

# REPORT ON OIL ENGINE MACHINERY.

No. 23195

Received at London Office

Writing Report 21<sup>st</sup> Dec 1945 When handed in at Local Office 22<sup>nd</sup> Dec 1945 Port of GREENOCK  
Survey held at GREENOCK Date, First Survey 8<sup>th</sup> JANUARY 1945 Last Survey 15<sup>th</sup> Dec. 1945  
Number of Visits 6

Single on the Tug Triple Screw vessel  
Quadruple  
GREENOCK By whom built BLYTHSWOOD SHIP CO LTD Yard No. 80 When built 1945  
GREENOCK By whom made JOHN G. KINCAID & CO LTD Engine No. 4166 When made 1945  
GREENOCK By whom made JOHN G. KINCAID & CO LTD Boiler No. 4170 When made 1945  
Horse Power 3300 Owners M.O.W.T. Port belonging to  
Horse Power as per Rule 490. Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted YES  
which vessel is intended OPEN SEA SERVICE

GINES, &c. Type of Engines Diesel Airless injection Bucki Sup<sup>4</sup> 2 or 4 stroke cycle 4 Single or double acting S.A.  
Pressure in cylinders 650 lb. Diameter of cylinders 740 1/2 Length of stroke 1500 1/2 No. of cylinders 6 No. of cranks 6  
Indicated Pressure 8.725 kg/cm<sup>2</sup> Is there a bearing between each crank Yes  
Bearings, adjacent to the crank, measured from inner edge to inner edge 1022 1/2  
Revolutions per minute 114 Flywheel dia. 2489 1/2 Weight 2.5 tons Means of ignition Compression Kind of fuel used Heavy Oil  
Solid forged as per Rule Approved G.D. of balance weights 103.37 lbs. 840 1/2 Thickness parallel to axis 310 1/2  
Semi built dia. of journals 505 1/2 Crank pin dia. 505 1/2 Crank webs Mid. length breadth 840 1/2 Thickness around eye hole 222.5 1/2  
All built as fitted 505 1/2 Mid. length thickness 310 1/2 shrunk  
Main Shaft, diameter as per Rule 13.074 Intermediate Shafts, diameter as per Rule 17 Thrust Shaft, diameter at collars as fitted 13.728  
as fitted 17 Is the tube screw shaft fitted with a continuous liner Yes  
Screw Shaft, diameter as per Rule 14.37 as fitted 16  
Liners, thickness in way of bushes as per Rule 7.38 Thickness between bushes as per Rule 5.53 Is the after end of the liner made watertight in the  
as fitted 7.38 1/2 as fitted 5.53  
boss Yes If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner  
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-  
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 shaft No If so, state type Length of bearing in Stern Bush next to and supporting propeller 5'-0"  
Pitch 12'-0 No. of blades 4 Material M.B. whether moveable No Total developed surface 75 sq. feet  
of reversing Engines Compressed Air Is a governor or other arrangement fitted to prevent racing of the engine when declutched Yes Means of  
ion forced Thickness of cylinder liners 53 1/2 top 327 1/2 bottom Are the cylinders fitted with safety valves Yes Are the exhaust pipes and silencers water cooled  
d with non-conducting material Lagged If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned  
the engine Cooling Water Pumps, No. Two Is the sea suction provided with an efficient strainer which can be cleared within the vessel Yes  
Pumps worked from the Main Engines, No. None Diameter Stroke Can one be overhauled while the other is at work  
connected to the Main Bilge Line No. and size Two 1 @ 120 tons/hr & 1 @ 100 tons/hr  
How driven Steam  
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  
ments  
Pumps, No. and size 1 @ 120 tons/hr Power Driven Lubricating Oil Pumps, including spare pump, No. and size 1 - Main eng 10" x 10"  
4 - Steam 100 tons/hr  
Independent means arranged for circulating water through the Oil Cooler Yes Suctions, connected to both main bilge pumps and auxiliary  
pumps, No. and size: In machinery spaces 3 @ 3 1/2" and 4 @ 2 1/2" In pump room  
s, &c.  
Independent Power Pump Direct Suctions to the engine room bilges, No. and size 2 @ 5"  
the bilge suction pipes in holds and tunnel well fitted with strum-boxes Yes Are the bilge suction pipes in the machinery spaces led from easily  
cle mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges Yes  
Sea Connections fitted direct on the skin of the Ship Yes Are they fitted with valves or cocks Both Are they fixed  
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 Below  
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  
pipes pass through the bunkers How are they protected  
pipes pass through the deep tanks Have they been tested as per Rule  
pipes, cocks, valves and pumps in connection with the machinery and all boiler mountings accessible at all times Yes  
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 worked from  
wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork  
in Air Compressors, No. No. of stages diameters stroke driven by  
Auxiliary Air Compressors, No. Two No. of stages Two diameters 120 cu ft/min stroke driven by Steam  
Small Auxiliary Air Compressors, No. No. of stages diameters stroke driven by  
at provision is made for first charging the air receivers Steam compressor as above  
venting Air Pumps, No. diameter stroke driven by  
Auxiliary Engines crank shafts, diameter as per Rule No. Position  
Have the auxiliary engines been constructed under special survey Yes Is a report sent herewith Ipswich Cert N.D. 2950

200907-002915-01602

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AIR RECEIVERS:—Have they been made under survey Yes State No. of report or certificate 420  
 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  
 Injection Air Receivers, No. ✓ Cubic capacity of each ✓ Internal diameter ✓ thickness ✓  
 Seamless, lap welded or riveted longitudinal joint ✓ Material ✓ Range of tensile strength ✓ Working pressure ✓  
 Starting Air Receivers, No. One Total cubic capacity 750 cu ft Internal diameter 6'-4" thickness 1 1/32"  
 Seamless, lap welded or riveted longitudinal joint TR DBS Material S Range of tensile strength 29,333 lb/sq in Working pressure ✓  
 IS A DONKEY BOILER FITTED Yes If so, is a report now forwarded Yes  
 Is the donkey boiler intended to be used for domestic purposes only No  
 PLANS. Are approved plans forwarded herewith for shafting 20/12/43 Receivers 420 Separate fuel tank ✓  
 Donkey boilers Yes General pumping arrangements Yes Pumping arrangements in machinery space Yes  
 Oil fuel burning arrangements Yes

#### S.P.A.R.E. G.E.A.R.

Has the spare gear required by the Rules been supplied ✓  
 State the principal additional spare gear supplied ✓

The foregoing is a correct description For JOHN G. KINCAID & CO. LIMITED.  
 Director, Manufacturer.

Dates of Survey while building  
 During progress of work in shops - (1945) Jan. 8, Feb. 2, 4, 11, Mar. 1, 15, 23, Apr. 2, 10, 16, May 3, 7, 15, 16, 18, 22, 23, 24, June 4, 11, 13, 14, 19, 20, 27, 27, July 12, 18, 25, 30, Aug. 1, 3, 17, 23, 24, 29, 30  
 During erection on board vessel - 20, 21, 24, Oct. 1, 4, 10, 11, 15, 29, Nov. 6, 19, 22, 23, 29, Dec. 3, 7, 8, 10, 14, 15  
 Total No. of visits 61

Dates of examination of principal parts—Cylinders 24/6/45 Covers 24/6/45 Pistons 16-5-45 Rods 18-7-45 Connecting rods 18-7-45  
 Crank shaft 18-7-45 Flywheel shaft ✓ Thrust shaft 12/7/45 Intermediate shafts 12/7/45 Tube shaft ✓  
 Screw shaft 27/6/45 Propeller 27/6/45 Stern tube 18/12/44 Engine seatings 18/7/45 Engine holding down bolts 12/7/45  
 Completion of fitting sea connections 4/7/45 Completion of pumping arrangements 23/11/45 Engines tried under working conditions 23/11/45  
 Crank shaft, material S Identification mark LR 12464 Flywheel shaft, material ✓ Identification mark ✓  
 Thrust shaft, material S Identification mark LR 14166 Intermediate shafts, material S Identification marks LR 15  
 Tube shaft, material ✓ Identification mark ✓ Screw shaft, material S Identification mark 23887  
 Identification marks on air receivers N° 2394  
Tested 556 lb  
WP 356 lb CNV 6-12-44

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  
 Description of fire extinguishing apparatus fitted Steam under boiler & main engine also 11-2 gal portable extinguisher  
 Is the vessel (not being an oil tanker) fitted for carrying oil as cargo Oil tanker 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 No  
 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.)  
This machinery has been constructed under special survey in accordance with Rules & approved plans & M.O.W.T. Specification. The materials & workmanship are sound & good. It has been efficiently installed in the vessel & tested under full working conditions during sea trials, and in my opinion to be classed in the Society's Register Book with notation + LMC 11-45 and Notation Screw shaft CL 2 DB. 150 lb/sq in fitted for fuel F.P. above 150°F.  
Certificates common to this engine and K167 will be forwarded on completion of the latter.

The amount of Entry Fee ... £ 5 0  
 25% Special ... £ 98 10  
 Donkey Boiler Fee, +25% ... £ 24 12-6  
 1/4 Receiver +25% ... £ 27 10  
 Travelling Expenses (if any) £ 5 5  
 When applied for 21st Dec. 1945.  
 When received 19  
 Committee's Minute  
 Assigned + L.M.C. 11/45  
2 DB. 150 lb. oil Eng.

GLASGOW

28 DEC 1945

Charles J. Hunter  
 Engineer Surveyor to Lloyd's Register of Ships

Rpt. 9a.

Port of GREENOCK Continuation of Report No. 23195 dated 21st December, 1945. on the

#### "EMPIRE TRINIDAD".

This vessel was taken over by the M.O.W.T. on 23rd November, 1945.

As the vessel was preparing to proceed on her voyage on 28th November the Chief Engineer found that the lubricating oil for the main engine was contaminated with salt water.

The crank case sump was tested and it was found that some welding at the aft end of the sump was faulty and that when the bilge was full water leakage entered the crank sump.

This welding has now been made good and the sump tested and found tight.

All main bearings, bottom ends and crossheads, panel bearings and crankshaft bearings opened up and examined. All the journals, pins and bearings were found discoloured and dry. The lubricating oil pipes and the piston cooling pipes contained some grit probably a mixture of brackish water and oil.

The foregoing parts have now been cleaned. Lubricating oil tanks and pipes cleaned out. The engine crank casing was cleaned down. New oil supplied.

The engine has again been tested out on a 4 hour sea trial with satisfactory results, after which one main bearing, one bottom end and one crosshead opened up and examined. These parts were all found in good condition.

The propeller developed singing characteristics at certain revolutions (please see attached copy of report 10 C.

The propeller is to Harland & Wolff design approved by the M.O.W.T.

Charles J. Hunter

*The main engines have been approved for torsional & torsiongraph records taken 21-11-45 found satisfactory. This will serve also for Kincaid's Eng. K167 in MV British Green. In MV Greenfield (Kincaid's Eng. K170) intermediate shaft is 24" & propeller also differs.*  
 L.J.  
 11/1/46



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