

REPORT ON STEAM TURBINE MACHINERY.

No. 38163

Sept. 4a.

Date of writing Report 17 JAN 1938 When handed in at Local Office 17 JAN 1938 Port of NEW YORK
 No. in Survey held at BOSTON, MASS. Date, First Survey 4 Last Survey 12 AUG 1937
 Reg. Book. BETHLEHEM S.B. CORP. LTD Hull # 4306 (Number of Visits 1)
 on the BETHLEHEM S.B. CORP. LTD Tons { Gross 4306 Net 1938
 Built at SPARRONS PT, MD. By whom built Bethlehem S.B. Corp. Ltd Yard No. 4306 When built 1938
 Engines made at QUINCY MASS. By whom made d^o Engine No. 4306 When made 1938
 Boilers made at QUINCY MASS. By whom made d^o Boiler No. 4306 When made 1938
 Shaft Horse Power at Full Power 3600 Owners STANDARD OIL CO. OF NEW JERSEY Port belonging to NEW JERSEY
 Nom. Horse Power as per Rule 3600 Is Refrigerating Machinery fitted for cargo purposes YES
 Trade for which Vessel is intended CARRYING PETROLEUM IN BULK Is Electric Light fitted YES

STEAM TURBINE ENGINES, &c.—Description of Engines

Steam Turbines Double Reduction Geared

No. of Turbines 2 Ahead 1 Direct coupled, single reduction geared to 1 propelling shafts. No. of primary pinions to each set of reduction gearing 2
 No. of Turbines 1 Astern 1 Direct coupled, double reduction geared to 1 propelling shafts.
 direct coupled to { Alternating Current Generator ✓ phase ✓ periods per second ✓ rated ✓ Kilowatts ✓ Volts at ✓ revolutions per minute;
 for supplying power for driving ✓ Propelling Motors, Type ✓
 rated ✓ Kilowatts ✓ Volts at ✓ revolutions per minute. Direct coupled, single or double reduction geared to ✓ propelling shafts.

TURBINE BLADING.	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.
1ST EXPANSION	3/4	14 1/2	5	1 1/2	20 1/2	15	2 1/2	28 1/2	13TH	3/4	33 1/2	STAGE
2ND	1 1/2	14 1/2	5	1 1/2	21 1/2	20	2 1/2	29 1/2	14TH	1 1/4	33 1/2	1
3RD	1 1/2	15 1/2	4	1 1/2	21 1/2	30	2 1/2	30 1/2	15TH	1 3/4	34 1/2	
4TH	1 1/2	15 1/2	4	1 1/2	22 1/2	4TH	3 1/2	32 1/2	16TH	2 1/4	32 1/2	STAGE
5TH	1 1/2	16 1/2	4	1 1/2	23 1/2	5TH	3 1/2	33 1/2	17TH	4	34 1/2	2
6TH	IMPULSE	25 1/2	1st Row	1 1/2	23 1/2	6TH	3 1/2	34 1/2	18TH			
7TH	STAGE	25 1/2	2ND "	1 1/2	24 1/2	7TH	4 1/2	35 1/2	19TH			
8TH				1 1/2	24 1/2	8TH	4 1/2	37 1/2	20TH			
9TH				1 1/2	25 1/2	9TH	5 1/2	38 1/2	21ST			
10TH				1 1/2	25 1/2	10TH	6 1/2	40	22ND			
11TH				1 1/2	26 1/2	11TH	6 1/2	41 1/2	23RD			
12TH				2 1/2	27 1/2	12TH						

Shaft Horse Power at each turbine { H.P. 1800 I.P. 1800 L.P. 1800
 Rotor Shaft diameter at journals { H.P. 4 1/2 I.P. 4 1/2 L.P. 8
 Pitch Circle Diameter { 1st pinion 8.00 11.625 1st reduction wheel 49.125 45.50
 2nd pinion 13.75 13.947 main wheel 135.600

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 11 3/4 1st reduction wheel 12 1/4
 2nd pinion 21 1/2 main wheel 23 1/2
 Flexible Pinion Shafts, diameter { 1st NONE 2nd 5 3/4
 Pinion Shafts, diameter at bearings { External 4 1/2 Internal 7 3/4
 diameter at wheel shroud { 1st 7 2nd 11

Wheel Shafts, diameter at bearings { 1st 13 1/2 2nd 16 1/2
 Intermediate Shafts, diameter { 1st 7 2nd 11
 Crew Shaft, diameter { 1st 7 2nd 11
 Thrust Shaft, diameter at collars { 1st 7 2nd 11
 Tube Shaft, diameter { 1st 7 2nd 11

Generator Shaft, diameter at bearings { 1st 7 7/2 2nd 11 3/37
 Propelling Motor Shaft, diameter at bearings { 1st 7 7/2 2nd 11 3/37
 Thickness between bushes { 1st 7 7/2 2nd 11 3/37
 Is the after end of the liner made watertight in the propeller boss { 1st YES 2nd YES

Is the liner in more than one length are the junctions { 1st YES 2nd YES
 If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a { 1st YES 2nd YES
 If two liners are fitted, is the shaft lapped or protected between the liners { 1st YES 2nd YES
 Is an approved Oil Gland { 1st YES 2nd YES

Length of Bearing in Stern Bush next to and supporting propeller { 1st YES 2nd YES
 Total Developed Surface { 1st YES 2nd YES
 Can the H.P. or L.P. Turbine exhaust direct to the { 1st YES 2nd YES

No. of Turbines fitted with astern wheels ONE Feed Pumps { No. and size ONE How driven ONE
 Pumps connected to the Main Bilge Line { No. and size ONE How driven ONE
 Lubricating Oil Pumps, including Spare Pump, No. and size { 1st ONE 2nd ONE

Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge { 1st ONE 2nd ONE
 Independent Power Pump Direct Suctions to the Engine Room { 1st ONE 2nd ONE
 Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes { 1st YES 2nd YES

Are the 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 { 1st YES 2nd YES
 Are all Sea Connections fitted direct on the skin of the ship { 1st YES 2nd YES
 Are they fitted with Valves or Cocks { 1st YES 2nd YES

Are the Overboard Discharges above or below the deep water line { 1st YES 2nd YES
 Are the Blow Off Cocks fitted with a spigot and brass covering plate { 1st YES 2nd YES
 How are they protected { 1st YES 2nd YES
 Have they been tested as per rule { 1st YES 2nd YES

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times { 1st YES 2nd YES
 Is 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 { 1st YES 2nd YES
 Is the Shaft Tunnel watertight { 1st YES 2nd YES
 Is it fitted with a watertight door { 1st YES 2nd YES

BOILERS, &c.—(Letter for record)

Total Heating Surface of Boilers

Working Pressure

Is Forced Draft fitted

No. and Description of Boilers

Is a Report on Main Boilers now forwarded?

If so, is a report now forwarded?

Is { a Donkey } Boiler fitted?
{ an Auxiliary }

Plans. Are approved plans forwarded herewith for Shafting
(If not state date of approval)

Main Boilers

Auxiliary Boilers

Donkey Boilers

Superheaters

General Pumping Arrangements

Oil Fuel Burning Arrangements

Spare Gear. State the articles supplied:—

BETHLEHEM SHIPBUILDING CORPORATION, LTD.
FORE RIVER PLANT

The foregoing is a correct description,

Chief Engineer

Manufacturer

Dates of Survey while building
During progress of work in shops --
During erection on board vessel ---
Total No. of visits

Dates of Examination of principal parts—Casings 12 Aug 1937 Rotors 12 Aug 1937 Blading 12 Aug 1937 Gearing

Wheel shaft Thrust shaft Intermediate shafts Tube shaft Screw shaft

Propeller Stern tube Engine and boiler seatings Engine holding down bolts

Completion of pumping arrangements Boilers fired Engines tried under steam

Main boiler safety valves adjusted Thickness of adjusting washers

Rotor shaft, Material and tensile strength STEEL 95000 T.S. Identification Mark NOT MARKED

Flexible Pinion Shaft, Material and tensile strength Identification Mark

Pinion shaft, Material and tensile strength Identification Mark

1st Reduction Wheel Shaft, Material and tensile strength Identification Mark

Wheel shaft, Material Identification Mark Thrust shaft, Material Identification Mark

Intermediate shafts, Material Identification Marks Tube shaft, Material Identification Marks

Screw shaft, Material Identification Marks Steam Pipes, Material Test pressure

Date of test Is an installation fitted for burning oil fuel

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

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

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.) These turbines have not been built under

Special Survey but they have been examined & they comply with the Rules & the workmanship & material are good. The forgings & steel castings have been tested by the American Bureau of Shipping.

These turbines have been forwarded to the shipyard for fitting on board & when this has been done in accordance with the Rules & to the satisfaction of the Surveyor, the machinery of the vessel will be eligible, in my opinion, to receive the notation L.M.C. with date.

The amount of Entry Fee ... £ INCLUSIVE : When applied for,
Special ... £ FEE : 19
Donkey Boiler Fee ... £ TO BE :
Travelling Expenses (if any) £ CHARGED :
AGAINST OWNERS

John S. Heck
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute NEW YORK AUG 24 1938

Assigned See Balto. Rpt. 6582



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