

Rpt. 4.

REPORT ON MACHINERY

Sld. No. 281516B 10 1922

New No. 75361

Received at London Office W.F.D. 22 MAR. 1922

Date of writing Report 19 When handed in at Local Office 21.3.1922 Port of NEWCASTLE-ON-TYNE
 No. in Survey held at Newcastle Date, First Survey 28 June 1920 Last Survey 9 March 1922
 Reg. Book. on the S. Age (Number of Visits 98102)
 Master Built at Sunderland By whom built J. L. Thompson & Sons 54 When built
 Engines made at Newcastle By whom made Armstrong Whitworth & Co. Ltd 27 when made 1922
 Boilers made at do By whom made do when made 1922
 Registered Horse Power Owners Howard Smith & Co. Ltd Port belonging to Melbourne
 Nom. Horse Power as per Section 28 347 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 23 1/2" - 38" - 64" Length of Stroke 42" Revs. per minute 69 Dia. of Screw shaft as per rule 13.15" Material of steel
 as fitted 13 3/8" screw shaft
 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 ✓ 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 ✓ Length of stern bush 5'-0"
 Dia. of Tunnel shaft as per rule 11.6" Dia. of Crank shaft journals as per rule 12.18" Dia. of Crank pin 12 3/8" Size of Crank webs 17 x 8 Dia. of thrust shaft under
 as fitted 11 3/4" as fitted 12 3/8" collars 12 3/8" Dia. of screw 16'-3" Pitch of Screw 16'-0" No. of Blades 4 State whether moveable yes Total surface 84 sq ft
 No. of Feed pumps 2 Diameter of ditto 3 3/4" Stroke 21" Can one be overhauled while the other is at work yes
 No. of Bilge pumps 2 Diameter of ditto 3 3/4" Stroke 21" Can one be overhauled while the other is at work yes
 No. of Donkey Engines 3 Sizes of Pumps One 10 x 14 x 15", Two 9 x 5 1/4 x 10" 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
 Tunnel Well 3 1/2"
 No. of Bilge Injections 1 sizes 6 1/2" 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
 What pipes are carried through the bunkers Hold suction 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
 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 6156 sq ft Is Forced Draft fitted no No. and Description of Boilers Three, single-ended
 Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 7.4.21 No. of Certificate 9551
 Can each boiler be worked separately yes Area of fire grate in each boiler 63 sq ft No. and Description of Safety Valves to
 each boiler Two, Spring Area of each valve 7.07 sq in Pressure to which they are adjusted 180 lbs Are they fitted with easing gear yes
 Smallest distance between boilers or uptakes and bunkers or woodwork 20 ft Mean dia. of boilers 15'-3" Length 10'-6" Material of shell plates Steel
 Thickness 1 1/4" Range of tensile strength 28-32 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams 8. Lap
 long. seams J.B.S. J. Riv. Diameter of rivet holes in long. seams 1 1/4" Pitch of rivets 8 3/8" Lap of plates or width of butt straps 18 3/4"
 Per centages of strength of longitudinal joint rivets 87.17 Working pressure of shell by rules 185 lbs Size of manhole in shell 16" x 12"
 plate 85.07
 Size of compensating ring 37" x 33" x 1 1/2" No. and Description of Furnaces in each boiler 3 - Morrison Material Steel Outside diameter 45 3/4"
 Length of plain part top 9" bottom 7 1/6" Thickness of plates crown 9" bottom 7 1/6" Description of longitudinal joint welded No. of strengthening rings ✓
 Working pressure of furnace by the rules 192 lbs Combustion chamber plates: Material Steel Thickness: Sides 1 1/16" Back 5/8" Top 1 1/16" Bottom 1"
 Pitch of stays to ditto: Sides 9 1/2" x 9" Back 9 1/4" x 8" Top 9 1/2" x 9" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 190 lbs
 Material of stays Steel Area at smallest part 1.73 sq in Area supported by each stay 74 sq in Working pressure by rules 186 lbs End plates in steam space:
 Material Steel Thickness 1 1/4" Pitch of stays 2 1/4" x 19 1/4" How are stays secured In & W Working pressure by rules 180 lbs Material of stays Steel
 Area at smallest part 7.24 sq in Area supported by each stay 373 sq in Working pressure by rules 201 lbs Material of Front plates at bottom Steel
 Thickness 1 1/32" Material of Lower back plate Steel Thickness 7/8" Greatest pitch of stays 15 1/8" Working pressure of plate by rules 180 lbs
 Diameter of tubes 3 1/2" Pitch of tubes 4 3/4" x 4 3/4" Material of tube plates Steel Thickness: Front 1 1/32" Back 49/64" Mean pitch of stays 10 1/16"
 Pitch across wide water spaces 14 1/2" Working pressures by rules 181 lbs Girders to Chamber tops: Material Steel Depth and
 thickness of girder at centre 8" x 1 3/4" Length as per rule 31 3/16" Distance apart 9 1/2" Number and pitch of stays in each 2-9"
 Working pressure by rules 185 lbs Steam dome: description of joint to shell none % 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 none 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? *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 set of piston rings, one bottom end bearing, two thrust shoes, one eccentric sheave, two eccentric straps, one air pump rod, one slide valve spindle, four propeller blades, one piston rod, one bilge pump ram, one set of safety valve springs.

The foregoing is a correct description,

W. & A. ARMSTRONG, WHITWORTH & CO. LIMITED

T. S. Haddock

Manufacturer.

Dates of Survey while building: During progress of work in shops - 1920 Jun 28, 30, Jul 1, 10, 19, 22, 28, 29, Aug 3, 5, 12, 16, 17, 19, 23, 27, Sep 1, 2, 6, 7, 10, 22, 30, Oct 4, 7, 11, 18, 20, 26, 28, Nov 1, 2, 3, 5, 8, 10, 11, 15, 18, 19, 22, 25, Dec 1, 7, 9, 13, 1921 Jan 4, 10, 14, 17, 19, 21, 25, 27, Feb 1, 2, 7, 10, 15, 18, 21, 24, Mar 1, 8, 11, 22, 30, 31, Apr 4, 5, 7, 8, 26, May 9, 17, 26, Sep 11, 1922 Jan 20, 25, 27, 30, Feb 1, 6, 9, 13, 14. Total No. of visits 88.102. Is the approved plan of main boiler forwarded herewith *yes*

Dates of Examination of principal parts - Cylinders 2-3-21 Slides 20-1-22 Covers 21-2-21 Pistons 20-1-22 Rods 22-9-20 Connecting rods 22-9-20 Crank shaft 20-1-22 Thrust shaft 28-7-20 Tunnel shafts 10-2-21 Screw shaft 25-1-22 Propeller 25-1-22 Stern tube 26-4-21 Steam pipes tested 27-1-22 Engine and boiler seatings 1-2-22 Engines holding down bolts 1-3-22 Completion of pumping arrangements 12-7-22 Boilers fixed 10-7-22 Engines tried under steam 12-7-22 Completion of fitting sea connections 7-3-21 Stern tube 7-3-21 Screw shaft and propeller 1-3-22 Main boiler safety valves adjusted 12-7-22 Thickness of adjusting washers: Piston bl. - P 7/16, S 3/2; Center bl. - P 3/8, S 1/2; Slide bl. P 3/8, S 1/2

Material of Crank shaft *Steel* Identification Mark on Do. *R.L.A. 2-122* Material of Thrust shaft *Steel* Identification Mark on Do. *J. Y. 7-20* Material of Tunnel shafts *Steel* Identification Marks on Do. *J. Y. 2-21* Material of Screw shaft *Steel* Identification Marks on Do. *R.L.A. 25-1-22* Material of Steam Pipes *Copper* Test pressure 360 lbs. Spare do. *LOT 206 22644-1-N 20-12-22 MR*

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

General Remarks (State quality of workmanship, opinions as to class, &c.)
The machinery of this vessel has been constructed under special survey. The materials and workmanship are found and good. The machinery was partly installed at Newcastle and the vessel returned to Sunderland. To complete the survey there remained: -
Fastenings of boiler; Testing and examination of oil fuel lines; Completion of pumping arrangements; Adjustment of safety valves and trial under steam of main & auxiliary machinery; Examination of spare gear - list attached.
Upon completion, in our opinion, the vessel's machinery will be eligible to be classed in the Register Book + L.M.C. with date fitted for oil fuel F.P. above 150°F

SUNDERLAND 19-7-22 Survey Complete. The machinery is eligible in our opinion for classification and the records + L.M.C. 7, 22. Fitted for oil fuel F.P. above 150°F Feb 7, 22. *L. Chas.*

The amount of Entry Fee ... £ 5 : 0 : 0 When applied for, 21.3.19.22.
Special ... £ 77 : 1 : 0
Donkey Boiler Fee ... £ : : :
Travelling Expenses (if any) £ : : : 6.4.19.22/10.

Thomas Field & *Rice Amies*
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute **FRI. 16 FEB. 1923**

Assigned *+ Ltr. 6.1.23. C.L.*
Fitted for oil fuel 1.23.
F.P. above 150°F.

Newcastle

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

