

REPORT ON STEAM RECIPROCATING ENGINE MACHINERY.

Received at London Office

28 MAR 1934

Date of writing Report 19 When handed in at Local Office 22.3.1934 Port of Glasgow
 Date, First Survey 11.7.33 Last Survey 20.3.1934
 on the new steel S/S "HARTLEBURY" (Number of Visits 91) Gross 5082 Tons
 Net 3036
 Built at Port Glasgow By whom built Lithgow Ltd Yard No. 865 When built 1934
 Engines made at Glasgow By whom made David Rowan & Co. Ltd Engine No. 962 When made 1934
 Boilers made at Glasgow By whom made David Rowan & Co. Ltd Boiler No. 962 When made 1934
 Registered Horse Power Owners J & C Harrison (Ings) Port belonging to London
 Horse Power as per Rule 431 4/7 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes
 for which Vessel is intended

ENGINES, &c.—Description of Engines Triple expansion Revs. per minute 70 1/2
 No. of Cylinders 22 1/2 - 36 - 65 Length of Stroke 48 No. of Cylinders 3 No. of Cranks 3
 Crank shaft, dia. of journals as per Rule 13.24 Crank pin dia. 13 3/4 Crank webs Mid. length breadth 21 1/2 Thickness parallel to axis HP&MP 9" LP 1 1/2"
 as fitted 13 3/4 Mid. length thickness LP 9 1/2 Thickness around eye-hole 6 7/8
 Intermediate Shafts, diameter as per Rule 12.61 Thrust shaft, diameter at collars as per Rule 13.24
 as fitted 13 3/8 as fitted 13 3/4 Michell
 Shafts, diameter as per Rule 14.193 Is the tube shaft fitted with a continuous liner yes
 as fitted 14 3/4 as fitted 14 3/4
 Liners, thickness in way of bushes as per Rule .73 Thickness between bushes as per Rule .549
 as fitted 3/4 as fitted 1/16 Is the after end of the liner made watertight in the
 liner boss yes If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner -
 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 yes
 no 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 yes
 If so, state type - Length of Bearing in Stern Bush next to and supporting propeller 5'0"
 Propeller, dia. 18'6" Pitch 20'0" No. of Blades 4 Material Bronze whether Moveable yes Total Developed Surface 92 sq. feet
 Pumps worked from the Main Engines, No. 2 Diameter 3 3/4" Stroke 27" Can one be overhauled while the other is at work yes
 Pumps worked from the Main Engines, No. 2 Diameter 4 1/2" Stroke 27" Can one be overhauled while the other is at work yes
 No. and size 2 @ 7" - 9 1/2" x 21" also rotary feed pumps Pumps connected to the Main Bilge Line No. and size Ballast pump
 How driven steam on exhaust turbine How driven steam
 Pumps, No. and size 1 @ 12" - 10 1/2" x 24" Lubricating Oil Pumps, including Spare Pump, No. and size -
 no independent means arranged for circulating water through the Oil Cooler - Suctions, connected to both Main Bilge Pumps and Auxiliary
 Pumps;—In Engine and Boiler Room 3 @ 3" & 1 @ 2"
 Pump Room - In Holds, &c. N°1 hold - 2 @ 3" N°2 hold - 2 @ 3 1/2" brass buckets - 2 @ 2"
oil tank - 1 @ 2 1/2" N°3 hold - 4 @ 2 1/2" N°4 hold - 2 @ 3" Tunnel well - 1 @ 2 1/2" all fitted at eye.
 Water Circulating Pump Direct Bilge Suctions, No. and size 1 @ 8" Independent Power Pump Direct Suctions to the Engine Room Bilges,
 and size 1 @ 4 3/4" Are all the Bilge Suction Pipes in holds and tunnel well fitted with strum-boxes yes
 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
 Sea Connections fitted direct on the skin of the ship yes Are they fitted with Valves or Cocks both
 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 both
 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 forward hold suction How are they protected under timber boards
 pipes pass through the deep tanks - Have they been tested as per Rule -
 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 bridge deck
BOILERS, &c.—(Letter for record (T)) Total Heating Surface of Boilers 6058 sq. ft.
 Forced Draft fitted yes No. and Description of Boilers 2 SB & 1 auxy SB Working Pressure 220 lbs
REPORT ON MAIN BOILERS NOW FORWARDED? yes
DONKEY BOILER FITTED? no If so, is a report now forwarded? -
 donkey boiler intended to be used for domestic purposes only -
N.S. Are approved plans forwarded herewith for Shafting no Main Boilers yes Auxiliary Boilers yes Donkey Boilers -
 (If not state date of approval)
 Water no General Pumping Arrangements no Oil fuel Burning Piping Arrangements -

SPARE GEAR.

spare gear required by the Rules been supplied yes
 principal additional spare gear supplied one screw shaft, two cast iron propeller blades and bottom end bearing.

The foregoing is a correct description,

For David Rowan & Co. Ltd
Arch. H. Greason

Manufacturer.



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W44-0052

1933 July: 11 Aug: 8, 20 Sep: 5, 8, 12, 18, 20, 29 Oct: 5, 6, 11, 17, 18, 20, 24, 27 Nov: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31
 Dec: 1, 4, 5, 6, 11, 12, 15, 18, 19, 21, 25, 27, 29
 During erection on board vessel --- 28 Mar: 1, 5, 7, 20 = 71
 TURBO COMPRESSOR: 1933 JULY: 5, 31 SEP: 21 OCT: 7, 20 NOV: 1, 6, 7, 11, 21, 27, 28 (1934) JAN: 17, 19 FEB: 2, 5, 6, 7, 13
 Total No. of visits 91

Dates of Examination of principal parts—Cylinders 15-12-33 Slides 8-1-34 Covers 8-1-34
 Pistons 5-12-33 Piston Rods 10-1-34 Connecting rods 5-10-33
 Crank shaft 21-12-33 Thrust shaft 15-1-34 Intermediate shafts 6-12-33
 Tube shaft — 2 Screw shafts 5-1-34 Propeller 5-1-34
 Stern tube 19-12-33 Engine and boiler seatings Engk Engines holding down bolts 13-2-34
 Completion of fitting sea connections Engk
 Completion of pumping arrangements 16-2-34 Boilers fixed 27-2-34 Engines tried under steam 20-3-34
 Main boiler safety valves adjusted 28-2-34 Thickness of adjusting washers: Piston $P_{32} 5\frac{3}{8}$ Benton $P_{32} 5\frac{3}{8}$ Steam $P_{32} 5\frac{3}{8}$
 Crank shaft material J. Steel Identification Mark LLOYD N24615 21-12-33 Thrust shaft material J. Steel Identification Mark LLOYD N24615 21-12-33
 Intermediate shafts, material J. Steel Identification Marks LLOYD N24615 21-12-33 Tube shaft, material — Identification Mark LLOYD N24615 21-12-33
 2 Screw shafts material J. Steel Identification Mark LLOYD N24615 21-12-33 Steam Pipes, material Steel Test pressure 660 Date of Test 17-1-34
 Is an installation fitted for burning oil fuel no 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 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 duplicate of a previous case yes If so, state name of vessel Harpasa, Gls Rpt No 541

General Remarks (State quality of workmanship, opinions as to class, &c.)
 The materials and workmanship are good
 The machinery has been constructed under special survey, satisfactorily fitted to the vessel, tried under steam and found good. It is eligible in my opinion for classification and the records—*LMC 3,34 & Exhaust turbine driving steam compressor
 Copy of certificate attached

Note The HP cylinder is fitted with cam operated Andrew & Bonarson slide valves
 A Götaverken turbo-compressor, made by Messrs Danie Rowan & Co. Ltd. is fitted to these engines. The arrangement comprises an exhaust turbine upon the spindle of the HP cylinder of the main engine, compresses, superheats and delivers to the MP casing.
 Copy of certificate attached

The following particulars were noted during the sea trials:—

	BOILER PRESSURE	HP CUT OFF	HP EXHAUST PRESSURE	MP STEAM PRESSURE	MP STEAM TEMP	LP STEAM PRESSURE	LP EXHAUST INS VAC	CONDENSER INS VAC	REV PER MIN
TURBINE OUT	220	.6	57	57	340°f	12½	23½	29	6
TURBINE IN	220	.6	38	68	400°f	15½	19	29	7

Turbo compressor revolutions 6,500 per min. Temperature of steam to HP cylinder 520

The amount of Entry Fee ... £ 5 : : When applied for, 21/3/1934
 Special ... £ 89 : 13 : :
 Turbo compressor Donkey Boiler Fee ... £ 10 : - : :
 Travelling Expenses (if any) £ : : :
 22/3/34
 Committee's Minute GLASGOW 27 MAR 1934
 Assigned + L.M.C. 3,34, F.D.
 Exhaust turbine driving steam compressor.

S. C. Davis
 Engineer Surveyor to Lloyd's Register of Shipping

in duplicate Glasgow W.

The Surveyors are requested not to write on or below the space for Committee's Minute.
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