

# AUXILIARY REPORT ON STEAM TURBINE MACHINERY. No. 3583

4a. Date of writing Report MAY 1<sup>ST</sup> 1941 When handed in at Local Office 19 Port of BOSTON Received at London Office 9 JUL 1941  
 Date in Survey held at LYNN, MASS. Date, First Survey 6<sup>TH</sup> JUNE 1940 Last Survey 3<sup>RD</sup> DEC 1940  
 on the HULL 212 ATLANTIC SUN (Number of Visits 18)  
 Tons } Gross 11355  
 Net 6991  
 Built at CHESTER PA By whom built SUN SB CO Yard No. 212 When built 1941  
 Engines made at LYNN, MASS. By whom made GENERAL ELECTRIC CO Engine Nos. 45791 When made 1941  
 Boilers made at CANTON NJ By whom made Foster Wheeler Corp Boiler No. 45988 When made "  
 Shaft Horse Power at Full Power 7000 Owners Sun Oil Co Port belonging to Philadelphia  
 Nom. Horse Power as per Rule 1590 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 TWO TURBINES CONNECTED TO 300 KW GENERATORS THRU SINGLE REDUCTION GEARS.  
 No. of Turbines ONE EACH Direct coupled, single reduction geared } to GENERATORS propelling shafts. No. of primary pinions to each set of reduction gearing ONE  
 Astern SET double reduction geared }  
 Direct coupled to } Alternating Current Generator phase \_\_\_\_\_ periods per second \_\_\_\_\_  
 Direct Current Generator } rated 300 Kilowatts 240 Volts at 1200 revolutions per minute;  
 supplying power for driving \_\_\_\_\_ Propelling Motors, Type AUXILIARY MACHINERY & ELECTRIC LIGHTING.  
 \_\_\_\_\_ Kilowatts \_\_\_\_\_ Volts at \_\_\_\_\_ revolutions per minute. Direct coupled, single or double reduction geared to \_\_\_\_\_ propelling shafts.

TURBINE	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.
1 <sup>ST</sup> WHEEL	5" - .96"	25.5" - 25.9"	2									
2 <sup>ND</sup> " "	5.04" - 1.03"	25.5" - 25.9"	2									
3 <sup>RD</sup> " "	1.374" - 2.37"	26.65" - 26.76"	2									
"												
"												
"												
"												
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"												

Shaft Horse Power at each turbine { H.P. \_\_\_\_\_  
 I.P. \_\_\_\_\_  
 L.P. \_\_\_\_\_ } Revolutions per minute, at full power, of each Turbine Shaft { H.P. 5636 1st reduction wheel ✓  
 I.P. \_\_\_\_\_  
 L.P. \_\_\_\_\_ } main shaft 1200 ✓  
 Propeller Shaft diameter at journals { H.P. 3 1/2 ✓  
 I.P. \_\_\_\_\_ } Pitch Circle Diameter { 1st pinion 5.4414 1st reduction wheel ✓  
 L.P. \_\_\_\_\_ } 2nd pinion \_\_\_\_\_ main wheel 25.5585 ✓ Width of Face { 1st reduction wheel \_\_\_\_\_  
 main wheel 7 1/2 ✓  
 Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 69.778 1st reduction wheel ✓  
 2nd pinion \_\_\_\_\_ main wheel 7 1/2 ✓  
 Pinion Shafts, diameter at bearings { External 4 1st \_\_\_\_\_ 2nd \_\_\_\_\_ diameter at bottom of pinion teeth { 1st 5.066  
 Internal \_\_\_\_\_ 2nd \_\_\_\_\_ }  
 Propeller Shafts, diameter at bearings { 1st 4 ✓ diameter at wheel shroud, { 1st \_\_\_\_\_ Generator Shaft, diameter at bearings 3 1/2  
 main 25.827 Propelling Motor Shaft, diameter at bearings \_\_\_\_\_  
 Intermediate Shafts, diameter as per rule \_\_\_\_\_ Thrust Shaft, diameter at collars as per rule \_\_\_\_\_ Tube 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 \_\_\_\_\_ screw } as fitted \_\_\_\_\_  
 Thickness between bushes as per rule \_\_\_\_\_ 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 \_\_\_\_\_  
 as fitted \_\_\_\_\_ 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 \_\_\_\_\_  
 propeller 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.  
 Angle 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 \_\_\_\_\_  
 Main Pumps, No. and size \_\_\_\_\_ Lubricating Oil Pumps, including Spare Pump, No. and size \_\_\_\_\_  
 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 \_\_\_\_\_  
 Pumps, &c. \_\_\_\_\_  
 Main Water Circulating Pump Direct Bilge Suctions, No. and size \_\_\_\_\_ Independent Power Pump Direct Suctions to the Engine Room \_\_\_\_\_  
 Pumps, 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 \_\_\_\_\_  
 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 \_\_\_\_\_  
 How are they protected \_\_\_\_\_  
 Are the pipes pass through the bunkers \_\_\_\_\_ Have they been tested as per rule \_\_\_\_\_  
 Are the pipes pass through the deep tanks \_\_\_\_\_  
 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? If so, is a report now forwarded?

Plans. Are approved plans forwarded herewith for Shafting Main Boilers Auxiliary Boilers Donkey Boilers

Superheaters General Pumping Arrangements Oil Fuel Burning Arrangements

Spare Gear. State the articles supplied:— TWO GEAR AND TWO PINION BEARINGS ONE THRUST BEARING FOURTEEN COUPLING BOLTS SIX TURBINE CASING BOLTS

The foregoing is a correct description,

General Electric Co. J. T. Nolan Manufacturer

Dates of Survey while building During progress of work in shops -- JUNE 12-18-28, JULY 275, AUG 13-21-23, SEPT. 5. DEC 3, 1940

Dates of Examination of principal parts—Casings JULY 25 DEC 3 Rotors DEC 3 Blading DEC 3 Gearing DEC 3

Wheel shaft DEC 3 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 OH. STEEL Thickness of adjusting washers

Rotor shaft, Material and tensile strength TURB No 45791. 93,500 LBS TURB No 45988 - 95,500 LBS. Identification Mark 336 T.B. 337

Flexible Pinion Shaft, Material and tensile strength OH. STEEL Identification Mark

Pinion shaft, Material and tensile strength " " 101,500 LBS " " 97,500 Identification Mark 336 T.B. 337

1st Reduction Wheel Shaft, Material and tensile strength 337 T.B. Identification Mark

Wheel shaft, Material 8900 OH. STEEL Identification Mark 336 T.B. 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 If so, state name of vessel

General Remarks (State quality of workmanship, opinions as to class, &c. THE TWO GEARED TURBINE ELECTRIC GENERATORS

HAVE BEEN BUILT UNDER SPECIAL SURVEY, TESTED UNDER STEAM AT FULL LOAD AND THE OIL GOVERNORS ADJUSTED

TO TRIP AT 1340 RPM. THE QUALITY OF WORKMANSHIP AND MATERIALS IS GOOD. THE UNITS HAVE BEEN

FORWARDED TO SUN SHIPBUILDING CO CHESTER PA.

The above generating sets have been satisfactorily installed on board the vessel, tried out under full power & found satisfactory.

The amount of Entry Fee ... £ BOSTON \$150.00 Special ... £ Donkey Boiler Fee ... £ BOSTON \$5.00 Travelling Expenses (if any) £

When applied for,

25 MAR 1941

When received,

19

Thomas Barrie & MacRae Engineer Surveyor to Lloyd's Register of Shipping.

NEW YORK MAY 28 1941

Committee's Minute

Assigned See first Entry Report attached.



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