

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 Lelby 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 1/4" as fitted 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 7/8" as fitted 7 1/4" Dia. of Crank shaft journals as per rule 7 1/8" as fitted 7 1/4" Dia. of Crank pin 7 1/4" Size of Crank webs 14" 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 1/2" 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 yes
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 yes
No. of Donkey Engines one + 3 gals 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 gals
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" gals.
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 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 ft No. and Description of Safety Valves to
each boiler two spring loaded Area of each valve 4' 9" Pressure to which they are adjusted 205 Are they fitted with easing gear yes
Smallest distance between boilers or uptakes and bunkers or woodwork 8' 3" dia. of boilers 150" Length 10'-3" Material of shell plates S
Thickness 1 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 J.R. & B. Diameter of rivet holes in long. seams 1 1/8" Pitch of rivets 7 1/2" Lap of plates or width of butt straps 17"
Per centages of strength of longitudinal joint rivets 86.16 plate 85.24 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 1/16" Back 1 1/16" 6 1/4" Top 1 1/16" 6 1/4" Bottom 1 1/16"
Pitch of stays to ditto: Sides 9 1/4" x 8" Back 10" x 8" 8 1/4" Top 10" x 8" 8 1/4" stays are fitted with nuts or riveted heads nuts Working pressure by rules 220
Material of stays S Area at smallest part 1.76" Area supported by each stay 64" 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 8 1/4" x 1 1/4" Working pressure by rules 226 Material of stays S
Area at smallest part 6.48" Area supported by each stay 280.5" 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 3/8" 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
Diameter 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, 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,

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 & 3/2*

Material of Crank shaft *iron* Identification Mark on Do. *2001 FLS* Material of Thrust shaft *iron* Identification Mark on Do. *2012 FLS*
Material of Tunnel shafts ✓ Identification Marks on Do. ✓ Material of Screw shafts *iron* 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 *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 *yes* ✓ If so, state name of vessel *Comedian 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 2 1/5 lbs.*

In my opinion the vessel is eligible for the record &c. to 10-17.

It is submitted that
this vessel is eligible for
THE RECORD. + LMC 10.17.

LM JWD.
11/10/17.

Frank A. Sturgeon
Engineer Surveyor to Lloyd's Register of Shipping.

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

Committee's Minute

FRI OCT. 12 1917.

Assigned

+ LMC 10.17



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Foundation