

REPORT ON MACHINERY.

No. 11004
FRI 30 MAY 1919

Date of writing Report 10th May 1919 When handed in at Local Office 15th May 1919 Port of NEWCASTLE-ON-TYNE.
No. in Survey held at Newcastle Date, First Survey 21st Aug 1918 Last Survey 9th May 1919
Reg. Book. on the S.S. "Waitemata" (Number of Vents 106)

Master Built at Newcastle By whom built Northumbrian & B.C. Tons Gross 5666 Net 3570
Engines made at Newcastle By whom made H.E. Maine & Co. 2400 when made 1919
Boilers made at Newcastle By whom made 2399 when made 1919

Registered Horse Power Owners The Union Steam Ship Co. of New Zealand Port belonging to London
Nom. Horse Power as per Section 28 619 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

Engines, &c.—Description of Engines Triple Expansion 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 15.25" Material of 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

Is the propeller boss Yes If the liner is in more than one length are the joints burned Yes 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 Yes If two liners are fitted, is the shaft lapped or protected between the liners Yes Length of stern bush 5'-6"

Dia. of Tunnel shaft as per rule 13.96" Dia. of Crank shaft journals as per rule 14.66" Dia. of Crank pin 14.75" Size of Crank webs 30 1/2" x 9 5/8" Dia. of thrust shaft under collars 14 7/8" Dia. of screw 17'-9" Pitch of Screw 16'-9" No. of Blades 4 State whether moveable No Total surface 93 sq ft
No. of Feed pumps 2 (Lewis) Diameter of ditto 12" x 9" Stroke 21" Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Diameter of ditto 4 1/2" Stroke 30" Can one be overhauled while the other is at work Yes
No. of Donkey Engines 2 Sizes of Pumps 10 1/2" x 14" x 24" & 9 1/2" x 7" x 18" No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room Three 3 1/2" In Holds, &c. Two in each hold 3 1/2" One in Lunnel Well 2 1/2"

No. of Bilge Injections 2 sizes 11" Connected to condenser or to circulating pump Yes Is a separate Donkey Suction fitted in Engine room & size Yes 3 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 Both

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

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

That pipes are carried through the bunkers Hold junctions How are they protected Wood casing

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

Dates of examination of completion of fitting of Sea Connections 14.2.19 of Stern Tube 14.2.19 Screw shaft and Propeller 2.5.19

Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Top platform

Boilers, &c.—(Letter for record S) Manufacturers of Steel John Spence & Sons

Total Heating Surface of Boilers 9525 sq ft Is Forced Draft fitted Yes No. and Description of Boilers Three, single ended

Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 1-4-4-19 No. of Certificates 1-9212

Can each boiler be worked separately Yes Area of fire grate in each boiler 73.4 sq ft No. and Description of Safety Valves to each boiler Two, Spring Area of each valve 12.56 sq in Pressure to which they are adjusted 185 lbs Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 2'-3" Mean dia. of boilers 16'-0" Length 12'-5 13/32" Material of shell plates Steel

Thickness 1 5/16" Range of tensile strength 28 3/4 - 33 Are the shell plates welded or flanged No Descrip. of riveting: cir. seams & Lap

Long. seams S.B.S. & R. Diameter of rivet holes in long. seams 1 3/8" Pitch of rivets 9 1/2" Lap of plates on width of butt straps 20 1/2"

Percentage of strength of longitudinal joint rivets 88.6 plate 85.5 Working pressure of shell by rules 191 lbs Size of manhole in shell 16" x 12"

Size of compensating ring Flanged No. and Description of Furnaces in each boiler 4, upright Material Steel Outside diameter 43"

Length of plain part top 17" bottom 32" Description of longitudinal joint Welded No. of strengthening rings

Working pressure of furnace by the rules 190 lbs 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 3/4" x 8 7/8" Back 10" x 9 13/16" Top 12 3/4" x 8 7/8" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 196 lbs

Material of stays Steel Diameter at smallest part 2.36" Area supported by each stay 109.8 sq in Working pressure by rules 193 lbs End plates in steam space:

Material Steel Thickness 1 7/16" Pitch of stays 23 1/2" x 22 1/2" How are stays secured In U Working pressure by rules 185 lbs Material of stays Steel

Diameter at smallest part 9.62" Area supported by each stay 52.8 sq in Working pressure by rules 189 lbs Material of Front plates at bottom Steel

Thickness 31/32" Material of Lower back plate Steel Thickness 7/8" Greatest pitch of stays 13 5/8" Working pressure of plate by rules 187 lbs

Diameter of tubes 2 1/2" Pitch of tubes 3 3/4" x 3 5/8" Material of tube plates Steel Thickness: Front 31/32" Back 3/4" Mean pitch of stays 9 1/4"

Pitch across wide water spaces 13 5/8" Working pressures by rules 181 lbs Girders to Chamber tops: Material Steel Depth and

Thickness of girder at centre 9 1/2" x 1 3/4" Length as per rule 36 1/2" Distance apart 8 7/8" Number and pitch of stays in each 2 - 12 3/8"

Working pressure by rules 216 lbs Superheater or Steam chest; how connected to boiler None Can the superheater be shut off and the boiler worked

separately Yes Diameter Length Thickness of shell plates Material Description of longitudinal joint Diam. of rivet

Yes Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness

stiffened with rings Distance between rings Working pressure by rules End plates: Thickness How stayed

Working pressure of end plates Area of safety valves to superheater Are they fitted with easing gear

W1318-0292

IS A DONKEY BOILER FITTED? *no*

If so, is a report now forwarded? *✓*

SPARE GEAR. State the articles supplied:— *Two top-end, two bottom-end & two main-bearing bolts & nuts, a set of coupling bolts, a set of feed & bilge pump valves, a quantity of assorted bolts nuts & rivs, a propeller, a screw shaft one crank, a piston rod, a slide valve spindle, a set of H.P. piston valve rings, a complete set of piston rings, 1 pair main-bearing, top-end & bottom-end bushes, an air pump rod, an impeller & shaft for circulating pump, a full set of safety valves & springs 37 condenser tubes & 12 boiler tubes.*

The foregoing is a correct description,

THE NORTH EASTERN MARINE ENGINEERING CO., LTD.

J. Harrison Manufacturer.

1918
Dates of Survey while building { During progress of work in shops -- *Aug 21 Sept 2, 3, 4, 6, 9, 11, 16, 19, 22, 25, 30 Oct 4, 7, 8, 9, 10, 11, 16, 17, 20, 20 Nov 1, 4, 7, 13, 14, 15, 18, 19, 21, 22, 25, 26, 29*
During erection on board vessel -- *Dec 2, 4, 5, 6, 10, 12, 13, 16, 17, 18, 19, 20, 23, 27, 30, 31 Jan 6, 8, 9, 15, 16, 21, 22, 23, 24, 27, 28, 29, 31 Feb 3, 4, 5, 7, 10, 11, 12, 13, 14*
Total No. of visits *106*

Is the approved plan of main boiler forwarded herewith *no*

" " " donkey " " " *✓*

Dates of Examination of principal parts—Cylinders *11.3.19* Slides *31.3.19* Covers *24.4.19* Pistons *4.2.19* Rods *4.2.19*
Connecting rods *4.2.19* Crank shaft *17.12.18* Thrust shaft *10.7.18* Tunnel shafts *23.9.18* Screw shaft *31.10.18* Propeller *30.12.18*
Stern tube *2.9.18* Steam pipes tested *5.5.19* Engine and boiler seatings *2.5.19* Engines holding down bolts *5.5.19*
Completion of pumping arrangements *9.5.19* Boilers fired *5.5.19* Engines tried under steam *9.5.19*
Main boiler safety valves adjusted *9.5.19* Thickness of adjusting washers PB. *P 1/4 S 5/8 CB. P 3/8 S 1/2 SB. P 7/16 S 3/8*
Material of Crank shaft *Steel* Identification Mark on Do. *YX 12.18* Material of Thrust shaft *Steel* Identification Mark on Do. *YX 7.18*
Material of Tunnel shafts *Steel* Identification Marks on Do. *YX 9.18* Material of Screw shafts *Steel* Identification Marks on Do. *YX 10.18*
Material of Steam Pipes *Iron* Test pressure *540 lbs*

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 F1*

General Remarks (State quality of workmanship, opinions as to class, &c. *The engines & boiler of this vessel have been constructed under special survey & the materials & workmanship are found to be good. The engines have been tried under steam & the boiler safety valves adjusted at the working pressure. The machinery is now in good & safe working condition & eligible in my opinion to have the notation of +LMC 5-19. The engines up to the crank shaft are No 2400 Standard F1 and the remainder of the contract is No 2399 Standard F1. The vessel is fitted for carrying oil fuel in the double bottom in accordance with the requirements for standard vessels FP above 150°F.*

It is submitted that
this vessel is eligible for
THE RECORD + LMC 5.19 FD

The amount of Entry Fee ... £ ...
Special ... £ *125.18* 2
Donkey Boiler Fee ... £ ...
Travelling Expenses (if any) £ ...
When applied for, *22 MAY 1919*
When received, *29 MAY 1919*

Thomas Field
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute *TUE JUN 3-1919*

Assigned *+LMC 5.19 FD*

MACHINERY CERTIFICATE
WRITTEN *26/19*