

REPORT ON MACHINERY.

No. 83108

Received at London Office

SAT. DEC. 17 1921

Date of writing Report 19 When handed in at Local Office -8 DEC 1921 Port of LIVERPOOL

No. in Survey held at Liverpool & Sarston Date, First Survey 21st Feb. 1921 Last Survey 7th Dec 1921
 Reg. Book. on the Steel Twin Fair & aft S/S. "Churton" (Number of Visits 82)

Master Built at Sarston By whom built H. J. C. Sragson & Co. Tons { Gross 724
 Net 254
 When built 1921

Engines made at Liverpool By whom made D. Rollo & Sons Ltd when made 1921-12

Boilers made at do By whom made do when made 1921-12

Registered Horse Power 253. Owners Municipal Corporation of Birkenhead belonging to Liverpool

Nom. Horse Power as per Section 28 253. Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted *yes.*

ENGINES, &c.—Description of Engines *Two 4 ft Twin Screw Triple Expansion* No. of Cylinders *6* No. of Cranks *3 each*

Dia. of Cylinders *17 3/4 x 27 1/2 x 45 1/4* Length of Stroke *24"* Revs. per minute *135* Dia. of Screw shaft *8 1/2"* Material of screw shaft *steel*

Is the screw shaft fitted with a continuous liner the whole length of the stern tube *no, Fair Shaft* 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 *yes* If two liners are fitted, is the shaft lapped or protected between the liners *yes* Length of stern bush *3' 0"*

Dia. of Tunnel shaft *7.95"* as per rule *8.32"* as fitted Dia. of Crank shaft journals *8.34"* as per rule *8 1/2"* as fitted Dia. of Crank pin *8 1/2"* Size of Crank webs *5 3/4 x 10"* Dia. of thrust shaft under collars *8 1/2"* Dia. of screws *7.6"* Pitch of Screw *10" 6"* No. of Blades *3* State whether moveable *slid* Total surface *31 sq ft each*

No. of Feed pumps *2* Diameter of ditto *4 1/2"* Stroke *8"* Can one be overhauled while the other is at work *yes*

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

No. of Donkey Engines *one* Sizes of Pumps *4 x 1 1/2 x 8"* No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room *Three 3" Suctions* In Holds, &c. *Twelve 2" Suctions*

No. of Bilge Injections *one* sizes *6"* Connected to condenser, or to circulating pump *no* 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 *yes*

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 *yes*

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 *compartment* watertight *yes* Is it fitted with a watertight door *yes* worked from *Main deck*

BOILERS, &c.—(Letter for record *S.*) Manufacturers of Steel *John Spencer & Sons Newcastle Steel Works.*

Total Heating Surface of Boilers *4428 sq ft* Is Forced Draft fitted *no* No. and Description of Boilers *two Locomotive Type Cylindrical*

Working Pressure *180 lbs* Tested by hydraulic pressure to *320 lbs* Date of test *26 Oct 1921* No. of Certificates *2200 & 2201*

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 *8.28"* 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 *4 feet* Mean dia. of boilers *10" 9"* Length *17' 1"* Material of shell plates *steel*

Thickness *15/16"* Range of tensile strength *28/32 tons* Are the shell plates welded or flanged *no* Descrip. of riveting: cir. seams *D. J. S. rivet*

long. seams *Like Rivet* Diameter of rivet holes in long. seams *1"* Pitch of rivets *7 1/2 x 3 1/2"* Lap of plates or width of butt straps *1' 2 1/16"*

Per centages of strength of longitudinal joint rivets *91.34%* Working pressure of shell by rules *187.4 lbs* Size of manhole in shell *16" x 12"*

Size of compensating ring *7 1/2" x 15"* No. and Description of Furnaces in each boiler *3 Corrugated* Material *Steel* Outside diameter *3' 10 1/4"*

Length of plain part *top corrugated* Thickness of plates *9/16"* Description of longitudinal joint *Welded* No. of strengthening rings *yes*

Working pressure of furnace by the rules *189 lbs* Combustion chamber plates: Material *Steel* Thickness: Sides *19" 32"* Back *1 1/2"* Top *19" 32"* Bottom *19" 32"*

Pitch of stays to ditto: Sides *7 3/4 x 8 1/4"* Back *7 3/4 x 8 1/4"* Top *7 3/4 x 8 1/4"* If stays are fitted with nuts or riveted heads *Nuts* Working pressure by rules *189 lbs*

Material of stays *Steel* Area at smallest part *1.449* Area supported by each stay *63.9* Working pressure by rules *196 lbs* End plates in steam space:

Material *Steel* Thickness *3 1/2 x 1"* Pitch of stays *16 1/2 x 15 1/4"* How are stays secured *Nuts & Washers* Working pressure by rules *180 x 172 1/2* Material of stays *Steel*

Area at smallest part *5.04* Area supported by each stay *251.3* Working pressure by rules *219 lbs* Material of Front plates at bottom *Steel*

Thickness *1"* Material of Lower back plate *Steel* Thickness *3/32"* Greatest pitch of stays *as per plan* Working pressure of plate by rules *180 lbs*

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

Pitch across wide water spaces *14 1/2 x 8 3/4"* Working pressures by rules *210 lbs* Girders to Chamber tops: Material *Steel* Depth and thickness of girder at centre *Two 8" x 3 1/4"* Length as per rule *2' 7"* Distance apart *8 1/4"* Number and pitch of stays in each *Two 7 3/4"*

Working pressure by rules *190 lbs* Steam dome: description of joint to shell *yes* % of strength of joint *yes*

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

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

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

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

Diameter of Safety Valve *yes* Pressure to which each is adjusted *yes* Is Easing Gear fitted *yes*

IS A DONKEY BOILER FITTED?

No.

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied: Two Spare Propellers. 2 propeller shafts & nuts. 2 Stern
Fishes complete. 12 coupling bolts & nuts. 4 bolts & nuts for connecting rods. 2 Main
bearing bolts & nuts. 12 bolts & nuts for pistons. 1 eccentric & strap complete. 2 pairs
of connecting rod brasses. 2 sets of valves for Air Pump. 50 condenser tubes and 100
females. 20 boiler tubes and ten stoppers. 6 stay tubes and nuts. 1 complete set of
fire bars. 1 set each of patent packing for M.P. & M.P. Piston Rods & Valve Spindles.

The foregoing is a correct description,

For and on behalf of

DAVID ROLLO & SONS, LTD.

Manufacturer.

R. C. Reynolds.

Dates of Survey while building: During progress of work in shops - 1921. Dec. 21. 25. 28. Mar. 4. 11. 14. April 4. 5. 6. 8. 11. 13. 14. 15. 18. 21. 27. 28. May 2. 5. 6. 9. 11. 14. 27. 30. June 3. 6. 17. 24.
During erection on board vessel - 29. 30. July 1. 6. 12. 14. 15. 19. 20. 26. 29. Aug 3. 4. 9. 10. 11. 16. 19. 20. 24. Sept. 1. 5. 13. 15. 19. 21. 26. 27. Oct. 3. 4. 7. 8. 10. 11.
Total No. of visits 82. Is the approved plan of main boiler forwarded herewith yes. ?
" " " donkey " " "

Dates of Examination of principal parts - Cylinders 21-2-21, 5-9-21 Slides 21/2/21, 5/7/21 Covers 20/4/21, 11/5/21 Pistons 5/7/21 Rods 21/2/21, 20/7/21
Connecting rods 4/3/21, 20/7/21 Crank shaft 4/3/21, 15/9/21 Thrust shaft 7/7/21, 12/10/21 Tunnel shafts 17/4/21, 12/10/21 Screw shaft 15/4/21, 12/10/21 Propellers 7/10/21, 24/10/21
Stern tube's 20/7/21, 12/10/21 Steam pipes tested 7/10/21, 15/11/21 Engine and boiler seatings 24/10/21 Engines holding down bolts 23/11/21
Completion of pumping arrangements 23/11/21 Boilers fixed 23/11/21 Engines tried under steam 20/11/21
Completion of fitting sea connections 24/10/21 Stern tube's 24/10/21 Screw shafts and propellers 24/10/21
Main boiler safety valves adjusted 25/11/21 Thickness of adjusting washers S. 2 P. 7/16 S. 15/32 P. 1/2
Material of Crank shaft Steel Identification Mark on Do. 5813. n. n. c. Material of Thrust shaft Steel Identification Mark on Do. 5975. n. n. c.
Material of Tunnel shafts Steel Identification Marks on Do. 5975. n. n. c. Material of Screw shafts Steel Identification Marks on Do. 5976. n. n. c.
Material of Steam Pipes Copper Test pressure 360 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 S/S. "BARNSTON"

General Remarks (State quality of workmanship, opinions as to class, &c.)
The Machinery of this Vessel has now been built under Special
Survey and in accordance with the approved plans and Secretary's
Letter G. Bet. 15th 9 29, 9 Decr 23rd 1920, and Feb 15th 1921 & 4 9 22nd March 1921
The Materials and Workmanship are of good quality, and when
tried under full Working Conditions at sea were found satisfactory
in every respect, and is now eligible in our opinion for the
Notification of L.M.C. 12-21.

It is submitted that
this vessel is eligible for
THE RECORD. F. L. M. C. - 12. 21.

Twin Screw. 2 screws for a & 2 aft.

MACHINERY CERT.
WRITTEN.

Ans. L. G.
20/12/21

The amount of Entry Fee ... £ 4 : 0 ✓
Special ... £ 62 : 19 ✓
Donkey Boiler Fee ... £ : :
Travelling Expenses (if any) £ : :
LIVERPOOL. 16 DEC. 1921

When applied for. 16 DEC 1921
When received. 28-1-22
John Dykes & R. G. Oxford
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute
Assigned L No G 12: 21.



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