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MAY 1950

pt. 4a.
D.O.

Report on Steam Turbine Machinery.

No. 20259

Received at London Office 23 MAY 1950

Date of writing Report 18 MAY 1950 When handed in at Local Office 22 MAY 1950 Port of SOUTHAMPTON.
No. in Survey held at SOUTHAMPTON Date, First Survey 22 FEB 1949 Last Survey 20 APRIL 1950
(Number of Visits 11)

Reg. Book 3484 on the T.S.T.S. ISLE OF SARK Tons (Gross 2188, Net 831.)

Built at DUMBARTON By whom built W. DENNY & BROS. LD. Yard No. 1257. When built 1932.
Engines made at DUMBARTON By whom made W. DENNY & BROS. LD. Engine No. 1014. When made 1932.
Boilers made at DUMBARTON By whom made W. DENNY & BROS. LD. Boiler No. ✓ When made 1932.
Shaft Horse Power at Full Power 5400 Owners BRITISH TRANSPORT COMMISSION Port belonging to SOUTHAMPTON.
Nom. Horse Power as per Rule 1086 Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted ✓
Trade for which Vessel is intended ✓

STEAM TURBINE ENGINES, &c.—Description of Engines 4 STEAM TURBINES SINGLE REDUCTION GEARING TO 2 SHAFTS.
No. of Turbines Ahead 2 single reduction geared to 2 propelling shafts. No. of primary pinions to each set of reduction gearing 2
Astern 2

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	H. P.	I. P.	L. P.	ASTERN.
BLADING.				
Impulse	2	✓	✓	3 2 2
Blading	No. of rows 5	✓	10	✓ 5
Reaction	No. of stages 1 2 3 4 5	✓	1 2 3 4 5 6 7 8 9 10	1 2 3 4 5
Blading	No. of rows in each stage 6 6 6 6 6	✓	4 4 4 2 2 1 1 1 1 1	✓ 2 2 1 1 1

Shaft Horse Power at each turbine H.P. ✓ I.P. ✓ L.P. ✓
Revolutions per minute, at full power, of each Turbine Shaft H.P. 2800 1st reduction wheel ✓
I.P. 255 main shaft 255.
L.P. 2630

Rotor Shaft diameter at journals H.P. 5.4" Pitch Circle Diameter 6.64" 1st reduction wheel ✓
I.P. 6" 7.07" main wheel 72.84" Width of Face main wheel 11"
L.P. 6" 11.3" 1st reduction wheel ✓

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings H.P. pinion 5.2" L.P. pinion 5.2" 1st reduction wheel ✓
L.P. pinion 5.2" main wheel 11.3" 1st reduction wheel ✓

Flexible Pinion 1st ✓ 2nd ✓ Pinion Shafts, diameter at bearings External H.P. 5.2" L.P. 5.2" diameter at bottom of pinion teeth L.P. 6.4934"
Shafts, diameter Internal 4" 4"

Wheel Shafts, diameter at bearings 1st ✓ 2nd ✓ diameter at wheel shroud, main 10" Generator Shaft, diameter at bearings ✓
as per rule AS APPROVED main 5-9" Propelling Motor Shaft, diameter at bearings ✓

Intermediate Shafts, diameter as fitted 8 7/8" Thrust Shaft, diameter at collars as fitted 9 1/2" ✓
as per rule AS APPROVED as fitted 9 7/8" Is the screw shaft fitted with a continuous liner NO.

Tube Shaft, diameter as fitted ✓ Screw Shaft, diameter as fitted 9 7/8" Is the after end of the liner made watertight in the propeller boss ✓

Bronze Liners, thickness in way of bushes as per rule AS APPROVED Thickness between bushes as fitted 5/8" 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. YES ONLY. Is an approved Oil Gland or other appliance fitted at the after end of the tube shaft NO. If so, state type ✓

Propeller, diameter 8'-6" Pitch 10'-6" No. of Bades 3 State whether Moveable NO Total Developed Surface 31.5 square feet.
If Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine ✓ Can the H.P. L.P. Turbines exhaust direct to the Condenser NO

No. of Turbines fitted with astern wheels 2 Feed Pumps (No. and size) TWO M.B. PUMPS TWO D.B. PUMPS
How driven WEIR STEAM

Pumps connected to the Main Bilge Line (No. and size) 2-BILGE & BALLAST PUMPS 8"x8"x8", ONE EMERGENCY BILGE PUMP : ONE BILGE PUMP 10"x6"x10"
How driven STEAM MOTOR, 13, 500 GALS/H.R. STEAM

Ballast Pumps, No. and size 2-8"x8"x8" I.N.E.R. Lubricating Oil Pumps, including Spare Pump, No. and size 3-
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 E.R. 1-3" PORT, 1-3" STBD & 1-4" DIRECT : F.O.R. 1-3" PORT, 1-3" STBD Room 1-3" PORT, 1-3" STBD & 1-4" DIRECT.
In Holds, &c. 1-3" IN EACH OF FOLLOWING:—CHAIN LOCKER, N.O. HOLD, N.O.2 HOLD, LAZARETTE, F.O.R., MID, & AFT TUNNELS.

Main Water Circulating Pump Direct Bilge Suctions, No. and size 2-10" Independent Power Pump Direct Suctions to the Engine Room
Bilges, No. and size 1-4" I.N.E.R. & 1-4" I.N.A.P.B.R. Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes YES.

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 YES.
Are all Sea Connections fitted direct on the skin of the ship YES. Are they fitted with Valves or Cocks BOTH.

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 line ABOVE. Are 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. What pipes pass through the bunkers NONE. 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 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 YES Is it fitted with a watertight door YES worked from ABOVE BULKHEAD.

BOILERS, &c.—(Letter for record 5.) Total Heating Surface of Boilers M.B. 10,000 S.F., D.B. 2470 S.F. 2020
Is Forced Draft fitted YES. No. and Description of Boilers M.B.-2 VERT, D.B.-1 SCOTCH. Working Pressure 260 lbs/sq. in.
Is a Report on Main Boilers now forwarded? YES.

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Is ~~an Auxiliary~~ Boiler fitted? **YES**. If so, is a report now forwarded? **YES**.
Is the donkey boiler intended to be used for domestic purposes only? ☒
Plans. Are approved plans forwarded herewith for Shafting **YES**. Main Boilers **YES**. Auxiliary Boilers **YES**. Donkey Boilers ☒
(If not, state date of approval)
Superheaters ☒ General Pumping Arrangements **YES**. Oil Fuel Burning Arrangements **YES**.
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**.

State the principal additional spare gear supplied ☒

The foregoing is a correct description,

Manufacturer.

Dates of Survey while building: During progress of work in shops - ☒ During erection on board vessel - **1949 FEB. 22nd - MAY 4th 1950 MARCH 30th - APRIL 20th**
Total No. of visits: **6 VISITS** **8 VISITS** **TOTAL 14**
Dates of Examination of principal parts: Casings **RET. 22. 2. 49** Rotors **22. 2. 49** Blading **22. 2. 49** Gearing **RET. 7. 8. 49**
Wheel shaft **RET. 30. 3. 50** Thrust shaft **30. 3. 50** Intermediate shafts **30. 3. 50** Tube shaft ☒ Screw shaft **RET. 7. 8. 49**
Propeller **RET. 7. 8. 49** Stern tube **30. 3. 50** Engine and boiler seatings **30. 3. 50** Engine holding down bolts **30. 3. 50**
Examination of sea connections **12. 4. 50** Examination of pumping arrangements **8. 4. 49** Boilers **30. 3. 50** Engines tried under steam **20. 4. 50**
Main boiler safety valves adjusted **250 lbs 20. 4. 50** thickness of adjusting washers ☒
Rotor shaft, Material and tensile strength **FORGED STEEL** Identification Mark ☒
Flexible Pinion Shaft, Material and tensile strength ☒ Identification Mark ☒
Pinion shaft, Material and tensile strength **NICKEL STEEL** Identification Mark ☒
☒ ; Chemical analysis ☒
If Pinion Shafts are made of special steel state date of approval of chemical analysis, physical properties and heat treatment ☒
1st Reduction Wheel Shaft, Material and tensile strength ☒ Identification Mark ☒
Wheel shaft, Material **STEEL, NGOT** Identification Mark ☒ Thrust shaft, Material **STEEL** Identification Mark ☒
Intermediate shafts, Material **STEEL** Identification Marks ☒ Tube shaft, Material ☒ Identification Marks ☒
Screw shaft, Material **STEEL** Identification Marks ☒ Steam Pipes, Material ☒ Test pressure ☒
Date of test **5, 46 BY M.O.T.** 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 the use of oil as fuel been complied with **YES**.
Is the vessel (not being an oil tanker) fitted for carrying oil as cargo **NO**. 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 **NO**. If so, state name of vessel ☒

General Remarks. (State quality of workmanship, opinions as to class, &c.)

The machinery of this vessel which has not been constructed under special survey has now been completely opened up and examined, the material and workmanship appears to be satisfactory.
In my opinion the vessel is eligible to be classed with this Society.

The amount of Entry Fee ... £ : : When applied for.
Special ... £ : : 19
Donkey Boiler Fee ... £ ☒ : : When received.
Travelling Expenses (if any) £ : : 19

Committee's Minute

Assigned

all minute on Apr 9

B. N. Lamb

Engineer Surveyor to Lloyd's Register of Shipping.



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