

REPORT ON MACHINERY.

No. 27544

Received at London Office

21 JUN 1919

Date of writing Report 19 When handed in at Local Office **20 JUN 1919** Port of **SUNDERLAND.**

No. in Survey held at **Sunderland** Date, First Survey **30 Oct 18** Last Survey **19 June 1919**
 Reg. Book. **Steel on the 1/2 "ORTERIC"** (ex War boats) (Number of Visits **29**) Gross **6696**
 Net **4077**

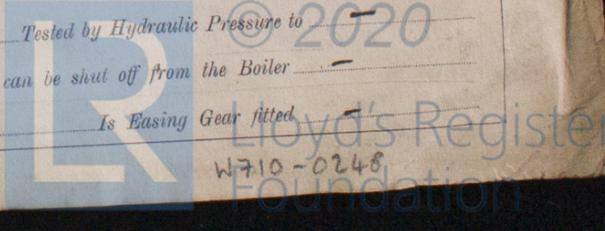
Master **Newton** Built at **Sunderland** By whom built **Messrs Wm Doxford & Sons Ltd (535)** When built **1919**
 Engines made at **Sunderland** By whom made **Messrs Wm Doxford & Sons Ltd (535)** when made **1919**
 Boilers made at **Sunderland** By whom made **Messrs Wm Doxford & Sons Ltd (535)** when made **1919**
 Registered Horse Power **620 bhp** Owners **Bank of India Ltd** Port belonging to **Glasgow**
 Is Refrigerating Machinery fitted for cargo purposes **No** Is Electric Light fitted **Y**

ENGINES, &c.—Description of Engines **Triple** No. of Cylinders **3** No. of Cranks **3**
 Dia. of Cylinders **27, 45, 75** Length of Stroke **54** Revs. per minute **79** Dia. of Screw shaft as per rule **15.26** Material of screw shaft **Steel**
 Is the screw shaft fitted with a continuous liner the whole length of the stern tube **Y** Is the after end of the liner made water tight in the propeller boss **Y** 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 **—** Length of stern bush **5'-6"**
 Dia. of Tunnel shaft as per rule **13.92** Dia. of Crank shaft journals as per rule **14.64** Dia. of Crank pin **14 1/2** Size of Crank webs **30 1/2 x 9 1/2** Dia. of thrust shaft under collars **14 1/2** Dia. of screw **18'-0"** Pitch of Screw **16'-6"** No. of Blades **4** State whether moveable **No** Total surface **96 sq**
 No. of Feed pumps **2** Diameter of ditto **12 x 9 x 21** Stroke **—** Can one be overhauled while the other is at work **Y**
 No. of Bilge pumps **2** Diameter of ditto **4 1/2** Stroke **30"** Can one be overhauled while the other is at work **Y**
 No. of Donkey Engines **2** Sizes of Pumps **9 1/2 x 7 x 16, 10 1/2 x 14 x 24** No. and size of Suctions connected to both Bilge and Donkey pumps **—**
 In Engine Room **Size 3 1/2"** In Holds, &c. **Two in each hold 3 1/2", two for dump tank**
 No. of Bilge Injections **2** sizes **11"** Connected to condenser, to circulating pump **Y** Is a separate Donkey Suction fitted in Engine room & size **4 1/2 3/4"**
 Are all the bilge suction pipes fitted with roses **Y** Are the roses in Engine room always accessible **Y** Are the sluices on Engine room bulkheads always accessible **Y**
 Are all connections with the sea direct on the skin of the ship **Y** Are they Valves or Cocks **Both**
 Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates **Y** Are the Discharge Pipes above or below the deep water line **Below**
 Are they each fitted with a Discharge Valve always accessible on the plating of the vessel **Y** Are the Blow Off Cocks fitted with a spigot and brass covering plate **Y**
 What pipes are carried through the bunkers **None** How are they protected **—**
 Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times **Y**
 Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges **Y**
 Is the Screw Shaft Tunnel watertight **Y** Is it fitted with a watertight door **Y** worked from **Upper Main Deck**

BOILERS, &c.—(Letter for record **S**) Manufacturers of Steel **Spencer Rams**
 Total Heating Surface of Boilers **9525 sq** Is Forced Draft fitted **Y** No. and Description of Boilers **Three, Single End**
 Working Pressure **180 lb** Tested by hydraulic pressure to **360 lb** Date of test **4.4.19, 8.4.19, 15.4.19** No. of Certificate **3553, 3554, 3556**
 Can each boiler be worked separately **Y** Area of fire grate in each boiler **73 sq** No. and Description of Safety Valves to each boiler **Two Spring Valves** Pressure to which they are adjusted **185 lb** Are they fitted with easing gear **Y**
 Smallest distance between boilers or uptakes and bunkers or woodwork **Way between** Mean dia. of boilers **16-2 1/2** Length **12-5** Material of shell plates **S**
 Thickness **1 1/2** Range of tensile strength **28 3/4 to 33** Are the shell plates welded or flanged **No** Descrip. of riveting: cir. seams **Exp. riv.**
 long. seams **d. 1/2" by riv.** Diameter of rivet holes in long. seams **1 3/8** Pitch of rivets **9 1/2** Lap of plates or width of butt straps **20 1/8**
 Per centages of strength of longitudinal joint rivets **88.6** Working pressure of shell by rules **191** Size of manhole in shell **16 x 12**
 plate **85.5** No. and Description of Furnaces in each boiler **4 Duplex** Material **S** Outside diameter **3'-7"**
 Size of compensating ring **Hanged** No. of strengthening rings **—**
 Length of plain part top **—** Thickness of plates crown **1 1/2** Description of longitudinal joint **Welded** No. of strengthening rings bottom **—** Back **3/4** Top **2 3/32** Bottom **7/8**
 Working pressure of furnace by the rules **190** Combustion chamber plates: Material **S** Thickness: Sides **2 3/32** Back **3/4** Top **2 3/32** Bottom **7/8**
 Pitch of stays to ditto: Sides **10 1/2 x 8 3/8** Back **9 1/2 x 9 1/2** Top **8 3/4 x 10 1/2** If stays are fitted with nuts or riveted heads **Y** Working pressure by rules **198** End plates in steam space:
 Material of stays **S** Area at smallest part **2.03 sq** Area supported by each stay **88.75 sq** Working pressure by rules **185** Material of stays **S**
 Material **S** Thickness **1 1/2** Pitch of stays **23 1/2 x 22 1/2** How are stays secured **d. u. l. w.** Working pressure by rules **185** Material of Front plates at bottom **S**
 Area at smallest part **9.66 sq** Area supported by each stay **528 sq** Working pressure by rules **189** Material of Front plates at bottom **S**
 Thickness **3 1/2** Material of Lower back plate **S** Thickness **7/8** Greatest pitch of stays **13 5/8** Working pressure of plate by rules **187**
 Diameter of tubes **2 1/2** Pitch of tubes **3 3/4 x 3 5/8** Material of tube plates **S** Thickness: Front **3 1/32** Back **3/4** Mean pitch of stays **14 x 17 1/2**
 Pitch across wide water spaces **13 5/8** Working pressures by rules **150** Girders to Chamber tops: Material **S** Depth and thickness of girder at centre **10 1/2 x 1 3/4** Length as per rule **36 1/2** Distance apart **10 1/2** Number and pitch of stays in each **3, 8 3/4** No
 Working pressure by rules **200** 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 **2020**
 Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler **—**
 Date of Test **—** Is Easing Gear fitted **—**
 Diameter of Safety Valve **—** Pressure to which each is adjusted **—**

If not, state whether, and when, one will be sent? Is a Report also sent on the Hull of the Ship?



IS A DONKEY BOILER FITTED?

Yes

If so, is a report now forwarded? Yes

SPARE GEAR. State the articles supplied:— Two top end and two bottom end connecting rods
bolts and nuts, two main bearing bolts, one set coupling bolts, one set fuel and bilge
pump valves, assorted bolts and nuts, Iron of various sizes, one propeller

The foregoing is a correct description,

WILLIAM DOXFORD & SONS, Limited.

A. Maxwell

Manufacturer.

Dates of Survey while building
During progress of work in shops -- 1918. Oct 30 Nov 11 21 22 Dec 13 Jan 9 16 29 Feb 11 17 24 Mar 11 19
During erection on board vessel -- Apr 1 2 8 15 17 May 1 2 15 20 27 28 29 30 June 4 5 11 19
Total No. of visits (29)

Is the approved plan of main boiler forwarded herewith 410

Is the approved plan of main boiler forwarded herewith 410

Dates of Examination of principal parts—Cylinders 9.1.19 Slides 29.1.19 Covers 9.1.19 Pistons 9.1.19 Rods 11.2.19
Connecting rods 9.1.19 Crank shaft 11.3.19 Thrust shaft 11.3.19 Tunnel shafts 11.3.19 Screw shaft 19.3.19 Propeller 11.2.19
Stern tube 11.3.19 Steam pipes tested 17.4, 15.5.19 Engine and boiler seatings 19.3.19 Engines holding down bolts 20.5.19
Completion of pumping arrangements 30.5.19 Boilers fixed 2.5.19 Engines tried under steam 30.5.19
Completion of fitting sea connections 19.3.19 Stern tube 19.3.19 Screw shaft and propeller 20.5.19
Main boiler safety valves adjusted 30.5.19 Thickness of adjusting washers Pist 13.4.19 H.A. 5 7/16 Gun 13.4.19 P 4 5 7/16 Stud 18.4.19 P 4 x 5 7/16

Material of Crank shaft Steel Identification Mark on Do. 535 GAH Material of Thrust shaft Steel Identification Mark on Do. 535 GAH
Material of Tunnel shafts Steel Identification Marks on Do. 535 GAH Material of Screw shafts Steel Identification Marks on Do. 535 GAH
Material of Steam Pipes Copper Test pressure 760 lbs

Is an installation fitted for burning oil fuel 410 Is the flash point of the oil to be used over 150°F. 410

Have the requirements of Section 49 of the Rules been complied with 410 as per app'd plans

Is this machinery duplicate of a previous case If so, state name of vessel F Type.

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 sound and good. The vessel has been fitted with an installation for burning oil fuel in accordance with the approved plans and with Section 49 of the Rules. The vessel is eligible in my opinion to have record of 1-LMC 6.19. Fitted for oil fuel 6.19 F.P. above 150°F.

It is submitted that this vessel is eligible for THE RECORD + LMC 6.19. F.D. Fitted for oil fuel 6.19. F.P. above 150°F.

SUNDERLAND.

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

The amount of Entry Fee ... £ : : When applied for, Special ... £ 148 : 16 : 11.6.19.19 Donkey Boiler Fees ... £ : : When received, Travelling Expenses (if any) £ : : 12.7.19 19.10.19

J.W.D. 24/6/19. J.W.D. Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE JUN 24 1919 Assigned + LMC 6.19 J.D. Fitted for oil fuel 6.19 F.P. above 150°F

