

# REPORT ON MACHINERY.

No. 27560

Received at London Office

THE 9 - JUL 1919

Date of writing Report

When handed in at Local Office

Port of Sunderland

Date, First Survey 6th June 1918 Last Survey 1st July 1919

(Number of Visits 58)

No. in Survey held at Sunderland

Tons Gross 3100

Reg. Book. 613 on the new steel S/S "WAR RAYNE"

Net

Master

Built at Sunderland By whom built R. Thompson & Sons Ltd (S/N 309)

When built 1919

Engines made at Sunderland

By whom made North Eastern Marine Engineering Co Ltd (N 2363)

when made 1919

Boilers made at Sunderland

By whom made North Eastern Marine Engineering Co Ltd (N 2363)

when made 1919

Registered Horse Power

Owners The Shipping Controller Stanley & John Thompson Port Belonging to London

Nom. Horse Power as per Section 28 358

Is Refrigerating Machinery fitted for cargo purposes no

Electric Light fitted yes

ENGINES, &c.—Description of Engines Triple expansion No. of Cylinders 3 No. of Cranks 3

Dia. of Cylinders 25-41-68 Length of Stroke 45 Revs. per minute 76 Dia. of Screw shaft 13.03 Material of screw shaft Steel

Is the screw shaft fitted with a continuous liner the whole length of the stern tube yes 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 no 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 no Length of stern bush 5-0

liners are fitted, is the shaft lapped or protected between the liners no Dia. of Tunnel shaft 12.4 Dia. of Crank shaft journals 13.03 Dia. of Crank pin 13.4 Size of Crank webs 8 1/2 x 20 1/2 Dia. of thrust shaft under collars 13 1/4 Dia. of screw 16-0 Pitch of Screw 16-3 No. of Blades 4 State whether moveable no Total surface 750 ft

No. of Feed pumps 2 Diameter of ditto 3 1/2 Stroke 24 Can one be overhauled while the other is at work yes

No. of Bilge pumps 2 Diameter of ditto 3 1/2 Stroke 24 Can one be overhauled while the other is at work yes

No. of Donkey Engines 3 Sizes of Pumps 1 @ 10 1/2 x 12 x 21; 2 @ 9 1/2 x 7 x 18 No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room 5 @ 3" (additional suction being found of sea well) In Holds, &c. N 1 hold - 2 @ 3"; N 2 hold - 2 @ 3"; 6 nos

Is a separate Donkey Suction fitted in Engine room & size yes 3 1/2"

No. of Bilge Injections 1 sizes 11" Connected to condenser, or to circulating pump no

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 no

Are all connections with the sea direct on the skin of the ship yes Are they Valves or Cocks both Are the Discharge Pipes above or below the deep water line above

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates yes Are the Blow Off Cocks fitted with a spigot and brass covering plate yes

Are they each fitted with a Discharge Valve always accessible on the plating of the vessel yes How are they protected under timber boards

What pipes are carried through the bunkers forward hold suction Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all 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 yes Is it fitted with a watertight door yes worked from top platform

BOILERS, &c.—(Letter for record (5)) Manufacturers of Steel John Spencer & Sons Ltd

Total Heating Surface of Boilers 5814 sq ft Is Forced Draft fitted no No. and Description of Boilers three single ended marine

Working Pressure 180 Tested by hydraulic pressure to 360 Date of test 21, 25 & 28-2-19 No. of Certificate 3536, 3539, 3540

Can each boiler be worked separately yes Area of fire grate in each boiler 54 sq ft No. and Description of Safety Valves 3

each boiler two direct spring Area of each valve 5.930 Pressure to which they are adjusted 185 Are they fitted with easing gear yes

Smallest distance between boilers 1-9 Mean dia. of boilers 14-0 Length 11-8 1/2 Material of shell plates steel

Thickness 1 1/8 Range of tensile strength 28 1/2 - 33 tons Are the shell plates welded or flanged no Descrip. of riveting: cir. seams DR

long. seams DBS. TR Diameter of rivet holes in long. seams 1 1/8 Pitch of rivets 8 1/2 Lap of plates or width of butt straps 1-6

Per centages of strength of longitudinal joint 86 Working pressure of shell by rules 187 Size of manhole in shell 16 x 12

Size of compensating ring flange No. and Description of Furnaces in each boiler 3 Dighton bars Material steel Outside diameter 3-7

Length of plain part top 1 1/2; bottom 1 1/2 Thickness of plates top 3/32; bottom 1/32 Description of longitudinal joint welded No. of strengthening rings 184

Working pressure of furnace by the rules 190 Combustion chamber plates: Material steel Thickness: Sides 13/16 Back 3/4 Top 13/16 Bottom 13/16

Pitch of stays to ditto: Sides 12 1/8 x 9 3/8 Back 10 1/2 x 9 Top 12 1/8 x 9 3/8 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 187 End plates in steam space:

Material of stays steel Area at smallest part 2.360 Area supported by each stay 113.50 Working pressure by rules 187 Material of stays steel

Material steel Thickness 1 1/2 Pitch of stays 23 1/4 x 19 1/2 How are stays secured DN & W Working pressure by rules 186 Material of Front plates at bottom steel

Area at smallest part 8290 Area supported by each stay 463 Working pressure by rules 186 Material of Front plates at bottom steel

Thickness 3 1/2 Material of Lower back plate steel Thickness 3 1/2 Greatest pitch of stays 13 1/2 x 9 Working pressure of plate by rules 187

Diameter of tubes 3 1/2 Pitch of tubes 4 3/4 x 4 3/4 Material of tube plates steel Thickness: Front 3 1/2 Back 3/4 Mean pitch of stays 9 1/2

Pitch across wide water spaces 14 1/4 Working pressures by rules 189 Girders to Chamber 2 1/2 Material steel Depth and

thickness of girder at centre 2 @ 10 1/4 x 3 1/4 Length as per rule 2-11 1/2 Distance apart 9 3/8 Number and pitch of stays in each 2 @ 12 1/8

Working pressure by rules 216 Steam dome: description of joint to shell none % of strength of joint

Diameter 13 1/2 Thickness of shell plates 13 1/2 Material steel Description of longitudinal joint none Diam. of rivet holes

Pitch of rivets 13 1/2 Working pressure of shell by rules 189 Crown plates 13 1/2 Thickness 13 1/2 How stayed

SUPERHEATER. Type none Date of Approval of Plan none Tested by Hydraulic Pressure to 2021

Date of Test none Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler no

Diameter of Safety Valve none Pressure to which each is adjusted none Is Easing Gear fitted no

W1307-0201

Lloyd's Register Foundation

IS A DONKEY BOILER FITTED? *no*

If so, is a report now forwarded?

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

The foregoing is a correct description,

FOR THE NORTH EASTERN MARINE ENGINEERING CO. LTD

*Geo. D. Heer*

Manufacturer.

Dates of Survey while building: During progress of work in shops -- 1918. June 6-10. September 13-16-17-18-30. October 8-10-15-18-21-23-25-29-31. During erection on board vessel --- Nov 18-21-23-25-27-28. Dec. 6-10-11-17-30. Jan 6-9-16-17-23-24-29. Feb 3-10-11-18-20-21-24-25-26-28. Total No. of visits March 3-10-20-24-28. Apr 4-10-11-14-15-24. June 4-5 July 1. Is the approved plan of main boiler forwarded herewith *yes* 58 sheets.

Dates of Examination of principal parts—Cylinders 23-11-18 Slides 6-12-18 Covers 29-10-18 Pistons 28-11-18 Rods 11-12-18 Connecting rods 25-11-18 Crank shaft 21-11-18 Thrust shaft 21-11-18 Tunnel shafts 24-1-19 Screw shaft 3-3-19 Propeller 6-1-19 Stern tube 10-2-19 Steam pipes tested 14-4-19 Engine and boiler seatings 26-2-19 Engines holding down bolts 10-4-19

Completion of pumping arrangements 24-4-19 Boilers fixed 11-4-19 Engines tried under steam 24-4-19 Completion of fitting sea connections 26-2-19 Stern tube 26-2-19 Screw shaft and propeller 20-3-19

Main boiler safety valves adjusted 24-4-19 Thickness of adjusting washers *Roller, P 2" S 17/32; back br. both 9/16; shell 1 1/2 P 32/32*

Material of Crank shaft *Steel* Identification Mark on Do *4119N.W.C.* Material of Thrust shaft *Steel* Identification Mark on Do *4119N.W.C.*

Material of Tunnel shafts *Steel* Identification Marks on Do *4119N.W.C.* Material of Screw shaft *Steel* Identification Marks on Do *4119N.W.C.*

Material of Steam Pipes *Lapwelded wrought iron* " *space as Steel* Test pressure *540 pounds per sq. in.* *4119N.W.C.*

Is an installation fitted for burning oil fuel *no* 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 *yes* If so, state name of vessel *Standard "C" type* (NATURAL DRAUGHT)

General Remarks (State quality of workmanship, opinions as to class, &c.)  
The materials and workmanship are good  
The machinery has been constructed under special survey and is eligible in my opinion for classification and the record *+LMC 4, 19*

It is submitted that this vessel is eligible for THE RECORD. +LMC 7.19.

*J.M. J.W.D. R.C.H.*  
8.7.19.

The amount of Entry Fee ... £ 68 16 3  
Special ...  
Donkey Boiler Fee ...  
Travelling Expenses (if any) ...  
When applied for, 7.7.1919  
When received, 21.7.1919

*L. H. Davis*  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute *FRI. 11 JUL. 1919*  
Assigned *L.H.D. 7.19*  
MACHINERY CERTIFICATE WRITTEN.

