

REPORT ON STEAM RECIPROCATING ENGINE MACHINERY.

Received at London Office

18 FEB 1931

LIVERPOOL

Date of writing Report 10 When handed in at Local Office 16 FEB. 1931 Port of **LIVERPOOL**

No. in Survey held at **Birkenhead** Date, First Survey **11th June/30** Last Survey **4th Feb/31**
 Reg. Book. **89465** on the **S. S. 'Aire'** (Number of Visits **67**) Tons { Gross **1095**
 Net **1095**

Built at **Birkenhead** By whom built **Messrs. Cammell Laird & Co. Ltd** Yard No. **978** When built **1931**
 Engines made at **D** By whom made **Cammell Laird & Co. Ltd** Engine No. **978** when made **1931**
 Boilers made at **D** By whom made **Cammell Laird & Co. Ltd** Boiler No. **978** when made **1931**
 Registered Horse Power **352** Owners **London Midland & Scottish Rail Co** Port belonging to **Goole**
 Nom. Horse Power as per Rule **352** Is Refrigerating Machinery fitted for cargo purposes **No** Is Electric Light fitted **Yls.**
 Trade for which Vessel is intended

ENGINES, &c.—Description of Engines **Vertical Triple Expansion** Revs. per minute **95**
 Dia. of Cylinders **22, 36, 61"** Length of Stroke **39"** No. of Cylinders **Three** No. of Cranks **Three**
 Crank shaft, dia. of journals as per Rule **11.73"** Crank pin dia. **12 3/4"** Crank webs Mid. length breadth **23 3/4"** Thickness parallel to axis **7 1/16"**
 as fitted **12 1/4"** Mid. length thickness **7 1/16"** Thickness around eye-hole **5 1/2"**
 Intermediate Shafts, diameter as per Rule **11.18"** Thrust shaft, diameter at collars as per Rule **11.73"**
 as fitted **11 1/4"** as fitted **12 3/8"**
 Tube Shafts, diameter as per Rule **12.74"** Is the **tube** shaft fitted with a continuous liner **No lines**
 as fitted **14 1/4"** as fitted **14 1/4"** Is the **screw** shaft fitted with a continuous liner **No lines**
 Bronze Liners, thickness in way of bushes as per Rule **11.73"** Thickness between bushes as per Rule **11.73"** Is the after end of the liner made watertight in the propeller boss **Yls.**
 If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner **Yls.**
 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 **Yls.**
 If two liners are fitted, is the shaft lapped or protected between the liners **Yls.** Is an approved Oil Gland or other appliance fitted at the after end of the tube shaft **Yls.**
 Propeller, dia. **13-0"** Pitch **16-6"** No. of Blades **4** Material **Cast iron** whether Movable **No** Total Developed Surface **64** sq. feet
 Feed Pumps worked from the Main Engines, No. **none** Diameter **3 3/4"** Stroke **20"** Can one be overhauled while the other is at work **Yls.**
 Bilge Pumps worked from the Main Engines, No. **2** Diameter **3 3/4"** Stroke **20"** Can one be overhauled while the other is at work **Yls.**
 Feed Pumps { No. and size **2-9 1/2 x 7 x 21 stroke** Pumps connected to the Main Bilge Line { No. and size **1-8 x 9 x 8"; 1-7 x 7 x 12"**
 How driven **Steam** How driven **Steam**
 Ballast Pumps, No. and size **1-8 x 9 x 8"** Lubricating Oil Pumps, including Spare Pump, No. and size **Yls.**
 Are two independent means arranged for circulating water through the Oil Cooler **Yls.** Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge Pumps;—In Engine and Boiler Room **Engine Room 2-2 1/2"** Boiler Room **2-2 1/2" dia.**
 In Holds, &c. **87 hold 2-2 1/2"; 1-2 hold 2-2 1/2"; 1-3 hold 2-2 1/2" dia.; Tunnel 1-2 1/2" dia.**

Main Water Circulating Pump Direct Bilge Suctions, No. and size **1-7 1/2" dia.** Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size **1-3 1/2" dia.**
 Are all the Bilge Suction Pipes in holds and tunnel well fitted with strum-boxes **Yls.**
 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 **Yls.**
 Are all Sea Connections fitted direct on the skin of the ship **Yls.** 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 **Yls.** 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 **Yls.** Are the Blow Off Cocks fitted with a spigot and brass covering plate **Yls.**
 What Pipes pass through the bunkers **Bilge Ballast pipes** How are they protected **Thick wood casing.**
 What pipes pass through the deep tanks **Yls.** Have they been tested as per Rule **Yls.**
 Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times **Yls.**
 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 **Yls.** Is the Shaft Tunnel watertight **Yls.** Is it fitted with a watertight door **Yls.** worked from **upper deck.**

MAIN BOILERS, &c.—(Letter for record **S.**) Total Heating Surface of Boilers **5220 sq. ft.**
 Is Forced Draft fitted **Yls.** No. and Description of Boiler **Two Cylindrical Multitubular** Working Pressure **200 lbs.**
 IS A REPORT ON MAIN BOILERS NOW FORWARDED? **Yls.** **2 SA**
 IS A DONKEY BOILER FITTED? **No** If so, is a report now forwarded? **Yls.**
 PLANS. Are approved plans forwarded herewith for Shafting **Yls.** Main Boilers **Yls.** Auxiliary Boilers **Yls.** Donkey Boilers **Yls.**
 Superheaters **Yls.** General Pumping Arrangements **Yls.** Oil fuel Burning Piping Arrangements **Yls.**

SPARE GEAR. State the articles supplied:— **one crank shaft, set of crank pin braces, set of crosshead braces, 6 yank ring bolts, air pump bucket rod, circulating pump impeller, spindle, piston pump rod for feed pump & tallent pump, fan engine crank shaft, and other items in accordance with list attached to Report on S.S. Calder**

The foregoing is a correct description, CAMMELL LAIRD AND COMPANY LIMITED.

J. W. Laird
SECRETARY.

Manufacturer.



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Lloyd's Register Foundation

NOTE.—The records which do not apply should be deleted.

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June 11, 23. July 1, 7, 10, 11, 14, 16, 18, 21, 24, 29. Aug 12, 15, 18, 20, 22, 25. Sept 1, 2, 5, 9, 11, 15, 19, 22, 24, 30. Oct 1, 2, 6, 8, 13, 16.
 15, 16, 17, 23, 28, 29, 31. Nov 7, 10, 11, 13, 17, 18, 20, 21, 24, 26. Dec 1, 3, 4, 8, 9, 10, 11, 13, 15, 19, 30. Jan 5, 8, 21, 26. Feb 4.

Dates of Survey while building }
 During progress of work in shops -- }
 During erection on board vessel -- }

Total No. of visits **67.**

Dates of Examination of principal parts—Cylinders 25/8/30 23/10/30 13/11/30 20/11/30 Slides 2/9/30 23/10/30 Covers 25/8/30 20/11/30
 Pistons 2/9/30 9/9/30 Piston Rods 24/7/30 23/10/30 Connecting rods 2/9/30 23/10/30
 Crank shaft 2/9/30 2/9/30 20/9/30 23/10/30 13/11/30 Thrust shaft 25/8/30 20/9/30 23/10/30 Intermediate shafts 12/8/30 31/10/30 23/10/30 13/11/30
 Tube shaft 2/9/30 2/9/30 20/9/30 23/10/30 Screw shaft 23/10/30 13/11/30 Propeller 2/9/30 24/11/30
 Stern tube 29/10/30 28/11/30 Engine and boiler seatings 4/11/30 Engines holding down bolts 5/11/30
 Completion of fitting sea connections 9/11/30 Boilers fixed 30/10/30 Engines tried under steam 4/11/30
 Completion of pumping arrangements 8/11/30 Thickness of adjusting washers 10th both 3/8" 1st 13/32" 5 3/8"
 Main boiler safety valves adjusted 21/11/30 Crank shaft material **steel** Identification Mark **6840.D.** Thrust shaft material **steel** Identification Mark **3967**
 Intermediate shafts, material **steel** Identification Marks **3980, 3986** Tube shaft, material **✓** Identification Mark **✓**
 Screw shaft, material **steel** Identification Mark **3986** Steam Pipes, material **steel** Test pressure **600lbs** Date of Test
 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 **✓** If so, have the requirements of the Rules been complied with **✓**
 Is this machinery duplicate of a previous case **Yes** If so, state name of vessel **St. Calder (the R.M.S. No. 97993)**

General Remarks (State quality of workmanship, opinions as to class, &c.)
The machinery of this vessel has been constructed under special survey, and is in accordance with the Rules and the approved plans.
The workmanship is good.
On completion, the machinery was examined under full working conditions during sea trials and found satisfactory, and is eligible in my opinion for record of T.M.C. 2.31 in Register's book.

[Faint handwritten notes and signatures, including "J. S. Calder" and "J. S. Calder" in red ink]

The amount of Entry Fee ... £ **5.00** : : When applied for, **17 FEB. 1931**
 Special ... £ **77.16.0** : :
 Donkey Boiler Fee ... £ : : : When received, **27.2.1931**
 Travelling Expenses (if any) £ : : :
 Committee's Minute **LIVERPOOL 17 FEB. 1931**
 Assigned **+ T.M.C. 2.31**
F. D. O'Leary
Elec Light.

J. S. Calder
 Engineer Surveyor to Lloyd's Register of Shipping.

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



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