

Rpt. 4.

REPORT ON MACHINERY.

No. 15462

Received at London Office

FRI. MAR. 22 1918.

Date of writing Report 16th March, 1918. When handed in at Local Office

19/3/18 Port of West Hartlepool

No. in Survey held at W. Hartlepool

Date, First Survey 11th May 1917 Last Survey 6th March 1918.

Reg. Book.

on the Steel Twin Sc. (oil driven) "Oakol" (W. Gray, Esq's No. 889)

(Number of Visits 87)

Gross 1144.21

Net 516.30

When built 1918

Master

Built at W. Hartlepool

By whom built W. Gray, Esq. Ltd.

Engines made at Stockholm (Sweden)

By whom made J. & C. G. Bolinder

when made

Boilers made at

By whom made

when made

Registered Horse Power 640

Owners Admiralty

Port belonging to London

Nom. Horse Power as per Section 28 183

Is Refrigerating Machinery fitted for cargo purposes No

Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Two Cycle, Hot Bulb, with direct reverse

No. of Cylinders 4 (each engine) No. of Cranks 4 (each engine)

Dia. of Cylinders 16 17/32

Length of Stroke 18 3/4

Revs. per minute 225

Dia. of Screw shaft 8 1/2

Material of screw shaft Ingot Steel

Is the screw shaft fitted with a continuous liner the whole length of the stern tube stern bush of one of Is the after end of the liner made water tight in the propeller boss Yes If the liner is in more than one length are the joints burned 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 No

Lengths of stern bushes 26 1/4" inner 30 1/2" outer

Dia. of Tunnel shaft 7 1/2

Dia. of Crank shaft journals 7 1/2

Dia. of Crank pin 7 1/8

Size of Crank webs 10 5/8 x 4 1/2

Collars 6 7/8

Dia. of screw 6-6

Pitch of Screw 6-0

No. of Blades 3 State whether moveable No Total surface (one propeller) 16.3 sq ft.

No. of Bilge pumps 2

Diameter of ditto 3 7/8

Stroke 2

Can one be overhauled while the other is at work Yes

No. of Bilge pumps 1

Diameter of ditto 3 15/16

Stroke 5

Can one be overhauled while the other is at work

No. of Donkey Engines 2

No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room 3, 3"; in after peak tank, one, 3 1/2"

4"; in deep tank, 2, 4"; in Cofferdam, 2, 4"; in fore pump room, 2, 2 1/2"

No. of Bilge Injections sizes Connected to condenser, or to circulating pump Is a separate Donkey Suction fitted in Engine room & size Yes 6 1/2"

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 Are they Valves or Cocks All valves, except donkey, boiler blow-down, all above except ballast, to Admiralty

Are they fixed sufficiently high on the ship's side to be seen without lifting the stopcock plates Yes Are the Discharge Pipes above or below the deep water line donkey

Are they each fitted with a Discharge Valve always accessible on the plating of the vessel Are the Blow Off Cocks fitted with a spigot and brass covering plate Requirements

What pipes are carried through the bunkers How are they protected

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and boiler mountings 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 worked from

OILERS, &c.—(Letter for record) Manufacturers of Steel

Total Heating Surface of Boilers Is Forced Draft fitted No. and Description of Boilers

Working Pressure Tested by hydraulic pressure to Date of test No. of Certificate

Can each boiler be worked separately Area of fire grate in each boiler No. and Description of Safety Valves to

each boiler Area of each valve Pressure to which they are adjusted Are they fitted with easing gear

Smallest distance between boilers or uptakes and bunkers or woodwork Mean dia. of boilers Length Material of shell plates

Thickness Range of tensile strength Are the shell plates welded or flanged Descrip. of riveting: cir. seams

ing. seams Diameter of rivet holes in long. seams Pitch of rivets Lap of plates or width of butt straps

Percentages of strength of longitudinal joint rivets. Working pressure of shell by rules Size of manhole in shell

Size of compensating ring No. and Description of Furnaces in each boiler Material Outside diameter

Length of plain part top Thickness of plates crown Description of longitudinal joint No. of strengthening rings

Working pressure of furnace by the rules Combustion chamber plates: Material Thickness: Sides Back Top Bottom

Pitch of stays to ditto: Sides Back Top If stays are fitted with nuts or riveted heads Working pressure by rules

Material of stays Area at smallest part Area supported by each stay Working pressure by rules End plates in steam space:

Material Thickness Pitch of stays How are stays secured Working pressure by rules Material of stays

Area at smallest part Area supported by each stay Working pressure by rules Material of Front plates at bottom

Thickness Material of Lower back plate Thickness Greatest pitch of stays Working pressure of plate by rules

Diameter of tubes Pitch of tubes Material of tube plates Thickness: Front Back Mean pitch of stays

Pitch across wide water spaces Working pressures by rules Girders to Chamber tops: Material Depth and

thickness of girder at centre Length as per rule Distance apart Number and pitch of stays in each

Working pressure by rules Steam dome: description of joint to shell % of strength of joint

Diameter Thickness of shell plates Material Description of longitudinal joint Diam. of rivet holes

Pitch of rivets Working pressure of shell by rules Crown plates Thickness How stayed

SUPERHEATER. Type

Date of Approval of Plan

Tested by Hydraulic Pressure to

Date of Test

Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler

Diameter of Safety Valve

Pressure to which each is adjusted

Is Easing Gear fitted

IS A DONKEY BOILER FITTED?

Yes.

If so, is a report now forwarded?

Yes.

SPARE GEAR. State the articles supplied:— 2 blow lamps, 32 piston springs, 16 injection nozzles, 48 cleaning needles, 8 pressure valves, 8 action valves, 8 oil valves, 88 valve springs, 16 governor springs, 8 fuel pump springs, 12 bronze plates for fuel pump, 4 back pump springs, 16 air valve springs, 24 spindles for oil valves & 8 for fuel pump, 8 pressure & 8 action valves & 4 valves for water injection pump, oil fuel pump valves (suction & delivery) & springs, bilge pump valves (2) & springs, 4 igniter bulbs, 8 glasses for water valve, 2 boxes of blow lamp spares, Set of shaft coupling bolts & nuts, assorted studs & nuts; complete sets of spare gear for each of the following auxiliaries, viz.— 2 electrically-driven ballast & bilge pumps, 2 gear-driven cargo oil pumps, 2 sets of electric generating machinery, & feed pump & steam & hand oil fuel pumps for donkey boiler. **N.B.**— The following articles are not carried on board ship, but are, or will be stored at the naval base,— 2 screw shafts complete with nuts; lignum-vitae strips, with facings, for stern tube bushes & bracket; 2 propellers— one right & one left hand; 2 pistons— right & left hand— with pudgeon pin complete; 12 cylinder studs & nuts; 4 main bearing studs & nuts; 4 connecting rod top end & 4 bottom end bolts & nuts; set of bilge pump valves & springs; set of circulating pump valves & springs; set of cooling pump valves & springs; set of pressure springs for Reavall's air compressor; set of air valves for Reavall's air compressor; complete set of piston leathers, set & 2nd stage, for hand compressor; connecting rod bottom end & top end brasses; some parts for forced feed lubricator & springs; glasses for sight feed lubricator for main bearings & for lubricator on crank bearings. The foregoing is a correct description,

FOR THE CENTRAL MARINE ENGINE WORKS,

John Williams

Manufacturer.

Dates of Survey while building	{	During progress of work in shops --	1917. May 4. 7. 8. 9. 11. 15. 21. 23. 24. 31. June 1. 21. 27. July 3. 6. 13. 19. 25. 27. 30. 31. Aug 15. 16. 17. 20. 21. 23.
		During erection on board vessel --	4. 5. 10. Oct 2. 4. 9. 12. 17. 26. 29. Nov 1. 6. 8. 9. 12. 23. 26. 27. 28. 29. 30. Dec 3. 4. 7. 10. 17. 18. 20. 21. 28. 1918. Jan 1. 2. 3. 21. 23. 24. 25. 26. 29. 30. Feb 1. 5. 6. 7. 11. 13. 13. 14. 15. 16. 18. 19. 20. 21. 22. 23. 26. 27. Mar 1. 4. 6.
		Total No. of visits	87.

Is the approved plan of main boiler forwarded herewith

" " " donkey " " " Yes.

Dates of Examination of principal parts—	Cylinders	10/9/17	Slides	✓	Covers	21/1/18	Pistons	10/9/17	Rods	✓	
Connecting rods	10/9/17	Crank shafts	10/9/17	Thrust shaft	7/12/17	Tunnel shafts	✓	Screw shafts	17.23/8/17	Propellers	9/10/17
Stern tubes	24/5/17	Steam pipes tested	✓	Engine and boiler seatings	9/10/17	Engines holding down bolts	8/11/17	Engines tried under steam	4/3/18	Boilers fixed	✓
Completion of pumping arrangements	28/12/17	Boilers fixed	✓	Engines tried under steam	4/3/18	Screw shafts and propellers	28/1/18	Thickness of adjusting washers	✓	Main boiler safety valves adjusted	✓

Material of Crank shaft	Identification Mark on Do.	Material of Thrust shaft	Identification Mark on Do.
Short (16 1/2' long) intermediate	✓	Material of Screw shafts	✓
Material of Tunnel shafts	✓	Identification Marks on Do.	584
Material of Steam Pipes	✓	Test pressure	✓

Is an installation fitted for burning oil fuel ✓ Is the flash point of the oil to be used over 150°F. ✓

Have the requirements of Section 49 of the Rules 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 workmanship is good.

The requirements of the Admiralty Specification have been carried out. And it is respectfully submitted that the record of LMC 3,18 may be made in the Register Book, in the case of this vessel.

The propelling machinery consists of 2 sets of Bolinder, direct reversible crude oil engines; no marks have been found to denote that any parts, including crank & thrust shafting, had been subjected to any form of test, set of engines supplied by the Admiralty & accepted by the Contractors as a complete working unit.

2 Gear-driven cargo oil pumps— each pump being driven from one of the main engines by means of shafting & a flexible coupling & a friction clutch.

Remaining auxiliary machinery comprises,—

Electric generating machinery made up of 2 sets of oil engines of the hot bulb type coupled direct to continuous current dynamos working at 105 volts— one set 100 BHP & one set 50 BHP.

2 ballast & bilge pumps & a fresh water pump— each pump being electrically driven.

Steering gear & windlass are also electrically driven.

The amount of Entry Fee	£	:	:	When applied for,
Special	29	5	:	27/3/18
Donkey Boiler Fee	£	:	:	When received,
Travelling Expenses (if any)	£	:	:	27/10/18

Committee's Minute

Assigned

TUE MAR. 26 1918.

L.M.C. 3.18

Oil Engines

MACHINERY CERTIFICATE WRITTEN.

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Lloyd's Register Foundation

Engineer Surveyor to Lloyd's Register of Shipping

J. M. W.

It is submitted that this vessel is eligible for THE RECORD LMC 3.18. Oil Engines 8 Cy. 16 1/2" - 18 3/4" 25C. SA. DB. J. & C. S. Bolinders Co. Ltd. Skm.