

REPORT ON OIL ENGINE MACHINERY.

No. 75010

TUE. 6 DEC. 1921

Received at London Office

Writing Report 19. When handed in at Local Office 14. 11. 1921 Port of Newcastle-on-Tyne.
 in Survey held at So. Shields. Date, First Survey 5 April 1921 Last Survey 9 Nov. 1921
 Book. Number of Visits 27
 on the Single Screw vessels s.s. "Arran Firth" Tons Gross
Triple Net
 Built at So. Shields By whom built Keppels (1919) Ltd Yard No. 657 When built 1921
 Lines made at Stockholm By whom made J.C.G. Bolinders Co. Ltd Engine No. When made
 Key Boilers made at None. By whom made Boiler No. When made
 Net Horse Power 320 Owners Ferrum S.S. Co. Ltd Port belonging to Glasgow.
 Horse Power as per Rule 91. Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted Yes.

ENGINES, &c. Type of Engines Roller Oil Engine 2 ~~or 4~~ stroke cycle Single ~~or double~~ acting Reversible

Working pressure in cylinders No. of cylinders No. of cranks Diameter of cylinders
 of stroke Revolutions per minute Means of ignition Kind of fuel used
 Distance between bearings Span of bearings (Page 92, Section 2, par. 7 of Rules)

Distance between centres of main bearings Is a flywheel fitted Diameter of crank shaft journals as per Rule as fitted

Number of crank pins Breadth of crank webs as per Rule as fitted Thickness of ditto as per Rule as fitted

Diameter of flywheel shaft as per Rule as fitted Diameter of tunnel shaft as per Rule 5.42" as fitted Diameter of thrust shaft as per Rule as fitted 7 3/8"

Diameter of screw shaft as per Rule 6.1" as fitted 7 3/8" Is the screw shaft fitted with a continuous liner the whole length of the stern tube. No liner.
 after end of the liner made watertight in the propeller boss If the liner is in more than one length are the joints burned

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
 liners are fitted, is the shaft lapped or protected between the liners If without liners, is the shaft arranged to run in oil

of outer gland fitted to stern tube None. Length of stern bush 2'-6" Diameter of propeller 6'-6"
 of propeller 5'-1" No. of blades 3. state whether moveable Fixed. Total surface 15 sq square feet

Method of reversing Timing Friction Clutch Is a governor or other arrangement fitted to prevent racing of the engine when declutched Yes. Thickness of cylinder liners

Are the cylinders fitted with safety valves Means of lubrication Are the exhaust pipes and silencers water cooled or lagged with
 conducting material None. If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine

Exhausts up funnel. No. of cooling water pumps 1 Is the sea suction provided with an efficient strainer which can be cleared
 in the vessel Yes. No. of bilge pumps fitted to the main engines 1 Diameter of ditto 4" Stroke 5"

Can be overhauled while the other is at work No. of auxiliary pumps connected to the main bilge lines 1 How driven Belt driven from main dynamo, or aux. dynamo

of pumps 2" Swainson Rotary. No. and sizes of suctions connected to both main bilge pumps and auxiliary bilge pumps:—In engine room 3-2"
 in holds, etc. 3-2" No. of ballast pumps 1 How driven Belt driven Sizes of pumps 2" Swainson Rotary

Is a ballast pump fitted with a direct suction from the engine room bilges Yes 2" State size 2" Is a separate auxiliary pump suction fitted in
 the Room and size None. Are all the bilge suction pipes fitted with roses Yes Are the roses in Engine Room always accessible Yes

Are the sluices on Engine Room bulkheads always accessible None. Are all connections with the sea direct on the skin of the ship Yes.
 they valves or cocks Valves. Are they fixed sufficiently high on the ship's side to be seen without lifting the floor plates Yes.

Are the discharge pipes above or below the deep water line above. Are they each fitted with a discharge valve always accessible on the plating of the vessel Yes.

Are all pipes, cocks, valves and pumps in connection with the machinery accessible at all times Yes. Are the bilge suction pipes, cocks and valves arranged so as to prevent any
 communication between the sea and the bilges Yes. Is the screw shaft tunnel watertight None. Is it fitted with a watertight door

Is the vessel fitted with means to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork
 of main air compressors No. of stages Diameters Stroke Driven by

of auxiliary air compressors None. No. of stages Diameters Stroke Driven by

of small auxiliary air compressors 1. No. of stages Double Acting Diameters 3" Stroke 3" Driven by Hand.

of scavenging air pumps None. Diameter Stroke Driven by

Number of auxiliary Diesel Engine crank shafts as per Rule as fitted Are the air compressors and their coolers made so as to be easy of access Yes.

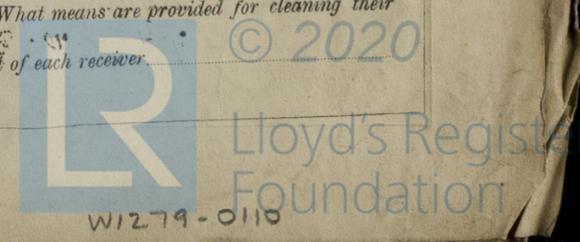
RECEIVERS:—No. of high pressure air receivers Internal diameter Cubic capacity of each

Material Seamless, lap welded or riveted longitudinal joint Range of tensile strength

Thickness working pressure by Rules No. of starting air receivers Internal diameter

Internal cubic capacity Material Seamless, lap welded or riveted longitudinal joint

Range of tensile strength thickness Working pressure by rules 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
 internal surfaces Is there a drain arrangement fitted at the lowest part of each receiver



IS A DONKEY BOILER FITTED?

No.

If so, is a report now forwarded?

HYDRAULIC TESTS:-

DESCRIPTION.	DATE OF TEST.	WORKING PRESSURE.	TEST PRESSURE.	STAMPED.	REMARKS.
ENGINE CYLINDERS					
" " COVERS					
" " JACKETS.....					
" " PISTON WATER PASSAGES.....					
MAIN COMPRESSORS—1st STAGE.....					
" 2nd "					
" 3rd "					
AIR RECEIVERS—STARTING					
" INJECTION					
AIR PIPES					
FUEL PIPES					
FUEL PUMPS					
SILENCER					
" WATER JACKET					
SEPARATE FUEL TANKS	3 off 2 off 1 off	24. 8. 21. 17. 8. 21. 1. 9. 21.	2 5/16" 2 5/16" 2 5/16"	J.P. J.P. J.P.	

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

Receivers

Separate Tanks

SPARE GEAR 1 Cylinder Cover. 1 set top end braces. 1 H.P. compression ring for piston. 2 spare sight feed glasses for 1 doz. blow lamp burner woggles. 1 " bottom " " 1 H.P. " " " 2 " " " bearing. 2 bolts nuts for connecting rod braces. 2 bolts nuts for gudgeon pin bearings. 2 pressure valves for helix pump 3 bolts & nuts for cylinder cover. 1 bolt & nut for connecting cylinder to crank case. 2 suction " " " 1 screw for fastening the thrust bearing. 1 screw for fastening the lubricator. 1 bolt with nut for eccentric rod. 1 bolt with nut for killing arm. 1 bolt with nut for replace weights. 2 bolts for main bearings. 1 set coupling bolts for propeller shaft.

The foregoing is a correct description,

For HEPPLES (1919) LIMITED,

W. J. Hoeppe
MANAGER DIRECTOR

Manufacturer.

Dates of Survey while building { During progress of work in shops -- 1921
During erection on board vessel --
Total No. of visits 27

Apl. 5. 12. 13. 19. 20. 25. May 9. Jul. 1. 28. 29. Aug. 3. 8. 10. 23. 31. Sep. 13. 20. 21. 23. Oct. 5. 10. 11. 18. 26. Nov. 4.

Dates of Examination of principal parts—Cylinders Covers Pistons Rods Connecting rods

Crank shaft Thrust shaft Tunnel shafts 20.5.21. Screw shaft 20.5.21 Propeller 9.5.21 Stern tube 5.4.21 Engine seatings 28.7

Engines holding down bolts 23.8.21 Completion of pumping arrangements 9.11.21 Engines tried under working conditions 9.11.21

Completion of fitting sea connections 3.8.21. Stern tube 28.7.21 Screw shaft and propeller 28.7.21

Material of crank shaft Identification Mark on Do. Material of thrust shaft Identification Mark on Do.

Material of ~~crank~~ shafts forged iron. Identification Marks on Do. 20.5.21 C.M.S. Material of screw shafts forged iron. Identification Marks on Do. 20.5.21

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

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 fitted out, on board, under special survey, & the materials & workmanship are good.

After fitting in place on board, the machinery was examined under working conditions, & light & loaded ship trials carried out & found to work satisfactorily.

The machinery throughout is now in good & efficient condition & eligible in my opinion to have the record of L.M.C. 11.21. Marked in the Society's Register Book.

It is submitted that this vessel is eligible for THE RECORD. L.M.C. - 11.21. (Annual Survey)

Cyl Engines 2 S.C.S.A. 4 Cy. 16 9/16" 18 7/8" 91 N.H.P.

J.C. Bolinders Co. Ltd., Stockholm.

The amount of Entry Fee ... £

Special ... £ 14. 17.

Donkey Boiler Fee ... £

Travelling Expenses (if any) ... £

When applied for, 12/19/21

When received, 10.3.22

C. N. Stewart
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 16 DEC. 1921

Assigned L.M.C. 11.21 oil engines

MACHINERY CERT WRITTEN 20 JAN. 1922



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