

# REPORT ON MACHINERY.

No. 25479

Received at London Office TUE NOV-5-1912

Date of writing Report 19 When handed in at Local Office 4. 11. 12 Port of Sunderland  
 No. in Survey held at Sunderland Date, First Survey 16 July Last Survey 1-11-1912  
 Reg. Book. on the Steel S.S. Wear (Number of Visits 27)  
 Master Dickinson Built at Sunderland By whom built J. Brown & Sons Ltd 148 1/2 Tons } Gross 1167  
 Engines made at Sunderland By whom made North Eastern Marine Eng Co Ltd 2083 C. when made 1912 Net 667  
 Boilers made at Sunderland By whom made North Eastern Marine Eng Co Ltd 2083 C. when made 1912  
 Registered Horse Power Owners Wetherington & Everett Port belonging to Newcastle Line  
 Nom. Horse Power as per Section 28 148 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Triple expansion. No. of Cylinders Three No. of Cranks Three  
 Dia. of Cylinders 18" x 29 1/2" x 48" Length of Stroke 33" Revs. per minute 16. Dia. of Screw shaft as per rule 10 1/4" 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 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 3'-6"  
 Dia. of Tunnel shaft as per rule 8.98" Dia. of Crank shaft journals as per rule 9.43" Dia. of Crank pin 9 1/2" Size of Crank webs 14 1/2" x 5 1/2" Dia. of thrust shaft under collars 9 1/2" Dia. of screw 13 1/2" Pitch of Screw 14'-0" No. of Blades 4 State whether moveable No Total surface 54 sq. ft.  
 No. of Feed pumps Two Diameter of ditto 2 3/4" Stroke 16 1/2" Can one be overhauled while the other is at work Yes  
 No. of Bilge pumps Two Diameter of ditto 3" Stroke 16 1/2" Can one be overhauled while the other is at work Yes  
 No. of Donkey Engines Two Sizes of Pumps 1" x 9" x 9"; 5 1/2" x 3 1/2" x 5" No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room Three @ 2 1/2" dia & 2 @ 2 1/2" dia in well. In Holds, &c. 2 @ 2 1/2" dia in Ford Hold, 2 @ 2 1/2" dia in after hold, and 1 @ 2 1/2" dia in Tunnel well.  
 No. of Bilge Injections 1 sizes 3 1/2" Connected to condenser, or to circulating pump C.P. Is a separate Donkey Suction fitted in Engine room & size Yes 2 1/2" dia  
 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 Yes  
 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 14-10-12 of Stern Tube 14-10-12 Screw shaft and Propeller 14-10-12  
 Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from top platform.

BOILERS, &c.—(Letter for record S Manufacturers of Steel Spencer & Sons Ltd.  
 Total Heating Surface of Boilers 2346 sq. ft. Is Forced Draft fitted No No. and Description of Boilers One single ended.  
 Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 2-10-12 No. of Certificate 3050  
 Can each boiler be worked separately Yes Area of fire grate in each boiler 54 1/2 sq. ft. No. and Description of Safety Valves to each boiler Two spring loaded Area of each valve 5.94 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'-6" Mean dia. of boilers 15'-6" Length 10'-6" Material of shell plates Steel  
 Thickness 1 1/16" Range of tensile strength 28 3/4 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 9/32" Pitch of rivets 9 5/16" Lap of plates or width of butt straps 19 1/4"  
 Per centages of strength of longitudinal joint rivets 86.7% Working pressure of shell by rules 181 lbs Size of manhole in shell 16" x 12"  
 Size of compensating ring Dished No. and Description of Furnaces in each boiler Three Plain Material Steel Outside diameter 3'-7 3/8"  
 Length of plain part top 13 1/2" Thickness of plates crown 1 1/4" Description of longitudinal joint Weld No. of strengthening rings None bottom 1 1/4"  
 Working pressure of furnace by the rules 180 lbs Combustion chamber plates: Material Steel Thickness: Sides 3/4" Back 1 1/16" Top 3/4" Bottom 1 1/16"  
 Pitch of stays to ditto: Sides 8 1/4" x 12 1/8" Back 11" x 11" Top 8 1/4" x 12 1/8" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 181 lbs  
 Material of stays Steel Diameter at smallest part 2 1/32" Area supported by each stay 121 sq. in. Working pressure by rules 181 lbs End plates in steam space: Material Steel Thickness 1 3/8" Pitch of stays 25" x 21 1/4" How are stays secured D.N. Wash Working pressure by rules 183 lbs Material of stays Steel Diameter at smallest part 8.48 sq. in. Area supported by each stay 488 3/4 sq. in. Working pressure by rules 180 lbs Material of Front plates at bottom Steel Thickness 3/4" Material of Lower back plate Steel Thickness 1 5/16" Greatest pitch of stays 11 1/2" x 11" Working pressure of plate by rules 183 lbs  
 Diameter of tubes 3 1/4" Pitch of tubes 4 1/8" x 4 1/8" Material of tube plates Steel Thickness: Front 3/4" Back 3/4" Mean pitch of stays 9 1/4"  
 Pitch across wide water spaces 11 1/2" Working pressures by rules 192 lbs Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 2 @ 8 1/4" x 1" Length as per rule 29 15/16" Distance apart 12" Number and pitch of stays in each 2 @ 8 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 Yes Length Yes Thickness of shell plates Yes Material Yes Description of longitudinal joint Yes Diam. of rivet holes Yes Pitch of rivets Yes Working pressure of shell by rules Yes Diameter of flue Yes Material of flue plates Yes Thickness Yes  
 If stiffened with rings Yes Distance between rings Yes Working pressure by rules Yes End plates: Thickness Yes How stayed Yes  
 Working pressure of end plates Yes Area of safety valves to superheater Yes Are they fitted with easing gear Yes

VERTICAL DONKEY BOILER— Manufacturers of Steel

No. \_\_\_\_\_ Description \_\_\_\_\_

Made at \_\_\_\_\_ By whom made \_\_\_\_\_ When made \_\_\_\_\_ Where fixed \_\_\_\_\_

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 easing 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:— Two each bolts & nuts for top & bottom ends & main bearings  
 One set coupling bolts, one set each valves for all pumps, one main & one donkey check valve, one propeller, assorted bolts, nuts & rivets.

The foregoing is a correct description,

per pro NORTH EASTERN MARINE ENGINEERING Co., LTD. Manufacturer.

*J. J. Harrison* Secretary. 1912 Jul 16 23 30 Aug 8 9 16 24 26 29 30 Sept 5 7 12 13 14 23  
 Oct 2 5 14 14 15 16 21 22 28 31 Nov 1

Dates of Survey while building: During progress of work in shops --; During erection on board vessel --; Total No. of visits 27

As the approved plan of main boiler forwarded herewith  yes

" " " donkey " " "  yes

Dates of Examination of principal parts—Cylinders 12-9-12 Slides 3-10-12 Covers 3-10-12 Pistons 3-10-12 Rods 6-9-12  
 Connecting rods 6-9-12 Crank shaft 24-8-12 Thrust shaft 16-8-12 Tunnel shafts 16-8-12 Screw shaft 26-9-12 Propeller 12-9-12  
 Stern tube 14-10-12 Steam pipes tested 15-10-12 Engine and boiler seatings 14-10-12 Engines holding down bolts 16-10-12  
 Completion of pumping arrangements 31-10-12 Boilers fixed 16-10-12 Engines tried under steam 22-10-12  
 Main boiler safety valves adjusted 22-10-12 Thickness of adjusting washers 9. Value 1/4" & Value 3/8"

Material of Crank shaft Steel Identification Mark on Do. 3-165 H.K. Material of Thrust shaft Steel Identification Mark on Do. 4325 J.M.  
 Material of Tunnel shafts Steel Identification Marks on Do. 3931 H.K. 4459 K.H. 4939 P.A. Material of Screw shafts Steel Identification Marks on Do. 4760 K.H.  
 Material of Steam Pipes Solid drawn copper 5" bore x 6 lbs. Test pressure 400 lbs.

General Remarks (State quality of workmanship, opinions as to class, &c.)  
 The machinery of this vessel has been built under special survey, the material and workmanship are of good quality and the hydraulic tests of the boilers proved satisfactory. The whole of the machinery has been securely fitted on board & tried under steam, and is in good safe working condition & eligible in my opinion to be classed & have record. **LMC 11-12** in the Register Book.

It is submitted that this vessel is eligible for THE RECORD, L.M.C. 11.12

*J.P.R.*

5-11-12

The amount of Entry Fee .. £ 0 : 0	When applied for, 4-11-12
Special .. £ 22 : 4	When received, 22-11-12
Donkey Boiler Fee .. £ :	
Travelling Expenses (if any) £ :	

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

Committee's Minute  
 Assigned  
 FRI. NOV. - 8. 1912  
 + L.M.C. 11.12



Certificate (if required) to be sent to [unclear] not to write on, or below the space for Committee's Minute.