

REPORT ON STEAM TURBINE MACHINERY. No. 8291

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Date of writing Report 16 Oct 42 When handed in at Local Office 16 Oct 42 Port of Philadelphia
 No. in Survey held at Essington Chester Pa Date, First Survey 14 Jan 42 Last Survey 30 Sept 1942
 Reg. Book. on the S/S GULF MARACAIBO (Number of Visits 28) Tons } Gross 9506
 Net }
 Built at Chester Pa By whom built Sum Bros & Co Yard No. 233 When built 1942
 Engines made at Essington Pa By whom made Westinghouse E.M. Co Engine No. 7309 When made "
 Boilers made at Chester By whom made Foster Wheeler Boiler No. When made "
 Shaft Horse Power at Full Power 5000 ^{5500 full} Owners Gulf Oil Co Port belonging to Philadelphia
 Nom. Horse Power as per Rule 900 97 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

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;
 Direct Current Generator }
 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.			I. 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 IMP	5/8"	21 3/4"	1							7/8"	30 1/4"	1 IMP
2ND " WHEEL	1/8"	22 1/4"	1							1 3/4"	31"	1 SWH
3RD " "												
4TH " 1st blade	.753	14.032	6				.875	27.750	6	1 5/8"	31 1/4"	1 IMP
5TH " ring	.371	14.463					2.972	32.000			3"	33"
6TH Constant taper												
7TH " "												
8TH " 2nd blade	1.033	14.593	12				3.846	33.750	5			
9TH " ring	2.034	16.624					8.972	43.500				
10TH Constant taper												
11TH " "												
12TH " "												

Shaft Horse Power at each turbine { H.P. 2500 ^{2750 full} } I.P. Revolutions per minute, at full power, of each Turbine Shaft } L.P. 2500 ^{2750 full} } H.P. 5980 ^{6175 full} 1st reduction wheel 540
 I.P. HP 8075 } I.P. 4440 ^{4685 full} main shaft 85 ^{88 full}
 L.P. 4440 }
 Rotor Shaft diameter at journals { H.P. 4 Pitch Circle } 1st pinion LP 10.884 1st reduction wheel 89.710 Width of Face { 1st reduction wheel 14
 I.P. 6 1/4 Diameter } 2nd pinion 17.694 main wheel 112.287 } main wheel 32
 L.P. 6 1/4 }
 Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 13 7/8 } 1st reduction wheel 31 7/8
 { 2nd pinion 31 7/8 } main wheel 35 }
 Flexible Pinion Shafts, diameter { 1st 4 } Pinion Shafts, diameter at bearings External 1st 4 1/2 2nd 12 1/2 diameter at bottom of pinion teeth { 1st LP 10.445
 2nd 17.131 }
 Wheel Shafts, diameter at bearings { 1st 12 1/2 } diameter at wheel shroud, { 1st 86.250 } Generator Shaft, diameter at bearings
 main 19 } main 108.000 } Propelling Motor Shaft, diameter at bearings
 Intermediate Shafts, diameter as per rule 15.91 ^{15.54 normal} Thrust Shaft, diameter at collars as per rule 17.6 ^{17.12 normal}
 as fitted 16 } as fitted 18 1/4 } Is the screw shaft fitted with a continuous liner { YES
 Tube Shaft, diameter as per rule 17.6 ^{17.46 max} } Screw Shaft, diameter as per rule 18 1/4 }
 as fitted 18 1/4 }
 Bronze Liners, thickness in way of bushes as per rule 1 1/4 ^{1.84} Thickness between bushes as per rule 15/16 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
 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 shaft. No If so, state type Length of Bearing in Stern Bush next to and supporting propeller 6' 9 1/2"
 Propeller, diameter 19 FT. Pitch 18' 3" No. of Blades 4 State whether Moveable No Total Developed Surface 133.2 square feet.
 If 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 1 Feed Pumps { No. and size } 2-180 GPM Centrif } 1-Recip 180 GPM
 How driven } Turbine Driven } Steam
 Pumps connected to the Main Bilge Line { No. and size } 1-ER Bilge Pump 100 GPM } 1-G.S. 200 GPM } 1-G.S. 200 GPM
 How driven } Steam } motor
 Ballast Pumps, No. and size 1-G.S. Ballast 400 GPM 1-G.S. 200 GPM Lubricating Oil Pumps, including Spare Pump, No. and size 2-250 GPM Vert Centrif
 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:—In Engine and Boiler Room ER 3 1/2" 1 1/2" 1 1/2" 3" BR 4-2 1/2" In Pump Room 2 1/2" 1 1/2" 1 1/2" 4"
 In Holds, &c. Cargo space 2 1/2" Chain locker 1 1/2" Ford pump room 2 1/2" Protein store 2" steam ejector.
 Main Water Circulating Pump Direct Bilge Suctions, No. and size 1-18" Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 1-5" 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.
 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. No worked from.

BOILERS, &c. — (Letter for record) Total Heating Surface of Boilers 4887 sq ft 6060
 Is Forced Draft fitted Yes No. and Description of Boilers 2 Foster Wheeler W-1 Working Pressure 500 lbs

Is a Report on Main Boilers now forwarded? Yes
 Is a Donkey Boiler fitted? No If so, is a report now forwarded?

Is the donkey boiler intended to be used for domestic purposes only
 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 _____

Has the spare gear required by the Rules been supplied Yes **SPARE GEAR.**
 State the principal additional spare gear supplied Please see attached list

The foregoing is a correct description, Westinghouse E. & M. Co. J. H. Brown Manufacturer.

Dates of Survey Jan 14, March 4, 19, April 21, June 1, 9, Aug 3, 6, 8, 29, 1942.
 During progress of work in shops - - -
 During erection on board vessel - - - June 8, 10, 11, 24, 25, July 6, 8, 10, 16, Aug 6, 7, 14, Sept 3, 21, 24, 27, 29, 30, 1942.
 Total No. of visits 28.

Dates of Examination of principal parts — Casings 3 Aug Rotors 3 Aug Blading 3 Aug Gearing 6 Aug
 Wheel shaft 6 Aug Thrust shaft _____ Intermediate shafts 18 June Tube shaft _____ Screw shaft 9 June

Propeller 9 June Stern tube 24 June Engine and boiler seatings 8 July Engine holding down bolts 3 Sept
 Completion of fitting sea connections 6 July Completion of pumping arrangements 24 Sept Boilers fired 14 Aug Engines tried under steam 29 Sept

Main boiler safety valves adjusted 24 Sept Thickness of adjusting washers Locknuts

Rotor shaft, Material and tensile strength O H. Steel 89750 Identification Mark 547 F.O.

Pinion shaft, Material and tensile strength OH Steel . HP 114000 lbs LP 107500 lbs Identification Mark 473 WHR 672 ON

1st Reduction Wheel Shaft, Material and tensile strength OH Steel . 107000 lbs. 118500 lbs Identification Mark 544 . 545 ATG

Wheel shaft, Material O H Steel Identification Mark 2001 HBC Thrust shaft, Material _____ Identification Mark _____
 Intermediate shafts, Material OH Steel Identification Marks 6693, 6697 ON Tube shaft, Material _____ Identification Marks _____
 Screw shaft, Material O H Steel Identification Marks Reg 6733 ON, 6858 ON Steam Pipes, Material O H Steel Test pressure 1150 lbs

Date of test July 10, Aug 6, Sept 21, 1942 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 _____ If so, have the requirements of the Rules been complied with _____

If the notation for ice strengthening is desired, state whether the requirements in this respect have 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.) This installation has been constructed under Special Survey, and in accordance with the approved plans, the workmanship & materials are good. The installation has been tried out under full power & found satisfactory. It has been satisfactorily installed on board the vessel, and in my opinion is eligible to receive the record of + LMC 9. 42.

The amount of Entry Fee ... \$ 30.00
 Special As agreed 600.00
 Donkey Boiler Fee ... £ :
 Travelling Expenses (if any) \$ 28.00

When applied for, 12 Dec 42
 When received, _____

M. W. Penham
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute
 Assigned + LMC - 9-42

NEW YORK DEC 16 1942

