

REPORT ON STEAM TURBINE MACHINERY. No. 8911

Date of writing Report 20th June, 1949 When handed in at Local Office 21st June, 1949 Port of Baltimore, Maryland. Received at London Office 18 AUG 1949
 Date in Survey held at Sparrows Point, Maryland. Date, First Survey 24th November, 1948 Last Survey 9th June, 1949
 Reg. Book S.S. "JAHRA" (Number of Visits 23)
 Name of Vessel S.S. "JAHRA" Tons { Gross 17905 Net 11071
 Name of Survey held at Sparrows Point, Maryland. By whom built Bethlehem Sparrows Point Shipyard, Inc., Yard No. 4467 When built 1948-1949
 Name of Engines made at Quincy, Mass. By whom made Bethlehem Steel Corp. Engine No. HP 7025 LP 15825 When made 1949
 Name of Boilers made at Carteret, N. J. By whom made Foster Wheeler Corp. Boiler No. 3258 3259 When made 1949
 Shaft Horse Power at Full Power 12500 Owners Kupan Transport Co., Port belonging to Monrovia
 Nom. Horse Power as per Rule 3240 = MN Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes
 Trade for which Vessel is intended Carrying petroleum in bulk.

STEAM TURBINE ENGINES, &c.—Description of Engines. 12500 S.H.P.—Two Cylinder Series Flow Propulsion Turbine Set—Cross Compound.

No. of Turbines Two Direct coupled, double reduction geared } One propelling shafts. No. of primary pinions to each set of reduction gearing Two
 Direction Ahead One Astern
 Direct coupled to Alternating Current Generator — phase — periods per second } rated — Kilowatts — Volts at — revolutions per minute;
 supplying power for driving — Propelling Motors, Type —
 Direct coupled, single or double reduction geared to — propelling shafts.

| TURBINE STAGE | H. P. | | | L. P. | | | L. P. | | | ASTERN. | | | |
|---------------|-------------------|------------------|--------------|-------------------|------------------|--------------|-------------------|------------------|--------------|-------------------|------------------|--------------|---|
| | HEIGHT OF BLADES. | DIAMETER AT TIP. | NO. OF ROWS. | HEIGHT OF BLADES. | DIAMETER AT TIP. | NO. OF ROWS. | HEIGHT OF BLADES. | DIAMETER AT TIP. | NO. OF ROWS. | HEIGHT OF BLADES. | DIAMETER AT TIP. | NO. OF ROWS. | |
| Imp. | 1 3/8" | 30" | 1 | 1.750" | 32.303" | 1 | 3.277" | 44.743" | 1 | 1st Stage | 4" | 48 1/8" | 1 |
| D | 1 1/8" | 18 3/4" | 5 | 1.876" | 34.016" | 1 | 4.113" | 48.295" | 1 | Stage | 1 1/4" | 48 5/8" | 1 |
| D | 1 3/8" | 19 1/4" | 4 | 1.951" | 34.870" | 1 | 4.633" | 51.640" | 1 | | 1 3/4" | 49 1/8" | 1 |
| H | 1 5/8" | 19 3/4" | 4 | 2.027" | 35.728" | 1 | 5.173" | 53.869" | 1 | 2nd Stage | 4" | 47" | 1 |
| H | 1 7/8" | 20 1/4" | 3 | 2.102" | 36.584" | 1 | 6.074" | 56.275" | 1 | | 6" | 49" | 1 |
| H | 2 1/8" | 20 3/4" | 3 | 2.223" | 37.710" | 1 | 7.354" | 58.835" | 1 | | | | |
| H | 2 1/2" | 21 1/2" | 3 | 2.370" | 38.814" | 1 | 8.722" | 61.571" | 1 | | | | |
| | | | | 2.516" | 39.916" | 1 | 10.250" | 64.625" | 1 | | | | |
| | | | | 2.662" | 41.768" | 1 | | | | | | | |
| | | | | 2.808" | 42.120" | 1 | | | | | | | |
| | | | | 2.954" | 43.222" | 1 | | | | | | | |

Horse Power at each turbine { H.P. 6250 ✓ I.P. 6250 ✓ L.P. 6250 ✓
 Revolutions per minute, at full power, of each Turbine Shaft { H.P. 4688 ✓ I.P. 2625 ✓ L.P. 2625 ✓
 Shaft diameter at journals { H.P. 5" x 5 1/2" I.P. 9" L.P. 9"

Pitch Circle Diameter { 1st pinion 20.193" 1st reduction wheel 69.304" 1st reduction wheel 10.875"
 { 2nd pinion 21.951" main wheel 167.911" Face { main wheel 42.500"
 Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion HS HP 35.500" HS LP 36.000" 1st reduction wheel 13.4375"
 { 2nd pinion 38.75" main wheel 30.25"
 Pinion Shafts, diameter at bearings { 1st 6.986" 2nd 8.985" { 1st 17.975" 2nd 17.975" diameter at bottom of pinion teeth { 1st HS HP 10.928" HS LP 17.813"
 { 2nd 21.411"

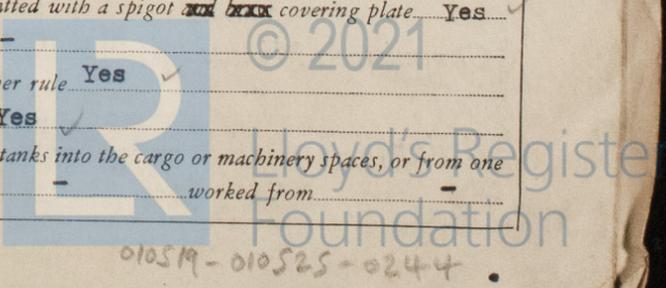
Pinion Shafts, diameter at bearings { 1st 17.975" 2nd 22.477" (Integral gears) { 1st HS LP 69.590" Generator Shaft, diameter at bearings —
 { main 168.311" Propelling Motor Shaft, diameter at bearings —
 Intermediate Shafts, diameter as per rule 20" as fitted 20.5" ✓ Thrust Shaft, diameter at collars as per rule 21.000" as fitted 22.475" ✓ Tube Shaft, diameter as per rule — as fitted —
 Shaft, diameter as per rule 21.83" as fitted 23.0" ✓ Is the screw shaft fitted with a continuous liner { Yes ✓ } Bronze Liners, thickness in way of bushes as per rule .914" as fitted 1.125"

Mass between bushes as per rule .6855" as fitted .8593" the after end of the liner made watertight in the propeller boss Yes ✓ If the liner is in more than one length are the junctions fusion through the whole thickness of the liner — If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a material insoluble in water and non-corrosive — If two liners are fitted, is the shaft lapped or protected between the liners — Is an approved Oil Gland appliance fitted at the after end of the tube shaft No ✓ Length of Bearing in Stern Bush next to and supporting propeller 8' 10" ✓
 Propeller, diameter 22' 0" ✓ Pitch 17' 9" No. of Blades 4 State whether Moveable No Total Developed Surface 175.2 square feet.
 Angle Screw, are arrangements made so that steam can be led direct to the L.P. Turbine Yes Can the H.P. or L.P. Turbine exhaust direct to the sewer Yes No. of Turbines fitted with astern wheels 1 (L.P.) Feed Pumps { No. and size Three - 300 G.P.M. (Each) How driven Steam Turbine

Bilge Connections connected to the Main Bilge Line { No. and size Two - 4" pipe How driven Motor
 Bilge Pumps, No. and size Two - 4" pipe Lubricating Oil Pumps, including Spare Pump, No. and size Two - 475 G.P.M. (Each)
 Independent means arranged for circulating water through the Oil Cooler Yes ✓ Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge No. and size:—In Engine and Boiler Room One main bilge-2-5" Suctions = One Aux. Bilge - 2 - 5" Suctions. 1-5" P.R. Suction
 Aft. P.R. One Bilge 2-3" Suctions. Fwd. P.R. One Bilge 1-2 1/2" CH. Locker Suction. 1-2 1/2" Bos. Store Suction.

Water Circulating Pump Direct Bilge Suctions, No. and size 1-1 1/2" pipe ✓ Independent Power Pump Direct Suctions to the Engine Room No. and size — Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes Yes ✓
 Bilge Suctions in the Machinery Space led from easily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges Yes ✓
 Sea Connections fitted direct on the skin of the ship Yes ✓ Are they fitted with Valves or Cocks Valves ✓
 Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates — Are the Overboard Discharges above or below the deep water line Below ✓
 Are they each fitted with a Discharge Valve always accessible on the plating of the vessel Yes ✓ Are the Blow Off Cocks fitted with a spigot and blank covering plate Yes ✓
 Do pipes pass through the bunkers None ✓ How are they protected —
 Do pipes pass through the deep tanks 4" Ballast Line ✓ Have they been tested as per rule Yes ✓

All Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Yes ✓
 The arrangement of valves and their connections such as to prevent the possibility of water passing from the sea or from water tanks into the cargo or machinery spaces, or from one compartment to another Yes ✓ Is the Shaft Tunnel watertight — Is it fitted with a watertight door — worked from —



010519-010525-0244

BOILERS, &c.— (Letter for record.....) Total Heating Surface of Boilers 13,420 sq. ft. Including Water Walls

Is Forced Draft fitted Yes No. and Description of Boilers 2, Foster Wheeler "D" Type Working Pressure 675 p.s.i.

Is a Report on Main Boilers now forwarded? Yes

Is a Donkey or Auxiliary Low Pressure Steam Generator fitted? Yes If so, is a report now forwarded? Yes

Plans. Are approved plans forwarded herewith for Shafting No Main Boilers No Auxiliary Boilers No Donkey Boilers - Approved plans being retained until completion of last Sister Ship - Hull 4

Superheaters No General Pumping Arrangements No Oil Fuel Burning Arrangements No

Principal Spare Gear. State the articles supplied:— Screw Shaft-Lloyd's 3814 RK 7.10.48, Sleeve-Lloyd's 7119 WHR 24.11.48.

Propeller-Lloyd's W.J.B. Heat No. 4077-5.11.49. One set of coupling bolts of each sized used. Two main gear wheel shaft bearing bushes. Two complete bearing bushes for rotor shaft of each size used. Two complete bearing bushes for each pinion shaft. One set of thrust bearing shoes (6 per set). One complete set of packing rings and bearings for size rotor gland. Six H.P. and six L.P. thrust pads. Two liners for cover plate adjustment of H.P. and L.P. thrust bearing.

One set of valves of each size for liquid ends of each pump. One impeller shaft for main circulating pump and spare impellers or rotors, with shafts and special fittings for all other pumps. Boiler spares include, two check valves complete, four burners complete with atomizers etc., 24 tube plugs and a

quantity of assorted studs, bolts, and nuts, steel bars and plates of various sizes.

The foregoing is a correct description,

REBELEHEM SPARROWS POINT SHIPTARD, INC. J. H. Haman Manufacturer

Dates During progress of work in shops - 3 Aug., 5 Oct., 10 Dec., 1948. 18, 19 Jan. 1949. 14, 15, 16 Feb. 1949. 16, 17, 23, 28, 29. During erection on board vessel - 24 Nov., 3 Dec. 1948. 11, 26 Jan., 1, 15 Feb., 7, 10, 11, 14, 15, 21, 24, 25 Mar., 12, 14, 18, 21, 27. Total No. of visits Apr., 10, 16, 18 May, 1 June, 1949. Total number of visits - 46

Dates of Examination of principal parts—Casing 16, 23, 29 March 1949. Rotor 16, 23, 29 March 1949 Blading 16, 23, 29 March '49 Gearing 26 Feb. 3 Dec. 1948

Wheel shaft 24 Mar. 1949 Thrust shaft Wheel Shaft Intermediate shafts 3 Dec. 1948 Tube shaft - Screw shaft 11 Jan. 1949 26 Jan. 1949

Propeller 15 Feb. 1949 Stern tube 1 Feb. 1949 Engine and boiler seatings 10 Mar. 1949 Engine holding down bolts 12 April, 1949 18 May, 1949 1 June, 1949

Completion of pumping arrangements 18 April, 1949 Boilers fixed 30 Dec. 1948 Engines tried under steam 1 June, 1949

Main boiler safety valves adjusted 10 May, 1949 Thickness of adjusting washers - Identification Mark 8139 JKH 23.9, 8130 JKH 23.9.

Rotor shaft, Material and tensile strength O.H. Steel. H.P.- 108000. L.P.- 85000. Identification Mark -

Flexible Pinion Shaft, Material and tensile strength - Identification Mark -

Pinion shaft, Material and tensile strength O.H. Steel. H.P. 1st Red. 107000. L.P. 1st Red. 108500 Identification Mark 1623 LAD 19.1. 1688 LAD 19.1. 1682 LAD 19.1.

1st Reduction Wheel Shaft, Material and tensile strength O.H. Steel 109500, 99500 Identification Mark 8022 LAD 19.1.

Wheel shaft, Material O.H. Steel Identification Mark 3620 LAD 19.1.49 Thrust shaft, Material Integral with wheel shaft Identification Mark -

Intermediate shafts, Material O.H. Steel Identification Mark 3779 RK 28.9.48 Tube shaft, Material - Identification Marks -

Screw shaft, Material O.H. Steel Identification Mark 3780 RK 28.9.48 Steam Pipes, Material Car. Moly Steel Test pressure 1350 p.s.i. Shop - 11, 15, 25 Mar. 14, 18, 21, 27 Apr. 1949.

Date of test On board - 16 May, 1949. Is an installation fitted for burning oil fuel Yes

Is the flash point of the oil to be used over 150°F. Yes Have the requirements of the Rules for the use of oil as fuel been complied with Yes

Is the vessel (not being an oil tanker) fitted for carrying oil as cargo Tanker If so, have the requirements of the Rules been complied with Yes

Is this machinery a duplicate of a previous case No If so, state name of vessel -

General Remarks (State quality of workmanship, opinions as to class, &c. The machinery of this vessel has been built under Special Survey in accordance with the Society's Rules. Please refer to Reports No. 4262 Boston, Nos. 48866 and 48867 New

No. 1349 Cleveland, also Forgings and Castings reports attached hereto. The machinery has now been installed fitted in this vessel, including erection and completion of Watertube Boilers and their accessories and all auxiliaries.

The workmanship and material throughout are good. The propelling machinery and all auxiliaries have been tested under full load conditions and found in good and safe working condition. The vessel appears worthy to be classed with the

Society with the Notation LMC 6.49, Fitted for Oil Fuel, F.P. above 150° F. 6.49 made in the Register Book.

Attached hereto are the Torsional Vibration Calculations for Hulls 4467, 4468, 4470 and 4471.

Torsionals approved 14/7/49 for 100 lbs.

Table with columns for Fee Type, Amount, and Date/Condition. Includes Arranged Fee, Entry Fee, Credit Boston, Special, Donkey Boiler Fee, Late Fee, Travelling Expenses, Credit Boston.

G. H. Haman Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute NEW YORK JUL 27 1949

Assigned + LMC-6, 49.

2 WTB (VPT) 675 lbs.

