

REPORT ON OIL ENGINE MACHINERY.

No. 95585.

29 JUN 1929

Received at London Office

LIVERPOOL

Date of writing Report 28 JUNE 1929 When handed in at Local Office

Port of LIVERPOOL

No. in Survey held at Reg. Book. 92330

When handed in at Local Office *Birkenhead*

Date, First Survey *Oct 25th 1929*

Last Survey *June 14th 1929*

Number of Visits *54*

on the *Single* *Twin* *Triple* *Quadruple* Screw vessel *Thurland Castle*

Tons: Gross *7000* Net *3878*

Built at *Birkenhead* By whom built *Cammell Laird & Co Ltd* Yard No. *906* When built *1929*
 Engines made at *Walsby & Co Ltd* By whom made *H. E. Mainie Eng Ltd* Engine No. *20823* When made *1929*
 Donkey Boilers made at *Annan* By whom made *Cochran & Co Ltd* Boiler No. *11095* When made *1929*
 Brake Horse Power *4200* Owners *Lincolnshire Ship Co Ltd* Port belonging to *Liverpool*
 Nom. Horse Power as per Rule *953* Is Refrigerating Machinery fitted for cargo purposes *no* Is Electric Light fitted *Yls.*

Trade for which vessel is intended

OIL ENGINES, &c.—Type of Engines *North Eastern Liverpool type* 2 or 4 stroke cycle *4* Single or double acting *Single*
 Maximum pressure in cylinders *500 lb.* Diameter of cylinders *730 mm* Length of stroke *1500 mm* No. of cylinders *12* No. of cranks *12*
 Span of bearings, adjacent to the Crank, measured from inner edge to inner edge *980 mm* Is there a bearing between each crank *Yls.*
 Revolutions per minute *110* Flywheel dia. *2590 mm* Weight *436 tons* Means of ignition *Compression* Kind of fuel used *oil fuel of 29.6000*
 Crank Shaft, dia. of journals as per Rule *465 mm* Crank pin dia. *480 mm* Crank Webs Mid. length breadth *932 mm* Thickness parallel to axis *290 mm*
 as fitted *480 mm* Mid. length thickness *290 mm* Thickness around eyehole *2275 mm*
 Flywheel Shaft, diameter as per Rule *465 mm* Intermediate Shafts, diameter as per Rule *12.52"* Thrust Shaft, diameter at collars as per Rule *13.14"*
 as fitted *480 mm* as fitted *13.125"* as fitted *13.14"*
 Tube Shaft, diameter as per Rule *13.9"* Is the *tube* shaft fitted with a continuous liner *Yls.*
 as fitted *15"* as fitted *15"*

Bronze Liners, thickness in way of bushes as per Rule *725"* Thickness between bushes as per Rule *54"* Is the after end of the liner made watertight in the propeller boss *Yls.*
 as fitted *825"* as fitted *625"*

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 *tight fit.*
 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 *no*

Propeller, dia. *14-2"* Pitch *13-6"* No. of blades *4* Material *bronze* whether Moveable *no* Total Developed Surface *74* sq. feet
 Length of Bearing in Stern Bush next to and supporting propeller *5-5/8"*

Method of reversing Engines *Comp. air* Is a governor or other arrangement fitted to prevent racing of the engine when detached *Yls.* Means of lubrication *forced*
 Thickness of cylinder liners *70 mm* Are the cylinders fitted with safety valves *Yls.* Are the exhaust pipes and silencers water cooled or lagged with non-conducting material *Yls.*

Cooling Water Pumps, No. *one* Is the sea suction provided with an efficient strainer which can be cleared within the vessel *Yls.*
 Bilge Pumps worked from the Main Engines, No. *4* Diameter *120 mm* Stroke *450 mm* Can one be overhauled while the other is at work *Yls.*

Pumps connected to the Main Bilge Line No. and Size *two - general service duplex 7" bore by 6" stroke; ballast 270 mm per line.*
 How driven *elec. motors* Spare oil pump *60 mm per hour (See Newcastle Castle)*
 Ballast Pumps, No. and size *one ballast as above* Lubricating Oil Pumps, including Spare Pump, No. and size *two on main engines*
one general service ditto Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge *160 mm x 450 mm stroke*

Are two independent means arranged for circulating water through the Oil Cooler *Yls.*
 Pumps, No. and size:—In Machinery Spaces *three 3" dia.* In Holds, &c. *two 2" dia.; two 2" dia.; two 2" dia.; two 2" dia.; two 2" dia.*

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size *two 8"; two 5"; one 5"*
 Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes *Yls.* 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 *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 platform plates *Yls.* 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 *Yls.* Are the Blow Off Cocks fitted with a spigot and brass covering plate *Yls.*

What pipes pass through the bunkers *none* How are they protected *Yls.*
 What pipes pass through the deep tanks *bilge suction only* 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.*
 If a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork *Yls.*

Main Air Compressors, No. *two* No. of stages *three* Diameters *140/160-530/160"* Stroke *500 mm* Driven by *Main Engines*
 Auxiliary Air Compressors, No. *two* No. of stages *three* Diameters *15 1/2 x 8" type* Driven by *elec motor*

Small Auxiliary Air Compressors, No. *one* No. of stages *two* Diameters *6" x 4 1/2" type* Driven by *steam*
 Scavenging Air Pumps, No. *none* Diameter *Yls.* Stroke *Yls.* Driven by *Yls.*

Auxiliary Engines crank shafts, diameter as per Rule *Yls.*
 as fitted *Yls.*

AIR RECEIVERS:—Is each receiver, which can be isolated, fitted with a safety valve as per Rule *Yls.*
 Can the internal surfaces of the receivers be examined *Yls.* What means are provided for cleaning their inner surfaces *manhole*

Is there a drain arrangement fitted at the lowest part of each receiver *Yls.*
 High Pressure Air Receivers, No. *four* Cubic capacity of each *8.15 cu ft* Internal diameter *15 3/4"* thickness *5/8"*

Seamless, lap welded or riveted longitudinal joint *Seamless* Material *steel* Range of tensile strength *28-32 tons* Working pressure by Rules *1090 lb/sq in*

Starting Air Receivers, No. *two* Total cubic capacity *2200 cu ft* Internal diameter *6'-8 3/16" mean* thickness *1 3/32"*
 Seamless, lap welded or riveted longitudinal joint *Yls.* Material *steel* Range of tensile strength *28-32 tons* Working pressure by Rules *358 lb/sq in*

IS A DONKEY BOILER FITTED? *Yls.*

If so, is a report now forwarded? *Yls.*

PLANS. Are approved plans forwarded herewith for Shafting *Yls.*

Receivers *Yls.*

Separate Tanks *Yls. (4 plans)*

Donkey Boilers *Yls.*

General Pumping Arrangements *Yls.*

Oil Fuel Burning Arrangements *Yls.*

SPARE GEAR *+ See attached list.*

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

J. W. Laird Manufacturer.
SECRETARY.

Dates of Survey while building
During progress of work in shops - *1928*
During erection on board vessel - *Oct 25, Dec 17, 28, Jan 2, 5, 11, 14, 17, 21, 24, Feb 4, 11, 18, 19, 20, 21, 22, 25, 27, Mar 1, 4, 11, 15, 19, 20, 21, 22, 26, 28, Apr 2, 5, 8, 15, 16, 19, 25, 26, May 1, 16, 17, 23, 24, 25, 27, 28, 29, 30, June 3, 6, 7, 10, 11, 14.*
Total No. of visits *54.*

Dates of Examination of principal parts - Cylinders ✓ Covers ✓ Pistons ✓ Rods ✓ Connecting rods ✓
Crank shaft ✓ Flywheel shaft ✓ Thrust shaft ✓ Intermediate shafts *8.12.29, 27.2.29, 20.3.29, 25.4.29* Tube shaft ✓
Screw shaft *17.1.29, 24.1.29, 22.2.29, 15.3.29* Propeller *27.1.29* Stern tube *19.3.29* Engine seatings *20.3.29, 25.4.29* Engines holding down bolts *26.4.29*
Completion of fitting sea connections *25.3.29* Completion of pumping arrangements *30.5.29, 7.6.29* Engines tried under working conditions *10.6.29*
Crank shaft, Material *Steel* Identification Mark ✓ Flywheel shaft, Material *Steel* Identification Mark ✓
Thrust shaft, Material *Steel* Identification Mark ✓ Intermediate shafts, Material *Steel* Identification Marks *855, 843, 940, 870, 101, 878, 873.*
Tube shaft, Material ✓ Identification Mark ✓ Screw shaft, Material *Steel* Identification Mark *843, 857*

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

Is this machinery duplicate of a previous case *Yls.* If so, state name of vessel *Manchester Castle.*

General Remarks (State quality of workmanship, opinions as to class, &c.)
The Machinery of this vessel (see Rpt 83983, 84087, 8791, 48797, 1038) has been satisfactorily installed, in accordance with the approved plans and the Rules. It has been examined under full working conditions during sea trial, and found satisfactory, and is eligible in my opinion for record of L.M.C. 6.29 in Register book.

It is submitted that this vessel is eligible for THE RECORD. + L.M.C. 6.29 C.L. N.H.P. 953.
Oil Engines, 4 S.C.S.A. 12cy. 28 3/4" - 5 9/16" 2 D.B. 125 1/2.

J. W. Laird
27/29

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

The amount of Entry Fee ... £ : :
1/5th balance special fee £ 24 : 10 : 8
Two invited air receivers £ 8 : 8 : 0
Donkey Boiler Fee ... £ : :
Travelling Expenses (if any) £ : :
LIVERPOOL 28 JUNE 1929

Assigned *+ L.M.C. 6.29. Ch. Oil Engines*



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