

Rpt. 4. **REPORT ON MACHINERY.** No. 27969
 THU. OCT. 3. 1914

Received at London Office

Date of writing Report 19 When handed in at Local Office 19-3-14 Port of Hull
 No. in Survey held at Hull Dge, First Survey 9-3-14 Last Survey Sep. 19th 1914
 Reg. Book. 43 on the steel screw steamer Sumatra (Number of Visits 57)
 Master Built at Hull By whom built Carlis Co Ltd Tons Gross 5352 Net 3365
 Engines made at Hull By whom made Carlis Co Ltd when made 1914-9
 Boilers made at Hull By whom made Carlis Co Ltd when made 1914-9
 Registered Horse Power Owners Aktief. Svenska Ostasiatiska Komp. Port belonging to Gothenburg
 Nom. Horse Power as per Section 28 512 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

ENGINES, &c.—Description of Engines Triple Expansion No. of Cylinders Three No. of Cranks 3
 Dia. of Cylinders 27"-45"-75" Length of Stroke 57" Revs. per minute Dia. of Screw shaft as per rule 15.2" Material of steel as fitted 16" screw shaft
 Is the screw shaft fitted with a continuous liner the whole length of the stern tube yes 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 ✓ Length of stern bush 66 3/4"
 Dia. of Tunnel shaft as per rule 13.69" as fitted 14" Dia. of Crank shaft journals as per rule 14.37" as fitted 14 3/4" Dia. of Crank pin 15" Size of Crank webs 9 1/2" x 22 1/2" Dia. of thrust shaft under collars 1 3/4" Dia. of screw 18"-3" Pitch of Screw 17"-9" No. of Blades 4 State whether moveable yes Total surface 1054"
 No. of Feed pumps Two Diameter of ditto 4" Stroke 27" Can one be overhauled while the other is at work yes
 No. of Bilge pumps Two Diameter of ditto 4 1/2" Stroke 27" Can one be overhauled while the other is at work yes
 No. of Donkey Engines Four Pair of Wren Feed 10 1/2" x 8" x 1 1/2" No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room Four 3 1/2" x one 2 1/2" in tunnel well ✓ In Holds, &c. Two 3 1/2" in each compartment ✓
 No. of Bilge Injections one sizes 8 1/2" Connected to condenser, or to circulating pump pump Is a separate Donkey Suction fitted in Engine room & size yes 3 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 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 Forward sections How are they protected Wooden casings
 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 20-7-14 of Stern Tube 20-7-14 Screw shaft and Propeller 5-8-14
 Is the Screw Shaft Tunnel watertight yes Is it fitted with a watertight door yes worked from top platform ✓

BOILERS, &c.—(Letter for record S) Manufacturers of Steel Phoenix & Holder Verein Herde
 Total Heating Surface of Boilers 7149 sq ft Is Forced Draft fitted yes No. and Description of Boilers Three single ended
 Working Pressure 18 lbs Tested by hydraulic pressure to 360 lbs Date of test 14-8-14 No. of Certificate 3012 3014
 Can each boiler be worked separately yes Area of fire grate in each boiler 63 sq ft No. and Description of Safety Valves to each boiler two spring loaded Area of each valve 8.29 sq ft Pressure to which they are adjusted 185 Are they fitted with easing gear yes
 Smallest distance between boilers on platforms and bunkers on woodwork 14" Main dia. of boilers 18 3/4" Length 11'-8 3/2" Material of shell plates steel
 Thickness 1/4" Range of tensile strength 28-32 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams double long. seams L.R.D.B. Diameter of rivet holes in long. seams 1 5/16" Pitch of rivets 9 3/16" Lap of plates or width of butt straps 1-7 3/4"
 Per centages of strength of longitudinal joint rivets 87.6 plate 85.7 Working pressure of shell by rules 184 Size of manhole in end 16" x 12"
 Size of compensating ring plate Hanger No. and Description of Furnaces in each boiler 3 Reighton Material steel Outside diameter 50"
 Length of plain part top bottom Thickness of plates crown 19/32 Description of longitudinal joint welded No. of strengthening rings
 Working pressure of furnace by the rules 189 Combustion chamber plates: Material steel Thickness: Sides 3/4" Back 2 3/32" Top 1/16" Bottom 3/4"
 Pitch of stays to ditto: Sides 3/4" x 8 1/2" Back 10 1/8" x 9 1/8" Top 9 1/4" x 8 1/2" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 185
 Material of stays steel Diameter at smallest part 2.07 sq ft Area supported by each stay 100 sq ft Working pressure by rules 186 End plates in steam space:
 Material steel Thickness 1/32" Pitch of stays 16 1/16" x 2 1/4" How are stays secured R. Working pressure by rules 181 Material of stays steel
 Diameter at smallest part 6.23 sq ft Area supported by each stay 357 Working pressure by rules 182 Material of Front plates at bottom steel
 Thickness 1/32" Material of Lower back plate steel Thickness 15/16" Greatest pitch of stays 14 1/2" x 9 1/8" Working pressure of plate by rules 207
 Diameter of tubes 3" Pitch of tubes 4 1/4" x 4 1/4" Material of tube plates steel Thickness: Front 1/32" Back 7/8" Mean pitch of stays 8 1/2"
 Pitch across wide water spaces 15" Working pressures by rules 181 Girders to Chamber tops: Material steel Depth and thickness of girder at centre 9 1/2" x 15 1/8" Length as per rule 2-10 3/32" Distance apart 9 1/4" Number and pitch of stays in each Three 8 1/2"
 Working pressure by rules 199 Superheater on Steam chest; how connected to boiler in plan Can the superheater be shut off and the boiler worked separately yes Diameter Schmidt's Patent 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 3.14 sq ft Are they fitted with easing gear yes

IS A DONKEY BOILER FITTED? **no**

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:— Two top end bolts & nuts, two bottom end bolts & nuts, two main bearing bolts & nuts, one set of coupling bolts & nuts, one set of valves for feed, Bilge & air pumps, one set of valves for donkey pumps, 6 junk ring studs & nuts, one main & one donkey check valve, 6 boiler tubes, one safety valve spring, 2 cast-iron propeller blades, one spare screw shaft, 1/8 crank shaft, 2 pairs of eccentric straps & a quantity of bolts & nuts & iron of various sizes
Trunk or spare crank shaft-3795 A.F.O. on spare screw shaft-3965 P.L.A.

The foregoing is a correct description,

SHIPBUILDING & ENGINEERING CO. LIMITED.

Atkinson

Manufacturer.

Dates of Survey while building: During progress of work in shops -- 1914: Mar 9, 27 Apr 3, 6, 20, 22, 24, 28, 30 May 1, 5, 7, 11, 13, 15, 20, 26, 29 Jun 5, 8, 10, 12
During erection on board vessel -- 15, 17, 18, 22, 25 Jul 3, 6, 10, 16, 20, 23, 28, 29 Aug 4, 5, 10, 12, 13, 14, 15, 17, 18, 19, 25, 26, 28
Total No. of visits 57
Is the approved plan of main boiler forwarded herewith **yes**
" " " donkey " " " **yes**

Dates of Examination of principal parts—Cylinders 22-6-14 Slides 10-7-14 Covers 15-6-14 Pistons 10-7-14 Rods 10-6-14
Connecting rods 22-6-14 Crank shaft 17-6-14 Thrust shaft 8-6-14 Tunnel shafts 15-8-14 Screw shaft 3-7-14 Propeller 3-7-14
Stern tube 6-7-14 Steam pipes tested 25 & 28-8-14 Engine and boiler seatings 10-8-14 Engines holding down bolts 19-8-14
Completion of pumping arrangements 7-9-14 Boilers fixed 25-8-14 Engines tried under steam 17-9-14
Main boiler safety valves adjusted 15 & 16-9-14 Thickness of adjusting washers Port: P 7/16 S 7/16, Ctr: P 9/32 S 7/16, Starb: P 7/16 S 7/16

Material of Crank shaft **steel** Identification Mark on Do. 3751 A.F.O. Material of Thrust shaft **steel** Identification Mark on Do. 3785 A.F.O.
Material of Tunnel shafts **steel** Identification Marks on Do. see below Material of Screw shafts **steel** Identification Marks on Do. 9415 P.L.
Material of Steam Pipes **solid drawn steel** Test pressure 540 lbs
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. Trunks on Tunnel shafts, 3829 A.F.O. 3830 A.F.O. 3831 A.F.O. 3799 A.F.O. 3800 A.F.O. 3801 A.F.O.)

The machinery of this vessel has been constructed under special survey in accordance with the approved plans & the rules of this Society, the materials & workmanship are good. The Boilers & steam pipes have been tested as above found sound & tight. The machinery has been properly fitted & secured on board & on completion was tested by steam under full working conditions & found satisfactory. The main Boiler, superheater & evaporator safety valves have been adjusted under steam, the main boiler valves tested for accumulation which did not exceed 190 lbs.
In my opinion the vessel is eligible for the record + L.M.C. 9.14 + F.D. & see Light

This vessel is fitted with Schmidt's superheaters the valves have been adjusted to 200 lbs.
It is submitted that this vessel is eligible for THE RECORD. + L.M.C. 9.14. F.D.

The amount of Entry Fee ... £ 3 : 0 :
Special ... £ 45 : 12 :
Donkey Boiler Fee ... £ : :
Travelling Expenses (if any) £ : :
When applied for, 26-9-14
When received, 12-10-14

Frank L. Sturgeon
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.
9/10/14

Committee's Minute FRI. OCT. -9. 1914

Assigned + L.M.C. 9.14

MACHINERY CERTIFICATE WRITTEN



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