

REPORT ON MACHINERY.

Port of *Glasgow*

Received at London Office *5 October 1898*

WED, 5 OCT 1898

No. in Survey held at *Glasgow*
Reg. Book.

Date, first Survey *5 April 1897* Last Survey *28 Sept 1898*

(Number of Visits *102*)

on the *Iron Screw Steamer "Moskva"*

Gross *7266.69*
Tons Net *2734.00*

Master *V. Poiré*

Built at *Glasgow*

By whom built

The Clydebank Coy Ltd

When built *1898*

Engines made at *Glasgow*

By whom made

when made *1898*

Boilers made at

By whom made

when made *1898*

Registered Horse Power

Owners

Russian Volunteer Fleet

Port belonging to

Odessa

Nom. Horse Power as per Section 28 *2425*

2310 of engines

Is Electric Light fitted

Yes, by builders

ENGINES, &c.—Description of Engines

Triple Expansion

No. of Cylinders *Six*

No. of Cranks *Six*

Diameter of Cylinders *36 1/2" 36 1/2" 10 3/4" 10 3/4" 10 3/4" 10 3/4"* Length of Stroke *54"* Revolutions per minute *90* Diameter of Screw shaft *18 1/2"*
Diameter of Tunnel shaft *14 1/2"* Diameter of Crank shaft journals *19 1/2"* Diameter of Crank pin *19 1/2"* Size of Crank webs *12" x 23 1/2"*
Diameter of screw *14 1/2"* Pitch of screw *2 1/4"* No. of blades *4* State whether moveable *Yes* Total surface *84 sq ft*
No. of Feed pumps *None on main engines* Diameter of ditto *Stroke* Can one be overhauled while the other is at work *Yes*
No. of Bilge pumps *Two on each engine* Diameter of ditto *16 1/2"* Stroke *24"* Can one be overhauled while the other is at work *Yes*
No. of Donkey Engines *Sixteen* Sizes of Pumps *See other side of report* No. and size of Suctions connected to both Bilge and Donkey pumps
In Engine Room *3 - 3 1/2"* In Holds, &c. *2 in each 3 1/2" + 2 in each stokehold*

No. of bilge injections *2* sizes *16"* Connected to condenser, or to circulating pump *Yes* Is a separate donkey suction fitted in Engine room & size *Yes*
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 *Pipes to hold holds* How 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 *25th April 1898* Is screw shaft tunnel watertight *Apparently*
Is it fitted with a watertight door *Yes* worked from *Upper platforms*

BOILERS, &c. (30) (Letter for record)

Total Heating Surface of Boilers *44,600 sq ft*

Is forced draft fitted *No*

No. and Description of Boilers *Belloellie Water Tube* Working Pressure *260 lbs* Tested by hydraulic pressure to *500 lbs*
Date of test *Can each boiler be worked separately* *Yes* Area of fire grate in each boiler *46.5 sq ft* No. and Description of safety valves to each boiler *2 Direct Spring* Area of each valve *5.9"* Pressure to which they are adjusted *260 lbs* Are they fitted with easing gear *Yes* Smallest distance between boilers or uptakes and bunkers or woodwork *15"* Mean diameter of boilers *See details of drawings and descriptions over*
Length *Material of shell plates* Thickness *Description of riveting: circum. seams* long. seams
Diameter of rivet holes in long. seams *Pitch of rivets* Lap of plates or width of butt straps
Per centages of strength of longitudinal joint *Working pressure of shell by rules* Size of manhole in shell
Size of compensating ring *No. and Description of Furnaces in each boiler* Material *Outside diameter*
Length of plain part *Thickness of plates* *Description of longitudinal joint* No. of strengthening rings
Working pressure of furnace by the rules *Combustion chamber plates: Material* Thickness: Sides *Back* *Top* *Bottom*
Pitch of stays to ditto: Sides *Back* *Top* If stays are fitted with nuts or riveted heads *Working pressure by rules*
Material of stays *Diameter at smallest part* Area supported by each stay *Working pressure by rules* End plates in steam space:
Material *Thickness* *Pitch of stays* How are stays secured *Working pressure by rules* Material of stays
Diameter at smallest part *Area supported by each stay* *Working pressure by rules* Material of Front plates at bottom
Thickness *Material of Lower back plate* Thickness *Greatest pitch of stays* *Working pressure of plate by rules*
Diameter of tubes *Pitch of tubes* Material of tube plates *Thickness: Front* *Back* *Mean pitch of stays*
Pitch across wide water spaces *Working pressures by rules* Girders to Chamber tops: Material *Depth and*
thickness of girder at centre *Length as per rule* Distance apart *Number and pitch of Stays in each*
Working pressure by rules *Superheater or Steam chest; how connected to boiler* 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*
holes *Pitch of rivets* *Working pressure of shell by rules* *Diameter of the* *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

16439

DONKEY BOILER— Description *Multitubular*
Made at *Glasgow* By whom made *Clydebank & Co. Ltd.* When made *1898* Where fixed *Upper Deck*
Working pressure *160 lbs* tested by hydraulic pressure to *320 lbs* No. of Certificate *4623* Fire grate area *486 sq ft* Description of safety valves *Direct Spring*
No. of safety valves *Two* Area of each *5.9 sq ft* Pressure to which they are adjusted *160 lbs* If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No*
Diameter of donkey boiler *12'-9"* Length *9 ft* Material of shell plates *Steel* Thickness *1 1/2"*
Description of riveting long seams *Double butt straps* Diameter of rivet holes *1 1/8"* Whether punched or drilled *Drilled* Pitch of rivets *8"*
Lap of plating *Double straps* Rivets *86.6%* Thickness of *shell* plates *1 1/2"* Radius of do. *282 lbs* No. of Stays to do *14-14 1/2"*
Dia. of stays *2 1/2"* Diameter of furnace *3'-1 1/2"* Bottom *Comb. Chamber* Length of furnace *6 ft* Thickness of furnace plates *1 1/2"* Description of joint *Welded* Thickness of *comb. chamber* plates *9/16"* Stayed by *Screw stay 1 3/8" x 1/4" x 1/2"* Working pressure of shell by rules *183 lbs*
Working pressure of furnace by rules *142 lbs* Diameter of uptake *12"* Thickness of *uptake* plates *1 1/2"* Thickness of water tubes *1 1/2"*

SPARE GEAR. State the articles supplied:— *2 Connecting rod bolts top & bottom, 2 holding down bolts, 9 Coupling bolts, 1 set valve spindles, Air pump rod & bucket, 1 piece of Crank shaft, 1 pair Crank bushes also top & bottom end brasses, 6 steel propeller blades with studs & nuts for one, 1 set Air pump valves & feed pump valves, Assortment of bolts & nuts, Springs and a considerable quantity of other gear.*
The foregoing is a correct description,
THE CLYDEBANK ENGINEERING & SHIPBUILDING CO., LTD. Manufacturer
A. M. Millan Secretary

Dates of Survey while building
During progress of work in shops— *1897: Apr. 5, 13, 21, 28. May 13, 18, 31. June 7, 18. July 1, 6, 12. Aug. 3, 13, 16, 18, 19, 26. Sep. 9, 13, 17, 30. Oct. 13, 22. Nov. 8.*
During erection on board vessel— *1898: Jan. 13, 19, 25. Feb. 2, 9, 14, 15, 21, 23, 25, 28. Mar. 7, 14, 18, 21, 23, 25, 28, 30. Apr. 1, 4, 6, 9, 13, 15, 18.*
Total No. of visits *102* *20, 22, 25, 27, 29. May 2, 4, 6, 11, 13, 20, 24, 26, 28, 31. June 2, 8, 10, 13, 21, 24. July 9, 11, 27, 28. Aug. 2, 4, 5, 10, 11, 12, 16, 18, 23, 25, 26. Sept. 5, 22, 23, 24, 28. Oct. 2.*

General Remarks (State quality of workmanship, opinions as to class, &c.)
5'-10" ap
ENGINES—Length of stern bush *3'-9"* Diameter of crank shaft journals *14 1/2"* as per rule *210 lbs* Engine pressure *as fitted 19-8"* Diameter of thrust shaft under collars *18 1/2"*
BOILERS—Range of tensile strength *29-32 tons* Are they welded or flanged *Yes* DONKEY BOILERS—No *one* Range of tensile strength *29-32 tons*
Are the approved plans of main boiler forwarded herewith *Yes* Is the approved plan of donkey boiler forwarded herewith *Yes*

The main boilers of this vessel are of the Belleville type 30 in number 24 of 8 Elements + 6 of 4 Elements. Each Element consisting of 20 tubes, solid drawn 4 1/2" external dia + about 9.6 1/2" over connecting boxes at ends, and the whole of the Elements in each boiler jointed to feed collecting tube at bottom by nipples screwed into junction boxes and secured in position by screw bolts; and at the top connected to Steam Drum or Collector by bends + branch ^{tubes} screwed + fitted with couplings + jam nuts. The main tubes were all tested individually to 1500 lbs per sq. inch + subsequently when put together in Elements to 500 lbs, also Steam or Separator Drum to 500 lbs and the Drum Collectors + other cast steel portions to 450 lbs, + on the whole being put together + fitted on board ship a pressure of 400 lbs was applied and when under steam the safety valves were set to a working pressure of 250 lbs. The intended engine pressure being from 20 to 210 lbs.

These Engines + Boilers on completion have been tried under full power and were found then + on subsequent examination to be in good order + safe working condition + reliable in our opinion to be noted in the Register Book. *L.M.C. 10/98 Water tube boilers Annual Survey*

The amount of Entry Fee... £ 3 : - : - When applied for,
Special ... £ 141 : 5 : - 31.3.18.98
Donkey Boiler Fee ... £ : : : - When received,
Travelling Expenses (if any) £ : : : - 28.9.18.98

James Morrison *J. Kerr*
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.
TUES. 25 OCT 1898

Committee's Minute *FRI. 7 OCT 1898*
Assigned *+ 2 hrs 10, 98 subject*
Also light Water tube boilers
It is submitted that this vessel is eligible for THE RECORD. + L.M.C. 10. 98 subject to the water tube boilers being surveyed annually. Please light & Water tube boilers to be noted in the Reg. Book. *L.S. 7.10.98*

THUR, 20 OCT 1898

Port of

Glasgow

Continuation of Report No. 16439, dated 28th Sept 98 on the

S. S. "Moskva" belonging to the Russian Volunteer Coy.

On opening up the Engines of this vessel after completing her Steam Trials on the Clyde it was found that the division webs in the Steam Passages at bottom of Starboard Low pressure Cylinder had developed contraction, of metal cracks about 9" long, as per sketch appended. This Cylinder being fitted with double valves two separate steam passages lead into the Cylinder divided by double webs about 1 1/2" thick with open space between leading directly into the Cylinder top.

The defects have been repaired & made good by fitting screwed pins into the parts affected. By the Builders (The Clydebank & H. Coy. Ltd.) which has been carried out in a satisfactory manner and from the position & nature of the defects I am of opinion the efficient & good working of the Engines will not thereby be impaired. The Certificates of Class in this case were handed to the Builders a few days ago. (Copy of letter to Builders accompanies this)

James Morrison

19/10/98