

REPORT ON MACHINERY.

Date of writing Report 22. 7. 1912 When handed in at Local Office 22nd July 1912 Port of Sunderland Received at London Office TUE AUG. -6. 1912
 No. in Survey held at Sunderland Date, First Survey January Last Survey 19th July 1912
 Reg. Book. on the "Horsleyside" (Number of Visits 37)
 Master L. Johnson Built at Sunderland By whom built Short Bros Ltd 3 1/4 1/2 Tons Gross 3993.59
 Engines made at Sunderland By whom made North Eastern Marine Eng Co Ltd 2031 When built 1912
 Boilers made at Sunderland By whom made North Eastern Marine Eng Co Ltd when made 1912
 Registered Horse Power Owners Charlton Ltd Co. Ltd Port belonging to Newcastle
 Nom. Horse Power as per Section 28 305 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted no

ENGINES, &c.—Description of Engines Triple expansion. No. of Cylinders Three No. of Cranks Three
 Dia. of Cylinders 25" x 41" x 68" Length of Stroke 48" Revs. per minute 65 Dia. of Screw shaft as per rule 1 1/2" Material of screw shaft as fitted 1 1/2" Material of Propeller
 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 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 4'-10 1/2"
 Dia. of Tunnel shaft as per rule 12.68" Dia. of Crank shaft journals as per rule 13.21" Dia. of Crank pin 13 1/2" Size of Crank webs 20 1/2" x 8 1/2" Dia. of thrust shaft under collars 13 1/2" Dia. of screw 1 1/2" Pitch of Screw 18'-0" No. of Blades 4 State whether moveable no Total surface 93 sq ft
 No. of Feed pumps Two Diameter of ditto 3 1/2" Stroke 26" Can one be overhauled while the other is at work Yes
 No. of Bilge pumps Two Diameter of ditto 3 3/4" Stroke 26" Can one be overhauled while the other is at work Yes
 No. of Donkey Engines Two Sizes of Pumps 1 1/2" x 9 1/2" x 10 1/2"; 1 1/2" x 11 1/2" x 11" No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room Four @ 3 1/2" diameter In Holds, &c. Two @ 3 1/2" diameter in each hold
 hold and one @ 3" diameter in Tunnel well. + Four @ 3 1/2" dia in after hold.
 No. of Bilge Injections 1 sizes 5 1/2" Connected to condenser, or to circulating pump C.P. 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 above
 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 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 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 23-5-12 of Stern Tube 4-6-12 Screw shaft and Propeller 4-6-12
 Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Top Platform.

BOILERS, &c.—(Letter for record (18)) Manufacturers of Steel J. Spence & Sons Ltd.
 Total Heating Surface of Boilers 5844 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 21-3-12 No. of Certificate 3006.
 Can each boiler be worked separately Yes Area of fire grate in each boiler 50.2 sq ft No. and Description of Safety Valves to each boiler Two spring loaded. Area of each valve 4.91 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 3'-6" Mean dia. of boilers 14'-0" Length 11'-3" Material of shell plates Steel
 Thickness 1 3/32" Range of tensile strength 28 1/2 to 32 tons. Are the shell plates welded or flanged no. Descrip. of riveting: cir. seams D.R.
 long. seams T.R.D.B.S. Diameter of rivet holes in long. seams 1 1/32" Pitch of rivets 9 1/8" Lap of plates or width of butt straps 18 5/8"
 Per centages of strength of longitudinal joint rivets 86.5 Working pressure of shell by rules 180 lbs Size of manhole in shell 16" x 12"
 plate 86.6
 Size of compensating ring dished No. and Description of Furnaces in each boiler Three corrugated Material Steel Outside diameter 41 1/2"
 Length of plain part top Thickness of plates crown 1/2" Description of longitudinal joint welded No. of strengthening rings
 bottom 1/2" Description of longitudinal joint welded No. of strengthening rings
 Working pressure of furnace by the rules 182 lbs Combustion chamber plates: Material Steel Thickness: Sides 3/4" Back 1 1/2" Top 3/4" Bottom 1 1/2"
 Pitch of stays to ditto: Sides 10 1/2" x 10 1/2" Back 12 1/2" x 9 1/2" Top 10" x 10 1/2" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 183 lbs
 Material of stays Steel Area Diameter at smallest part 2.1 sq in Area supported by each stay 105 sq in Working pressure by rules 180 lbs End plates in steam space:
 Material Steel Thickness 1 1/32" Pitch of stays 22 1/2" x 21" How are stays secured D.N. Wash Working pressure by rules 181 lbs Material of stays Steel
 Area Diameter at smallest part 8.29 sq in Area supported by each stay 442 1/2 sq in Working pressure by rules 183 lbs Material of Front plates at bottom Steel
 Thickness 3/4" Material of Lower back plate Steel Thickness 2 1/2" Greatest pitch of stays 14 1/2" x 10 1/2" Working pressure of plate by rules 180 lbs
 Diameter of tubes 3 1/2" Pitch of tubes 14 1/2" x 14 1/2" Material of tube plates Steel Thickness: Front 3/4" Back 3/4" Mean pitch of stays 10 15/32"
 Pitch across wide water spaces 14 1/2" Working pressures by rules 192 lbs Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 2 @ 8" x 1 1/2" Length as per rule 34 1/2" Distance apart 10" Number and pitch of stays in each 2 @ 10 1/4"
 Working pressure by rules 183 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 holes Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness
 If 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

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

W283-0610



VERTICAL DONKEY BOILER— Manufacturers of Steel

No.	Description			When made	Where fixed
Made at	By whom made				
Working pressure	tested by hydraulic pressure to	Date of test	No. of Certificate	Fire grate area	Description of Safety
Valves	No. of Safety Valves	Area of each	Pressure to which they are adjusted	Date of adjustment	
If fitted with casing gear	If steam from main boilers can enter the donkey boiler		Dia. of donkey boiler	Length	
Material of shell plates	Thickness	Range of tensile strength	Descrip. of riveting long. seams		
Dia. of rivet holes	Whether punched or drilled	Pitch of rivets	Lap of plating	Per centage of strength of joint	Rivets Plates
Working pressure of shell by rules	Thickness of shell crown plates	Radius of do.	No. of stays to do.	Dia. of stays	
Diameter of furnace Top	Bottom	Length of furnace	Thickness of furnace plates	Description of joint	
Working pressure of furnace by rules	Thickness of furnace crown plates	Radius of do.	Stayed by		
Diameter of uptake	Thickness of uptake plates	Thickness of water tubes	Dates of survey		

SPARE GEAR. State the articles supplied:— One Propeller shaft, 6 Boiler tubes, 6 Condenser tubes, Two of each bolts & nuts for top & bottom ends & main bearings. One set coupling bolts, 1 set feed bridge pump valves, assorted bolts, nuts & rivs. One Propeller.

per pro NORTH EASTERN MACHINE ENGINEERING Co., LTD.

The foregoing is a correct description,

Manufacturer.

J. J. Harrison
Secretary.

Dates of Survey while building	During progress of work in shops - - -	1912. Jan, 2, 10, 22. Feb, 2, 6, 9, 13, 14, 20, 21, 27, 28, 29. Mar. 1, 8, 12, 18, 19, 21, 25. Apr. 1, 11, 16. May, 7, 15, 21, 23, 24, 31
	During erection on board vessel - - -	June, 4, 6, 10, 18. July, 1, 10, 19.
	Total No. of visits	37.

Is the approved plan of main boiler forwarded herewith yes.
 " " " donkey " " "

Dates of Examination of principal parts—	Cylinders 1-3-17	Slides 17-3-17	Covers 2-2-17	Pistons 2-2-17	Rods 17-3-17
Connecting rods	20-2-17	Crank shaft 1-3-17	Thrust shaft 1-3-17	Tunnel shafts 25-3-17	Screw shaft 21-5-17
Stern tube	15-5-17	Steam pipes tested 4-5-17, 1-6-12.	Engine and boiler seatings 23-5-17	Engines holding down bolts 6-6-17	
Completion of pumping arrangements	19-4-12.	Boilers fixed 4-6-17	Engines tried under steam 18-6-12		
Main boiler safety valves adjusted	18-6-12.	Thickness of adjusting washers	A. Bl. 5/32"; C. Bl. 3/32"; D. Bl. 1/8" 3/16"		
Material of Crank shaft	Steel	Identification Mark on Do. 10991100-1-2. M.B. 34-15 H.K. 356 H.K.	Material of Thrust shaft	Steel	Identification Mark on Do. 3563 H.K.
Material of Tunnel shafts	Steel	Identification Marks on Do. 1248 M.B. 1253 M.B. 1254 M.B.	Material of Screw shafts	Bar iron	Identification Marks on Do. 859 H.K.
Material of Steam Pipes	Solid drawn steel. 1/2" thick x 1 1/2" bore	Test pressure	540 lbs.		

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 of good quality and the hydraulic test of the boiler proved satisfactory. The whole of the machinery has been securely fitted on board & satisfactorily tried under steam & is in good safe working condition & eligible in my opinion to be classed and have record **L.M.C. 7-12** in the Register Book.

It is submitted that this vessel is eligible for THE RECORD + L.M.C. 7-12

J. J. Harrison
8.8.12.
J.M.

The amount of Entry Fee	£ 3 : 0 : 0	When applied for,	2-8-1912
Special	£ 38 : 5 : 0	When received,	8.8.12
Monkey Boiler Fee	£ :		
Traveling Expenses (if any)	£ :		

William Dutton
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute
 Assigned
 FRI. AUG. - 9. 1912
 L.M.C. 7-12



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