

# REPORT ON OIL ENGINE MACHINERY.

No. 83983

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No. in Survey held at Reg. Book. Date, First Survey 18 July 1928 Last Survey 15 March 1929 Number of Visits 71.

on the <sup>Single</sup> ~~Twin~~ ~~Triple~~ Screw vessel " **Thurland Castle** " Tons <sup>Gross</sup> ~~Net~~

Built at **Birkenhead** By whom built **Cammell Laird & Co** Yard No. **946** When built **1929**

Engines made at **Wallsend-on-Tyne** By whom made **North Eastern Harb. & S.S. Co. Ltd** Engine No. **26823** When made **1929**

Boilers made at \_\_\_\_\_ By whom made \_\_\_\_\_ Boiler No. \_\_\_\_\_ When made \_\_\_\_\_

Port belonging to \_\_\_\_\_

Indicated Horse Power **4200** Owners \_\_\_\_\_

Registered Horse Power as per Rule **453** Is Refrigerating Machinery fitted for cargo purposes \_\_\_\_\_ Is Electric Light fitted \_\_\_\_\_

Trade for which vessel is intended \_\_\_\_\_

**ENGINES, &c.** Type of Engines **North Eastern Works Harb. Type** 2 or 4 stroke cycle  Single or double acting **S.A.**

Maximum pressure in cylinders **500 lbs** Diameter of cylinders **430 mm** Length of stroke **1500 mm** No. of cylinders **12** No. of cranks **12**

Position of bearings, adjacent to the Crank, measured from inner edge to inner edge **980 mm** Is there a bearing between each crank **yes**

Revolutions per minute **110** Flywheel dia. **2590 mm** Weight **4.36** Means of ignition **Compression** Kind of fuel used **Dil fuel F.P. above 150°F.**

Crank Shaft, dia. of journals <sup>as per Rule</sup> **465 mm** <sup>as fitted</sup> **480 mm** Crank pin dia. **480 mm** Crank Webs <sup>Mid. length breadth</sup> **932 mm** <sup>Mid. length thickness</sup> **290 mm** Thickness parallel to axis **290 mm** Thickness around eye hole **224.5 mm**

Flywheel Shaft, diameter <sup>as per Rule</sup> **465 mm** <sup>as fitted</sup> **480 mm** Intermediate Shafts, diameter <sup>as per Rule</sup> **12.52"** <sup>as fitted</sup> \_\_\_\_\_ Thrust Shaft, diameter at collars <sup>as per Rule</sup> **13.14"** <sup>as fitted</sup> **13 3/4"**

Main Shaft, diameter <sup>as per Rule</sup> \_\_\_\_\_ <sup>as fitted</sup> \_\_\_\_\_ Screw Shaft, diameter <sup>as per Rule</sup> \_\_\_\_\_ <sup>as fitted</sup> \_\_\_\_\_ Is the <sup>tube</sup> <sup>screw</sup> shaft fitted with a continuous liner \_\_\_\_\_

Bronze Liners, thickness in way of bushes <sup>as per Rule</sup> \_\_\_\_\_ <sup>as fitted</sup> \_\_\_\_\_ Thickness between bushes <sup>as per Rule</sup> \_\_\_\_\_ <sup>as fitted</sup> \_\_\_\_\_ Is the after end of the liner made watertight in the \_\_\_\_\_

Propeller boss \_\_\_\_\_ If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner \_\_\_\_\_

Does the liner do 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 \_\_\_\_\_

When 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 \_\_\_\_\_

Length of Bearing in Stern Bush next to and supporting propeller \_\_\_\_\_

Propeller, dia. \_\_\_\_\_ Pitch \_\_\_\_\_ No. of blades \_\_\_\_\_ Material \_\_\_\_\_ whether Moveable \_\_\_\_\_ Total Developed Surface \_\_\_\_\_ sq. feet

Method of reversing Engines **Compressed Air** Is a governor or other arrangement fitted to prevent racing of the engine when deactuated **yes** Means of lubrication \_\_\_\_\_

Speed \_\_\_\_\_ Thickness of cylinder liners **40 mm** Are the cylinders fitted with safety valves **yes** Are the exhaust pipes and silencers water cooled or lagged with \_\_\_\_\_

Insulating material **yes** 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. \_\_\_\_\_ Is the sea suction provided with an efficient strainer which can be cleared within the vessel \_\_\_\_\_

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 **yes**

Pumps connected to the Main Bilge Line <sup>No. and Size</sup> **4 off as above** <sup>How driven</sup> **off main engines.**

Ballast Pumps, No. and size \_\_\_\_\_ Lubricating Oil Pumps, including Spare Pump, No. and size **2 on main engines 160 mm x 450 mm Str.**

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 \_\_\_\_\_

In Holds, &c. \_\_\_\_\_

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size \_\_\_\_\_ Are the Bilge Suctions in the Machinery Spaces \_\_\_\_\_

Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes \_\_\_\_\_

Are they fitted with Valves or Cocks \_\_\_\_\_

Are all Sea Connections fitted direct on the skin of the ship \_\_\_\_\_ Are the Overboard Discharges above or below the deep water line \_\_\_\_\_

Are they fixed sufficiently high on the ship's side to be seen without lifting the platform plates \_\_\_\_\_ Are the Blow Off Cocks fitted with a spigot and brass covering plate \_\_\_\_\_

Are they each fitted with a Discharge Valve always accessible on the plating of the vessel \_\_\_\_\_ How are they protected \_\_\_\_\_

What pipes pass through the bunkers \_\_\_\_\_ Have they been tested as per Rule \_\_\_\_\_

What pipes pass through the deep tanks \_\_\_\_\_

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times \_\_\_\_\_

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 \_\_\_\_\_

Is the Shaft Tunnel watertight \_\_\_\_\_ Is it fitted with a watertight door \_\_\_\_\_ worked from \_\_\_\_\_

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. **Two** No. of stages **Three** Diameters **140 x (620-530) x 620** Stroke **500 mm** Driven by **Main Engines.**

Auxiliary Air Compressors, No. \_\_\_\_\_ No. of stages \_\_\_\_\_ Diameters \_\_\_\_\_ Stroke \_\_\_\_\_ Driven by \_\_\_\_\_

Small Auxiliary Air Compressors, No. \_\_\_\_\_ No. of stages \_\_\_\_\_ Diameters \_\_\_\_\_ Stroke \_\_\_\_\_ Driven by \_\_\_\_\_

Scavenging Air Pumps, No. \_\_\_\_\_ Diameter \_\_\_\_\_ Stroke \_\_\_\_\_ Driven by \_\_\_\_\_

Auxiliary Engines crank shafts, diameter <sup>as per Rule</sup> \_\_\_\_\_ <sup>as fitted</sup> \_\_\_\_\_

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

Can the internal surfaces of the receivers be examined \_\_\_\_\_ What means are provided for cleaning their inner surfaces \_\_\_\_\_

Is there a drain arrangement fitted at the lowest part of each receiver \_\_\_\_\_

High Pressure Air Receivers, No. **Two** Cubic capacity of each **8.15 cub 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 t** Working pressure by Rules **1090 lbs.**

Starting Air Receivers, No. \_\_\_\_\_ Total cubic capacity \_\_\_\_\_ Internal diameter \_\_\_\_\_ thickness \_\_\_\_\_

Seamless, lap welded or riveted longitudinal joint \_\_\_\_\_ Material \_\_\_\_\_ Range of tensile strength \_\_\_\_\_ Working pressure by Rules \_\_\_\_\_

**IS A DONKEY BOILER FITTED?**

PLANS. Are approved plans forwarded herewith for Shafting (If not, state date of approval)

If so, is a report now forwarded?  
 Approved for *M.S. Newcastle Castle* Receivers *Cammell Laird & Co. Ltd.* Separate Tanks  
 Oil Fuel Burning Arrangements

Donkey Boilers

General Pumping Arrangements

SPARE GEAR

In accordance with & in excess of Rule requirements as given in blue print enclosed herewith.

The foregoing is a correct description

THE NORTH BRITISH STEAM ENGINEERING CO., LTD.

*W. Humphreys Allen* Secretary

Manufacturer.

Dates of Survey while building  
 During progress of work in shops -- 1928 JULY 18, 23, 31. AUG. 7, 14, 22, 28, 29. SEP. 3, 4, 12, 21, 24, 28. OCT. 2, 3, 5, 10, 11, 12, 15, 17, 23, 24, 25, 26, 27, 30, 31. NOV. 5, 6, 7. 9, 12, 13, 14, 16, 21, 22, 23, 26, 27, 29, 30. DEC. 4, 5, 6, 10, 11, 18, 19, 28, 31. 1929 JAN. 15, 18, 23, 24, 30. FEB. 1, 8, 15, 19, 20, 21, 25, 27, 28. MAR. 5, 6, 11, 15.  
 Total No. of visits 71.

Dates of Examination of principal parts—Cylinders  
 Crank shaft 1-11-28 + 28-12-28 Flywheel shaft 1-12-28 + 28-12-28 Thrust shaft 30-1-29 BEAM. 2-10-28 to 5-12-28 + 13-11-28 Pistons 26-10-28 Rods 24-11-28 + 3-10-28 Connecting rods 19-10-28 + 24-11-28

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 *0.4 Steel* Identification Mark *2682 W.B. 2683 W.P.* Flywheel shaft, Material *0.4 Steel* Identification Mark *2682 + 2683 W.P.*  
 Thrust shaft, Material *0.4 Steel* Identification Mark *3384 H.K.* Intermediate shafts, Material Identification Marks  
 Tube shaft, Material Identification Mark Screw shaft, Material Identification Mark

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 *yes* If so, have the requirements of the Rules been complied with *yes*  
 Is this machinery duplicate of a previous case *yes* If so, state name of vessel *M.S. "Newcastle Castle"*

General Remarks (State quality of workmanship, opinions as to class, &c.)  
*These engines have been built under Special Survey. Materials & workmanship good. Hydraulic tests satisfactory. They have been shipped to Birkenhead for installation in the vessel. The Special Surveyors have been notified.*

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

The amount of Entry Fee ... £ 6 : 0 0 :  
 Special ... £ 98 : 2 4 :  
 Donkey Boiler Fee ... £ ✓ :  
 Travelling Expenses (if any) £ ✓ :  
 When applied for, 27 MAR 1929  
 When received, *Lon Lk to Pool 12/4/29*

*William Bates*  
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute  
 Assigned

