally.

BOILER REFRACTORY - Renewed burner tile and castible in way of burner openings, both boilers. Repaired refractory behind rear and sidewall tubes, both boilers. Repaired top and bottom screen baffles, both boilers. Renewed superheater tube support castible, both boilers. Renewed front wall including insulation starboard boiler. Part renewed inboard sidewall of starboard boiler vestibule, size 3'0" x 11'6". Renewed top course of brick of floor each boiler and renewed corbels. Renewed #9 and #23 screen tubes (counting from front of boiler) in "A" row (or 1st row in furnace) in starboard boiler. Tubes furnished by vessel. In port boiler renewed superheater tubes in row #20, 21, 22, 23, 24 and 25. Each row contains three tubes, a total of 18 tubes, located in the second pass of the superheater. Tubes furnished by owner, (stored in shipyard). The HP turbine rotor was removed to shop, flyashed, renewed thrust collar, balanced rotor, and returned to vessel. Renewed shim for HP turbine thrust. Overhauled main turbine ahead throttle valve, renewed valve stem, renewed valve stem nut, renewed ball bearings and renewed disc stellite.

Main thrust bearing - Renewed shim in main thrust to get .028 clearance.

Two (2) 750KW generator turbines - The nozzle block from each turbine was repaired by G.E. Service Shop in Richmond, Virginia.

Deaerating Tank - Renewed sixty four (64) condenser tubes, material 90-10 CU-NI.

Butterworth Heater - A new tube bundle was installed in heater shell (furnished by owner). Sandblasted and coated waterbox with Enjay coating #6120.

Cargo Pump Turbine Throttle Valve Assemblies - Overhauled five (5) throttle valve assemblies. The valve assemblies were tested with steam and proved tight. The five (5) cargo pump turbine casings were opened, and carbon packing renewed. Intermediate in #5 turbine was found installed backwards. Same was renewed and installed in correct way.

Overhauled both steam stripper pumps.

Renewed the following sections of extra heavy steel pipe in cargo system. Same sandblasted and coated inside and outside with RB 191.

#2 center tank: One section 8" dia. x 8'0" long.
#4 center tank: One section 12" dia. x 9'0" long.
One section 8" dia. x 20'0" long.
#6 center tank: One section 8" dia. x 35'0" long.
#9 center tank: One section 8" dia. x 30'0" long.
#11 center tank: One section 8" dia. x 20'0" long.
On deck: One section 6" dia. x 16'6" long.
In aft pumproom: One section 16" dia. x 6'0" long, bent, flanged with one (1) 16" dia. x 6'0" flanged outlet located in #2 line.

Crossover to all 16" lines: 32'0" of 8" dia. pipe, 5 flanges.

One section 16" dia. x 8'0" long, flanged, bent with one 4" dia. x 6" flanged outlet discharge from #5 pump.

One section 16" dia. x 5'0" long, flanged one end, other end dresser coupling, with one (1) 16" dia. x 4'0" long, flanged outlet, bent also one (1) 12" outlet, 2 - 90° elbows, one (1) flange and one (1) 2" dia. flanged drain. Sea line to #3 pump.

One section 16" dia. x 8'0" long, one (1) flange, one (1) dresser coupling with one (1) 6" dia. bent flanged outlet approx. 2'0" long. Sea line to #1 cargo pump.

Reweld 16" R.S. gate valve at pumproom bulkhead starboard inboard line.

Renewed 16" R.S. gate valve at pumproom bulkhead port inboard line.

Renewed one (1) 6" rising stem gate valve stripping drop to #6 center.

Overhauled 8" stripper valve in #2 starboard tank.

Overhauled 8" stripper valve in #9 center tank.

Overhauled 12" main valve in #12 center tank.

Cargo Valve Reach Rod Bearings - Renewed 46 main and 22 stripper valve reach rod bearings, material micarta. Renewed five (5) flame arrestors same type as installed on SS "ESSO HOUSTON" class vessels. Removed five (5) teak doors and installed five (5) steel watertight doors ABS 6 dog on poop deck aft. Modified door frames and fabricated "Z" bar to suit wedges on new steel door frames. Sandblasted and coated doors and frames with RB 191. Installed pipe and clips at each door frame for use in closing and opening door dogs. Also installed door stopper and hold back hooks. The steel 1 dog door in deck house on bridge deck midship was retained by installing two (2) dogs and wedges and raising sill height as required by ABS.

Renewed spider bolt for aft port and starboard pumproom ventilator cowls. Material stainless steel.

Installed fire control plan as required by USCG.

#3 Port Cargo Tank - Faired shell plate "L" strake Fr. 96 to Fr. 97. Cropped and part renewed shell long's #14, & 15 Fr. 96 to Fr. 97 for a distance of 9'0". Faired shell long's #13 for a distance of 6'0". Blasted and coated new work with RB 191. Needle gunned damaged areas and coated with RB 191. Also part renewed Fr. 97 size 18" x 18" x $\frac{1}{2}$ " plate.

#1 Port Cargo Tank - Cropped and part renewed "K" plate 13'0" x 7'0" x 30.6#. Plate extended into #2 tank 25 $\frac{1}{2}$ " and approx. 12" forward of aft web frame in #1 tank. Faired edge of plate "L" in way of repairs. Cropped and part renewed shell long's #12, 13 and 14, also bracket on web frame backing up bottom strut size 39" x 36" x $\frac{5}{8}$ " plate. Repaired as per ship's hull drawing. Blasted and coated all new and damaged areas with RB 191. Hose tested shell plate and tested bulkhead between #1 and 2 tanks.

Starboard Fuel Settler - Welded one (1) 10" fracture bottom outboard stiffener fwd end of tank. Welded one (1) 6" fracture in stringer plate in way of opening for bulkhead stiffener on forward bulkhead. Installed radius to openings in stringer plate for eight (8) bulkhead stiffeners.

Cathodic Hull Protection System - Renewed starboard aft machinery space anode. Repaired forward starboard machinery space anode shield. Repaired forward port and starboard 4 ft. anode shields. Size of each, capastic shield 10 ft. x 6 ft. and total size of Coal Tar Epoxy shield 24 ft. x 20 ft. Forward cofferdam port and starboard, size of anode, 8 ft. Size of each shield, capastic 16 ft. x 8 ft., Coal Tar Epoxy 30 ft. x 22 ft. Aft cofferdam port and starboard, size of anode 4 ft. Size of each shield, capastic 10 ft. x 6 ft., Coal Tar Epoxy 24 ft. x 20 ft. Due to burned out transformer in engine room of the "ESSO BOSTON", removed transformer from ESSO WASHINGTON and installed in engine room of ESSO BOSTON. Installed 1/16" galv. shield above new transformer, size 18" x 30". New transformer furnished and installed on ESSO WASHINGTON.

Main Condenser Overboard - Renewed 26" dia. flanged nozzle for main condenser overboard discharge, approx. 36" long at top edge of nozzle.

Hull Painting - Light Loadline Rail - Sandblasted all rusty areas and applied one (1) coat of RB 191, sandswept in way of all loose paint areas and applied two (2) coats of 6566 primer. Keel to light loadline, rudder and stern frame were sandswept clean and applied one (1) coat of #6045 red to all bare areas, then one (1) full coat of #6042 green and one (1) full coat of #6045 red. Light to Deep Loadline - applied one (1) full coat 6591 (boot top red). Deep Loadline to rail - applied one (1) full coat of 6597 (hull grey black). Special coating was applied to bottom shell plating as follows: Port, Flat heel, A, B & C plates for a distance of 25 ft. from Fr. 95 to Fr. 103 approx. 80'0" was blasted to white metal and #6692 and Coal Tar Epoxy applied. Approx. 8 mils thick. On the starboard side A, B & C plates for approx. the same size were blasted and first coat of Ex 6666, 2nd coat EP 6841, 3rd coat of EP 6841 applied.

Propeller - Faired and ground edges of all blades. Buffed all blades and hub.

Enclosed please find the following: three (3) copies of spare list of superheater tubes for Esso Baltimore/Boston class vessel stored at Newport News Shipbuilding & Dry Dock Co.; two (2) copies of Yard Inspection Report of HP & LP turbine; one (1) copy of Repair Order for two (2) life rafts, certificates given to Master; one (1) copy of Repair Order, also Certificate of Inspection of CO2 System; one (1) copy of megger readings; one (1) copy of megger readings after repairs; one (1) copy of O.S. 10" flame arrestor for cargo tank vents; drawing No. 255206; one (1) copy of Enjay (Paint Report) Dry Docking Report; three (3) copies throttle valve details and arrangement of by-pass piping, Drawing No. 611-188--one (1) copy each to be sent to the Esso Boston and Esso Baltimore with instructions to destroy their old drawings.

Repairs were completed and vessel sailed from Yard 1358
September 2, 1970

J. B. IRELAND, JR.

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DEFECTIVE PARTS:

The following were removed from vessel and sent to be repaired:

The defective rotating element from main condensate pump, size CFS2V Allis Chalmers, also defective rotating element from main circulator, Allis-Chalmers 24/24 SDV were sent to USMP marked from SS "ESSO BOSTON, To be repaired and returned to vessel.

The defective tube bundle from Butterworth heater was sent to MESCO Heat Exchangers, marked "EX - SS 'ESSO BOSTON'". It is recommended that when repairing the tube bundle that the steam baffles and stay rods be made of material compatible with the tubes and tube sheets.

The two (2) 16" rising stem defective gate valves were sent to ITT Henze Service, Mobile, for repairs.

One (1) 6" non-rising stem defective gate valve stored in midship square to be put ashore south for repairs.

RECOMMENDATIONS FOR FUTURE REPAIRS:

At the next shipyard period the main deck, forecastle deck, poop deck aft, boat deck aft, top of diesel generator room, fire and engine, also deck over engineers quarters should be sandblasted and coated. Coat the rudder and rudder horn with special coating. Renew part of missing guard for forward starboard anode. Coat the forward and aft cofferdams. Apply special coating to bottom shell plating Fr. 87 to Fr. 95. FK, A, B, C, D, E, & F plates port and starboard coating to be either coal tar epoxy #6692 or EP 6841.