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REPORT ON STEAM TURBINE MACHINERY. No. 8096

Rpt. 4a.

Received at London Office

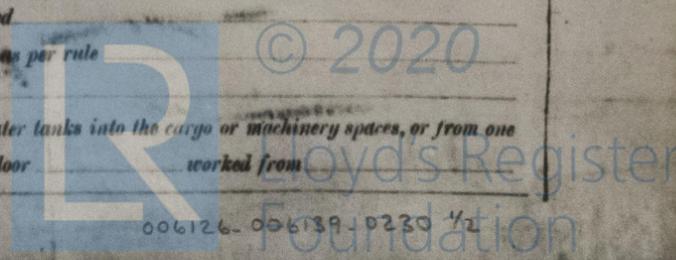
Date of writing Report 2 Aug 1941 When handed in at Local Office 5 Aug 1941 Port of Philadelphia
 No. in Survey held at Essington Pa Date, First Survey 10 March Last Survey 2 July 1941
 Reg. Book. 3 "Laddo." (Number of Visits 14) Tons } Gross
 on the Spawners Point Ma By whom built Bethlehem SB Co Yard No. 4354 When built 1941
 Engines made at Essington Pa By whom made Westinghouse E.M. Co Engine No. 1302 When made "
 Boilers made at By whom made Boiler No. When made
 Shaft Horse Power at Full Power 1700 Owners Socony Vacuum Oil Co Port belonging to
 Nom. Horse Power as per Rule 2144 1886 Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted Yes
 Trade for which Vessel is intended Carrying Petroleum in bulk

STEAM TURBINE ENGINES, &c.—Description of Engines Impulse, Reaction Cross Compound

No. of Turbines Ahead Two ✓ Direct coupled, single reduction geared } to 1 propelling shafts. No. of primary pinions to each set of reduction gearing two
 Astern One ✓ 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 Direct Current Generator }
 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 <u>Impulse Stage</u>	<u>1.125</u>	<u>23.12</u>	<u>1</u>				<u>1.275</u>	<u>30.145</u>	<u>5</u>	<u>1.405</u>	<u>30.65</u>	<u>1</u>
2nd	<u>2.25</u>	<u>24.76</u>	<u>1</u>				<u>3.47</u>	<u>31.00</u>	<u>5</u>	<u>2.82</u>	<u>32.07</u>	<u>1</u>
3rd <u>1st Blade ring</u>	<u>1.145</u>	<u>16.285</u>	<u>6</u>									
4th <u>Cut later</u>	<u>1.69</u>	<u>17.43</u>	<u>6</u>									
5th <u>2nd Blade ring</u>	<u>1.815</u>	<u>17.65</u>	<u>8</u>				<u>4.475</u>	<u>37.005</u>	<u>5</u>	<u>2.255</u>	<u>32.00</u>	<u>1</u>
6th <u>Cut later</u>	<u>3.06</u>	<u>20.18</u>	<u>8</u>				<u>4.800</u>	<u>48.00</u>	<u>5</u>	<u>3.61</u>	<u>33.76</u>	<u>1</u>
7th												
8th												
9th												
10th												
11th												
12th												

Shaft Horse Power at each turbine } H.P. 1700 ✓ } Revolutions per minute, at full power, of each Turbine Shaft } H.P. 6313 ✓ }
 } L.P. 6700 ✓ } } L.P. 4803 ✓ }
 Rotor Shaft diameter at journals } H.P. 5 ✓ } Pitch Circle Diameter } 1st pinion 13.869 LP } 1st reduction wheel 10.211 } Width of Face } 1st reduction wheel 20" ✓
 } L.P. 644 ✓ } } 2nd pinion 25.912 } main wheel 145.135 ✓ } } main wheel 39" ✓
 Distance between centres of pinion and wheel faces and the centre of the adjacent bearings } 1st pinion 15.75 ✓ } 1st reduction wheel 15.578 ✓ }
 } 2nd pinion 31.4 ✓ } main wheel 31.4 ✓ }
 Flexible Pinion Shafts, diameter } 1st 5" ✓ } Pinion Shafts, diameter at bearings } External } 1st 5 1/2 ✓ } 2nd 16" ✓ } diameter at bottom of pinion teeth } 1st 13.400 LP }
 } 2nd 5" ✓ } } Internal } 1st 5 1/2 ✓ } 2nd 4" ✓ } } 2nd 25.349" ✓ }
 Wheel Shafts, diameter at bearings } 1st 16" ✓ } diameter at wheel shroud, } 1st 102 7/8 ✓ } Generator Shaft, diameter at bearings }
 } main 20" ✓ } } main 141.0 ✓ } 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 } } as fitted } } as fitted }
 Screw Shaft, diameter } as per rule } 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 } } } }
 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 } Length of Bearing in Stern Bush next to and supporting propeller }
 Propeller, diameter Pitch No. of Blades State whether Movable Total Developed Surface 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 L.P. Turbine exhaust direct to the }
 Condenser } No. of Turbines fitted with astern wheels } 1 } 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, &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)
 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. State the articles supplied:— *Under separate cover.*

The foregoing is a correct description.

Westinghouse & M. Co. by J. W. [Signature] Chief Inspector Manufacturer

Dates of Survey of whole building { During progress of work in shops - - } 10th 27th March 11th 29th April 5th 10th 21st 27th May 3rd 11th 23rd 27th 30th June 2nd July 1941.
 { During erection on board vessel - - - }
 Total No. of visits _____

Dates of Examination of principal parts—Casings *2 July* Rotors *2 July* Blading *2 July* Gearing *2 July*
 Wheel shaft *2 July* Thrust shaft _____ Intermediate shafts _____ Tube shaft _____ Screw shaft _____
 Propeller _____ Stern tube _____ Engine and boiler seatings _____ Engine holding down bolts _____
 Completion of pumping arrangements _____ Boilers fired _____ Engines tried under steam _____

Main boiler safety valves adjusted _____ Thickness of adjusting washers
 Rotor shaft, Material and tensile strength *OH Steel* HP 87500 86500 93500 92100 LP 87000 86000 91800 91670 Identification Mark *4215-4246 WHR*
 Flexible Pinion Shaft, Material and tensile strength _____ Identification Mark _____
 Pinion shaft, Material and tensile strength *OH Steel* LP 99500 HP 105500 Identification Mark *4208 WHT, 1405 JWB*
 1st Reduction Wheel Shaft, Material and tensile strength *OH Steel* HP 11500 LP 103000 Identification Mark *4713 WHR, 6724 HBC*
 Wheel shaft, Material *OH Steel* Identification Mark *6195 ON* 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 *Yes* If so, state name of vessel *Hull 4353.*

General Remarks (State quality of workmanship, opinions as to class, &c.) *This machinery has been constructed under special survey, and in accordance with the approved plans, the workmanship & materials are good. The installation has been tested out under steam in the shop & found satisfactory. Unit has been shipped to Sparrows Pt to be installed on the vessel. When the installation has been satisfactorily installed on board the vessel, tried out under full power & to the satisfaction of the Society's Surveyor it will be eligible in my opinion to receive the record of +LMC with date.*

The amount of Entry Fee ... \$ 30 : 00 :
 Special ... \$ 256 : 00 :
 Donkey Boiler Fee ... \$: :
 Travelling Expenses (if any) \$ 14 : 00 :
 When applied for, *7 Aug 1941*
 When received, _____

M. W. [Signature]
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute *NEW YORK*

Assigned *See BAL. RPT. 7545*