

REPORT ON MACHINERY.

THUR. DEC 6 1900

Port of *Glasgow*

Received at London Office

18

No. in Survey held at *Glasgow* Date, first Survey *2 February* Last Survey *28 Nov 1900*
 Reg. Book. *L. S. S. "Gaderland"* (Number of Visits *87*)
 on the *L. S. S. "Gaderland"* Gross *11898.74*
 Master *J. J. Albrecht* Built at *Clydebank* By whom built *J. Brown & Co. Ltd.* Tons *Net 6490*
 Engines made at *Clydebank* By whom made *" " " " "* when made *1900*
 Boilers made at *"* By whom made *" " " " "* when made *1900*
 Registered Horse Power *1624* Owners *International Navigation Co. Ltd.* Port belonging to *Liverpool*
 Is Refrigerating Machinery fitted *Only for ship stores* Is Electric Light fitted *Yes by J. J. Albrecht*

ENGINES, &c. — Description of Engines *Quadruple* No. of Cylinders *Eight* No. of Cranks *8*
 Dia. of Cylinders *31" 44" 62" 88"* Length of Stroke *54"* Revs. per minute *about 98* Dia. of Screw shafts *as per rule 18 1/2"* Lgth. of stern bush *6.9'*
 Dia. of Tunnel shaft *as per rule 18 1/2"* Dia. of Crank shaft journals *as per rule 16.10"* Dia. of Crank pin *14 1/2"* Size of Crank webs *15 1/2" x 28"* Dia. of thrust shaft under
 collars *14 1/2"* Dia. of screw *18.9"* Pitch of screw *22.6"* No. of blades *4* State whether moveable *Yes* Total surface *90 sq ft*
 No. of Feed pumps *4* Diameter of ditto *15"* Stroke *10"* Can one be overhauled while the other is at work *Yes*
 No. of Bilge pumps *4* Diameter of ditto *15"* Stroke *10"* Can one be overhauled while the other is at work *Yes*
 No. of Donkey Engines *three* Sizes of Pumps *10" x 8 1/2" x 10"* No. and size of Suctions connected to both Bilge and Donkey pumps
 in Engine Room *3 - 8 1/2"* *1 - 6" x 12" x 10"* Holds, &c. *2 in each 3 1/2"*

No. of bilge injections *2* sizes *13"* Connected to *condenser* circulating pump *Yes* Is separate donkey suction fitted in Engine room & size *Yes - 8 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 *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 *Both*
 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 *pipes to hold (oil) (water)* Are they protected *by wood casing*
 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*
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock *20th Nov 1900* the screw shaft tunnel watertight *Apparently*
 Is it fitted with a watertight door *Yes* worked from *upper platforms*

BOILERS, &c. — (Letter for record *72*) Total Heating Surface of Boilers *23480* Is forced draft fitted *Yes*
 No. and Description of Boilers *Multitubular (right cylinder)* Working Pressure *200 lbs* Tested by hydraulic pressure to *400 lbs*
 Date of test *11th Oct 1900* Can each boiler be worked separately *Yes* Area of fire grate in each boiler *43 sq ft* No. and Description of safety valves to
 each boiler *2 - 12.56"* Area of each valve *2.60 lbs* Pressure to which they are adjusted *200 lbs* Are they fitted with easing gear *Yes*
 Smallest distance between boilers or uptakes and bunkers or woodwork *10"* Mean dia. of boilers *16.6"* Length *11.8"* Material of shell plates *Steel*
 Thickness *19/8"* Range of tensile strength *32 tons* Are they welded or flanged *rather* Descrip. of riveting: cir. seams *double* long. seams *Double butt*
 Diameter of rivet holes in long. seams *19/8"* Pitch of rivets *10"* Lap of plates or width of butt straps *23"*
 Per centages of strength of longitudinal joint *94.86%* Working pressure of shell by rules *232 lbs* Size of manhole in shell *16" x 12"*
 Size of compensating ring *Flange* and Description of Furnaces in each boiler *4 Burris* Material *Steel* Outside diameter *3.4 1/2"*
 Length of plain part *top 58"* Thickness of plates *bottom 58"* Description of longitudinal joint *welded* No. of strengthening rings *1*
 Working pressure of furnace by the rules *230 lbs* Combustion chamber plates: Material *Steel* Thickness: Sides *32"* Back *32"* Top *32"* Bottom *1 1/2"*
 Pitch of stays to ditto: Sides *4 3/4" x 6 3/4"* Back *4 1/2" x 6 3/4"* Top *8" x 6"* If stays are fitted with nuts or riveted heads *nuts* Working pressure by rules *230 lbs*
 Material of stays *Iron* Diameter at smallest part *1.46"* Area supported by each stay *52.40"* Working pressure by rules *250 lbs* and plates in steam space:
 Material *Steel* Thickness *19/32"* Pitch of stays *16" x 16"* How are stays secured *Double nuts* Working pressure by rules *288 lbs* Material of stays *Steel*
 Diameter at smallest part *6.49"* Area supported by each stay *266"* Working pressure by rules *264 lbs* Material of Front plates at bottom *Steel*
 Thickness *13/16"* Material of Lower back plate *Steel* Thickness *3/16"* Greatest pitch of stays *14.8"* Working pressure of plate by rules *200 lbs*
 Diameter of tubes *3 1/4"* Pitch of tubes *14 1/2"* Material of tube plates *Steel* Thickness: Front *13/16"* Back *2 3/32"* Mean pitch of stays *10 1/8"*
 Pitch across wide water spaces *14 1/4"* Working pressures by rules *230 lbs* Girders to Chamber tops: Material *Steel* Depth and
 thickness of girder at centre *8 1/4" x 1"* Length as per rule *2.662"* Distance apart *8"* Number and pitch of Stays in each *4 - 6"*
 Working pressure by rules *250 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 *"*

DONKEY BOILER— No. *One* Description *Cylindrical multitubular*
 Made at *Clydebank* By whom made *John Brown & Co.* When made *1900* Where fixed *Line of main*
 Working pressure *100 lb* Tested by hydraulic pressure to *200 lb* No. of Certificate *5662* Fire grate area *147* Description of safety valves *Direct Spring*
 No. of safety valves *2* Area of each *3.14* Pressure to which they are adjusted *100 lb* If fitted with easing gear *Yes* If steam from main boiler
 enter the donkey boiler *No* Dia. of donkey boiler *4' 2"* Length *4'* Material of shell plate *Steel* Thickness *3/32"* Range of ten
 strength *29 tons* Descrip. of riveting long seam *Double lap* Dia. of rivet holes *3/16"* Whether punched or drilled *Drilled* Pitch of rivet *2"*
 Lap of plating *5/16"* Per centage of strength of joint Rivets *480* Thickness of shell crown plates *3/16"* Radius of do. *None* Stays to do *12"*
 Dia. of stays *1"* Diameter of furnace Top *2' 6"* Bottom *2' 6"* Length of furnace *5' 1"* Thickness of furnace plates *1/2"* Description
 joint *Double lap* Thickness of furnace plates *1/2"* Stayed by *Solid bar stays 1 1/8" x 1 1/2"* Working pressure of shell by rules *100 lb*
 Working pressure of furnace by rules *146 lb* Diameter of uptake *10"* Thickness of uptake plates *1/2"* Thickness of water tube plates *3/32"*
 Stay tubes *7/8" x 8' 2"*

SPARE GEAR. State the articles supplied: *1 Section of Crank Shaft, 1 Propeller Shaft complete, 1 P. Blade*
with studs & nuts. Set of valve spindle, Eccentric, with straps & rod complete, 1 Air
rod & bucket with valves also valves for feed & bilge pumps, Crank pin brasses, Inman
bolts, top & bottom end connect. rod bolts (4), Crank Propeller Shaft coupling bolts 2 add drain
for valve gear complete, 2 Propeller brasses, 2 Propeller bolts, nuts, springs & a large quantity of other gear
 The foregoing is a correct description, *John Brown & Company, Limited.* Manufacturer.

John Brown & Company, Limited. Assistant Secretary.
 Dates of Survey while building
 During progress of work in shops: 1899: Feb. 2, 9, 17, 22, 27, Mar. 8, 9, 13, 16, 21, 28, 29, Apr. 6, 12, 24, May 1, 5, 9, 15, 24, Jun
 During erection on board vessel: 29, July 31, Aug 4, 11, 18, 31, Sep 12, 19, 3 Large & steel casting reports, the
 Total No. of visits 87 16 Oct 2, 11, 16, 30 Nov 8, 9, 13, and others. Is the approved plan of main boiler forwarded herewith *Yes*
 Liber returned for reference in the engine room *Yes*
 The machinery & boiler of this vessel are of good workmanship & material and on completion have been tried under full power and are now in good order & safe working condition & eligible for our opinion to be noted in the Register Book *L.M.C. 11/1900*

General Remarks (State quality of workmanship, opinions as to class, &c.) *The machinery & boiler*
of this vessel are of good workmanship & material and on completion have been tried under full
power and are now in good order & safe working
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in the Register Book *L.M.C. 11/1900*

It is submitted that this vessel is eligible for
 THE RECORD. + LMC 11.00 F.D. Elec Light

The amount of Entry Fee. £ 3 : : When applied for, 11/12/1900
 Special £ 101 : 7 : When received, 6/12/1900
 Donkey Boiler Fee £ : :
 Travelling Expenses (if any) £ : :
 THUR. 6 DEC 1900

James Allison
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute
 Assigned