

REPORT ON MACHINERY.

MON. SEP 2 1901

Port of *Middlesbrough*

Received at London Office

Survey held at *Middlesbrough-on-Tees* Date, first Survey *23rd Aug 1900* Last Survey *16th Aug 1901*
(Number of Visits *102*)

on the *S. S. "Lizzie"*
C. P. *Soderberg*
R. P. *Lundh* Built at *Ferrog. Arendal* By whom built *Ferrog. Jernstølsbyggeri* When built *1901*

made at *Middlesbrough* By whom made *Richardsons Westgarth & Co Ltd* when made *1901*

made at *ditto* By whom made *ditto* when made *1901*

red Horse Power Owners *C Ford* Port belonging to *Landskrona*

Horse Power as per Section 28 *127* Is Refrigerating Machinery fitted *no* Is Electric Light fitted *no*

ENGINES, &c.—Description of Engines *Triple Expansion* No. of Cylinders *3* No. of Cranks *3*
Cylinders *14"-27"-45"* Length of Stroke *33"* Revs. per minute *8.80* Dia. of Screw shaft *9 3/4* Lgth. of stern bush *3'-9"*
Tunnel shaft *8 1/2"* Dia. of Crank shaft journals *9"* Dia. of Crank pin *9"* Size of Crank webs *13 1/2 x 6 1/2* Dia. of thrust shaft under *9"*
Dia. of screw *12'-6"* Pitch of screw *12'-6"* No. of blades *4* State whether moveable *no* Total surface *4929 sq. ft.*
Feed pumps *2* Diameter of ditto *2"* Stroke *18"* Can one be overhauled while the other is at work *yes*
Bilge pumps *2* Diameter of ditto *3"* Stroke *18"* Can one be overhauled while the other is at work *yes*
Donkey Engines *2* Sizes of Pumps *Duplex Feed 4 1/2 x 3 1/4 Ballast 6 x 6 1/2* No. and size of Suctions connected to both Bilge and Donkey pumps
Engine Room *Three 2 1/2"* In Holds, &c. *Fore Hold Two 2 1/2"*

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 4"*
Are 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*
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*
Are the pipes carried through the bunkers *none* How are they protected *✓* *See letter 9.10.01*

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*
Were the stern tube, propeller, screw shaft, and all connections examined in dry dock *New Vessel* Is the screw shaft tunnel watertight *See ship report*
Is the tunnel fitted with a watertight door *yes* worked from *upper grating*

BOILERS, &c.—(Letter for record *(r)*) Total Heating Surface of Boilers *2024 sq. ft.* Is forced draft fitted *no*
Description of Boilers *One Cylind. Mult. Single ended* Working Pressure *170* Tested by hydraulic pressure to *340*
Date of test *23-5-01* Can each boiler be worked separately *one only* Area of fire grate in each boiler *60 sq. ft.* No. and Description of safety valves *10*
Boiler *Two direct spring* Area of each valve *9.6 sq. in.* Pressure to which they are adjusted *175 lbs* Are they fitted with easing gear *yes*
Least distance between boilers or uptakes and bunkers or woodwork *11 1/2"* Mean dia. of boilers *14'-10 3/8"* Length *10'-6"* Material of shell plates *Steel*
Range of tensile strength *27/32* Are they welded or flanged *no* Descrip. of riveting: cir. seams *D. R. Lap* long. seams *D. Butt Straps*
Pitch of rivets *7 1/8 one row 3 1/2 two rows* Lap of plates or width of butt straps *1'-6" x 1 1/8" thick*
Pitch of rivets *8.8.3* Working pressure of shell by rules *170.1 lbs* Size of manhole in shell *16" x 12"*
Compensating ring *35" x 28" x 1 3/8"* No. and Description of Furnaces in each boiler *3 Deightons* Material *Steel* Outside diameter *46"*

Thickness of plates *top 7'-0" bottom 32* Description of longitudinal joint *Welded* No. of strengthening rings *✓*
Working pressure of furnace by the rules *177.9* Combustion chamber plates: Material *Steel* Thickness: Sides *19/32* Back *5/8* Top *5/8* Bottom *15/16*
Pitch of stays to ditto: Sides *8" x 8 3/4"* Back *9 1/4" x 8 1/2"* Top *9" x 8 1/2"* If stays are fitted with nuts or riveted heads *nuts* Working pressure by rules *171.1*
Pitch of stays *Iron & Steel* Diameter at smallest part *1'-6.3"* Area supported by each stay *78.6 sq. in.* Working pressure by rules *197.5* End plates in steam space: Material *Steel* Thickness *1"* Pitch of stays *17 3/4" x 15"* How are stays secured *D. Nuts & W.* Working pressure by rules *175.4* Material of stays *Steel*
Pitch of stays at smallest part *2.53* Area supported by each stay *266 sq. in.* Working pressure by rules *194.8* Material of Front plates at bottom *Steel*
Pitch of stays *13/16* Material of Lower back plate *Steel* Thickness *13/16* Greatest pitch of stays *14" x 8 1/2"* Working pressure of plate by rules *170*
Pitch of tubes *3 1/4* Pitch of tubes *4 1/2" x 4 1/2"* Material of tube plates *Steel* Thickness: Front *1"* Back *3/4"* Mean pitch of stays *9"*

Pitch of stays across wide water spaces *14 1/4"* Working pressures by rules *176.5 B 248.8* Girders to Chamber tops: Material *Steel* Depth and
Pitch of girder at centre *9" x 1 5/8"* Length as per rule *30"* Distance apart *9"* Number and pitch of Stays in each *Two 8 1/2"*
Working pressure by rules *224.4* Superheater or Steam chest; how connected to boiler *None* Can the superheater be shut off and the boiler worked
Pitch of rivets 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
Pitch of rivets 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

DONKEY BOILER— No. *One* Description *Vertical Cross tube*
 Made at *Stockton* By whom made *Sudron & Co* When made *7-1901* Where fixed *Stokehold.*
 Working pressure *80* tested by hydraulic pressure to *160* No. of Certificate *2523* Fire grate area *31 ft²* Description of safety valves *Direct Spring*
 No. of safety valves *one* Area of each *15.97* Pressure to which they are adjusted *80 lbs* If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No* Dia. of donkey boiler *4'-0"* Length *14'-0"* Material of shell plates *Steel* Thickness *7/16"* Range of tensile strength *27/32* Descrip. of riveting long. seams *D. R. Lap* Dia. of rivet holes *13/16* Whether punched or drilled *punched* Pitch of rivets *2 3/4*
 Lap of plating *4 1/4* Per centage of strength of joint *10.5* Thickness of shell crown plates *9/16"* Radius of do. *5'-9"* No. of Stays to do. *8*
 Dia. of stays *1 3/4"* Diameter of furnace Top *5'-3"* Bottom *6'-4 1/2"* Length of furnace *5'-9"* Thickness of furnace plates *3/32* Description of joint *Lap* Thickness of furnace crown plates *9/16"* Stayed by *Working pressure of shell by rules 81 lbs*
 Working pressure of furnace by rules *83 lbs* Diameter of uptake *16"* Thickness of uptake plates *7/16* Thickness of water tubes *3/8"*

SPARE GEAR. State the articles supplied:— *2 Con. Rod Top End. - 2 Bottom End - 2 Main Bearing - 1 set Coupling Bolts & Nuts. 6 Junk Ring Bolts. 1 Feed Check Valve 1 set of valves for each Feed, Bilge, Air, & Circulating Pumps. 2 Piston rings for each H.P. & M.P. 2 Piston Valve Rings. 2 Safety Valve Springs. Bolts & Nuts. For RICHARDSONS, WESTGARTH & Co. Ltd. Propeller & Tail shaft*
 The foregoing is a correct description,

Manufacturer. *J. M. M. S. T. K. A. L.*
 Main Engines & Boilers

Dates of Survey while building
 During progress of work in shops— *1900 Aug 1 Sep 4 Oct 9 Nov 13 Dec 6 1901 Jan 9 Feb 8 Mar 9 Apr 5 May 10*
 During erection on board vessel— *June 11 July 5 Aug 12*
 Total No. of visits *102*

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

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

Material of screw shaft *Iron* Is the screw shaft fitted with a continuous liner the whole length of the stern tube *No liners* *Cedervall's Patent lubricating box fitted*
 Is the after end of the ~~stern~~ *stern tube* 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 *✓* If two liners are fitted, is the shaft lapped or protected between the liners *✓*

This vessels Engines and Boilers have been constructed under special survey in accordance with rule requirements. When completed and fitted on board they were tried under steam with satisfactory results. The materials and workman ship are good and efficient. They are eligible in my opinion to have the notation L.M.C. 8-01 inserted in the Society's Register Book

It is submitted that this vessel is eligible for THE RECORD. + LMC 8. 01.

C.M.
2.9.01.

R.S.
2.9.01

The amount of Entry Fee.. *£ 2 : 0 : 0* When applied for, *29 Aug 1901*
 Special .. *19 1*
 Donkey Boiler Fee .. *£ - - -* When received, *31 Aug 1901*
 Travelling Expenses (if any) £ *- - -*

Richard D. Shilston.
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute *TUES. SEP 3 1901*
 Assigned *+ LMC 8. 01*

MACHINERY CERTIFICATE WRITTEN.



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Certificates (if required) to be sent to Messrs Richardson Westgarth & Co. Ltd. Middlesbrough