

REPORT ON MACHINERY.

Received at London Office TUE. 4 - JUL 1916

Date of writing Report 5. 6. 16 When handed in at Local Office 10 Port of Shanghai

No. in Survey held at Shanghai Date, First Survey 23. 6. 15 Last Survey 22. 5. 1916
Reg. Book. on the Steel single screw Lowboat "Ilia Inaromets" (Number of Visits) Gross ✓
Net ✓

Master Built at Shanghai By whom built Shanghai Dk & Eng Co. Ltd When built 1916

Engines made at Shanghai By whom made Shanghai Dk & Eng Co. Ltd when made 1916

Boilers made at Shanghai By whom made Shanghai Dk & Eng Co. Ltd when made 1916

Registered Horse Power Owners Russian Government Port belonging to Vladivostok

Nom. Horse Power as per Section 28 190.3 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes ✓

ENGINES, &c. — Description of Engines Triple Expansion, Surface Cond. No. of Cylinders 3 No. of Cranks 3
Dia. of Cylinders 17 1/2" - 28" - 46" Length of Stroke 33" Revs. per minute 109 Dia. of Screw shaft 10.02" 9.85" Material of Mild Steel
as per rule 10 1/16" as fitted screw shaft

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 Yes Length of stern bush 4'-0 3/16"

Dia. of Tunnel shaft as per rule 8.77" Dia. of Crank shaft journals as per rule 9.22" Dia. of Crank pin 9 1/4" Size of Crank webs 17 1/2" x 6 1/2" Dia. of thrust shaft under

collars 9 1/4" Dia. of screw 11-2" Pitch of Screw 15-3" No. of Blades 4 State whether moveable Yes Total surface 45 sq ft

No. of Feed pumps Two Diameter of ditto 2 3/4" Stroke 21" Can one be overhauled while the other is at work Yes

No. of Bilge pumps Two Diameter of ditto 2 3/4" Stroke 21" Can one be overhauled while the other is at work Yes

No. of Donkey Engines Three Sizes of Pumps 1 1/2" x 5" x 6", 5 1/4" x 5" x 5", 4 1/2" x 5" x 4" No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room Two 2 1/2" bore In Holds, &c For hold one 2 1/2", Tunnel well, one 2 1/2"

Stokehold one 2 1/2" No. of Bilge Injections 1 sizes 5 1/2" Connected to condenser, or to circulating pump pumps a separate Donkey Suction fitted in Engine room & size Yes, 2 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 none

Are all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks Valves

Are they sized 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 Bilge & tank suction How are they protected by steel guard plates.

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 17. 4. 16 of Stern Tube 2. 3. 16 Screw shaft and Propeller 17. 4. 16

Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Engine room, top platform

BOILERS, &c. — (Letter for record) Manufacturers of Steel D. Colville Sons, Steel Co. of Scotland.

Total Heating Surface of Boilers 3,740 Is Forced Draft fitted No No. and Description of Boilers Two single ended

Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test One 9. 3. 16 No. of Certificates 13 & 14

Can each boiler be worked separately Yes Area of fire grate in each boiler 60 sq ft No. and Description of Safety Valves to

each boiler Two spring loaded Area of each valve 5.93" Pressure to which they are adjusted 185 lbs Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 16" Mean dia. of boilers 13'-4 1/8" Length 10'-8" Material of shell plates Steel

Thickness 1 1/8" Range of tensile strength 28/32 tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seams DR

long. seams TR, 5 rivets Diameter of rivet holes in long. seams 13/16" Pitch of rivets 7 1/2" Lap of plates or width of butt straps 1'-5 3/4"

Per centages of strength of longitudinal joint rivets 97.6 Working pressure of shell by rules 186.3 lbs Size of manhole in shell 16" x 12"

Size of compensating ring 2'-10" x 2'-2" No. and Description of Furnaces in each boiler Three Morrison's Material Steel Outside diameter 3'-7 1/4"

Length of plain part top 4 1/2" Thickness of plates crown 17/32" Description of longitudinal joint No. of strengthening rings

Working pressure of furnace by the rules 190 lbs Combustion chamber plates: Material Steel Thickness: Sides 19/32" Back 19/32" Top 19/32" Bottom 19/32"

Pitch of stays to ditto: Sides 8" x 7 3/8" Back 8 3/8" x 8 3/8" Top 8 3/4" x 7 1/2" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 183.1 lbs

Material of stays Steel Diameter at smallest part 1 3/8" full area supported by each stay 66.4" Working pressure by rules 180.3 lbs End plates in steam space

Material Steel Thickness 1 1/8" Pitch of stays 6 7/8" x 1 6/8" How are stays secured Nuts Working pressure by rules 186.8 lbs Material of stays Steel

Diameter at smallest part 2 7/16" Area supported by each stay 346.89" Working pressure by rules 181.9 lbs Material of Front plates at bottom Steel

Thickness 13/16" Material of Lower back plate Steel Thickness 3/4" Greatest pitch of stays 1'-2" x 8 3/16" Working pressure of plate by rules 316 lbs

Diameter of tubes 3 1/4" Pitch of tubes 4 3/8" x 4 3/8" Material of tube plates Steel Thickness: Front 13/16" Back 3/4" Mean pitch of stays 11 3/8" x 8 3/4"

Pitch across wide water spaces 1'-2" x 8 3/4" Working pressures by rules 230.8 lbs Girders to Chamber tops: Material Steel Depth and

thickness of girder at centre 8 1/4" x 1 1/2" Length as per rule 30" Distance apart 8 3/4" Number and pitch of stays in, each 3 @ 7 3/8" pitch

Working pressure by rules 183 lbs 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 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 ✓

IS A DONKEY BOILER FITTED? *No*

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied: - 2 connecting rod top end bolts and nuts, 2 connecting rod bottom end bolts & nuts, 2 main bearing bolts & nuts, 1 set of coupling bolts & nuts, 1 set of feed and bilge pump valves, 1 set of rings for each piston, 2 check valves, one set of air pump valves, 2 eccentric strap & 2 ecc rod bolts & nuts, 1 set of junk ring bolts, 12 springs (safety & escape valves). A quantity of assorted bolts & nuts and iron of various sizes.

The foregoing is a correct description,

THE SHANGHAI DOCK & ENGINEERING CO., LTD.

Manufacturer.

Dates of Survey while building: During progress of work in shops - 1915 June 23, July 5, 12, 20, 22, 26, 29, Aug 2, 12, 19, 24, 27, Sept 4, 8, 20, 29, Oct 1, 7, 13, 21, 27, Nov 1, 11, 13, 16, 19, 24, 25, 29, 30, Dec 1, 3, 6, 7, 8, 9, 13, 15, 16, 18, 20, 22, 23, 24, 28, 30, 1916 Jan 3, 6, 15, 20, 22, 29, March 22, 24, 28, 29, April 3, 10, 12, 17, 18, 22, 26, May 3, 6, 15, 20, 22. Total No. of visits 84

Is the approved plan of main boiler forwarded herewith? *Yes*
" " " donkey " " "

Dates of Examination of principal parts - Cylinders 28.12.15 Slides 11.2.16 Covers 28.12.15 Pistons 11.2.16 Rods 11.2.16
Connecting rods 11.2.16 Crank shaft 24.11.15 Thrust shaft 26.4.16 Tunnel shafts 10.4.16 Screw shaft 10.4.16 Propeller 17.4.16
Stern tube 23.2.16 Steam pipes tested 22.4.16 Engine and boiler seatings 17.3.16 Engines holding down bolts 10.4.16
Completion of pumping arrangements 15.5.16 Boilers fixed 3.4.16 Engines tried under steam 22.5.16
Main boiler safety valves adjusted 22.5.16 Thickness of adjusting washers PV ^{FB} 3/32, SV ^{AB} 1/32 SV ^{AB} 3/16, PV ^{AB} 3/8
Material of Crank shaft *Steel* Identification Mark on Do. *SHI. No. 11* Material of Thrust shaft *Steel* Identification Mark on Do. *SHI. No. 11*
Material of Tunnel shaft *Steel* Identification Marks on Do. *SHI. No. 11* Material of Screw shaft *Steel* Identification Marks on Do. *SHI. No. 11*
Material of Steam Pipes *Copper* Test pressure *360 lbs sq. in.*

Is an installation fitted for burning oil fuel? *No* Is the flash point of the oil to be used over 150°F.

Have the requirements of Section 49 of the Rules been complied with?

Is this machinery duplicate of a previous case? *No* If so, state name of vessel?

General Remarks (State quality of workmanship, opinions as to class, &c.) *The machinery of this vessel has been built under special survey, and is of good materials and workmanship. It has been tried under working conditions and found satisfactory.*

The machinery is eligible in my opinion for the record of L.M.C. 5-16, in the Register Book.

It is submitted that this vessel is eligible for THE RECORD + L.M.C. 5.16.

JUR 5/7/16

The amount of Entry Fee ... £ 32 : When applied for, 31.5.1916
Special ... £ 456 :
Donkey Boiler Fee ... £ :
Travelling Expenses (if any) £ 10 : When received, May Return 1916

H. L. Fletcher
Engineer-Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute *498* FRI 7-JUL 1916

Assigned *+ L.M.C. 5.16*

MACHINERY CERTIFICATE WRITTEN.

