

REPORT ON MACHINERY.

No. 13336

MON 2 SEP 1907

Port of *West Hartlepool*

Received at London Office

19

No. in Survey held at *Hartlepool*Date, first Survey *21st Nov. 1906* Last Survey *28th Aug. 1907*(Number of Visits *67*)

Reg. Book.

28 *sup* on theMaster *W. W. Millburn* Built at *Hartlepool*By whom built *W. & A. Furness, Withy & Co. Ltd.*Tons { Gross *3525.83*
Net *2215.88*Engines made at *Hartlepool*By whom made *Richardsons, McFarth & Co. Ltd.*when made *1907*Boilers made at *Hartlepool*By whom made *Richardsons, McFarth & Co. Ltd.*when made *1907*

Registered Horse Power

Owners *Essex & Co. Ltd. (6 Smales & Son, Ltd.)* Port belonging to *Whitby*Nom. Horse Power as per Section 28 *312*Is Refrigerating Machinery fitted for cargo purposes *No.*Is Electric Light fitted *No.*

ENGINES, &c.—Description of Engines

*Direct acting triple expansion*No. of Cylinders *3*No. of Cranks *3*Dia. of Cylinders *24-39-66*Length of Stroke *45*Revs. per minute *60*

Dia. of Screw shaft

as per rule *13.62*Material of *Bar Iron*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

Length of stern bush *4-7*

Dia. of Tunnel shaft

as per rule *12.07*

Dia. of Crank shaft journals

as per rule *12.67*Dia. of Crank pin *13*Size of Crank webs *8x25*

Dia. of thrust shaft under

collars *13/8*Dia. of screw *16-9*Pitch of Screw *16-6*No. of Blades *4*State whether moveable *No*Total surface *88.9*No. of Feed pumps *2*Diameter of ditto *3*Stroke *27*Can one be overhauled while the other is at work *Yes*No. of Bilge pumps *2*Diameter of ditto *3 3/4*Stroke *27*Can one be overhauled while the other is at work *Yes*No. of Donkey Engines *2*Sizes of Pumps *4x6 and 10x9*

No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room *3 - 3 1/2 dia*In Holds, &c. *8 - 3 1/2 dia*1 Tunnel Mill *2 1/2 dia*No. of Bilge Injections *One* sizes *5*Connected to condenser, or to circulating pump *Calculating*a separate Donkey Suction fitted in Engine room & size *Yes, 3 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 *Yes*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 *24/6/1907*of Stern Tube *1/7/07*Screw shaft and Propeller *1/7/1907*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 *J. S. & Sons Ltd.*Total Heating Surface of Boilers *4731*Is Forced Draft fitted *No*No. and Description of Boilers *Two, Single-ended tubular*Working Pressure *180 lbs.*Tested by hydraulic pressure to *360 lbs.*Date of test *15/5/1907*No. of Certificate *3107*Can each boiler be worked separately *Yes*Area of fire grate in each boiler *52.3*

No. and Description of Safety Valves to

each boiler *Two, Spring loaded*Area of each valve *7.06*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 *17*Mean dia. of boilers *16-0*Length *10-6*Material of shell plates *Steel*Thickenss *1/32*Range of tensile strength *25-32*Are the shell plates welded or flanged *No*Descrip. of riveting: cir. seams *D.R. Lap.*long. seams *T.R.D.B.S.*Diameter of rivet holes in long. seams *1/32*Pitch of rivets *8/8*Lap of plates or width of butt straps *18 1/2*

Per centages of strength of longitudinal joint

rivets *86.8*plate *85.2*Working pressure of shell by rules *180.5 lbs.*Size of manhole in shell *16 1/2 x 13*Size of compensating ring *30x29x1/32*No. and Description of Furnaces in each boiler *3, Maricous*Material *Steel*Outside diameter *50 1/2*

Length of plain part

top *3 1/8*bottom *3 1/8*Description of longitudinal joint *Welded*No. of strengthening rings *Susp.*Working pressure of furnace by the rules *199.5*Combustion chamber plates: Material *Steel*Thickness: Sides *1/32*Back *1/32*Top *1/32*Bottom *7/8*Pitch of stays to ditto: Sides *8 1/4 x 7 3/4*Back *8 1/4 x 8*Top *8 1/2 x 7*If stays are fitted with nuts or riveted heads *Nuts*Material of stays *Steel*Diameter at smallest part *1 3/8*Area supported by each stay *66*Working pressure by rules *180 lbs.*

End plates in steam space:

Material *Steel*Thickness *1/32*Pitch of stays *16 1/2*How are stays secured *D.M.T.*Working pressure by rules *185 lbs.*Material of stays *Steel*Diameter at smallest part *2 1/2*Area supported by each stay *16 1/2 x 16 1/2*Working pressure by rules *180*Material of Front plates at bottom *Steel*Thickness *7/8*Material of Lower back plate *Steel*Thickness *1 1/8*Greatest pitch of stays *12 1/4 x 8*Working pressure of plate by rules *201*Diameter of tubes *3 1/4*Pitch of tubes *4 1/2 x 4 3/8*Material of tube plates *Steel*Thickness: Front *1*Back *3/4*Mean pitch of stays *9*Pitch across wide water spaces *14 1/4*Working pressures by rules *202 lbs.*Girders to Chamber tops: Material *Steel*

Depth and

thickness of girder at centre *8 x 1 3/4*Length as per rule *2-6 1/2*Distance apart *8 1/2*Number and pitch of stays in each *3-7*Working pressure by rules *182 lbs.*Superheater or Steam chest; how connected to boiler *None*

Can the superheater be shut off and the boiler worked

separately

Diameter

Length

Thickness of shell plates

Material

Description of longitudinal joint

Diam. of rivet

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

VERTICAL DONKEY BOILER—

Manufacturers of Steel

As per report attached hereto.

No. One Description Single ended multitubular 2 plain furnaces. Main Deck.
 Made at Darlington By whom made Black Boiler Works Ltd When made 1907 Where fixed Starboard
 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 _____ Rivets _____
 Dia. of rivet holes _____ Whether punched or drilled _____ Pitch of rivets _____ Lap of plating _____ Per centage of strength of joint _____ 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 _____ Stayed by _____
 Diameter of uptake _____ Thickness of uptake plates _____ Thickness of water tubes _____ Dates of survey _____

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

FOR RICHARDSONS, WESTGARTH & CO. LIMITED
 The foregoing is a correct description,
S. Dingle ASSISTANT GENERAL MANUFACTURER.

Dates of Survey while building
 During progress of work in shops—1906. Apr. 21, Dec. 11, 13, 1907. Feb. 16, 19, 21, 23, 26, 28, Oct. 13, 14, 16, 21, 26, Nov. 4, 5, 9, 12, 15, 16, 17, 18, 19, 22, 24, 25, 26, 30, May, 1, 4, 6, 8, 9, 14, 15, 16, 17, 19, 22, 24, 25, 26, 30, Aug. 1, 5, 28.
 During erection on board vessel—June 7, 10, 11, 12, 14, 15, 20, 24, 25, 27, 28, July 1, 2, 3, 4, 6, 8, 10, 12, 19, 22, 29, Aug. 1, 5, 28.
 Total No. of visits 67 Is the approved plan of main boiler forwarded herewith Yes

Dates of Examination of principal parts—Cylinders 28/5/07 Slides 9/4/07 Covers 28/5/07 Pistons 28/5/07 Rods 28/6/07
 Connecting rods 7/4/07 Crank shaft 22/5/07 Thrust shaft 3/6/07 Tunnel shafts 4/7/07 Screw shaft 27/6/07 Propeller 25/6/07
 Stern tube 20/6/07 Steam pipes tested 10/7/07 Engine and boiler seatings 28/6/07 Engines holding down bolts 5/7/07
 Completion of pumping arrangements 12/7/07 Boilers fixed 5/7/07 Engines tried under steam 12/7/07
 Main boiler safety valves adjusted 12/7/07 Thickness of adjusting washers P. 3/8" S. 1/32"
 Material of Crank shaft Steel Identification Mark on Do. 4535 Material of Thrust shaft Steel Identification Mark on Do. 4535
 Material of Tunnel shafts Identification Marks on Do. 4535 Material of Screw shafts Bar Iron Identification Marks on Do. 4535
 Material of Steam Pipes Wrought Iron Test pressure 600 lbs per sq. in.

General Remarks (State quality of workmanship, opinions as to class, &c. Workmanship good.)

The machinery and boilers of this vessel have been constructed under Special Survey and placed on board in accordance with the Society's Rules. They are now in my opinion in safe working condition and the case is respectfully submitted for the notation LMC 8-07 in the Register Book.

It is submitted that this vessel is eligible for THE RECORD. LMC 8-07.

The amount of Entry Fee. £ 3 : 0 : 0 When applied for, 29/8/07
 Special £ 35 : 12 : 0 When received, 31/8/07
 Donkey Boiler Fee £ _____
 Travelling Expenses (if any) £ _____
 IUES. 3 SEP 1907

Committee's Minute
 Assigned

H. C. Hudson
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.



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MACHINERY CERTIFICATE WRITTEN