

REPORT ON MACHINERY.

Port of *Dundee*

Received at London Office

No. in Survey held at *Dundee*
Book.Date, first Survey *30th Aug, 1901* Last Survey *5th June 1902*
(Number of Visits *65*)on the *Steel screw steamer "Kazagan"*Tons { Gross *1697.21*
Net *902.29*Built at *Grangemouth* By whom built *Grangemouth & Grk Sh. & Co.* When built *1902*Engines made at *Dundee* By whom made *Messrs Cooper & Greig* when made *1902*Boilers made at *Dundee* By whom made *Messrs Cooper & Greig* when made *1902*Registered Horse Power *243* Owners *Tolwood Bros* Port belonging to *Liverpool*Horse Power as per Section 28 *243* Is Refrigerating Machinery fitted *no* Is Electric Light fitted *no*

GINES, &c.—Description of Engines *Triple Expansion* No. of Cylinders *3* No. of Cranks *3*
 a. of Cylinders *21-35-57* Length of Stroke *39* Revs. per minute *80* Dia. of Screw shaft *as per rule 11.867* Lgth. of stern bush *50"*
 a. of Tunnel shaft *as per rule 10.57* Dia. of Crank shaft journals *as per rule 11.09* Dia. of Crank pin *11 1/4* Size of Crank webs *2 1/2 x 7 1/2* Dia. of thrust shaft under
 a. of Crank webs *as fitted 10 3/4* as fitted *11 1/2* State whether moveable *no* Total surface *68 sq ft*
 a. of Crank webs *11 1/4* Dia. of screw *14'-0"* Pitch of screw *16'-6"* No. of blades *4*

No. of Feed pumps *2* Diameter of ditto *4"* Stroke *18"* Can one be overhauled while the other is at work *yes*
 No. of Bilge pumps *2* Diameter of ditto *4"* Stroke *18"* Can one be overhauled while the other is at work *yes*
 No. of Donkey Engines *2* Sizes of Pumps *Ballast 8 1/2 x 10 1/4 x 10 8 ply* No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room *four 2 3/4"* In Holds, &c. *Fore hold two 2 3/4" dia; aft hold*

No. of bilge injections *1* sizes *5 1/2"* Connected to *condenser, or to circulating pump* *yes* Is a separate donkey suction fitted in Engine room & size *yes 3"*

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 *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 *✓*

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 before launching* Is the screw shaft tunnel watertight *yes*

Is it fitted with a watertight door *yes* worked from *top platform*

OILERS, &c.— (Letter for record *(5)*) Total Heating Surface of Boilers *4045* Is forced draft fitted *no*

No. and Description of Boilers *Two cylindrical single ended* Working Pressure *180 lb* Tested by hydraulic pressure to *360*

Date of test *24/4/02* Can each boiler be worked separately *yes* Area of fire grate in each boiler *57 sq ft* No. and Description of safety valves to

each boiler *Two Spring* Area of each valve *7.07 sq ft* Pressure to which they are adjusted *185* Are they fitted with easing gear *yes*

Smallest distance between boilers *on uptakes and bunkers on woodwork* *10 ft* Mean dia. of boilers *15'-1 1/2"* Length *10'-3"* Material of shell plates *steel*

Thickness *1 1/2"* Range of tensile strength *29-32* Are they welded or flanged *no* Descrip. of riveting: cir. seams *Lap. South long. seams 8 lb. 7 Riv. 5 Riv. per pitch*

Diameter of rivet holes in long. seams *1 1/2"* Pitch of rivets *8 3/4"* Lap of plates on width of butt straps *20 1/2*

Per centages of strength of longitudinal joint *96.5* Working pressure of shell by rules *185* Size of manhole in shell *16 x 12*

Size of compensating ring *no* No. and Description of Furnaces in each boiler *3 corrugated* Material *steel* Outside diameter *47"*

Length of plain part *top 5"* Thickness of plates *bottom 9"* crown *12"* Description of longitudinal joint *welded* No. of strengthening rings *11*

Working pressure of furnace by the rules *200* Combustion chamber plates: Material *steel* Thickness: Sides *5/8"* Back *19/32"* Top *5/8"* Bottom *1 1/2"*

Pitch of stays to ditto: Sides *8 3/8 x 8 3/8* Back *8 3/8 x 8* Top *8 3/8 x 9* If stays are fitted with nuts or riveted heads *none* Working pressure by rules *180*

Material of stays *steel* Diameter at smallest part *1 1/4"* Area supported by each stay *75.375* Working pressure by rules *187* End plates in steam space:

Material *steel* Thickness *3/4"* Pitch of stays *19 x 16* How are stays secured *8 lb nuts* Working pressure by rules *184* Material of stays *steel*

Diameter at smallest part *2 5/8* Area supported by each stay *304* Working pressure by rules *190* Material of front plates at bottom *steel*

Thickness *1 1/2"* Material of Lower back plate *steel* Thickness *5/8"* Greatest pitch of stays *14 3/4"* Working pressure of plate by rules *180*

Diameter of tubes *3 1/2"* Pitch of tubes *4 3/8"* Material of tube plates *steel* Thickness: Front *3/4"* Back *3/4"* Mean pitch of stays *9 3/4"*

Pitch across wide water spaces *15"* Working pressures by rules *180* Girders to Chamber tops: Material *steel* Depth and

thickness of girder at centre *8 1/2 x 1 1/2"* Length as per rule *29* Distance apart *9* Number and pitch of Stays in each *20 8 3/8"*

Working pressure by rules *206* 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

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 *Single ended Multi-² (see Gls Report No 19845, attached)*
 Made at *Glasgow* By whom made *Lindsay Burnet & Co* When made *1902* Where fixed *Stokehold*
 Working pressure *80* tested by hydraulic pressure to *160* No. of Certificate *6223* Fire grate area *23 1/2* Description of safety valves *spring*
 No. of safety valves *2* Area of each *4.9* Pressure to which they are adjusted *83* If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no* Dia. of donkey boiler *8'-3"* Length *8'-3"* 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 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
 Thickness of furnace crown plates Stayed by Working pressure of shell by rules
 Working pressure of furnace by rules Diameter of uptake Thickness of uptake plates Thickness of water tubes

SPARE GEAR. State the articles supplied:— *Two top-end, 2 bottom end + 2 main bearing bolts + nuts, 1 set of coupling bolts 1 set of feed + bilge pump valves, a quantity of assorted bolts, nuts + iron, a propeller, 6 jack pin bolts, 1/2 set air pump valves, 1/2 set circulating pump valves, 1 safety + 1 escape valve springs, 1 feed check valve, 3 boiler + 3 condenser tubes.*
 The foregoing is a correct description,
 Manufacturer. *Cooper & Breig*

Dates of work in shops— *Aug 30: Sept 12-16-20-24-27: Octo 1-5-14-16-22-25-28: Nov 2-5-8-12-18-20-27: Dec 3-11-16-20-27-31*
 Dates of erection on board vessel— *Jan 10-16-21-27-30-31: Feb 3-11-17-25-26-27: Mar 3-7-12-21-25-27: Apr 1-2-3-7-10-16-18-22-24-28: May 1-5-8*
 Total No. of visits *10-13-16-19-20-22-26: June 5*
 Is the approved plan of main boiler forwarded herewith *yes*
 " " " donkey " " " *no*

General Remarks (State quality of workmanship, opinions as to class, &c. *The steel used in the construction of the Boilers has been tested by the Society's Surveyors* *yes*—see letter Lth & Bun 11-6-02 *CM*)
 Material of screw shaft *dup iron* Is the screw shaft fitted with a continuous liner the whole length of the stern tube *no*
 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 *✓*
 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 *no*

The machinery of this vessel has been built under special survey in accordance with the approved plans and Secretary's letters and in general conformity with the Rules. The materials and workmanship are sound and good. The Boilers and main steam pipes have been tested by hydraulic pressure and the engines and boilers examined under steam and found satisfactory. The machinery is now in a good and safe working condition and renders the vessel eligible in our opinion to have the notation of LMC-6.02 in the Register Book

It is submitted that
 this vessel is eligible for
 THE RECORD. + LMC 6.02

IM *CM*
12.6.02

The amount of Entry Fee... *2-0-0* When applied for, *6th June 1902*
 Special ... *32-3-0*
 Donkey Boiler Fee ... *19/6*
 Travelling Expenses (if any) ...
 Committee's Minute
 Assigned

FRI. 13 JUN 1902

+ LMC 6.02

W Morrison + Thomas Field
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.



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