

REPORT ON MACHINERY.

No. 30,186

Received at London Office

Date of writing Report 8-10-17 19 When handed in at Local Office 9-10-17 19 Port of Hull

No. in Survey held at Hull Date, First Survey 15-9-16 Last Survey 8-10-17 19
Reg. Book. 550 on the steel screw trawler "Sapphire" (Number of Visits 37)

Master Built at Selby By whom built Cochrane & Sons Ltd Tons Gross 262 Net 104
Engines made at Hull By whom made Chas. & Holmes & Co Ltd when made 1917-10

Boilers made at Hull By whom made Chas. & Holmes & Co Ltd when made 1917-10

Registered Horse Power Owners Kingston Trawling Co Ltd Port belonging to Hull

Nom. Horse Power as per Section 28 76 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 13"-2 1/2"-35" Length of Stroke 24" Revs. per minute 119 Dia. of Screw shaft as per rule 7 1/2" Material of screw shaft iron

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 yes 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 35 1/2"

Dia. of Tunnel shaft as per rule 6 7/4" Dia. of Crank shaft journals as per rule 7 0/8" Dia. of Crank pin 7 1/4" Size of Crank webs 4" x 4 1/2" Dia. of thrust shaft under collars 7 1/4"

Dia. of screw 9'-0" Pitch of Screw 10'-7 1/2" No. of Blades 4 State whether moveable no Total surface 31' 5" sq ft

No. of Feed pumps one Diameter of ditto 2 1/2" Stroke 14 1/4" Can one be overhauled while the other is at work

No. of Bilge pumps one Diameter of ditto 2 1/2" Stroke 14 1/4" Can one be overhauled while the other is at work

No. of Donkey Engines one + 3 extra Sizes of Pumps 6" x 4 1/2" x 6" duplex No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room two 2 1/2" dia In Holds, &c. one 2 1/2" dia in each compartment all suction also connected to yacht

No. of Bilge Injections one sizes 3 1/2" Connected to condenser, or to circulating pump pumps Is a separate Donkey Suction fitted in Engine room & size 3" extra

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 suction How are they protected strong wooden 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

Is the Screw Shaft Tunnel watertight Is it fitted with a watertight door worked from

BOILERS, &c.—(Letter for record S) Manufacturers of Steel Stewart & Lloyd

Total Heating Surface of Boilers 12504 sq ft Is Forced Draft fitted no No. and Description of Boilers one single ended

Working Pressure 200 lbs Tested by hydraulic pressure to 400 lbs Date of test 6-9-17 No. of Certificate 3234

Can each boiler be worked separately Area of fire grate in each boiler 434 sq ft No. and Description of Safety Valves to each boiler two spring loaded

Area of each valve 49 sq in Pressure to which they are adjusted 205 Are they fitted with easing gear yes

Smallest distance between boilers or bunkers or woodwork 8' 3/4" dia. of boilers 150" Length 10'-3" Material of shell plates S

Thickness 1/8" Range of tensile strength 28-32 tons Are the shell plates welded or flanged 28-32 tons Descrip. of riveting: cir. seams double

long. seams Y.R. & B.J. Diameter of rivet holes in long. seams 1 1/8" Pitch of rivets 7 5/8" Top of plates or width of butt straps 17"

Per centages of strength of longitudinal joint rivets 86.16 Working pressure of shell by rules 210 Size of manhole in shell 16" x 12"

Size of compensating ring 7" x 1 1/8" No. and Description of Furnaces in each boiler three plain Material steel Outside diameter 36"

Length of plain part top 76 1/2" bottom 69" Thickness of plates crown 1 1/16" Description of longitudinal joint welded No. of strengthening rings

Working pressure of furnace by the rules 232 Combustion chamber plates: Material steel Thickness: Sides 1/16" Back 1/16" 6/16" 3/4" Top 1/16" 6/16" 23 Bottom 1/16"

Pitch of stays to ditto: Sides 9 1/4" x 8" Back 10" x 8" 8/16" Top 10" x 8" 8/16" stays are fitted with nuts or riveted heads nuts Working pressure by rules 220

Material of stays S Area at smallest part 1.76 sq in Area supported by each stay 64 sq in Working pressure by rules 220 End plates in steam space:

Material S Thickness 1 5/32" Pitch of stays 17" x 16 1/2" How are stays secured S, T, Y, W Working pressure by rules 226 Material of stays S

Area at smallest part 6.48 sq in Area supported by each stay 280.5 sq in Working pressure by rules 240 Material of Front plates at bottom S

Thickness 1" Material of Lower back plate S Thickness 1 5/16" Greatest pitch of stays 16" x 11" Working pressure of plate by rules 209

Diameter of tubes 3 1/2" Pitch of tubes 5" x 4 1/16" Material of tube plates S Thickness: Front 1" Back 7/8" Mean pitch of stays 9 7/8"

Pitch across wide water spaces 13 3/4" Working pressures by rules 203 Girders to Chamber tops: Material steel Depth and thickness of girder at centre 10" x 1 3/4" Length as per rule 33 3/8" Distance apart 10" Number and pitch of stays in each three 8"

Working pressure by rules 220 Steam dome: description of joint to shell % of strength of joint

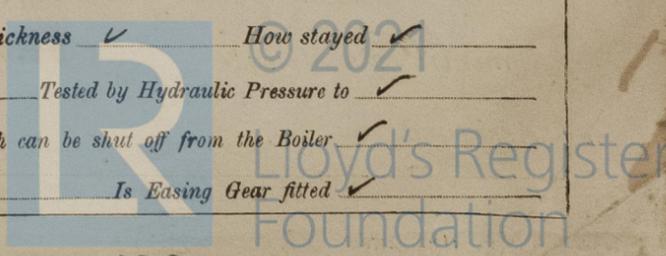
Diameter Thickness of shell plates Material Description of longitudinal joint Diam. of rivet holes

Pitch of rivets Working pressure of shell by rules Crown plates Thickness How stayed

SUPERHEATER. Type Date of Approval of Plan Tested by Hydraulic Pressure to

Date of Test Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler

iameter of Safety Valve Pressure to which each is adjusted Is Easing Gear fitted



W1322-0100

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 air feed & bilge pump valves, one main & one donkey chest valves seat, 12 piston studs & nuts, one impeller shaft, one set of donkey pump valves, one feed or bilge pump plunger, one safety valve spring, & a quantity of bolts & nuts even of various sizes.*

The foregoing is a correct description,
By **CHARLES D. HOLMES & CO. LTD.**

Charles D. Holmes Manufacturer.

Dates of Survey while building { During progress of work in shops -- } *1916: - Sep. 15, 19, 21, 23, 26, 28 Oct. 4, 1917: - Jun 14, Jul 2, 6, 13, 18, 21, 24, 27, 31, Aug 2, 13, 15, 21, 22, 25, 27, 29, 31, Sept 4,*
{ During erection on board vessel - - - } *6, 18, 20, 22, 25, 27, 29, Oct 3, 4, 5, 8.*
Total No. of visits *37* Is the approved plan of main boiler forwarded herewith *yes* Rpt no. *30165*

Dates of Examination of principal parts—Cylinders *6-7-17* Slides *22-8-17* Covers *2-8-17* Pistons *2-8-17* Rods *2-8-17*
Connecting rods *2-8-17* Crank shaft *31-7-17* Thrust shaft *27-8-17* Tunnel shafts Screw shaft *28-9-16* Propeller *28-9-16*
Stern tube *23-9-16* Steam pipes tested *27-9-17* Engine and boiler seatings *4-10-16* Engines holding down bolts *20-9-17*
Completion of pumping arrangements *4-10-17* Boilers fixed *29-9-17* Engines tried under steam *4-10-17*
Completion of fitting sea connections *4-10-16* Stern tube *4-10-16* Screw shaft and propeller *4-10-16*
Main boiler safety valves adjusted *29-9-17* Thickness of adjusting washers *7 3/4 & 3/4*

Material of Crank shaft *Wm* Identification Mark on Do. *2001 FLS* Material of Thrust shaft *Wm* Identification Mark on Do. *2012 FLS*
Material of Tunnel shafts Identification Marks on Do. Material of Screw shafts *Wm* Identification Marks on Do. *1732 FLS*
Material of Steam Pipes *Solid drawn copper* Test pressure *400 lbs.*

Is an installation fitted for burning oil fuel 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 *yes* If so, state name of vessel *Cornelian etc.*

General Remarks (State quality of workmanship, opinions as to class, &c.) *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 boiler & steam pipes have been tested as above by hydraulic pressure as above & found sound & tight. The machinery has been properly fitted & secured on board the vessel & on completion tried under full working conditions & found satisfactory. The safety valves have been adjusted under steam & tested for accumulation which did not exceed 215 lbs. In my opinion the vessel is eligible for the record & L.M.C. 10-17.*

It is submitted that this vessel is eligible for THE RECORD. + L.M.C. 10.17.

Frank A. Sturgeon 11/10/17
Engineer Surveyor to Lloyd's Register of Shipping.

Certificate (if required) to be sent to
The Surveyors are requested not to write on or below the space for Committee's Minute.

The amount of Entry Fee	£ 1 : 0 :	When applied for, 10-10-17
Special	£ 11 : 8 :	1917
Donkey Boiler Fee	£ :	When received, 31.10.17
Travelling Expenses (if any)	£ : 82 :	11/11/17

Committee's Minute *FRI. OCT. 12 1917.*
Assigned *+ L.M.C. 10.17*

