

REPORT ON STEAM TURBINE MACHINERY. No. 3666

Received at London Office 12 FEB 1942

Date of writing Report Sept. 25, 41 When handed in at Local Office 19 Port of Boston, Massachusetts
 No. in Survey held at Lynn, Mass. Date, First Survey Oct. 14, 1940 Last Survey Mar. 26, 1941
 Reg. Book. Hull No. 1488-89-90-91 (Number of Visits 5)
 Built at Quincy, Mass. By whom built Bethlehem Steel Co. Yard No. 1488-9- When built 1941
 Engines made at Lynn, Mass. By whom made General Electric Co. Engine No. 48051 When made 1941
 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 Yes
 Trade for which Vessel is intended _____

STEAM TURBINE ENGINES, &c.—Description of Engines One turbine connected to 200 KW Generator thru single reduction gears.

No. of Turbines one each ~~set~~ single reduction geared to propeller shafts. No. of primary pinions to each set of reduction gearing One
 direct coupled to Direct Current Generator ~~Alternating Current Generator~~ rated 200 Kilowatts 240 Volts at 1200 revolutions per minute;
 for supplying power for driving _____ Propelling Motors, Type Auxiliary Machinery and Electric lighting
 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 <u>Impulse</u>	<u>500.00</u>	<u>25.96</u>	<u>2</u>									
2ND "	<u>504</u>	<u>25.56</u>	<u>2</u>									
3RD "	<u>873</u>	<u>25.9</u>	<u>2</u>									
4TH "												
5TH "												
6TH "												
7TH "												
8TH "												
9TH "												
10TH "												
11TH "												
12TH "												

Shaft Horse Power at each turbine { H.P. 5614 1st reduction wheel
 I.P. _____ main shaft 1200
 L.P. _____

Rotor Shaft diameter at journals { H.P. 3" Pitch Circle Diameter { 1st pinion 4.6" 1st reduction wheel
 I.P. _____ 2nd pinion _____ main wheel 21.7" Width of Face { 1st reduction wheel
 L.P. _____

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 5-1/2" & 5-1/2" 1st reduction wheel
 2nd pinion _____ main wheel 5-1/2" & 5-1/2"

Flexible Pinion Shafts, diameter { 1st _____ Pinion Shafts, diameter at bearings { 2-1/2" x 3-1/2" diameter at bottom of pinion teeth { 1st 4.356
 2nd _____

Wheel Shafts, diameter at bearings { 1st 2.5" diameter outside of gear { 1st 21.88" Generator Shaft, diameter at bearings 3"
 main _____ Propelling Motor Shaft, diameter at bearings _____

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 { _____
 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
 as fitted _____ 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 _____ 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 Pump 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? _____ If so, is a report now forwarded? _____
 { 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 (2) L.S. Bearings (2) Pinion Bearings (2) Thrust Bearings
 (8) H.S. Coupling Bolts (8) Drake Locknuts for H.S. Coupling Bolts (5) 3/4" Bolts for Hor. Casin
 Joint (2) 3/4" bolts for Hor. Casing Joint. ✓

PER SHIP

The foregoing is a correct description,

General Electric Co. J. T. Polan Manufacturer.

Dates of Survey { During progress of work in shops -- } October 14, Nov. 29, Dec. 17, 1940 March 24, 26, 1941
 { During erection on board vessel --- }
 while building { Total No. of visits } 5 visits

Dates of Examination of principal parts—Casings Mar. 26, 1941 Rotors Mar. 26, 1941 Blading Mar. 26, 1941 Gearing Mar. 26, 1941

Wheel shaft Mar. 26, 1941 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 fixed _____ Engines tried under steam _____

Main boiler safety valves adjusted _____ Thickness of adjusting washers _____

Rotor shaft, Material and tensile strength O.H. Steel 101,000 lbs. per sq. in. Identification Mark 376 24-3-41

Flexible Pinion Shaft, Material and tensile strength _____ Identification Mark _____

Pinion shaft, Material and tensile strength O.H. Steel 111,000 lbs. per sq. in. Identification Mark 376 24-3-41

1st Reduction Wheel Shaft, Material and tensile strength _____ Identification Mark _____

Wheel shaft, Material O.H. Steel Identification Mark 376 24-3-41 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 _____

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 geared turbine electric generator has 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 Bethlehem Steel Company, Fore River Yard, Quincy, Mass.

Certificate (if required) to be sent to _____
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)

The amount of Entry Fee ... £	:	:	When applied for,
Special ... £ \$ 75.00	:	:	24-10 1941
Donkey Boiler Fee ... £	:	:	When received,
Travelling Expenses (if any) £ 2.50	:	:	19

Thomas Saville
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute
 Assigned See N. Y. RPT. 41897.

NEW YORK DEC 23 1941

