

REPORT ON STEAM RECIPROCATING ENGINE MACHINERY.

Received at London Office 28 OCT 1936

Date of writing Report 19 When handed in at Local Office 26. 10. 1936 Port of Glasgow
 No. in Survey held at Glasgow Date, First Survey 28. 2. 36 Last Survey 23. 10. 1936
 Req. Book on the new steel 515 "IRON KING" (Number of Visits 66)
 Built at Port Glasgow By whom built Lithgow & Co. Yard No. 890 Tons Gross 4584 Net 2634
 Engines made at Glasgow By whom made David Rowan & Co. Ltd. Engine No. 993 When built 1936
 Boilers made at Renfrew By whom made Babcock & Wilcox Ltd. Boiler No. 6/1304 When made 1936
 Registered Horse Power 535 FOR R.B. Owners Broken Hill Proprietary Co. Ltd. Port belonging to Melbourne
 Nom. Horse Power as per Rule 486 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes
 Trade for which Vessel is intended Carriage of iron ore and finished steel products.

ENGINES, &c.—Description of Engines Quadruple expansion ✓ Revs. per minute 80 ✓
 Dia. of Cylinders 24" 34" 50" 71" Length of Stroke 48" ✓ No. of Cylinders 4 No. of Cranks 4
 Crank shaft, d.a. of journals as per Rule 4.47" as fitted 1.434" Crank pin dia. 14 3/4" Crank webs Mid. length breadth 23 1/2" Thickness parallel to axis 1.0" ✓
 Intermediate Shafts, diameter as per Rule 13.782" as fitted 14" Thrust shaft, diameter at collars as per Rule 14.47" as fitted 14 3/4" ✓
 Tube Shafts, diameter as per Rule as fitted Screw Shaft, diameter as per Rule 15.393" as fitted 15 7/8" Is the { tube screw } shaft fitted with a continuous liner { yes ✓
 Bronze Liners, thickness in way of bushes as per Rule .77" as fitted 13/16" Thickness between bushes as per Rule .55" as fitted 3/4" 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 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 -
 Propeller, dia. 18'3" Pitch 18'3" No. of Blades 4 Material Bronze Cast Iron whether Moveable yes Total Developed Surface 95.5 sq. feet
 Feed Pumps worked from the Main Engines, No. none Lia. meter - Stroke - Can one be overhauled while the other is at work -
 Bilge Pumps worked from the Main Engines, No. none Di. meter - Stroke - Can one be overhauled while the other is at work -
 Feed Pumps { No. and size 2@ 9 1/2" x 7 x 2 1/2" How driven steam Pumps connected to the Main Bilge Line { No. and size 2@ 8 1/2" x 18" (Bilge pump) & the ballast pumps How driven steam steam
 Ballast Pumps, No. and size 2@ 12 1/2" & 14" 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 2@ 2 1/2" & 1@ 3" in Eng. Room. 4@ 2 1/2" in stokehold. 1@ 2" in copperdam
 In Pump Room In Holds, &c. N° 1 hold - 2@ 3". N° 2 hold - 2@ 3". N° 3 hold - 2@ 4".
 Hold suction fitted at bulk

Main Water Circulating Pump, Direct Bilge Suctions, No. and size 1@ 12" Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 1@ 4 1/2" 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 none How are they protected -
 What pipes pass through the deep tanks no deep tank 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 none Is it fitted with a watertight door - worked from -

MAIN BOILERS, &c.—(Letter for record S ✓) Total Heating Surface of Boilers 6213 sq. ft. ✓
 Is Forced Draft fitted yes ✓ No. and Description of Boilers 3 Water tube Working Pressure 250 ✓
 IS A REPORT ON MAIN BOILERS NOW FORWARDED? yes ✓
 IS A DONKEY BOILER FITTED? no ✓ If so, is a report now forwarded? -

PLANS. Are approved plans forwarded herewith for Shafting no Main Boilers yes Auxiliary Boilers - Donkey Boilers -
 Superheaters yes 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 propeller shaft, 2 propeller blades, one top end bearing, one bottom end bearing, one circulating pump impeller shaft, one set of thrust pins (Inshell)

The foregoing is a correct description,
 For David Rowan & Co. Ltd
 Archd. W. Grierson Manufacturer.



1936 Feb. 28 Mar. 11. 9 Apr. 14. 15. 21. 27. 29 May. 5. 7. 8. 9. 12. 13. 14. 15. 19. 20
 During progress of work in shops -- } 22. 26. 27. 29 June. 1. 3. 4. 12. 17. 23. 26. 29. 30 July. 1. 2. 4. 6. 10. 13. 14. 15. 31 Aug
 Dates of Survey while building } During erection on board vessel --- }
 Total No. of visits 66

Dates of Examination of principal parts—Cylinders 17-6-36 Slides 14-7-36 Covers 23-6-36
 Pistons 1-6-36 Piston Rods 7-8-36 Connecting rods 29-6-36
 Crank shaft 27-5-36 Thrust shaft 4-7-36 Intermediate shafts none
 Tube shaft none Screw shaft 1-7-36 Propeller 7-8-36
 Stern tube 10-7-36 Engine and boiler seatings *ask* Engines holding down bolts 16-9-36
 Completion of fitting sea connections *ask*
 Completion of pumping arrangements 15-10-36 Boilers fixed 25-9-36 Engines tried under steam 23-10-36
 Main boiler safety valves adjusted 8-10-36 Thickness of adjusting washers P $\frac{13}{32}$ " S $\frac{7}{16}$ " C P $\frac{1}{16}$ " S $\frac{3}{8}$ "
 Crank shaft material 9. Steel Identification Mark *LLOYD'S NO 6022 L.C.D. 27-5-36* Thrust shaft material I. Steel Identification Mark *LLOYD'S NO 6022 L.C.D. 4-7-36*
 Intermediate shafts, material none Identification Marks Tube shaft, material Identification Mark
 Screw shaft, material I. Steel Identification Mark *LLOYD'S NO 6022 L.C.D. 1-7-36* Steam Pipes, material Steel Test pressure 675 lb Date of Test 7-10-36
 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 "Iron Baron". Gls Rpt. No 57224.

General Remarks (State quality of workmanship, opinions as to class, &c.)
 * The original forge numbers are stamped on each shaft, as per forging reports hereunto, in addition to the marks shown in this report.
 A Roman Götaverken Turbo compressor (TC 78) is fitted with this machinery.
 for particulars see separate report on form 10.
BHP 5.30. Similar to "Iron Baron"
 The workmanship and materials 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 Record + LMC 10,36 also notation - "Exhaust turbine driving steam compressor".

GLASGOW
 The amount of Entry Fee ... £ 5 : : When applied for, 27 OCT 1936
 Special ... £ 64 : 14 :
 Donkey Boiler Fee ... £ : : When received, 30-10-36
 Travelling Expenses (if any) £ : :
 Committee's Minute **GLASGOW 27 OCT 1936**
 Assigned *+ LMC 10,36 70.*
 Exhaust turbine driving steam compressor.
 S. J. Davis
 Engineer Surveyor to Lloyd's Register of Shipping.



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

26/10/36