

# REPORT ON STEAM RECIPROCATING ENGINE MACHINERY.

Received at London Office APR 26 1939

Date of writing Report 6.4.39 When handed in at Local Office 13 APR 1939 Port of LIVERPOOL

No. in Survey held at Northwich Reg. Book. on the steam tender "TREFOIL"

Date, First Survey Sept 7<sup>th</sup> /38 Last Survey March 28 1939 (Number of Visits 12) Gross 167 Tons Net 47

Built at Northwich By whom built W.J. Yarwood & Sons Ltd Yard No. 627 When built 1939

Engines made at Northwich, Cheshire By whom made W.J. Yarwood & Sons Ltd Engine No. 627 When made 1939

Boilers made at Burslem By whom made Cammell Laird & Co. Boiler No. 2205 When made 1938

Registered Horse Power Owners Mersey Docks & Harbour Board Port belonging to Liverpool

Nom. Horse Power as per Rule 58.56 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

Trade for which Vessel is intended For Tenders & Towing services

ENGINES, &c.—Description of Engines Inverted Triple Expansion Reciprocating Revs. per minute 200 I.H.P. 400

Dia. of Cylinders 11 x 18 x 30 Length of Stroke 18 No. of Cylinders 3 No. of Cranks 3

Crank shaft, dia. of journals as per Rule 5.62 as fitted 5 3/4 Crank pin dia. 5 3/4 Crank webs Mid. length breadth 12 Thickness parallel to axis 4

Intermediate Shafts, diameter as per Rule 5.36 as fitted 5 1/2 Thrust shaft, diameter at collars as per Rule 5.62 as fitted 5 9/8 (5 3/4 journals) Michell

Tube Shafts, diameter as per Rule as fitted Screw Shaft, diameter as per Rule 5.9 as fitted 6 1/4 Is the shaft fitted with a continuous liner yes

Bronze Liners, thickness in way of bushes as per Rule 4.75 as fitted 9/16 Thickness between bushes as per Rule 3.55 as fitted 9/16 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

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

If 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 end of the tube

Shaft No If so, state type Length of Bearing in Stern Bush next to and supporting propeller 2'-8 1/2"

Propeller, dia. 7'-8" Pitch 6'-4" No. of Blades 4 Material C.I. whether Moveable No Total Developed Surface 175 sq. feet

Feed Pumps worked from the Main Engines, No. None Diameter Stroke Can one be overhauled while the other is at work

Bilge Pumps worked from the Main Engines, No. None Diameter Stroke Can one be overhauled while the other is at work

Feed Pumps No. and size 2-4' x 6' x 12' How driven Steam Independent Pumps connected to the Main Bilge Line No. and size 2-4' x 4' x 5' duplex How driven Steam

Ballast Pumps, No. and size 2-4' x 4' x 5' Lubricating Oil Pumps, including Spare Pump, No. and size

Are two independent means arranged for circulating water through the Oil Cooler none Suctions, connected to both Main Bilge Pumps and Auxiliary

Bilge Pumps;—In Engine and Boiler Room 1-Bilge Room, 2-Eng Room 1-2 1/2" in Bilge Room, 1-2 1/2" in Eng Room

In Pump Room In Holds, &c. 1-Ford, 1-Forward & B.R. Bulk, 1-Aft all 2 1/2"

Main Water Circulating Pump Direct Bilge Suctions, No. and size 1-3 1/2" Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 2-2 1/4"

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 mid-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 (except where on "Kington" chest) Are they fitted with Valves or Cocks Valves, except blowdown

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates yes Are the Overboard Discharges above or below the deep water line just 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

Do Pipes pass through the bunkers None How are they protected

Do pipes pass through the deep tanks Have they been tested as per Rule

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Yes (Blowdown extensions spindle to deck)

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 None Is it fitted with a watertight door worked from

MAIN BOILERS, &c.—(Letter for record S) Total Heating Surface of Boilers 1020 sq. ft

Is Forced Draft fitted No No. and Description of Boilers One cylindrical multitubular Working Pressure 200 lb./sq. in

IS A REPORT ON MAIN BOILERS NOW FORWARDED? Yes L in rpt 111942.

IS A DONKEY BOILER FITTED? No If so, is a report now forwarded?

Is the donkey boiler intended to be used for domestic purposes only

PLANS. Are approved plans forwarded herewith for Shafting 6-8-38 Main Boilers Yes Auxiliary Boilers Donkey Boilers

Superheaters General Pumping Arrangements 1-11-38 Oil fuel Burning Piping Arrangements

SPARE GEAR.

Has the spare gear required by the Rules been supplied Yes

State the principal additional spare gear supplied

- 1 Spare propeller
- 2 Conn rod bolts & nuts
- 2 Main Bg bolts & nuts
- 2 Ecc strap bolts & nuts
- 1 set coupling bolts & nuts
- Complete set of piston rings for all sizes of Aux & Deck machinery.
- 6 boiler tubes
- 12 Condenser tubes, & journals

Spare springs for safety valves, reducing valves, relief valves & 2 spare valve chests for air & feed pumps.

The foregoing is a correct description.  
W. J. YARWOOD & SONS, (1938) LTD.

Albert Yarwood Manufacturer.



Dates of Survey while building  
 During progress of work in shops - - - 1938  
 Sept 7. 30. Oct 20. 31. Nov 21. Dec 13. 1939  
 Jan 4. 18. 21. Mar 13. 21. 28.  
 During erection on board vessel - - -  
 Total No. of visits 12.

Dates of Examination of principal parts—Cylinders 31.10.38 Slides 31.10.38 Covers 31.10.38  
 Pistons 20.10.38 Piston Rods <sup>3748</sup> 24.5.38 & 20.10.38 Connecting rods <sup>3747</sup> 29.4.38 & 20.10.38  
 Crank shaft 7.9.38 Thrust shaft 21.11.38 Intermediate shafts 31.10.38  
 Tube shaft ✓ Screw shaft 13.12.38 Propeller 13.12.38  
 Stern tube 21.11.38 Engine and boiler seatings 30.9.38 Engines holding down bolts 21.11.38 & 18.1.39  
 Completion of fitting sea connections 13.12.38

Completion of pumping arrangements 13.3.39 Boilers fixed 21.11.38 Engines tried under steam 28.3.39  
 Main boiler safety valves adjusted 21.3.39 Thickness of adjusting washers Pat & stand 3/8" full.  
 Crank shaft material S.M. Steel ✓ Identification Mark <sup>3755</sup> 3-S-36-JFC Thrust shaft material SM Steel Identification Mark <sup>3051</sup> 22.9.38 AS  
 Intermediate shafts, material Steel ✓ Identification Marks 22.9.38 CNS Tube shaft, material ✓ Identification Mark  
 Screw shaft, material Steel Identification Mark <sup>2134</sup> 22.9.38 CNS Steam Pipes, material Copper ✓ Test pressure 400 lbs Date of Test 20.1.39 (51/200)  
 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 ✓  
 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 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 built under special survey, the materials and workmanship are good. After erection in the shop the boiler and machinery have been fitted on board together with the auxiliaries, in an efficient manner. The safety valves have been adjusted under steam, the pumps & auxiliaries tried on the various suction, the spare gear checked, and on completion a satisfactory sea trial witnessed.  
 The vessel's machinery is now eligible, in our opinion, to be classed with record of + LMC 3.39.  
 T.S. CL.

The amount of Entry Fee ... £ 2 : 0 0  
 Balance Special ... £ 8 : 4 0  
 Donkey Boiler Fee ... £ : :  
 Travelling Expenses (if any) £ 4 : 17/-  
 When applied for, 24 APR 1939  
 When received, 6.4.1939

CW Reed for S. Townsend and self.  
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute LIVERPOOL 25 APR 1939  
 Assigned + LMC 3.39  
 C.L.

Rpt. 5a.  
 Date of writing Report  
 No. in Survey held Reg. Book.  
 on the  
 Master  
 Engines made at  
 Boilers made at  
 Nominal Horse Power  
 MULTITUBULAR  
 Manufacturers of Steam  
 Total Heating Surface  
 No. and Description  
 Tested by hydraulic  
 Area of Firegrate in  
 Area of each set of  
 In case of donkey boiler  
 Smallest distance between  
 Smallest distance between  
 Largest internal dia.  
 Thickness 1"  
 long seams  
 Percentage of strength  
 Percentage of strength  
 Thickness of butt str  
 Material steel  
 Length of plain part  
 Dimensions of stiffen  
 End plates in steam  
 How are stays secured  
 Tube plates: Material  
 Mean pitch of stay to  
 Girders to combustion  
 at centre 200 plates  
 in each 200. 8  
 Tensile strength 2  
 Pitch of stays to ditto  
 Working pressure by  
 Thickness 15/16"  
 Pitch of stays at wid  
 Working Pressure  
 Diameter { At body of stay  
 or  
 Over threads  
 Working pressure by  
 Diameter { At turned off p  
 or  
 Over threads

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

