

REPORT ON OIL ENGINE MACHINERY.

No. 21590

Received at London Office

OCT 1941

Date of writing Report 6th OCTOBER 1941 When handed in at Local Office 10th OCTOBER 1941 Port of GREENOCK

No. in Survey held at
Reg. Book.

23307 on the *Empire Tide*
Screw vessel

Date, First Survey 8th OCTOBER 1940 Last Survey 8th Oct 1941
Number of Visits 66

Tons { Gross 6978.37
Net 4147.17

Built at Port Glasgow

By whom built Lithgows L^{ts}

Yard No. 945 When built 1941

Engines made at Greenock

By whom made John G. Kincaid & Co L^{ts}

Engine No. 1142 When made 1941

Donkey Boilers made at Greenock

By whom made John G. Kincaid & Co L^{ts}

Boiler No. 1142 When made 1941

Brake Horse Power 3300

Owners Ministry of War Transport

Port belonging to Greenock

Nom. Horse Power as per Rule 490

Is Refrigerating Machinery fitted for cargo purposes No

Is Electric Light fitted Yes

Trade for which vessel is intended Ocean going

OIL ENGINES, &c.—Type of Engines Diesel Airless injection Super Buck 2 or 4 stroke cycle 4 Single or double acting Single

Maximum pressure in cylinders 650 lbs/sq. in. Diameter of cylinders 7407 Length of stroke 15007 No. of cylinders 6 No. of cranks 6

Mean Indicated Pressure 8.725 Kg/cm² Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 10227 Is there a bearing between each crank Yes

Revolutions per minute 110 Flywheel dia. 24897 Weight 2.5 tons Means of ignition Compression Kind of fuel used Diesel Oil

Crank Shaft, { Solid forged dia. of journals as per Rule as fitted 5057 Crank pin dia. 5057 Crank Webs Mid. length breadth 8407 shrunk Thickness parallel to axis 3107
All built as fitted 5057 Mid. length thickness 3107 Thickness around eye-hole 222.57

Flywheel Shaft, diameter as per Rule as fitted Intermediate Shafts, diameter as per Rule 13.287 as fitted 13.375 Thrust Shaft, diameter at collars as per Rule 13.95 as fitted 14.0

Tube Shaft, diameter as per Rule as fitted Screw Shaft, diameter as per Rule 14.620 as fitted 14.875 Is the { tube } shaft fitted with a continuous liner { Yes

Bronze Liners, thickness in way of bushes as per Rule 746 as fitted 75 Thickness between bushes as per Rule 559 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 4'-11 1/2"

Propeller, dia. 16'-0" Pitch 12'-0" 2 1/4 root No. of blades 4 Material Bronze whether Moveable No Total Developed Surface 94 sq. feet

Method of reversing Engines Compressed Air Is a governor or other arrangement fitted to prevent racing of the engine when declutched Yes Means of lubrication

Forced Thickness of cylinder liners 537 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

Cooling Water Pumps, No. Two One main One steam 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. None Diameter Stroke Can one be overhauled while the other is at work

Pumps connected to the Main Bilge Line No. and Size One 100 tons/hr & One 170 tons/hr How driven Steam

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 170 tons/hr Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size Two One Main eng 10x10 One Steam 10x10x10

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 Two @ 3" Three @ 2 1/2" Tunnel well one @ 2 1/2" In Pump Room

In Holds, &c. Forepeak 1 @ 3" N1-2 @ 3" N2-2 @ 3 1/2" Dup tank 2 @ 2 1/2" N3-2 @ 3" N4-2 @ 3" Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size Two @ 5"

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 Below

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 None How are they protected

What pipes pass through the deep tanks Bilge pipes to fwd holds 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 No WT. Box 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. One No. of stages Two Diameters 11 1/4" & 4 3/4" Stroke 8" Driven by Steam

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

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

What provision is made for first Charging the Air Receivers Steam air compressor Driven by

Scavenging Air Pumps, No. Diameter Stroke No. One Position Engine room platform

Auxiliary Engines crank shafts, diameter as per Rule as fitted 114 Comp N° 6577 Ips. Cep N° D4258 Is a report sent herewith Certificates attached

Have the Auxiliary Engines been constructed under special survey Yes

005269-005279-0237

AIR RECEIVERS:—Have they been made under survey *Yes* State No. of Report or Certificate *✓*
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. *None* 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 *1/32" & 1/16"*
Seamless, lap welded or riveted longitudinal joint *T.R. D.B.S.* Material *S.M. Steel* Range of tensile strength *29/33* Working pressure *by Rules 365 lb. Actual 356 lb/10"*

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 *No*
PLANS. Are approved plans forwarded herewith for Shafting *18-1-40* Receivers *30-1-40* Separate Fuel Tanks *12-3-41*
(If not, state date of approval)
Donkey Boilers *23-1-40* General Pumping Arrangements *12-2-40* Pumping Arrangements in Machinery Space *18-3-40*
Oil Fuel Burning Arrangements *28-5-40*

SPARE GEAR.

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-- (1940) OCT 8-22-25 NOV. 1-4-15-21-28 DEC. 5-9-30 (1941) JAN. 10-13-22-28 FEB. 12-21-24 MAR. 6-19-21-31 APR. 1-2-9-15-25 MAY 5-13-16
During erection on board vessel-- 19-26-24-29 JUNE 4-12-19-28 JULY 1-18-22-23-30-31 AUG. 1-6-21-25-24 SEPT. 1-2-4-9-11-12-15-16-19-20-22-26-24-30 OCT. 2-4-8
Total No. of visits *66*

Dates of Examination of principal parts—Cylinders *22-7-41* Covers *22-7-41* Pistons *18-7-41* Rods *2-9-41* Connecting rods *2-9-41*
Crank shaft *2-9-41* Flywheel shaft *✓* Thrust shaft *25-4-41* Intermediate shafts *25-4-41* Tube shaft *✓*
Screw shaft *19-5-41* Propeller *19-5-41* Stern tube *15-4-41* Engine seatings *4-9-41* Engines holding down bolts *20-9-41*
Completion of fitting sea connections *27-5-41* Completion of pumping arrangements *7-10-41* Engines tried under working conditions *7-10-41*
Crank shaft, Material *S* Identification Mark *9588 CNH* Flywheel shaft, Material *✓* Identification Mark *✓*
Thrust shaft, Material *S* Identification Mark *9647 CNH* Intermediate shafts, Material *S* Identification Marks *9647 CNH*
Tube shaft, Material *✓* Identification Mark *✓* Screw shaft, Material *S* Identification Mark *9647 CNH*
Identification Marks on Air Receivers *N° 1695*
L10405 TEST
575 lb/10"
W.P. 356 lb/10"
C.N.H. 19-3-41

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 *Empire Spring grk op! 21458.*

General Remarks (State quality of workmanship, opinions as to class, &c.) *These engines have been built under Special Survey in accordance with the Rules and approved plans. The materials and workmanship are sound & good. The machinery has been efficiently installed on board and tested under full working conditions on a short sea trial with satisfactory results. This machinery is eligible in my opinion to be Classed in the Society's Register Book with record + LMC 10-41 and Notation Screw shaft C.L. 208150lb/10"*
The Plans & Specification have been supervised & a copy of the report issued is enclosed herewith.

The amount of Entry Fee .. £ 5 : 0 :
Special £ 98 : 10 :
Donkey Boiler Fee ... £ 15 : 0 :
Specification £ 29 : 9 :
Travelling Expenses (if any) £ .. : .. :
When applied for, 10th OCTOBER 1941
When received, 19

Committee's Minute

GLASGOW 14 OCT 1941

Assigned *1- Dec 10-41* *Oil Eng*
208 150 lb.

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



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Foundation