

REPORT ON STEAM TURBINE MACHINERY. No. 6825

Date of writing Report July 21st 39 When handed in at Local Office July 22nd 39 Port of Baltimore, Md.
 No. in Survey held at Spanous Point, Md. Date, First Survey Dec 28th 1938 Last Survey June 29th 1939
 Reg. No. 39138 on the "MOBILUBE" Steel Single Screw Tanker Steamship (Number of Visits 30)
 Built at Spanous Point, Md. By whom built Bethlehem Steel Co Yard No. 4333 When built 1938-9
 Engines made at Cassington Pa. By whom made Westinghouse E. & Mfg Co Engine No. 8089 When made 1938-9
 Boilers made at Canton By whom made Foster-Wheeler Co Boiler No. 269-70 When made 1938-9
 Shaft Horse Power at Full Power 4000 Owners Socony-Vacuum Oil Co Port belonging to New York N.Y.
 Nom. Horse Power as per Rule 706.79 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 Cross Compound Impulse-Reaction Steam Turbines

No. of Turbines Two Direct coupled, single reduction geared to ONE propelling shafts. No. of primary pinions to each set of reduction gearing Two
 Direct coupled to Alternating Current Generator phase periods per second rated Kilowatts Volts at revolutions per minute
 On 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.	HEIGHT OF BLADES.	H.P.			I.P. (CONTD)			L.P.			ASTERN.		
		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.	HEIGHT OF BLADES.
1ST EXPANSION	<u>Imp</u>	<u>560</u>	<u>21.620</u>	<u>1</u>	<u>13.1283</u>	<u>15.093</u>	<u>1</u>	<u>909</u>	<u>27.875</u>	<u>1</u>	<u>840</u>	<u>29.590</u>	<u>1</u>
2ND	<u>React</u>	<u>1.110</u>	<u>27.720</u>	<u>1</u>	<u>14.1346</u>	<u>15.219</u>	<u>1</u>	<u>1.097</u>	<u>28.250</u>	<u>1</u>	<u>1.665</u>	<u>30.415</u>	<u>1</u>
3RD		<u>758</u>	<u>14.032</u>	<u>1</u>	<u>15.1440</u>	<u>15.407</u>	<u>1</u>	<u>1.472</u>	<u>29.000</u>	<u>1</u>	<u>1.890</u>	<u>31.390</u>	<u>1</u>
4TH		<u>764</u>	<u>14.094</u>	<u>1</u>	<u>16.1533</u>	<u>15.593</u>	<u>1</u>	<u>1.847</u>	<u>29.750</u>	<u>1</u>	<u>3.000</u>	<u>32.500</u>	<u>1</u>
5TH		<u>815</u>	<u>14.156</u>	<u>1</u>	<u>17.1633</u>	<u>15.843</u>	<u>1</u>	<u>2.347</u>	<u>30.750</u>	<u>1</u>			
6TH		<u>847</u>	<u>14.220</u>	<u>1</u>	<u>18.1733</u>	<u>16.093</u>	<u>1</u>	<u>2.972</u>	<u>32.000</u>	<u>1</u>			
7TH		<u>909</u>	<u>14.364</u>	<u>1</u>	<u>19.1909</u>	<u>16.374</u>	<u>1</u>	<u>3.846</u>	<u>33.750</u>	<u>1</u>			
8TH		<u>911</u>	<u>14.469</u>	<u>1</u>	<u>20.2074</u>	<u>16.624</u>	<u>1</u>	<u>4.659</u>	<u>35.375</u>	<u>1</u>			
9TH		<u>1.033</u>	<u>14.593</u>	<u>1</u>				<u>5.471</u>	<u>37.000</u>	<u>1</u>			
10TH		<u>1.096</u>	<u>14.719</u>	<u>1</u>				<u>6.973</u>	<u>40.000</u>	<u>1</u>			
11TH		<u>1.158</u>	<u>14.843</u>	<u>1</u>				<u>8.972</u>	<u>44.000</u>	<u>1</u>			
12TH		<u>1.221</u>	<u>14.969</u>	<u>1</u>									

Shaft Horse Power at each turbine H.P. 2000 Revolutions per minute, at full power, of each Turbine Shaft H.P. 6022 1st reduction wheel 540
 L.P. 2000 HP 8.075 1st reduction wheel 89.710 main shaft 75
 H.P. 4 Pitch Circle 1st pinion 10.884 1st reduction wheel 89.710 Width of 1st reduction wheel 16.5
 L.P. 6 1/2 Diameter 2nd pinion 17.694 main wheel 127.454 Face main wheel 37.5
 Distance between centres of pinion and wheel faces and the centre of the adjacent bearings 1st pinion HP+LP 13 1/8 1st reduction wheel 35 1/2
 2nd pinion 35 1/2 main wheel 38 7/8
 Flexible Pinion Shafts, diameter 1st 4 3/8 Pinion Shafts, diameter at bearings External 1st 4 1/2 2nd 12 1/2 diameter at bottom of pinion teeth 1st 7.61+10.427
 2nd 17.14
 Wheel Shafts, diameter at bearings 1st 12 1/2 diameter at wheel shroud, 1st 18.228 Generator Shaft, diameter at bearings 18.134
 main 19 2nd 21.08+21.095 Propelling Motor Shaft, diameter at bearings 21.5+21.595
 Intermediate Shafts, diameter as per rule 15.058 Thrust Shaft, diameter at collars as per rule 16.696
 as fitted 15 1/4 at bearings 15 1/2 as fitted 17 1/2 Is the tube shaft fitted with a continuous liner Yes
 Tube Shaft, diameter as per rule 16.696 Screw Shaft, diameter as fitted 17 1/2 Is the screw shaft fitted with a continuous liner Yes
 as fitted 17 1/2 Is 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 made by fusion through the whole thickness of the liner one length
 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 Yes
 If two liners are fitted, is the shaft lapped or protected between the liners Yes Is an approved Oil Gland or other appliance fitted at the after end of the tube Yes
 Propeller, diameter 19-8 Pitch 18-4 No. of Blades 4 State whether Moveable Moveable Total Developed Surface 121.64 square feet.
 Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine Yes Can the H.P. or I.P. Turbine exhaust direct to the condenser Yes
 No. of Turbines fitted with astern wheels ONE Feed Pumps No. and size 3-Horizontal, 135 G.P.M. 500 lb disc 9 in.
 How driven Steam Turbines - De Laval 375 lb HP
 Pumps connected to the Main Bilge Line No. and size ONE Horizontal 400 G.P.M. 200 lb disc 9 in. 1-Horiz. 175 G.P.M. x 1 Horiz. 75 G.P.M.
 How driven Steam turbine, 2600 R.P.M. Geared 6 in 10 HP Motor 4 HP
 Ballast Pumps, No. and size 1-400 G.P.M. - Steam turbine Lubricating Oil Pumps, including Spare Pump, No. and size 2-Vert 250 G.P.M. 45 lb disc 9 in.
 Are two independent means arranged for circulating water through the Oil Cooler Yes Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge Pumps, No. and size 2-3" FWD, 2-4" Aft, 4-2" Boiler flat + 1-4" Well In Pump Room 2-2 1/2" FWD, 1-2 1/2" Aft
 Holds, &c. 2-2 1/2" Dry Cargo Space, 1-2 1/2" chain cooler, 2-2 1/2" Stores, 2-2 1/2" FWD Coff, 2-2" Aft Coff Fore Peak 1-3 1/2"
 Main Water Circulating Pump Direct Bilge Suctions, No. and size ONE - 12 inch Independent Power Pump Direct Suctions to the Engine Room Yes
 Bilges, No. and size 2-4", 2-3", 4-2" + 1-1 1/2" Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes 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 Yes
 Are all 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 Yes 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 brass covering plate Yes
 What pipes pass through the bunkers None How are they protected None
 What pipes pass through the deep tanks None Have they been tested as per rule Yes
 Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times 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 compartment to another Yes Is the Shaft Tunnel watertight None Is it fitted with a watertight door Yes

BOILERS, &c. - (Letter for record) Total Heating Surface of Boilers 5300 sq (ECONOMIZERS) (Superheaters) 4620 sq (1228 sq) pt. 4a.
Is Forced Draft fitted? Yes No. and Description of Boilers TWO - WATER TUBE FOSTER-WHEELER 10 type Working Pressure 450 lbs
Is a Report on Main Boilers now forwarded? Yes (New York, N.Y.)
Is a Donkey Boiler fitted? NONE If so, is a report now forwarded?

Is the donkey boiler intended to be used for domestic purposes only? Yes
Plans. Are approved plans forwarded herewith for Shafting? Yes Main Boilers? Yes Auxiliary Boilers? Yes Donkey Boilers? Yes
(If not state date of approval)

Superheaters? Yes General Pumping Arrangements? Yes SPARE GEAR.
Has the spare gear required by the Rules been supplied? Yes

State the principal additional spare gear supplied: One Complete Tail shaft (LR 5241 MS 6-10-38) and nut.
Twelve additional Kingsbury thrust bearing shoes & pads. 175 tubes of 16 B.W.G. for Condenser. Two Complete Sets of Carbon Rings & paddles. N.P. & L.P. One set of the set of Coupling bolts. One speed valve piston, bushings & stems. Set of bridge gauges for Turbines. Fittings for Feed, Condensate, General Service, B.P., Lubricating oil, Freshwater, Ballast & Sanitary Pumps. Numerous spare valves - Large & Small for entire cargo pumping systems - tools & fittings. Special shaft & bolts.
* Such approved plans as received at Baltimore are forwarded herewith.

The foregoing is a correct description Shipbuilding Division, Sparrows Point, Md. Manufacturer.

Dates of Examination of principal parts - Casings: 1938 July 6th Aug 10th Oct 5th Nov 25th Dec 5th 14th 20th 21st 23rd 28th 29th 1939 Jan 20th 23rd 24th Feb 27th March 8th 18th
During progress of work in shops - 1938 July 6th Aug 10th Oct 5th Nov 25th Dec 5th 14th 20th 21st 23rd 28th 29th 1939 Jan 20th 23rd 24th Feb 27th March 8th 18th
During erection on board vessel - 1938 Dec 28th Jan 6th 12th Feb 7th 17th March 18th 20th April 4th 6th 12th 14th 17th 18th 27th 29th May 3rd 9th 11th 29th 31st
Total No. of visits: June 5th 6th 12th 14th 17th 18th 21st 26th 28th 29th Balto 30. Philadelphia 18 Total 48.

Dates of Examination of principal parts - Rotors: Dec 21st 1938 Jan 20th 1939 Blading: Jan 20th 1939 Gearing: June 29th 1939
Wheel shaft: April 18th 1939 Thrust shaft: March 15th 1939 Tube shaft: none. Screw shaft: March 15th 1939
Propeller: April 6th 1939 Stern tube: Feb 7th 1939 Engine and boiler seatings: Jan 12th 1939 Engine holding down bolts: May 9th 1939

Completion of fitting sea connections: April 27th 1939 Completion of pumping arrangements: June 17th 1939 Boilers fired: April 17th 1939 Engines tried under steam: June 28th 1939
Main boiler safety valves adjusted: June 17th 1939 Thickness of adjusting washers: none - Consolidated - Askeight Hancock Type 1415A 3960

Rotor shaft, Material and tensile strength: ON. Steel MS 81750th L.P. 98125 1/2 (49) Identification Mark: HP 6025-ON. 20-7-38
Flexible Pinion Shaft, Material and tensile strength: ON. Steel 88160 @ 26.5% Identification Mark: HP 6036-ON. 4-8-38

Pinion shaft, Material and tensile strength: ON. Steel - Avg. HP 107.250 L.P. 109.000 @ 21.4% Identification Mark: HP 8088 AB 1307 5-4
1st Reduction Wheel Shaft, Material and tensile strength: ON. Steel Avg HP 106.000 L.P. 107.150 @ 21.25% Identification Mark: HP 8089 AB 1303 5-3

Wheel shaft, Material: ON. Steel Identification Mark: HP 3684 27-6-38 Thrust shaft, Material: ON. Steel Identification Mark: HP 3680 WNR 6-38
Intermediate shafts, Material: ON. Steel Identification Marks: HP 3682 WNR 6-38 HP 3678 WNR 13-6-38
Screw shaft, Material: ON. Steel Identification Marks: HP 3677 WNR 13-6-38

Date of test: April 3rd to June 5th - Main Boilers tested April 27th 1939 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? oil tanked If so, have the requirements of the Rules been complied with? Yes

If the notation for ice strengthening is desired, state whether the requirements in this respect have been complied with? Not desired

Is this machinery a duplicate of a previous case? Yes If so, state name of vessel: "Mottifuel"

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 from New York N° 38841 & Philadelphia N° 7663 also Fitting & Coating reports, all of which are attached to this report. Same has now been carefully installed & fitted in the vessel inclusive of the erection & completion of the Water Tube Boilers their accessories also all auxiliaries & the workmanship & materials throughout is good.

The Pumping Machinery & all Auxiliaries in their entirety have been tested under full working conditions & the electric welded gear casings, seatings &c. subsequently examined & found satisfactory. The machinery is in safe working condition & eligible to have the Record of F.P. 6/39 also fitted for oil fuel 6/39 F.P. above 150°F. made in Register Book.

The amount of Entry Fee	£ 30.00	When applied for, July 26 1939
Special	£ 305.00	
Donkey Boiler Fee	£	When received, 19.9.39
Travelling Expenses (if any)	£ 75.00	

Committee's Minute Assigned 7 LMC - 6-39. Fitted for oil fuel 6, 39 F.P. above 150°F.
NEW YORK AUG 2 - 1939
Engineer Surveyor to Lloyd's Register of Shipping.

