

REPORT ON MACHINERY.

No. 65595
SAT. FEB. 21. 1914

Date of writing Report 18th Feb 14 When handed in at Local Office 20th Feb 14 Port of NEWCASTLE-ON-TYNE
 No. in Survey held at Newcastle Date, First Survey 30th Dec 1912 Last Survey 12th Feb 1914
 Reg. Book. 103 on the Machinery of the S.S. San Lorenzo (Number of Visits 62)
 Master Swan Hunter & Co Built at Newcastle By whom built Wallend Shipway & Eng^{rs} Tons { Gross 9607
 Engines made at Newcastle By whom made Wallend Shipway & Eng^{rs} Net 6081
 Boilers made at " By whom made " When built 1914
 Registered Horse Power " Owners Eagle Oil Transport Co when made 1914
 Nom. Horse Power as per Section 28 787 Is Refrigerating Machinery fitted for cargo purposes no Port belonging to London
 Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Quadruple
 Dia. of Cylinders 28½" 41" 58" 84" Length of Stroke 54" Revs. per minute 65 No. of Cylinders 4 No. of Cranks 4
 Is the screw shaft fitted with a continuous liner the whole length of the stern tube Yes Dia. of Screw shaft 17½" as per rule 17½" as fitted 17½" Material of screw shaft Steel
 in the propeller boss Yes If the liner is in more than one length are the joints burned Yes Is the after end of the liner made water tight
 between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive Yes If the liner does not fit tightly at the part
 liners are fitted, is the shaft lapped or protected between the liners Yes Length of stern bush 6'-2½"
 Dia. of Tunnel shaft 15'-28" as per rule 15'-28" as fitted 15'-28" Dia. of Crank shaft journals 16" as per rule 16" as fitted 16" Dia. of Crank pin 16" Size of Crank webs 24" X 11" Dia. of thrust shaft under
 collars 16" Dia. of screw 20'-6" Pitch of Screw 18'-0" No. of Blades 4 State whether moveable Yes Total surface 135
 No. of Feed pumps 2 Diameter of ditto 5" Stroke 28" Can one be overhauled while the other is at work Yes
 No. of Bilge pumps 2 Diameter of ditto 5" Stroke 28" Can one be overhauled while the other is at work Yes
 No. of Donkey Engines 4 Sizes of Pumps 2 Weis 10" X 13½" X 21", 12" X 14" X 16" No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room 3 of 3½" In Holds, &c. Oil cargo pumps

No. of Bilge Injections 1 sizes 15" Connected to condenser, or to circulating pump Yes a separate Donkey Suction fitted in Engine room & size 10"
 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 main below
 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 24/12/13 of Stern Tube 24/12/13 Screw shaft and Propeller 24/12/13
 Is the Screw Shaft Tunnel watertight none Is it fitted with a watertight door worked from

BOILERS, &c.—(Letter for record (r) Manufacturers of Steel J. & S. Spencer & Sons
 Total Heating Surface of Boilers 11290 Is Forced Draft fitted Yes No. and Description of Boilers 4 Single-ended
 Working Pressure 220 lbs Tested by hydraulic pressure to 440 lbs Date of test 9/10/13 No. of Certificate 8572
 Can each boiler be worked separately Yes Area of fire grate in each boiler 72 No. and Description of Safety Valves to
 each boiler 2 Direct spring Area of each valve 11 Pressure to which they are adjusted 225 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'-11" Length 12'-0" Material of shell plates Steel
 Thickness 158 Range of tensile strength 31-35 tons Are the shell plates welded or flanged no Descrip. of riveting: cir. seams d.r. lap
 long. seams d.r. d. butt Diameter of rivet holes in long. seams 158 Pitch of rivets 10 7/16" Lap of plates or width of butt straps 23 1/2"
 Per centages of strength of longitudinal joint 90.8 Working pressure of shell by rules 257 lbs Size of manhole in shell 16" X 12"
 Size of compensating ring flanges No. and Description of Furnaces in each boiler 4 Single-ended Material Steel Outside diameter 45"
 Length of plain part top Thickness of plates crown 3/32" Description of longitudinal joint welded No. of strengthening rings Yes
 Working pressure of furnace by the rules 237 lbs Combustion chamber plates: Material Steel Thickness: Sides 1/16" Back 1/16" Top 1/16" Bottom 15/32"
 Pitch of stays to ditto: Sides 7 7/8" X 8 1/4" Back 7 7/8" X 8 1/4" Top 7 7/8" X 8 1/4" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 259 lbs
 Material of stays iron Diameter at smallest part 2.03 Area supported by each stay 63.5 Working pressure by rules 242 lbs End plates in steam space:
 Material Steel Thickness 1 3/8" Pitch of stays 20" X 16 1/8" How are stays secured d. nuts Working pressure by rules 257 lbs Material of stays Steel
 Diameter at smallest part 8.48 Area supported by each stay 322.5 Working pressure by rules 275 lbs Material of Front plates at bottom Steel
 Thickness 1" Material of Lower back plate Steel Thickness 3/32" Greatest pitch of stays 14 1/4" X 8 1/4" Working pressure of plate by rules 242 lbs
 Diameter of tubes 2 1/2" Pitch of tubes 3 3/4" X 3 3/8" Material of tube plates Steel Thickness: Front 1 7/8" Back 1 3/8" Mean pitch of stays 7 1/2" X 7 1/4"
 Pitch across wide water spaces 13 1/4" Working pressures by rules 235 lbs Girders to Chamber tops: Material Steel Depth and
 thickness of girder at centre 9 3/4" X 1 1/2" Length as per rule 32 25/32" Distance apart 8 1/4" Number and pitch of stays in each 3 of 7 7/8"
 Working pressure by rules 224 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
Working pressure of shell by rules	Thickness of shell crown plates	Radius of do.	No. of stays to do.	Dia. of stays	Plates
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 top end & 2 bottom end bolts, 2 main bearing bolts, 1 set of coupling bolts, 1 set of feed & bilge pump valves, 1 set of rings for each piston, a quantity of assorted bolts nuts & iron, propeller shaft & propeller blades, 1 set of bottom end brasses, valve spindles &c.*
 The foregoing is a correct description, **FOR THE WALLSEND SLIPWAY & ENGINEERING CO. LIMITED.**

Manufacturer.

Dates of Survey while building
 During progress of work in shops -- 1912 Dec. 30, 1913 Jan. 8, 10, 23, 28, Feb. 3, Mar. 4, Apr. 9, May 1, 5, 9, 23, 26, 28, 31, Jun. 6, 10, 16, 19, Jul. 14, 15, 18, 22, 23, 31, Aug. 13, 14, 20, 22, 23, 25, Sep. 1, 2, 3, 4, 5, 8, 10, 16, 22, 25, Oct. 1, 2, 3, 6, 9, 15, 20, 21, Nov. 7, 12, 17, Dec. 3, 5, 16, 24, 29, 1914 Jan. 5, 8, 16, 23, 27, Feb. 6, 12.
 Total No. of visits 62

Is the approved plan of main boiler forwarded herewith

Dates of Examination of principal parts—Cylinders 13/8/13 Slides 6/10/13 Covers 15/10/13 Pistons 1/10/13 Rods 5/5/13
 Connecting rods 1/10/13 Crank shaft 15/4/13 Thrust shaft 16/6/13 Tunnel shafts 12/11/13 Screw shaft 10/6/13 Propeller 20/10/13
 Stern tube 30/12/13 Steam pipes tested 25/4/13 Engine and boiler seatings 29/12/13 Engines holding down bolts 16/1/14
 Completion of pumping arrangements 12/2/14 Boilers fixed 16/1/14 Engines tried under steam 27/1/14
 Main boiler safety valves adjusted 27/1/14 Thickness of adjusting washers $P\frac{1}{2} 3\frac{1}{2}$, $S\frac{1}{2} 5\frac{1}{2}$ Fore $P\frac{1}{2} 5\frac{1}{2}$, $S\frac{1}{2} 5\frac{1}{2}$
 Material of Crank shaft *steel* Identification Mark on Do. 16/6/13 *66* Material of Thrust shaft *steel* Identification Mark on Do. 16/4/13 *66*
 Material of Tunnel shafts *steel* Identification Marks on Do. 12/11/13 *66* Material of Screw shafts *steel* Identification Marks on Do. 22/8/13 *66*
 Material of Steam Pipes *Lap welded iron* Test pressure 660 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 used are good, and the workmanship is satisfactory, it has been properly fitted on board and secured, and the engines have been tried under full power. An oil fuel burning installation on the Wallsend System in accordance with the requirements for low flash oil has been fitted. In my opinion this vessel is eligible for the record of L.M.C. 2, 14 fitted for low flash oil fuel.

It is submitted that this vessel is eligible for

THE RECORD. + LMC 2 14. F.D.

Fitted for low flash oil fuel 2 14.

The amount of Entry Fee .. £ 3 :
 Special .. £ 59 7 :
 Donkey Boiler Fee .. £ :
 Travelling Expenses (if any) £ :
 When applied for, FEB 20 1914
 When received, 26/3/14

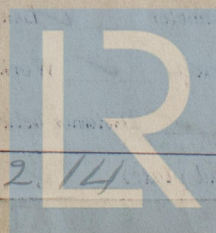
Charles Cooper
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute TUE. FEB. 24. 1914

Assigned

L.M.C. 2. 14

Fitted for low flash oil fuel 2, 14.



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NEWCASTLE-ON-TYNE

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