

# REPORT ON STEAM RECIPROCATING ENGINE MACHINERY.

Received at London Office

FRI. 21 SEP. 1923

Date of writing Report 17th Sept 1923 When handed in at Local Office 17th Sept 1923 Port of NEWCASTLE-ON-TYNE

No. in Survey held at St Peters & Hebburn on the Date, First Survey 28th Sept 1922 Last Survey 15th Sept 1923  
Reg. Book. 41104 on the S. S. Palma (Number of Visits 66)

Built at Hebburn By whom built R. & H. Hawthorn Leslie & Co Ltd Yard No. 529 When built 1923  
Engines made at St Peters, Newcastle By whom made do Engine No. 3511 when made 1923  
Boilers made at do do By whom made do Boiler No. 3511 when made 1923  
Registered Horse Power 900 Owners British India Steam Nav Co Ltd Port belonging to Glasgow  
Nom. Horse Power as per Rule 900 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted yes

## ENGINES, &c.—Description of Engines Quadruple Expansion.

Dia. of Cylinder 29 1/2" 59.85" Length of Stroke 54" Revs. per minute 78 No. of Cylinders 4 No. of Cranks 4  
Dia. of Crank shaft journals as per rule 16.07" Dia. of Crank pin 17" with hole Crank webs Mid. length breadth 3 1/2" Thickness parallel to axis 10 3/4"  
as fitted 16 3/4" Mid. length thickness 10 3/4" shrunk Thickness around eye-hole 7 1/8"  
Diameter of Thrust shaft under collars as per rule 16.07" Diameter of Tunnel shaft as per rule 15.33" Diameter of Screw shaft as per rule 16.6" Is the Screw shaft fitted with a continuous liner the whole length of the stern tube yes 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 joints burned yes 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 yes Is an approved appliance fitted at the after end of the shaft to permit of it being efficiently lubricated No Length of Stern Bush 78" Diameter of Propeller 19-6"  
Pitch of Propeller 17-9" No. of Blades 4 State whether Moveable yes Total Surface 125 sq ft square feet.

No. of Feed Pumps fitted to the Main Engines 2 Diameter of ditto 5" Stroke 27" Can one be overhauled while the other is at work yes  
No. of Bilge Pumps fitted to the Main Engines 2 Diameter of ditto 5 1/2" Stroke 27" Can one be overhauled while the other is at work yes  
Total number and size of power driven Feed and Bilge Auxiliary Pumps Two, 10" x 13 1/2" x 24" one 6" x 8 1/2" x 18"  
No. and size of Pumps connected to the Main Bilge Line One 12" x 12" x 12", one 12" x 8" x 10" & one emergency motor 100 tons per hour  
No. and size of Ballast Pumps One 12" x 12" x 12" No. and size of Lubricating Oil Pumps, including Spare Pump None

Are two independent means arranged for circulating water through the Oil Cooler yes No. and size of suction connected to both Main Bilge Pumps and Auxiliary Bilge Pumps;—In Engine and Boiler Room Three 3 1/2", one 5 1/2" & one 3" diam and in Holds, &c. One 3" in No 1, Three 3" in No 2 & 3, Two 3" in No 4, One 3" in No 5 and one 3" in tunnel well.

No. and size of Main Water Circulating Pump Bilge Suctions One 12" No. and size of Donkey Pump Direct Suctions to the Engine Room Bilges Two 5" 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 connections with the sea direct on the skin of the ship Lower on Liverpool Are they 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 Discharge Pipes 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 are carried through the bunkers Pipes to forward holds How are they protected Hood boxing  
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 Screw Shaft Tunnel watertight yes Is it fitted with a watertight door yes patent 137925 worked from top of bottom platforms

MAIN BOILERS, &c.—(Letter for record 6 S) Total Heating Surface of Boilers 13900 sq ft (13652 for fuel) Working Pressure 215 lbs per sq in  
Is a Report on MAIN BOILERS NOW FORWARDED? yes  
IS A DONKEY BOILER FITTED? No If so, is a report now forwarded? yes

PLANS. Are approved plans forwarded herewith for Shafting yes Main Boilers yes Auxiliary Boilers None Donkey Boilers None  
General Pumping Arrangements yes Oil fuel Burning Piping Arrangements None fitted

SPARE GEAR. State the articles supplied:—As required by the rules, also one set of H.P. 1st D.P. and 2nd D.P. & 2nd Piston rings & springs, a set of H.P. & M.P. piston valve packing, one pair crank pin bushes, 2 pairs top end bushes, one set eccentric straps with bolts & distance pieces, one H.P. valve rod, 6 Thrust pads, one air pump bucket, rod and head valve one bronze impeller & shaft for main circulating pump, one set of suction & discharge valves for ballast pump, 2 bucket rings, 5 sets of valves & 4 group valve springs for auxiliary feed pump, one set of crank pin crosses for top & bottom ends of fan engine, one propeller shaft, one bronze propeller blade, 2 main safety valve springs, a few tubes & condenser tubes, one piston valve chest complete one suction valve seat one discharge valve seat, 55 metric valves & 4 bucket rings for H.P. & D.P. pumps, etc.

The foregoing is a correct description  
J. T. Sandale for R. & H. Hawthorn Leslie & Co Ltd Manufacturer.



If not, state whether, and when, one will be sent?

Is a Report also sent on the Hull of the Ship?

1922  
 During progress of work in shops - Sep. 28. Oct. 5. 14. 19. Nov. 21. 26. 28. Dec. 5. 12. 20. 28. 1923  
 Jan. 5. 9. 25. 30. Feb. 5. 9. 13. 21. 26. Mar. 13. 20. Apr. 4. 5. 6. 10. 11. 13.  
 16. 18. 24. May. 1. 2. 4. 8. 9. 11. 14. 16. 17. 18. 25. 28. 29. June 1. 5. 8. 9. 11. 12. 13. 15. 19. 21. July 2. 9. 10. 16. 23. 24.  
 Aug. 2. 15. 31. Sep. 7. 10. 13.  
 Dates of Survey while building -  
 During erection on board vessel - - -  
 Total No. of visits **46**

Date of writing

No. in Reg. Book.

41104

Master

Engines made

Boilers made

Nominal Ho

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Percentage

Percentage

Thickness of

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NEWCASTLE-ON-TYNE.

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

Dates of Examination of principal parts - Cylinders 5/2/23 Slides 5/2/23  
 Covers 5/2/23 Pistons 17/11/22 + 5/2/23 Rods 17/11/22  
 Connecting rods 17/11/22 Crank shaft 7/11/22 Thrust shaft 31/1/23  
 Tunnel shafts 5/4/23 Screw shaft 4/5/23 Propeller 5/4/23  
 Stern tube 9/2/23 Engine and boiler seatings 13/6/23 Engines holding down bolts 15/8/23  
 Completion of pumping arrangements 7/9/23 Boilers fixed 15/8/23 Engines tried under steam 7/9 + 12 + 13/9/23  
 Completion of fitting sea connections 9 + 12/6/23 Stern tube 9/4/23 Port Boilers for 25 1/2 x 35 1/2" St 3 for 25 1/2 x 35 1/2" St 3  
 Main boiler safety valves adjusted 7/9/23 Thickness of adjusting washers do do do 13/22 + 25/24 + 25/24 + 25/24  
 Material of Crank shaft S M Steel Identification Mark on Do. 4114 D. M.R.  
 Material of Thrust shaft do Identification Mark on Do. 6384 N. J.D.  
 Material of Tunnel shafts do Identification Marks on Do. 6384 N. J.D.  
 Material of Screw shafts do Identification Marks on Do. 6384 N. J.D.  
 Material of Steam Pipes Steel + Copper Test pressure 645 + 430 lbs per sq in Date of Test 2/6, 24/7, 2/8/23  
 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 carrying and burning oil fuel 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 machinery of this vessel has been constructed under special survey, the materials and workmanship are of good quality, it has been securely fitted on board and satisfactorily tested at moorings and also in a North Sea, 24 hour run. In our opinion the machinery of this vessel is now eligible for record as L.M.C. 9.23 (in red) in register book.

Approved and amended plan of boilers, two plans of shafting, reports on forgings and steel castings, evaporator & feed heater and invoices of steel, furnaces and steam pipes now forwarded.

It is submitted that this vessel is eligible for THE RECORD. L.M.C. 9.23. F.D. C.L.

*[Signature]*  
24/9/23

The amount of Entry Fee ... £ 6 : 0 : 0 When applied for.  
 Special ... £ 120 : 0 : 0 When received.  
 Donkey Boiler Fee ... £ 5 : 0 : 0  
 Travelling Expenses (if any) £ 20 : 0 : 0

George Murdoch & Manie Nelson  
 Engineer Surveyors to Lloyd's Register of Shipping.

Committee's Minute  
 Assigned + L.M.C. 9.23  
 F.D. C.L.

