

REPORT ON STEAM RECIPROCATING ENGINE MACHINERY.

31 JAN 1934

Received at London Office

Date of writing Report 29/1/34 When handed in at Local Office 29/1/34 Port of Glasgow
 No. in Survey held at Glasgow Date, First Survey 8.8.33 Last Survey 25-1-1934
 Reg. Book. on the new steel S/S "HARPASA" (Number of Visits 78) Gross 5082 Tons Net 3036
 Built at Port Glasgow By whom built Lithgow & Co. Yard No. 864 When built 1934
 Engines made at Glasgow By whom made David Rowan & Co. Ltd Engine No. 961 When made 1934
 Boilers made at Glasgow By whom made David Rowan & Co. Ltd Boiler No. 961 When made 1934
 Registered Horse Power Owners J & C. Harrison Ltd (Ingrs) Port belonging to London
 Nom. Horse Power as per Rule 431 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes
 Trade for which Vessel is intended 472 including compressor of 460 BHP.

Engines, &c.—Description of Engines Triple expansion Revs. per minute
 Dia. of Cylinders 22½-36-65 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. 13¾" Crank webs Mid. length breadth 21½" Thickness parallel to axis 14.91" shrunk
 as fitted 13¾" Mid. length thickness 14.92" Thickness around eye-hole 678
 Intermediate Shafts, diameter as per Rule 12.61" Thrust shaft, diameter at collars as per Rule 13.24" as fitted 13¾" (Michell)
 as fitted 13¾" Tube Shafts, diameter as per Rule 14.193" Is the tube shaft fitted with a continuous liner yes
 as fitted 14¾" Screw Shaft, diameter as per Rule 14.193" as fitted 14¾" Is the after end of the liner made watertight in the
 Bronze Liners, thickness in way of bushes as per Rule .73" Thickness between bushes as fitted 11/16" Is the after end of the liner made watertight in the
 as fitted ¾" propeller boss yes 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 yes
 If 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
 shaft no 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
 Feed Pumps worked from the Main Engines, No. 2 Diameter 3¾" Stroke 27" Can one be overhauled while the other is at work yes
 Bilge Pumps worked from the Main Engines, No. 2 Diameter 4½" Stroke 27" Can one be overhauled while the other is at work yes
 Feed Pumps No. and size 2 @ 7"-9½" x 21" also rotary pumps connected to the Main Bilge Line No. and size Ballast pump
 How driven Steam Main Bilge Line How driven Steam
 Ballast Pumps, No. and size 2 @ 12"-10½" x 24" Lubricating Oil Pumps, including Spare Pump, No. and size —
 Are two independent means arranged for circulating water through the Oil Cooler — Suctions, connected to both Main Bilge Pumps and Auxiliary
 Bilge Pumps; — In Engine and Boiler Room 3 @ 3" & 1 @ 2½" In Holds, &c. No. 1 hold - 2 @ 3" No. 2 hold - 2 @ 3½" No. 3 hold - 2 @ 2"
 In Pump Room — Dry Tanks - 1 @ 2½" No. 3 hold - 4 @ 2½" No. 4 hold - 2 @ 3" Tunnel well 1 @ 2½" all fitted at Gbk.
 Main Water Circulating Pump Direct Bilge Suctions, No. and size 1 @ 8" Independent Power Pump Direct Suctions to the Engine Room Bilges,
 No. and size 1 @ 4¾" 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 both
 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. forward hold suction How are they protected under timber beams
 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 Bridge deck

MAIN BOILERS, &c.—(Letter for record (T)) Total Heating Surface of Boilers 6058 sq. ft.
 Is Forced Draft fitted yes No. and Description of Boilers 2 SB & 1 Auxy Working Pressure 220
 IS A REPORT ON MAIN BOILERS NOW FORWARDED? yes
 IS A DONKEY BOILER FITTED? no 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 yes Auxiliary Boilers yes Donkey Boilers —
 (If not state date of approval)
 Superheaters no General Pumping Arrangements no Oil fuel Burning Piping Arrangements —

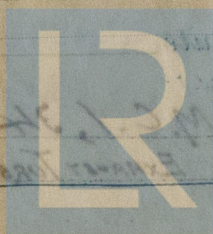
SPARE GEAR.

Has the spare gear required by the Rules been supplied yes
 State the principal additional spare gear supplied one screw shaft and two cast iron propeller blades

The foregoing is a correct description,

For David Rowan & Co. Ltd
 Arch. N. Grierson

Manufacturer.



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Lloyd's Register

175-011410

1933 Aug: 8. 22. 24 Sep: 5. 8. 12. 18. 20. 28. 29 Oct: 4. 5. 6. 9. 10. 11. 12. 17. 18. 19. 20. 24
 During progress of work in shops -- 27. 30. Nov: 1. 6. 9. 10. 13. 14. 15. 16. 21. 22. 23. 27. 29 Dec: 4. 5. 6. 8. 13. 15. 18. 17. 19. 20. 21. 23
 Dates of Survey while building 25. 27. 28 (1934) Jan: 15. 25.
 During erection on board vessel -- TURBO COMPRESSOR: 1933 Aug: 13 Sep: 16. 20. 21 Oct: 20 Nov: 1. 6. 7. 9. 10. 13. 15. 16. 17. 23. 27 Dec: 4. 7. 11.
 Total No. of visits 54 + 26 = 78 80

Dates of Examination of principal parts—Cylinders 1-11-33 Slides 16-11-33 Covers 18-10-33
 Pistons 13-11-33 Piston Rods 15-11-33 Connecting rods 5-10-33
 Crank shaft 24-10-33 Thrust shaft 20-10-33 Intermediate shafts 10-11-33
 Tube shaft ✓ Screw shaft 21-11-33 Propeller 9-11-33
 Stern tube 9-11-33 Engine and boiler seatings ✓ Engines holding down bolts 20-12-33
 Completion of fitting sea connections ✓
 Completion of pumping arrangements 28-12-33 Boilers fixed 19-12-33 Engines tried under steam 25-1-34
 Main boiler safety valves adjusted 29-12-33 Thickness of adjusting washers all 1/4"
 Crank shaft material J. steel Identification Mark LLOYD'S NO 4555 L.C.D. 10-11-33 Thrust shaft material J. steel Identification Mark LLOYD'S NO 4555 L.C.D. 20-10-33
 Intermediate shafts, material J. steel Identification Marks LLOYD'S NO 4555 L.C.D. 10-11-33 Tube shaft, material Identification Mark
 2 Screw shafts material J. steel Identification Mark LLOYD'S NO 4555 L.C.D. 21-11-33 Steam Pipes, material Steel Test pressure 660 lb Date of Test 19-10-33

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. 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. no If so, state name of vessel.

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 in the vessel, tried under steam and found good. It is eligible in my opinion for Classification and the records L.M.C. 1, 34, & Exhaust turbine driving steam compressor.

NOTE A Götavarken Turbo compressor made by Messrs David Rowan & Co. is fitted to these engines. A centrifugal feed pump also made by Messrs Rowan is coupled to the turbine shaft. Copy of certificate attached.

The following particulars were noted during the sea trials

	BOILER HP PRESSURE	HP CUT OFF	HP EXHAUST PRESSURE	MP STEAM PRESSURE	MP STEAM TEMP	LP STEAM PRESSURE	LP EXHAUST INS VAC	CONDENSER INS VAC	REYS PER MIN
TURBINE OUT	220 lb	56	50 lb	50 lb	310°F	9.5 lb	24	29.5	65
TURBINE IN	220 lb	56	35 lb	68 lb	350°F	9.75 lb	21	29.5	70 1/2

The amount of Entry Fee ... £ 5 : : When applied for, 30 JAN 1934
 Special ... £ 89 : 13 : :
 Turbocompressor ... £ 10 : : :
 Donkey Boiler Fee ... £ 2 : 2 : :
 Special test ...
 Travelling Expenses (if any) £ 2 : 2 : :
 Committee's Minute GLASGOW 30 JAN 1934
 Assigned + L.M.C. 1, 34. F.D.
 EXHAUST TURBINE DRIVING STEAM COMPRESSOR.

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