

REPORT ON STEAM TURBINE MACHINERY. No. 14389

Date of writing Report 10 When handed in at Local Office 10/6/47 Port of BELFAST Received at London Office 14 JUN 1947

No. in Survey held at BELFAST Date, First Survey 13 Feb 1946 Last Survey 29 May 1947
Reg. Book. on the SS "LOCH GARTH" (Number of Visits 192)

Built at BELFAST By whom built MESSRS HARLAND & WOLFF Yard No. 1328 When built 1947
Engines made at BELFAST By whom made MESSRS HARLAND & WOLFF Engine No. 1328 When made 1947
Boilers made at BELFAST By whom made MESSRS HARLAND & WOLFF Boiler No. 1328 When made 1947
Shaft Horse Power at Full Power 10,500 @ 112 R.P.M. Owners ROYAL MAIL LINES LTD. Port belonging to LONDON
Nom. Horse Power as per Rule 2914 Is Refrigerating Machinery fitted for cargo purposes YES Is Electric Light fitted YES
Trade for which Vessel is intended

STEAM TURBINE ENGINES, &c.—Description of Engines PARSONS TRIPLE EXPANSION DOUBLE REDUCTION GEARED TURBINES

No. of Turbines Ahead 3 Direct coupled, single reduction geared to ONE propelling shafts. No. of primary pinions to each set of reduction gearing 3
Astern 2 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.

T	H	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T	E	R	B	L	P	R	A	S	T
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Shaft Horse Power at each turbine H.P. 3650 I.P. 3350 L.P. 3500
TOTAL NORMAL S.H.P. 10,500
Motor Shaft diameter at journals H.P. 5" I.P. 5 1/2" L.P. 7 1/2" Pitch Circle Diameter 1st pinion 1'-10.4979" 2nd pinion 1'-10.8735" 1st reduction wheel 3'-11.1334" main wheel 13'-0.5165" Width of Face 1st reduction wheel (12"x2)+3" GAP. main wheel (18"x2)+27" GAP.

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings 1st pinion 1'-6 1/4" 2nd pinion 3'-3" 1st reduction wheel 3'-3" main wheel 3'-7"
Flexible Pinion Shafts, diameter at bearings External 1st 6" 2nd 12" Internal 1st 2" 2nd 12" diameter at bottom of pinion teeth 1st 10.3521" (H.P. I.P.) 2nd 22.0253" (L.P.)

Wheel Shafts, diameter at bearings 1st 12" main 20 1/8" BORE diameter at wheel shroud, 1st 3'-6 5/8" Generator Shaft, diameter at bearings — main 12'-7 1/2" Propelling Motor Shaft, diameter at bearings —
Intermediate Shafts, diameter as per rule 18 7/8" Thrust Shaft, diameter at collars as per rule 19 3/4"
Screw Shaft, diameter as per rule 20 7/8" Is the shaft fitted with a continuous liner YES

Size Liners, thickness in way of bushes as per rule 1" Thickness between bushes as per rule 3/4" Is the after end of the liner made watertight in the after boss YES If the liner is in more than one length are the junctions made 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 so, state type — 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 7'-0"
Propeller, diameter 19'-0" Pitch 16'-9"/14'-0" AT ROOT No. of Blades 4 State whether Moveable SOLID Total Developed Surface 140 square feet.
Angle Screw, are arrangements made so that steam can be led direct to the L.P. Turbine YES Can the H.P. or L.P. Turbine exhaust direct to the

Feeder YES No. of Turbines fitted with astern wheels 2 Feed Pumps No. and size main 2 @ 105,000 lbs/hr, assistant 1 @ 4'x6'x12" and 2 @ 4'x6'x7"
How driven steam turbine steam steam
Pumps connected to the Main Bilge Line No. and size 1 @ 110 TONS/HR 1 @ 200 TONS/HR.
How driven ELECTRICALLY ELECTRICALLY.

Oil Pumps, No. and size 1 @ 200 TONS/HR. Lubricating Oil Pumps, including Spare Pump, No. and size 2 @ 85 TONS/HR
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 3 @ 3 1/2" dia. 1 @ 5" dia. Tunnel well - 1 @ 3" dia. In Pump Room —
Holds, &c. No. 1 Hold 2 @ 3 1/2", No. 2 2 @ 3 1/2", No. 3 2 @ 3 1/2", No. 4 2 @ 2 1/2" & 2 @ 3 1/2", No. 5 2 @ 3", 1 @ 2 1/2", cofferdams 4 @ 2 1/2"

In Water Circulating Pump Direct Bilge Suctions, No. and size 2 @ 14" dia. Independent Power Pump Direct Suctions to the Engine Room
Pumps, No. and size 1 @ 5" 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 YES
All Sea Connections fitted direct on the skin of the ship YES Are they fitted with Valves or Cocks 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 line BELOW
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
Do pipes pass through the bunkers NONE How are they protected —
Do pipes pass through the deep tanks NONE 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
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 UPPER DECK.

BOILERS, &c.—(Letter for record S) Total Heating Surface of Boilers BLRS. 14,430 sq.ft. SUPERHEATERS 3,200 sq.ft. 50% ECONOMISERS 3
Is Forced Draft fitted YES No. and Description of Boilers 2-W.T. FOSTER WHEELER TYPE Working Pressure 585 lbs/sq. in.
Is a Report on Main Boilers now forwarded? YES

Is a Donkey Boiler fitted? YES If so, is a report now forwarded? YES
an Auxiliary
Is the donkey boiler intended to be used for domestic purposes only NO

Plans. Are approved plans forwarded herewith for Shafting 25.9.45 2.1.46 Main Boilers 21.5.46 Auxiliary Boilers - Donkey Boilers -
(If not state date of approval)

Superheaters 21.5.46 General Pumping Arrangements GPA IN MACH. SPACE 20.6.46 Oil Fuel Burning Arrangements 17-12-46

SPARE GEAR.
Has the spare gear required by the Rules been supplied YES

State the principal additional spare gear supplied PLEASE SEE ATTACHED LIST.

The foregoing is a correct description,

For HARRIS & POLY, LIMITED
Man. Lloyds
Manufacture
1946 20.13.19.22 Apr. 15.23 May 1.3.13.20.24.31 June 4.7.20.21.22.24.27.28 July 1.2.4.5.8.9.10.11.23.25.26.27.30
Dates of Survey while building { During progress of work in shops -- Aug 3.5.7.8.9.10.12.13.14.16.20.21.22.23.24.26.27.28.30 Sept 3.4.6.7.9.10.11.12.13.14.17.18.20.21.23.26.30 Oct 1.3.7.8.9
During erection on board vessel -- 14.16.17.18.19.21.22.23.24.25.26.28.29.30.31 Nov. 1.2.5.7.8.12.13.14.15.19.21.22.26.27.29.30 Dec. 2.3.4.5.9.10.11.12.13.14.19
Total No. of visits 14.16.17.18.20.21.22.23.24.25.28.30 May 1.2.5.6.7.8.9.12.14.15.16.17.18.19.20.23.26.27.28.29 =

Dates of Examination of principal parts—Casings 21.9.46 / 13.11.46 Rotors 3.12.46 / 17.12.46 Blading 20.2.46 / 14.11.46 Gearing 31.10.46 / 13.12

Wheel shaft 25.10.46 Thrust shaft 17.10.46 Intermediate shafts 21.8.46 / 26.9.47 Tube shaft - Screw shaft 11.9.46

Propeller 18.9.46 Stern tube 28.8.46 Engine and boiler seatings 4.3.47 Engine holding down bolts 6.3.47

Completion of fitting sea connections 23.9.46 Completion of pumping arrangements 27.5.47 Boilers fixed 7.3.47 Engines tried under steam 28.5.47

Main boiler safety valves adjusted 20.5.47 Thickness of adjusting washers BLR WET DRUM - 1/4" SPHT F-1 3/2" A-7/16" S BLR WET DRUM - 1/4" SPHT F-1 3/2"

Rotor shaft, Material and tensile strength MILD STEEL 34/38 TONS/IN Identification Mark H.P. LLOYDS S.2988 13.12

Flexible Pinion Shaft, Material and tensile strength - Identification Mark L.P. LLOYDS S.2930 13.12

Pinion shaft, Material and tensile strength NICKEL STEEL 40 TONS/IN Identification Mark H.P. LLOYDS S.2988 13.12

1st Reduction Wheel Shaft, Material and tensile strength STEEL 31/35 T/IN Identification Mark L.P. LLOYDS S.2930 13.12

Wheel shaft, Material M. STEEL 31/35 T. Identification Mark SHAFT S.2687 Thrust shaft, Material M. STEEL Identification Mark S.3399 R.O.B.

Intermediate shafts, Material M. STEEL 28/32 T. Identification Marks 5.4.026. LLOYDS R.J.M. 25.10.46 Tube shaft, Material - Identification Marks -

Screw shaft, Material M. STEEL 28/32 T. Identification Marks LLOYDS No. 491 S.3330 J.M.A. 11.9.46 Steam Pipes, Material S.D. STEEL Test pressure 1525 lbs/sq. in.

Date of test MAY. 1947. 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 YES If so, have the requirements of the Rules been complied with YES

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.) These engines have been constructed in accordance with the approved plans. The materials workmanship are good. The whole of the machinery has been efficiently installed on board the vessel and tried out under full working conditions at sea with satisfactory results. The machinery installation of the vessel is, in our opinion, eligible for the following records and notations in the Society's Register Book:—

* L.M.C. 5.47 . T.S.C.L. 2.W.T.B. 585 lbs/sq. in. (SPT 535 lbs/sq. in.) D.B. 100 lbs/sq. in. (1-OIL FIRED BOILER 1-STEAM GENERATOR)

Note. For Special Reasons List. Best steel steam reducing valve for whistle service to be examined by MAY. 1948. see Secretary's letter 23/5/47

The amount of Entry Fee	£	:	:	When applied for,
Special	270	14	:	19
2-AIR RECEIVES	6	0	:	
Donkey Boiler Fee	£	:	:	When received,
2-DIESEL GEN. SETS.	32	12	6	19
Travelling Expenses (if any)	£	:	:	

Elwin Grieres Sam. B. Thomas
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 18 JUL 1947

Assigned + LMC 5.47

FITTED FOR OIL FUEL 5.47 FLASH POINT ABOVE 150°F. F.D. C.L. 2 WTB 585 lb (Spt. 535 lb) D.B. 100 lb.