

REPORT ON STEAM TURBINE MACHINERY. No. 8005

Received at London Office 12 FEB 1942

Date of writing Report 5 March 41 When handed in at Local Office 5 March 41 Port of Philadelphia
 No. in Survey held at Jennton N.J. Date, First Survey 28 Oct 1940 Last Survey 20 Feb 1941
 Reg. Book. (Number of Visits 11)
 on the Fore River, Mass. By whom built Bethlehem SSB Co Yard No. 1488 Tons } Gross
 Engines made at Jennton N.J. By whom made De Laval Steam Turbine Co Engine No. 230907 Net }
 Boilers made at _____ By whom made _____ Boiler No. _____ When made "
 Shaft Horse Power at Full Power 4000 Owners Simclair Gil Co Port belonging to _____
 Nom. Horse Power as per Rule 905 898 Is Refrigerating Machinery fitted for cargo purposes _____ Is Electric Light fitted _____
 Trade for which Vessel is intended _____

STEAM TURBINE ENGINES, &c.—Description of Engines De Laval Impulse Compound

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;
 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 ^{in L.P. turbine}		
	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	.600"	22.500"	1				1.020"	31.476"	1	1.320"	35.200"	2
2ND "	.560	16.356"	1				1.185"	33.246"	1	3.750"	36.296"	1
3RD "	.615	16.466"	1				1.680"	35.676"	1			
4TH "	.685	16.605"	1				2.000"	37.796"	1			
5TH "	.760	16.756"	1				3.100"	40.160"	1			
6TH "	.845	16.926"	1				4.800"	44.880"	1			
7TH "	.605	20.146"	1				8.200"	46.948"	1			
8TH "	.700	20.336"	1									
9TH "	.820	20.576"	1									
10TH "	.955	20.846"	1									
11TH "	1.115	21.166"	1									
12TH "												

Shaft Horse Power at each turbine { H.P. 2000 } 1st reduction wheel 862.3
 { I.P. _____ } main shaft 90
 { L.P. 2000 }
 Rotor Shaft diameter at journals { H.P. 5" } Pitch Circle Diameter { 1st pinion 7.200" } 1st reduction wheel 48.200" } Width of Face { 1st reduction wheel 14"
 { I.P. _____ } { 2nd pinion 13.041" } main wheel 124.947" } { main wheel 29"
 { L.P. 7" }
 Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 10 1/4" } 1st reduction wheel 12 1/8"
 { 2nd pinion 20 1/8" } main wheel 21 7/8"

Flexible Pinion Shafts, diameter { 1st 6.5" } Pinion Shafts, diameter at bearings External 1st 4 1/2" 2nd 9" diameter at bottom of pinion teeth { 1st 6.584" HP
 { 2nd 6.5" } Internal 1st 7" 2nd 7" { 2nd 8.784" LP
 Wheel Shafts, diameter at bearings { 1st 6 1/2" } diameter at wheel shroud, { 1st 8" } Generator Shaft, diameter at bearings _____
 { main 16" } { main 20" } Propelling Motor Shaft, diameter at bearings _____

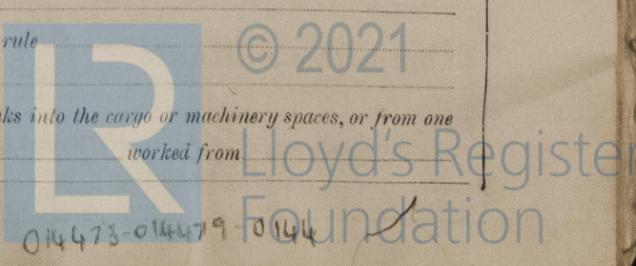
Intermediate Shafts, diameter as per rule _____ Thrust Shaft, diameter at collars as per rule _____ Tube Shaft, diameter as per rule _____
 as fitted _____ as fitted 10" net gear as fitted _____
 Screw Shaft, diameter as per rule _____ Is the { tube } shaft fitted with a continuous liner { _____ }
 as fitted _____ as fitted _____ 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 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 _____ Can the H.P. or I.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 _____



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 — As per rule. ✓

The foregoing is a correct description,

DE LAVAL STEAM TURBINE Co. *J. S. Biller*
 MGR. CONTRAST DIVISION Manufacturer

Dates of Survey while building { During progress of work in shops - - } Oct 28, 29. Nov 25. Dec 3. 1940. Jan 6, 23 Feb 4, 11, 15, 17, 20. 1941
 { During erection on board vessel - - - }
 Total No. of visits _____

Dates of Examination of principal parts—Casings 17 Feb 1941 Rotor 17 Feb 1941 Blading 17 Feb 1941 Gearing 11 Feb 1941

Wheel shaft 15 Feb 1941 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 _____ Thickness of adjusting washers _____

Rotor shaft, Material and tensile strength OH Steel 96500, 97000, 94000 Identification Mark 3478 LR.

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

Pinion shaft, Material and tensile strength OH Steel 105000, 104000, 103500 Identification Mark 4162 4161 WHR

1st Reduction Wheel Shaft, Material and tensile strength OH Steel 78500 lb Identification Mark 6603, 6607 HBC

Wheel shaft, Material OH Steel Identification Mark 4156 WHR 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 No If so, state name of vessel _____

General Remarks (State quality of workmanship, opinions as to class, &c.) This machinery has been constructed under Special Survey & in accordance with the approved plans. The workmanship & materials are good. The unit has been shipped to Fore River. When this unit has been satisfactorily installed on board the vessel, tried out under full power, and to the satisfaction of the Surveyors, it will be eligible in my opinion to receive the record of +LMC with date.

The amount of Entry Fee ... \$ 30 : 00 :
 Special ... \$ 200 : 00 :
 Donkey Boiler Fee ... £ : :
 Travelling Expenses (if any) \$ 41 : 25 :
 When applied for, 25th March 1941
 When received, _____

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

NEW YORK DEC 23 1941

Committee's Minute

Assigned See N.Y.K. RPT. 41897



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