

REPORT ON STEAM TURBINE MACHINERY.

No. 29659 D.
23 DEC 1946

4a.

Received at London Office

Port of Rotterdam
 Date, First Survey 3-6-46 Last Survey 8-11-1946
 in Survey held at Schiedam
 on the 5/5 DUIVENDIJK in Curacao & Vancouver
 By whom built Deutsche Werft Yard No. _____ When built 1930
 By whom made Holland & Sons Engine No. 403 When made 1923
 By whom made _____ Boiler No. 1184-85 When made 1922
 Owners Holland America Lijn Port belonging to Rotterdam
 Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes

DESCRIPTION OF ENGINES 1 HP - 1 fuel MP - 1 sec. MP - 1 LP turbine.
 of Turbines Ahead 4 Direct coupled single reduction geared } to one propelling shafts. No. of primary pinions to each set of reduction gearing 2
 Astern 2 double reduction geared }
 Alternating Current Generator _____ phase _____ periods per second _____ rated _____ Kilowatts _____ Volts at _____ revolutions per minute;
 Direct Current Generator _____
 supplying power for driving _____ Propelling Motors, Type _____
 _____ Kilowatts _____ Volts at _____ revolutions per minute. Direct coupled, single or double reduction geared to _____ propelling shafts.

TURBINE LOADING.	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.
EXPANSION	41	1441	1	2	1430.886	1.5	147	1324	2	37-81	1427-1481	1-1
"	79	1470	1	93-143	757-946.5	5	247	1424	6	71-126	1471-1526	1-1
"	41	822	4	113-177	797-1014	4-4						
"												
"												
"												
"												
"												
"												
"												
"												
"												
"												
"												

Net Horse Power at each turbine { H.P. 1550
 I.P. 1550
 L.P. 1550 } Revolutions per minute, at full power, of each Turbine Shaft { H.P. 2150
 I.P. 2150
 L.P. 2150 } 1st reduction wheel ✓
 main shaft 110 ✓
 Propeller Shaft diameter at journals { H.P. _____
 I.P. 120 mm } Pitch Circle Diameter { 1st pinion 170.105 mm } 1st reduction wheel _____
 { L.P. _____ } { 2nd pinion 170.105 mm } main wheel 3422.947 mm } Face { 1st reduction wheel _____
 { _____ } { _____ } main wheel 28.625 mm 1330 mm }

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion _____ } 1st reduction wheel _____
 { 2nd pinion 157.5 mm } main wheel 300 mm
 Movable Pinion Shafts, diameter at bearings External 1st 155 mm 2nd _____ diameter at bottom of pinion teeth { 1st _____
 { 2nd 46.36 mm }
 Pinion Shafts, diameter at bearings Internal 1st _____ 2nd _____

Propeller Shafts, diameter at bearings { 1st _____ } diameter at wheel shroud, { 1st _____ } Generator Shaft, diameter at bearings _____
 { main 400 mm } { main 435 mm } Propelling Motor Shaft, diameter at bearings _____
 Intermediate Shafts, diameter as per rule _____ as fitted 384 mm Thrust Shaft, diameter at collars as per rule _____ as fitted 400 mm Tube Shaft, diameter as per rule _____
 as fitted _____

Propeller Shaft, diameter as per rule _____ as fitted 394 mm Is the tube screw shaft fitted with a continuous liner { Yes } Bronze Liners, thickness in way of bushes as per rule _____
 as fitted 16.5 mm 23.5 mm (R.O.T. 25-7/47)
 Thickness between bushes as per rule _____ as fitted 16.5 mm Is the after end of the liner made watertight in the propeller boss Yes If the liner is in more than one length are the junctions _____
 by fusion through the whole thickness of the liner one length 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 _____
 other appliance fitted at the after end of the tube shaft no Length of Bearing in Stern Bush next to and supporting propeller 1800 mm

Propeller, diameter 5200 Pitch 4050 No. of Blades 4 State whether Moveable Yes Total Developed Surface 9.3 m² square feet.
 Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine Yes through 2 MP. Can the H.P. or I.P. Turbine exhaust direct to the _____
 condenser: Yes No. of Turbines fitted with astern wheels 2 Feed Pumps { No. and size 3-1/2 500x560x150 1-2 343x255x600 1-2 90x125
 How driven 2 steam driven 1 electrically

Oil Pumps connected to the Main Bilge Line { No. and size 1-2 40 x 40 } 1-2 105 x 110 x 125 } 1-2 100 x 40 }
 How driven electrically steam electrically
 Main Bilge Pumps, No. and size 1-2 100 x 40 Lubricating Oil Pumps, including Spare Pump, No. and size 2 - 190 x 190 x 350 mm
 two independent means arranged for circulating water through the Oil Cooler Yes Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge _____
 pumps, No. and size:—In Engine and Boiler Room 4-2 70 mm 1-2 90 mm 2-2 150 mm

Holdings, etc. 8 in holds 2 90 mm 1-2 50 mm in up chamber and 5 in coffee dam 2 70 mm
 Main Water Circulating Pump Direct Bilge Suctions, No. and size _____ Independent Power Pump Direct Suctions to the Engine Room _____
 pumps, No. and size 1-2 350 mm 2-2 130 mm Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes Yes
 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 no
 all Sea Connections fitted direct on the skin of the ship Yes Are they fitted with Valves or Cocks both
 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 line above
 they each fitted with a Discharge Valve always accessible on the plating of the vessel Yes Are the Blow Off Cocks fitted with a spigot and brass covering plate Yes
 pipes pass through the bunkers none How are they protected _____
 pipes pass through the deep tanks _____ Have they been tested as per rule _____

all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Yes
 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 Yes Is it fitted with a watertight door Yes worked from _____

BOILERS, &c.—(Letter for record)

Total Heating Surface of Boilers

Superheaters $690 m^2 = 7383 \phi$ (Per letter 7/2/47)
1500 M. - 16140 #

Is Forced Draft fitted *Yes*

No. and Description of Boilers *4 Multitubular*

Working Pressure *213 lb*

Is a Report on Main Boilers now forwarded?

If so, is a report now forwarded? *Yes*

Is *a Donkey* Boiler fitted? *Yes*

Plans. Are approved plans forwarded herewith for Shafting *23-9-46* Main Boilers *23-9-46* Auxiliary Boilers *Yes* Donkey Boilers *Yes*

Superheaters *Yes* General Pumping Arrangements *23-9-46* Oil Fuel Burning Arrangements *Yes*

Spare Gear. State the articles supplied:— *as per Rules.*

The foregoing is a correct description,

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 pumping arrangements

Boilers fired

Engines tried under steam

Main boiler safety valves adjusted *8-11-46*

Thickness of adjusting washers *Post from 15.5 to 23.4 in Stack from 15.4 to 22 in Post off 29-23.7 in stack off 30.7-24*

Identification Mark

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

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 *steel*

Test pressure *30 kg*

Date of test *9-10-46*

Is an installation fitted for burning oil fuel *Yes*

Is the flash point of the oil to be used over 150°F. *Yes*

Have the requirements of the Rules for carrying and burning oil fuel been complied with *Yes*

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 machinery has been completely*

opened up, examined and verified with the approved plans and found in order.

The pumping arrangements has been amended and made in accordance with the plan. Instead of one direct 4" suction in engine room, 2 have now been fitted of 5"

Machinery tried under working condition and found in order, and now in my opinion eligible to be classed in the Society's Register Book with L.M.C. 11-46. notation T.S. 10-46.

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 ... £ 1300.00	19-11-1946
Donkey Boiler Fee <i>66</i> ... £	When received,
Travelling Expenses (if any) £ 26.00	19

C.H. Bourse
Engineer-Surveyor to Lloyd's Register of Shipping.

Committee's Minute **FRI. 31 JAN 1947**

Assigned *LMC 11.46*

FITTED FOR OIL FUEL FLASH POINT ABOVE 150°F. F.D. C.L.

