

REPORT ON STEAM TURBINE MACHINERY. No. 7421

pt. 4a.

Date of writing Report 11 Jan 1938 When handed in at Local Office 11 Jan 1938 Port of Philadelphia Received at London Office NOV - 5 1938
No. in Survey held at Quincy Mass. Date, First Survey 9 Last Survey 17 Nov 1937/1938
Reg. Book. Bethlehem SB Corp Ltd Hull 4308 (Number of Visits 1)
on the Built at Sparrows Pt Md By whom built Bethlehem SB Corp Ltd Yard No. 4308 Tons { Gross Net
Engines made at Quincy Mass By whom made " " Engine No. " When made "
Boilers made at " By whom made " Boiler No. " When made "
Shaft Horse Power at Full Power 3600 Owners Standard Oil Co of New Jersey Port belonging to
Nom. Horse Power as per Rule Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted
Trade for which Vessel is intended Carrying Petroleum in bulk.

TEAM TURBINE ENGINES, &c.—Description of Engines. Steam Turbines, Double Reduction gear
No. of Turbines Ahead 2 Direct coupled, single reduction geared to 1 propelling shafts. No. of primary pinions to each set of reduction gearing 2
Astern 1 double reduction geared
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 LADING.	H.P.			I.P. (contd)			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 1/4"	14 1/2"	5	1 9/32"	20 23/32"	1	2 9/32"	28 7/32"	13	3/4"	33 1/16"	Stage 1
2ND	1 1/16"	14 7/8"	5	1 5/16"	21 13/32"	2	2 3/64"	29 9/16"	14	1 1/4"	33 1/16"	1
3RD	1 1/16"	15 1/8"	4	1 11/32"	21 15/16"	3	2 27/32"	30 27/32"	15	1 3/4"	34 7/16"	
4TH	1 1/4"	15 1/2"	4	1 3/8"	22 1/32"	4	3 3/16"	32 3/8"	16	2 1/4"	32 1/16"	Stage 2
5TH	1 9/16"	16 1/8"	4	1 13/32"	23 1/16"	5	3 15/32"	33 1/2"	17	4"	34 1/16"	2
6TH	Impulse 1 1/16"	25 1/16"	1 row	1 29/64"	23 9/32"	6	3 41/64"	34 23/32"	18			
7TH	Magn 1 3/16"	25 3/16"	2 row	1 1/64"	24 1/8"	7	4 1/32"	35 29/32"	19			
8TH				1 7/32"	24 1/32"	8	4 19/32"	37 3/16"	20			
9TH				1 9/16"	25 7/32"	9	5 11/32"	38 9/16"	21			
10TH				1 1/64"	25 27/32"	10	6 1/64"	40	22			
1TH				1 27/32"	26 23/32"	11	6 5/64"	41 21/64"	23			
2TH				2 1/16"	27 3/8"	12						

Shaft Horse Power at each turbine H.P. 1800 I.P. 1800 L.P. 1800
Revolutions per minute, at full power, of each Turbine Shaft 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. 4 1/2"
Pitch Circle Diameter 1st pinion 8 00" 11 625" 1st reduction wheel 49 125" 45 50"
2nd pinion 13 94" 13 94" main wheel 135 53" 135 53"

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings 1st pinion 11 3/4" 1st reduction wheel 78 12 1/4"
2nd pinion 21 1/2" main wheel 23 2 24"
Flexible Pinion 1st None Pinion Shafts, diameter at bearings External 1st 4 1/2" 2nd 11" diameter at bottom of pinion teeth 1st 7 7/12" 11 33"
2nd 5 3/4" Internal 1st 4 1/2" 2nd 7 3/8" 2nd 13 7/16" 13 184"
12 90" 12 90"

Wheel Shafts, diameter at bearings 1st 7" 2nd 13" 16 1/2" diameter at wheel shroud, 1st 13" 16 1/2" 2nd 13" 16 1/2"
Intermediate Shafts, diameter as per rule as fitted Thrust Shaft, diameter at collars as per rule as fitted Tube Shaft, diameter as per rule as fitted

Screw Shaft, diameter as per rule as fitted Is the tube shaft fitted with a continuous liner Bronze Liners, thickness in way of bushes as per rule as fitted
Thickness between bushes as per rule as fitted Is the after end of the liner made watertight in the propeller boss If the liner is in more than one length are the junctions

made by 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 plastic 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
or other appliance fitted at the after end of the tube shaft Length of Bearing in Stern Bush next to and supporting propeller

Propeller, diameter Pitch No. of Blades State whether Moveable Total Developed Surface square feet.
If Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine Can the H.P. or I.P. Turbine exhaust direct to the

Condenser Yes No. of Turbines fitted with astern wheels 1 Feed Pumps No. and size How driven
Pumps connected to the Main Bilge Line No. and size How driven

Ballast Pumps, No. and size Lubricating Oil Pumps, including Spare Pump, No. and size
Are two independent means arranged for circulating water through the Oil Cooler Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge

Pumps, No. and size:—In Engine and Boiler Room
In Holds, &c. Main Water Circulating Pump Direct Bilge Suctions, No. and size Independent Power Pump Direct Suctions to the Engine Room

Bilges, No. and size Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes
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
Are all Sea Connections fitted direct on the skin of the ship Are they fitted with Valves or Cocks

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
Are they each fitted with a Discharge Valve always accessible on the plating of the vessel Are the Blow Off Cocks fitted with a spigot and brass covering plate
What pipes pass through the bunkers How are they protected
What pipes pass through the deep tanks Have they been tested as per rule

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times
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 compartment to another Is the Shaft Tunnel watertight Is it fitted with a watertight door worked from

BOILERS, &c.—(Letter for record) Total Heating Surface of Boilers

Is Forced Draft fitted No. and Description of Boilers Working Pressure

Is a Report on Main Boilers now forwarded?

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

If so, is a report now forwarded?

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

Superheaters General Pumping Arrangements Oil Fuel Burning Arrangements

Spare Gear. State the articles supplied:—

BETHLEHEM SHIPBUILDING CORPORATION, LTD.
FORE RIVER PLANT, QUINCY, MASS.

The foregoing is a correct description,

J. E. Bunker
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 17 Nov 1937 Rotors 17 Nov 1937 Blading 17 Nov 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 fixed Engines tried under steam

Main boiler safety valves adjusted Thickness of adjusting washers

Rotor shaft, Material and tensile strength Steel 95000 lbs. (min) 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 *Yes* 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, and to the satisfaction of the Surveyor, the machinery of the vessel will be eligible in my opinion to receive the notation LMC with date.

The amount of Entry Fee Inclusive fee: Special ... to be charged: Donkey Boiler Fee ... £ against: Travelling Expenses (if any) £ ...
When applied for, 19...
When received, 19...

M. T. C. Ham
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute NEW YORK OCT 26 1938

Assigned See Bal. Rpt. 6615 *Job*



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