

# REPORT ON STEAM TURBINE MACHINERY. No. 3716

Received at London Office 26 OCT 1942

Date of writing Report Mar. 31, 1942 when handed in at Local Office 19 Port of Boston, Massachusetts

No. in Survey held at Lynn, Mass. Date, First Survey ✓ Last Survey ✓ 19

Reg. Book. s/s 'FAIRPORT' (Number of Visits) Tons } Gross

Built at Mobile, Ala. By whom built Gulf S.B. Co. Yard No. HP 45757 When built 1942

Engines made at Lynn, Mass. By whom made General Electric Co. Engine No. LP 45758 When made 1942

Boilers made at \_\_\_\_\_ By whom made \_\_\_\_\_ Boiler No. \_\_\_\_\_ When made \_\_\_\_\_

Shaft Horse Power at Full Power \_\_\_\_\_ Owners \_\_\_\_\_ 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 \_\_\_\_\_

## STEAM TURBINE ENGINES, &c.—Description of Engines. Cross Compound Turbines and double reduction gears

No. of Turbines Ahead 2 <sup>Direct coupled.</sup> to 1 propelling shafts. No. of primary pinions to each set of reduction gearing 2

Astern 1 <sup>single reduction geared</sup> } double reduction geared }

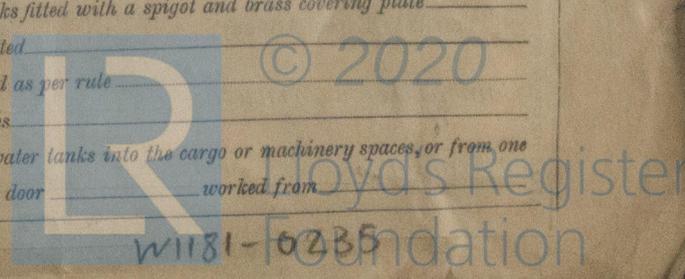
direct coupled to } Alternating Current Generator \_\_\_\_\_ phase \_\_\_\_\_ periods per second \_\_\_\_\_ } rated \_\_\_\_\_ Kilowatts \_\_\_\_\_ Volts at \_\_\_\_\_ revolutions per minute;

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 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	.925"	29.645"	1				1.195"	35.203"	1	1.130"	37.418"	2
2ND "	.680"	17.898"	1				1.735"	36.083"	1	3.94"	41.252"	1
3RD "	.740"	18.018"	1				2.320"	37.028"	1			
4TH "	.820"	18.178"	1				3.170"	38.528"	1			
5TH "	.950"	18.438"	1				4.86"	40.97"	1			
6TH "	1.000"	18.538"	1				7.25"	44.488"	1			
7TH "	1.110"	18.758"	1				9.56"	48.073"	1			
8TH "	1.230"	18.998"	1									
9TH "	1.480"	19.498"	1									
10TH "	1.710"	19.958"	1									
11TH "	2.000"	20.538"	1									
12TH "												

Shaft Horse Power at each turbine { H.P. 3000 } Revolutions per minute, at full power, of each Turbine Shaft { I.P. -- }  
 { L.P. 3000 }  
 Rotor Shaft diameter at journals { H.P. 3.00" } 1st pinion LP 12.6" } 1st reduction wheel 57.8" } Width of Face { 1st reduction wheel 17" }  
 { I.P. 5.5" } 2nd pinion LP 14.88" } wheel 142.777" } { main wheel 33.25" }  
 { L.P. 6.00" } Exh. End }  
 Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion LP 15" } 1st reduction wheel 14" }  
 { 2nd pinion LP 26-1/2" } main wheel 28-1/2" }  
 Flexible Pinion Shafts, diameter { 1st } Pinion Shafts, diameter at bearings External 1st LP 6." } 2nd LP 8-3/4" } diameter at bottom of pinion teeth { 1st LP 12.225" }  
 { 2nd } None } Internal 1st Solid } 2nd } { 2nd 14.188" }  
 Wheel Shafts, diameter at bearings { 1st 9." } diameter at wheel shroud, { 1st 9-3/8" } Generator Shaft, diameter at bearings \_\_\_\_\_ }  
 { main 21." } { main 23-3/4" } Propelling Motor Shaft, diameter at bearings \_\_\_\_\_ }  
 Intermediate Shafts, diameter as per rule \_\_\_\_\_ Thrust Shaft, diameter at collars as per rule \_\_\_\_\_  
 as fitted \_\_\_\_\_ Is the { tube } shaft fitted with a continuous liner { \_\_\_\_\_ }  
 Tube Shaft, diameter as per rule \_\_\_\_\_ Screw Shaft, diameter as per rule \_\_\_\_\_ as fitted \_\_\_\_\_  
 as fitted \_\_\_\_\_ Is the { screw } \_\_\_\_\_  
 Bronze Liners, thickness in way of bushes as per rule \_\_\_\_\_ Thickness between bushes as per rule \_\_\_\_\_ Is the after end of the liner made watertight in the propeller boss \_\_\_\_\_  
 as fitted \_\_\_\_\_ 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 \_\_\_\_\_ If so, state type \_\_\_\_\_ 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 \_\_\_\_\_ No. of Turbines fitted with astern wheels \_\_\_\_\_ 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, etc. \_\_\_\_\_ In Pump Room \_\_\_\_\_  
 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 \_\_\_\_\_



8  
**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 }  
 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 \_\_\_\_\_

**SPARE GEAR.**

Has the spare gear required by the Rules been supplied \_\_\_\_\_  
 State the principal additional spare gear supplied \_\_\_\_\_

The foregoing is a correct description,

*L. E. Grube, General Electric Co* Manufacturer.

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

Dates of Examination of principal parts—Casings \_\_\_\_\_ Rotors \_\_\_\_\_ Blading \_\_\_\_\_ Gearing \_\_\_\_\_  
 Wheel shaft \_\_\_\_\_ Thrust shaft \_\_\_\_\_ Intermediate shafts \_\_\_\_\_ Tube shaft \_\_\_\_\_ Screw shaft \_\_\_\_\_

Propeller \_\_\_\_\_ Stern tube \_\_\_\_\_ Engine and boiler seatings \_\_\_\_\_ Engine holding down bolts \_\_\_\_\_  
 Completion of fitting sea connections \_\_\_\_\_ Completion of pumping arrangements \_\_\_\_\_ Boilers fired \_\_\_\_\_ Engines tried under steam \_\_\_\_\_

Main boiler safety valves adjusted \_\_\_\_\_ Thickness of adjusting washers \_\_\_\_\_  
 127,000 102,000  
 123,000 LP 106,500  
 O.H. Steel H.P. 123,000 LP 104,000 Identification Mark \_\_\_\_\_

Rotor shaft, Material and tensile strength \_\_\_\_\_ Identification Mark \_\_\_\_\_  
 Flexible Pinion Shaft, Material and tensile strength \_\_\_\_\_ Identification Mark \_\_\_\_\_  
 HS HP 112500 LS HP 103,500  
 HS LP 102000 LS LP 106,500

Pinion shaft, Material and tensile strength \_\_\_\_\_ Identification Mark \_\_\_\_\_  
 1st Reduction Wheel Shaft, Material and tensile strength \_\_\_\_\_ Identification Mark \_\_\_\_\_

Wheel shaft, Material O.H. Steel 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 \_\_\_\_\_  
 If the notation for ice strengthening is desired, state whether the requirements in this respect have been complied with \_\_\_\_\_ If so, state name of vessel \_\_\_\_\_

Is this machinery a duplicate of a previous case \_\_\_\_\_ If so, state name of vessel \_\_\_\_\_  
**General Remarks** (State quality of workmanship, opinions as to class, &c.) These turbines were built under survey of American Bureau of Shipping and were intended for another vessel. Owing to war exigencies, the U.S.G. Office of Production Management, decided to fit them in the subject vessel, and they have accordingly been shipped to Mobile, Ala.

The particulars/forwarded for the information of the Committee. Forging reports are attached hereto. The turbines should be opened up and examined at Mobile, and provided the workmanship and material are found good and they are satisfactorily tried at full load, in my opinion, they could be accepted by the Committee and assigned a suitable notation in the R.B.

The amount of Entry Fee ... £	✓	When applied for,	19.
Special ... £	✓	When received,	19.
Donkey Boiler Fee ... £	✓		
Travelling Expenses (if any) £	✓		

*Thomas David*  
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute **NEW YORK SEP 23 1942**

Assigned *See First Entry Report*

