

REPORT ON STEAM TURBINE MACHINERY. No. 7372

Received at London Office
 Date of writing Report 19 _____ When handed in at Local Office 19 _____ Port of Philadelphia
 No. in Survey held at Trenton, N.J. Date, First Survey 20 Sept Last Survey 22 Sept 1937
 Reg. Book. _____ (Number of Visits 2)
 on the S/S "Esso Bayway" Tons { Gross 7699 Net 4654
 Built at Kearney, N.J. By whom built Federal SB Co Yard No. 144 When built 1937
 Engines made at Trenton, N.J. By whom made De Laval Steam Turbine Co Engine No. 226495 When made "
 Boilers made at _____ By whom made _____ Boiler No. _____ When made _____
 Shaft Horse Power at Full Power 2000 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 Impulse compound steam turbines

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 }
 Direct Current Generator _____ 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 | 1.510 | 22.463 | 1 | | | | 1.280 | 25.828 | 1 | 7.20 | 30.707 | 1 |
| 2ND " | 1.640 | 15.611 | 1 | | | | " | 27.028 | 1 | 1.390 | 31.803 | 1 |
| 3RD " | 1.670 | " | 1 | | | | 1.450 | 28.398 | 1 | 3.370 | 35.218 | 1 |
| 4TH " | 1.625 | " | 1 | | | | 2.140 | 30.848 | 1 | | | |
| 5TH " | 1.695 | " | 1 | | | | 2.720 | 33.088 | 1 | | | |
| 6TH " | 1.770 | " | 1 | | | | 3.720 | 35.188 | 1 | | | |
| 7TH " | 1.720 | 19.826 | 1 | | | | 6.500 | 38.798 | 1 | | | |
| 8TH " | 1.850 | " | 1 | | | | | | | | | |
| 9TH " | 1.820 | " | 1 | | | | | | | | | |
| 10TH " | 1.965 | " | 1 | | | | | | | | | |
| 11TH " | 1.180 | " | 1 | | | | | | | | | |
| 12TH " | | | | | | | | | | | | |

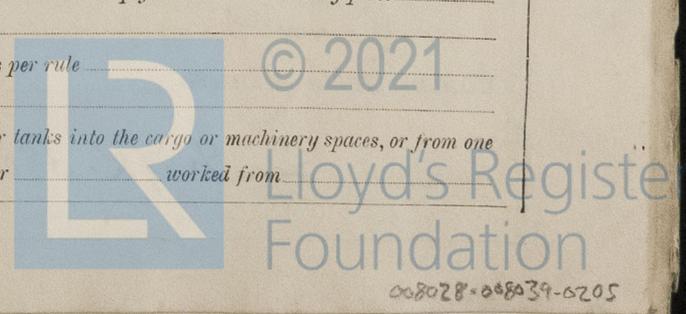
Shaft Horse Power at each turbine { H.P. 1585 } H.P. 6005 } 1st reduction wheel 897.5
 { I.P. _____ } I.P. _____ } main shaft 90.
 { L.P. 1195 } L.P. 5043 }
 Revolutions per minute, at full power, of each Turbine Shaft { 6.905" HP }
 { 8.221" LP } 1st reduction wheel 46.200" }
 { 11.856" } main wheel 118.241" }
 { 14" 6" } J.S.H. }
 Pitch Circle Diameter { 1st pinion 8.221" } 1st reduction wheel 12"
 { 2nd pinion 11.856" } main wheel 26.700" }
 Width of Face { 1st reduction wheel 10"
 { main wheel 22 5/8" }
 Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 10" } 1st reduction wheel 10"
 { 2nd pinion 19 3/8" } main wheel 22 5/8" }
 Flexible Pinion Shafts, diameter { 1st _____ } Pinion Shafts, diameter at bearings External 1st 5 1/2" 2nd 9" } diameter at bottom of pinion teeth { 1st 6.577" HP
 { 2nd _____ } Internal 1st _____ 2nd 6" } L.P. 7.875 LP
 { _____ } 2nd 11.094" }

Wheel Shafts, diameter at bearings { 1st _____ } Generator Shaft, diameter at bearings _____
 { main 15" } diameter at wheel shroud, { main _____ } 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 _____ 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 Moneable _____ 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 L.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, &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:—

The foregoing is a correct description, of PROPELLING MACHINERY

De Laval Steam Turbine Co
 per J. H. Schenckler
 Eng. Dept.

Manufacturer

Dates of Survey while building

Sept 20th 22nd 1937.

Dates of Examination of principal parts—Casings 22 Sept Rotors 22 Sept Blading 22 Sept Gearing 22 Sept

Wheel shaft 22 Sept 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 _____ Identification Mark _____

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

Pinion shaft, Material and tensile strength _____ Identification Mark _____

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

Wheel shaft, Material _____ 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 _____

Is this machinery a duplicate of a previous case *Yes*. If so, state name of vessel _____

General Remarks (State quality of workmanship, opinions as to class, &c.) *The above turbines & gears have been constructed under the rules of the American Bureau of Shipping, and material tested by them. The installation has been tried out under steam in the shop & found satisfactory. After the trial the turbines & gears were opened up, examined & found in good order. When the installation has been satisfactorily installed on board the vessel, and tried out under steam to the satisfaction of the Societies' Surveyors, it will in my opinion be eligible to receive the record of LMC with date.*

| | | | | |
|------------------------------|----------|---|---|-------------------|
| The amount of Entry Fee | ... £ | : | : | When applied for, |
| Special | £ | : | : | 19 |
| Donkey Boiler Fee | ... £ | : | : | When received, |
| Travelling Expenses (if any) | £ 7 10 | : | : | 19 |

W. R. ...
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

NEW YORK DEC 15 1937

Assigned See R. J. K. 38079



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