

Report on Steam Turbine Machinery. No. 711

14 SEP 1953

pt. 4a.

Received at London Office

Date of writing Report 14th August 53 When handed in at Local Office 19 53 Port of Bremen
 No. in Survey held at Bremerhaven Date, First Survey 17.4.53 Last Survey 11.8.1953
 Reg. Book 59011 on the S.S. "ESSO BELFAST" (Number of Visits 28)
 Tons {Gross 13074
 Net 7864
 Built at Kearny N.J., U.S.A. By whom built Federal Shipbuilding Co. Ltd. Yard No. 113 When built 1930
 Engines made at Trenton N.J., U.S.A. By whom made DeLaval Steam Turbine Co. Engine No. 201947 When made 1930
 Boilers made at Kearny N.J., U.S.A. By whom made Federal Shipbuilding Co. Ltd. Boiler No. --- When made 1930
 Shaft Horse Power at Full Power 4,000 ^{4400 aft} Owners Esso Transportation Co. Port belonging to London
 Nom. Horse Power as per Rule 800 Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted Yes
 Trade for which Vessel is intended Carrying Petroleum in bulk.

TEAM TURBINE ENGINES, &c.—Description of Engines De Laval Impulse
 No. of Turbines Two ~~XXXXXXXXXX~~ to one propelling shafts. No. of primary pinions to each set of reduction gearing two
 Ahead One ~~XXXXXXXXXX~~ to one propelling shafts. No. of primary pinions to each set of reduction gearing two
 Astern One ~~XXXXXXXXXX~~ double reduction geared
 Direct coupled to { Alternating Current Generator --- phase --- periods per second } rated --- Kilowatts --- Volts at --- revolutions per minute;
 Direct Current Generator }
 or 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	H. P.	I. P.	L. P.	ASTERN.
LOADING.				
No. of rows	12	-	7	3
No. of stages	--	-	-	-
No. of rows in each stage	--	-	-	-

Shaft Horse Power at each turbine { H.P. --- I.P. --- L.P. --- }
 H.P. 5.500 1st reduction wheel
 I.P. --- 77.5 max normal
 L.P. 4.275 main shaft, 75 (see remarks)

Motor Shaft diameter at journals { H.P. 4" I.P. --- L.P. 7" } Pitch Circle Diameter { 1st pinion 10.4" 1st reduction wheel 63.6" 2nd pinion 13.87" main wheel 126.5" } Width of Face { 1st reduction wheel 2 X 9" main wheel 2 X 21.5"

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 15.5" 1st reduction wheel 15.5" 2nd pinion 17.25" main wheel 41.6"

External Pinion Shafts, diameter at bearings { 1st 4" 2nd 5" } External { 1st 6" 2nd 12" } Internal { 1st --- 2nd --- } diameter at bottom of pinion teeth { 1st 10" 2nd 13.4"

Wheel Shafts, diameter at bearings { 1st 12" main 22" } diameter at wheel shroud, { 1st 13.5" main 24" } Generator Shaft, diameter at bearings --- Propelling Motor Shaft, diameter at bearings ---

Intermediate Shafts, diameter as per rule --- as fitted 15 3/4" (16" at bearing). Thrust Shaft, diameter at collars as per rule --- as fitted 13 3/4" (11 3/4" at collar)

Tube Shaft, diameter as per rule --- as fitted --- Screw Shaft, diameter as per rule --- as fitted 18" aft Is the ~~XXXX~~ shaft fitted with a continuous liner { ---

Bronze Liners, thickness in way of bushes as per rule --- as fitted --- Thickness between bushes as per rule --- as fitted --- 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 --- 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 ---

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 ---

Length of Bearing in Stern Bush next to and supporting propeller 6-3 aft No. of Blades 4 State whether Moveable moveable Total Developed Surface --- square feet.

Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine Yes Can the H.P. ~~XXXX~~ Turbines exhaust direct to the condenser Yes No. of Turbines fitted with astern wheels One Feed Pumps { No. and size 1-25 tons/hr. 1-25 tons/hr. How driven Electric geared. (both)

Pumps connected to the Main Bilge Line { No. and size 1-45 tons, 1-80 tons, 1-120 tons How driven Electric, steam, steam

Oil Pumps, No. and size --- Lubricating Oil Pumps, including Spare Pump, No. and size 2-40 tons/hr. each. Are two independent means arranged for circulating water through the Oil Cooler Yes Suctions, connected both to Main Bilge Pumps and Auxiliary Bilge Pumps, No. and size:—In Engine and Boiler Room 2-4" P. & S., 1-4" aft well, 1-2" condenser well In Pump Room 2-4" P. & S., Ford, pump room: P. & S. c'dam 3 1/2", chain locker-2 1/2", pump room-2", P. & S. deep tank-3 1/2".

Main Water Circulating Pump Direct Bilge Suctions, No. and size One -11 3/4" Independent Power Pump Direct Suctions to the Engine Room --- Are all the Bilge Suction pipes in ~~XXXXXXXXXX~~ pump rooms fitted with strum-boxes Yes

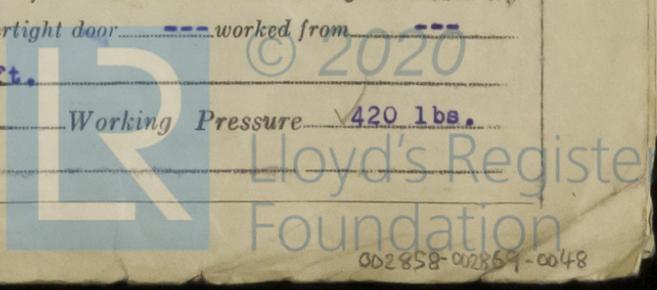
Are the Bilge Suctions in the Machinery Space led from ~~XXXXXXXXXX~~ wells with grids through filters at pumps Yes Are all Sea Connections fitted direct on the skin of the ship or sea boxes Yes Are they fitted with Valves ~~XXXXXX~~ Yes

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Yes Are the Overboard Discharges above or below the deep water --- Are they each fitted with a Discharge Valve always accessible on the plating of the vessel Yes Are the Blow Off ~~XXXXXX~~ ---

How are they protected --- What pipes pass through the deep tanks P. & S. ford, cofferdam bilge/ Have they been tested as per rule Examined

Are all Pipes, Cocks, Valves and Pumps in connection with the machinery and all boiler mountings accessible at all times Yes 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 Yes Is the Shaft Tunnel watertight None Is it fitted with a watertight door --- worked from ---

HEATERS, &c.—(Letter for record ---) Total Heating Surface of Boilers 10,160 sq. ft. Forced Draft fitted Yes No. and Description of Boilers Two, water tube. Working Pressure 420 lbs. Report on Main Boilers now forwarded? No



002858-002859-0048

Is a Donkey Boiler fitted? No Yes If so, is a report now forwarded? ---
 Is the donkey boiler intended to be used for domestic purposes only? ---
 Plans. Are approved plans forwarded herewith for Shafting No Main Boilers Auxiliary Boilers Donkey Boilers
 (If not, state date of approval)
 Superheaters General Pumping Arrangements Oil Fuel Burning Arrangements
 Geared turbines situated aft. Have torsional vibration characteristics of system been approved? Date of approval ---

SPARE GEAR.

Has the spare gear required by the Rules been supplied? Yes No
 State the principal additional spare gear supplied. ---

The foregoing is a correct description, _____ Manufacture _____

~~Dates of Survey while building: During progress of work in shops ---, During erection on board vessel ---, Total No. of visits ---
 Dates of Examination of principal parts: Casings, Rotors, Blading, Gearing, Wheel shaft, 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, Identification Mark, Flexible Pinion Shaft, Material and tensile strength, Identification Mark, Pinion shaft, Material and tensile strength, Identification Mark, Chemical analysis, If Pinion Shafts are made of special steel state date of approval of chemical analyses, physical properties and heat treatment, 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, 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 above machinery has been examined opened up and found to be in satisfactory condition, the scantlings have been checked and found to be as above.**
 The last two rows of blades, Nos. 6 & 7, of the L.P. turbine have been previously removed and the propeller shaft is restricted to 67 R.P.M., pending renewal of the blades.
 After pump room and adjacent cofferdam bilge lines are connected to the stripping pump in the pump room and are also connected to the engine-room bilge lines which are blanked off in the engine-room.
 The main engines and auxiliaries have been examined under working conditions at the quayside and found satisfactory. In my opinion, the above machinery may be classed with the Society with the record of LMC 8.53. Fitted for oil fuel F.P. above 150° F.

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

The amount of Entry Fee ... £ 105: -
 Special ... £ :
 Donkey Boiler Fee ... £ :
 Travelling Expenses (if any) ... £ :
 Committee's Minute
 Assigned

When applied for
 London
 25 SEP 1953

 Engineer Surveyor to Lloyd's Register of Shipping.

LMC MS 9.52
 SS 8.53
 2WTB 420 lb. (Spt.) With Endorsement,

