

REPORT ON OIL ENGINE MACHINERY.

No. 108319
20 JAN 1937

Received at London Office

16 JAN 1937

Date of writing Report 19... When handed in at Local Office 19... Port of LIVERPOOL
No. in Survey held at Birkenhead Date, First Survey 10th March/36 Last Survey 8th Jan 1937
Reg. Book. Number of Visits 88

87479 on the ^{Single} ~~Twin~~ ~~Triple~~ ~~Quadruple~~ Screw vessel 'Brisbane Star' Tons Gross 11075 Net 6789

Built at Birkenhead By whom built Cammell Laird & Co Ltd Yard No. 1016 When built 1936
Engines made at Winterthur By whom made Sulzer Bros Engine No. 6581 When made 1936
Donkey Boilers made at Renfrew By whom made Babcock Wilcox Ltd Boiler No. 1076 When made 1936
Brake Horse Power 13500 Owners Blue Star Line Ltd Port belonging to London
Nom. Horse Power as per Rule 2800 Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes
Trade for which vessel is intended 28 3/8 - 49 3/16

OIL ENGINES, &c.—Type of Engines Sulzer solid Injection 2 or 4 stroke cycle 2 Single or double acting Single
Maximum pressure in cylinders 850 lb/sq in Diameter of cylinders 720 mm Length of stroke 1250 mm No. of cylinders 20 No. of cranks 20 (2 Engines)

Mean Indicated Pressure 83 lb/sq in Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 930 mm Is there a bearing between each crank Yes
Revolutions per minute 120 Flywheel dia. 2350 Weight 2000 kg Kind of fuel used Heavy fuel oil
Crank Shaft, dia. of journals as per Rule 483 mm Crank pin dia. 1190 mm Mid. length breadth 392 mm Kind of fuel used Heavy fuel oil
as fitted 490 mm Crank Webs Mid. length thickness 16 mm Thickness parallel to axis 305 mm
Flywheel Shaft, diameter as per Rule 483 mm Intermediate Shafts, diameter as per Rule 392 mm Thrust Shaft, diameter at collars as per Rule 412 mm
as fitted 490 mm as fitted 16 mm as fitted 490 mm

Tube Shaft, diameter as per Rule 16.8" Is the shaft fitted with a continuous liner Yes
as fitted 18" Screw Shaft, diameter as per Rule 13/16" as fitted 15/16" Thickness between bushes as per rule 39/64" 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 one length
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 tight

If two liners are fitted, is the shaft lapped or protected between the liners Yes 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 6'8"

Propeller, dia. 17'6" Pitch 16'0" No. of blades 3 Material Bronze whether Moveable no Total Developed Surface 89.8 sq. feet
Method of reversing Engines direct Is a governor or other arrangement fitted to prevent racing of the engine when declutched Yes Means of lubrication
grease Thickness of cylinder liners 45 mm Are the cylinders fitted with safety valves Yes Are the exhaust pipes and silencers water cooled or lagged with
non-conducting material lagged If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine up funnel

Cooling Water Pumps, No. 2 Is the sea suction provided with an efficient strainer which can be cleared within the vessel Yes
Bilge Pumps worked from the Main Engines, No. 1 Diameter Stroke Can one be overhauled while the other is at work Yes
Pumps connected to the Main Bilge Line No. and Size one bilge pump 110 tons/hr; one ballast pump 200 tons/hr; one general service pump 80 tons/hr
How driven all electric motor

Is the cooling water led to the bilges no If so, state what special arrangements are made to deal with this water in addition to the ordinary bilge pumping
arrangements

Ballast Pumps, No. and size one 200 tons per hour Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size 3 sets (1 spare) capacity 55 1/2 gal/hr
Are two independent means arranged for circulating water through the Oil Cooler Yes Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge
Pumps, No. and size:—In Machinery Spaces 4-3 1/2" dia. In Pump Room

In Holds, &c. 2-3 1/2" dia in 8th hold; 2-3 1/2" in 2nd hold; 2-3 1/2" in 3rd hold; 4-2 1/2" & 1-3" in tunnel space
Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 2-5" & 1-6"

Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes Yes Are the Bilge Suctions in the Machinery Spaces
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 platform plates Yes Are the Overboard Discharges 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 pass through the bunkers Cofferdam suction; bilge ducts & scupper pipes How are they protected
What pipes pass through the deep tanks none Have they been tested as per Rule Yes

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 belly & 1st Deck

If a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork
Main Air Compressors, No. 1 No. of stages 1 Diameters Stroke Driven by
Auxiliary Air Compressors, No. 2 No. of stages two Diameters 12 1/2 x 5 1/4 Stroke 7 1/2 Driven by Elec. motor
Small Auxiliary Air Compressors, No. 1 No. of stages two Diameters 7 1/2 x 2 1/2 Stroke 4 3/4 Driven by steam

Scavenging Air Pumps, No. 1 Diameter Stroke Driven by
Auxiliary Engines crank shafts, diameter as per Rule See Winterthur as fitted Position

AIR RECEIVERS:—Is each receiver, which can be isolated, fitted with a safety valve as per Rule *Yes*

Can the internal surfaces of the receivers be examined and cleaned *Yes* Is a drain fitted at the lowest part of each receiver *Yes*

High Pressure Air Receivers, No. *✓* Cubic capacity of each *Rpt N740* Internal diameter *✓* thickness *✓*

Seamless, lap welded or riveted longitudinal joint *✓* Range of tensile strength *✓* Working pressure *✓*
by Rules Actual

Starting Air Receivers, No. *2* See *lower sheet* Total cubic capacity *39 cu metres* Internal diameter *✓* thickness *✓*

Seamless, lap welded or riveted longitudinal joint *✓* Material *✓* Range of tensile strength *✓* Working pressure *✓*
by Rules Actual

IS A DONKEY BOILER FITTED? *Yes two* If so, is a report now forwarded? *Yes*

Is the donkey boiler intended to be used for domestic purposes only? *Yes heating etc / See also letter to Com office dated 5/2/36*

PLANS. Are approved plans forwarded herewith for Shafting *✓* Receivers *✓* Separate Fuel Tanks *✓*
(If not, state date of approval)

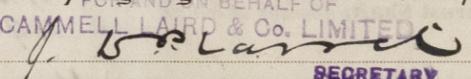
Donkey Boilers *✓* General Pumping Arrangements *✓* Pumping Arrangements in Machinery Space *✓*

Oil Fuel Burning Arrangements *✓*

SPARE GEAR.

Has the spare gear required by the Rules been supplied? *Yes ✓*

State the principal additional spare gear supplied *See separate list herewith.*

The foregoing is a correct description,

CAMMELL LAIRD & Co. LIMITED Secretary
 Manufacturer.

Dates of Survey while building

During progress of work in shops -	1936 Mar 10, 11, 19, 23, 25, 30. Apr 17, 20, 30. May 5, 11, 16, 18, 21, 22, 25, 27. June 2, 10, 12, 16, 17, 23, 24, 26. July 1, 2, 6, 7, 8, 9, 10, 13, 15, 17, 22, 23, 28, 30.
During erection on board vessel -	Aug 12, 17, 21, 22, 24, 25. Sept 4, 9, 10, 11, 15, 16, 17, 18, 23. Oct 1, 7, 15, 16, 20, 27, 28, 29. Nov 2, 5, 6, 9, 10, 14, 15, 24, 30. Dec 2, 3, 4, 5, 8, 9, 11, 12, 14, 15, 17, 21, 22.
1937	Jan 7, 8.
Total No. of visits	88.

Dates of Examination of principal parts—Cylinders *✓* Covers *✓* Pistons *✓* Rods *✓* Connecting rods *✓*

Crank shaft *✓* Flywheel shaft *✓* Thrust shaft *✓* Intermediate shafts *✓* Tube shaft *✓*

Screw shaft *✓* Propeller *✓* Stern tube *✓* Engine seatings *✓* Engines holding down bolts *✓*

Completion of fitting sea connections *✓* Completion of pumping arrangements *✓* Engines tried under working conditions *✓*

Crank shaft, Material *✓* Identification Mark *✓* Flywheel shaft, Material *✓* Identification Mark *✓*

Thrust shaft, Material *See lower sheet* Identification Mark *✓* Intermediate shafts, Material *Steel* Identification Marks *2503 PTB*

Tube shaft, Material *✓* Identification Mark *✓* Screw shaft, Material *Steel* Identification Mark *2501 PTB*
2502 PTB

Is the flash point of the oil to be used over 150° F. *Yes ✓*

Have the requirements of the Rules for oil fuel pipes and tank fittings been complied with *Yes ✓*

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 *Melbourne Star*

General Remarks (State quality of workmanship, opinions as to class, &c.) *The Machinery of this vessel has been satisfactorily installed on board vis in accordance with the Rules and the approved plans. The workmanship is good though it has been examined under full working conditions during sea trials and found satisfactory and is eligible in my opinion for classification in Register book with records of 4LMC1-37 and 2LB 10000*

Note. The governing of Diesel generating Engines was found to be somewhat erratic and arrangements have been made for this to be rectified on vessel return from present voyage (see also Elec. Rpt on board)

The amount of Entry Fee .. £ *1578* 34 : 0 0 When applied for, *31/12/36*

Special £ : : When received, *2/1/37*

Donkey Boiler Fee £ : : *6/1/37*

Travelling Expenses (if any) £ : : *6/1/37*

J. J. Melton
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute **LIVERPOOL** 19 JAN 1937

Assigned *+ to M.C. 1-37*
Ch. Elec. Dept

FRI 30 APR 1937
 WED 4 AUG 1937
 TUE 24 AUG 1937
 TUE 14 SEP 1937

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