

REPORT ON MACHINERY.

Received at London Office

Date of writing Report

19

When handed in at Local Office **28 OCT 1919**

Port of *Newcastle on Tyne*

in Survey held at *Newcastle on Tyne*

Date, First Survey *19 May 1919*

Last Survey *9 October 1919*

Book.

on the **SCREW STEAMER "BELGIAN" (1139)**

(Number of Visits *31*)

Tons { Gross *5287*
Net *3228*

ster

Built at *Holland*

By whom built *Svan Hunter & Whigham Richardson*

When built *1919*

ines made at *Newcastle on Tyne*

By whom made *Svan Hunter & Whigham Richardson*

When made *1919*

ilers made at *Newcastle on Tyne*

By whom made *Svan Hunter & Whigham Richardson*

When made *1919*

gistered Horse Power

Owners *J. Leyland & Co.*

Port belonging to *Liverpool*

n. Horse Power as per Section 28 *514*

Is Refrigerating Machinery fitted for cargo purposes *No.*

Is Electric Light fitted *Yes.*

GINES, &c.—Description of Engines

Triple Expansion

No. of Cylinders *Three*

No. of Cranks *Three*

z. of Cylinders *24-44-70*

Length of Stroke *48*

Revs. per minute *48*

Dia. of Screw shaft

Material of screw shaft *Steel*

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

the propeller boss *Yes.* If the liner is in more than one length are the joints burned *Yes.* the liner does not fit tightly at the part

ween the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive

If two

ers are fitted, is the shaft lapped or protected between the liners

Length of stern bush *5'0 1/2"*

a. of Tunnel shaft

as per rule *13.3*

Dia. of Crank shaft journals

as per rule *12.98*

Dia. of Crank pin *14 1/2"*

Size of Crank webs *23x9"*

Dia. of thrust shaft under

lars *14 3/4"*

Dia. of screw *14.6"*

Pitch of Screw *16.6"*

No. of Blades *4*

State whether moveable *No.*

Total surface *98.2 sq. ft.*

. of Feed pumps *2*

Diameter of ditto *4"*

Stroke *24"*

Can one be overhauled while the other is at work *Yes.*

. of Bilge pumps *2*

Diameter of ditto *4"*

Stroke *24"*

Can one be overhauled while the other is at work *Yes.*

. of Donkey Engines *3*

Sizes of Pumps *10 1/2 x 14 x 24*

9 1/2 x 4 x 18

No. and size of Suctions connected to both Bilge and Donkey pumps

Engine Room *2 in dia 2 in ER. 2 in Stokhold In Holds, &c. N°1 HOLD 2-3 1/2 dia N°2 HOLD 2-3 1/2 dia*

N°3 HOLD 2-3 1/2 dia N°4 HOLD WELL 1-3 1/2 dia TUNNELWELL 1-3 1/2 dia. RESERVE BUNKERS 2 x 3 1/2

. of Bilge Injections *1*

sizes *1 1/2"*

Connected to condenser, or to circulating pump *CR.*

Is a separate Donkey Suction fitted in Engine room & size *Yes. 1 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 *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.*

How are they protected *Wood 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.*

Is the Screw Shaft Tunnel watertight *Yes.* Is it fitted with a watertight door *Yes.* worked from *the upper platform.*

MILERS, &c.—(Letter for record *S.*) Manufacturers of Steel *J. Spencer rows & Co.*

Total Heating Surface of Boilers *4668* Is Forced Draft fitted *Yes.* No. and Description of Boilers *3 Cylind. triple Simple*

Working Pressure *180 lbs* Tested by hydraulic pressure to *360 lbs* Date of test *No. 8. 19* No. of Certificate *9282*

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 *2. Druis Spring* Area of each valve *9.62* 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 *2'0"* Mean dia. of boilers *15'6"* Length *11'6"* Material of shell plates *Steel*

Thickness *1 1/2"* Range of tensile strength *28/32 tons* Are the shell plates welded or flanged *No.* Descrip. of riveting: cir. seams *Cap Double*

ing. seams *DRS True* Diameter of rivet holes in long. seams *1 1/2"* Pitch of rivets *9 1/2" 4 7/8"* Lap of plates or width of butt straps *19 1/2"*

Percentages of strength of longitudinal joint rivets *87.5* Working pressure of shell by rules *182 lbs* Size of manhole in shell *16 x 12"*

Size of compensating ring plate flanged *No.* No. and Description of Furnaces in each boiler: *Deighton's* Material *Steel* Outside diameter *5'0 1/2"*

Length of plain part top *3'4"* Thickness of plates crown *19* Description of longitudinal joint *Weld* No. of strengthening rings *None*

Working pressure of furnace by the rules *188 lbs* Combustion chamber plates: Material *Steel* Thickness: Sides *3/32"* Back *1/16"* Top *3/32"* Bottom *3/32"*

Pitch of stays to ditto: Sides *9 1/4 x 10 1/2"* Back *10 1/4 x 8 1/2"* Top *10 1/2 x 9 1/4"* If stays are fitted with nuts or riveted heads *Nuts* Working pressure by rules *180 lbs*

Material of stays *Steel* Area at smallest part *2.36* Area supported by each stay *98* Working pressure by rules *216 lbs* End plates in steam space:

Material *Steel* Thickness *1 1/2"* Pitch of stays *21 1/2 x 20 1/2"* How are stays secured *With nuts* Working pressure by rules *184 lbs* Material of stays *Steel*

Area at smallest part *8.29* Area supported by each stay *4.56* Working pressure by rules *192 lbs* Material of Front plates at bottom *Steel*

Thickness *3/32"* Material of Lower back plate *Steel* Thickness *3/32"* Greatest pitch of stays *13 5/8"* Working pressure of plate by rules *184 lbs*

Diameter of tubes *2 3/4"* Pitch of tubes *4 x 3 3/8"* Material of tube plates *Steel* Thickness: Front *3/32"* Back *1/4"* Mean pitch of stays *9.81"*

Pitch across wide water spaces *13 5/8"* Working pressures by rules *181 lbs* 309 lbs Girders to Chamber tops: Material *Steel* Depth and

Thickness of girder at centre *10 x 1 1/2"* Length as per rule *35 7/8"* Distance apart *10 5/8"* Number and pitch of stays in each *3: 9 1/4"*

Working pressure by rules *184 lbs* 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

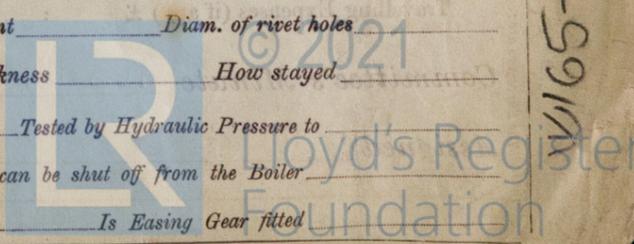
Pitch of rivets Working pressure of shell by rules Crown plates Thickness How stayed

SUPERHEATER. Type *None* 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

0100-5917



REPORT ON MACHINERY

IS A DONKEY BOILER FITTED? *No*

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied: - *2 cone rod end top and 2 2 ball end bolts & nuts, 2 main bearing bolts & nuts, 1 set of coupling bolts & nuts, 1 feed pump suction & 1 disch valve, 3 main & 3 donkey feed check valves, 6 cylinder cover studs & nuts, 6 steam chest cover studs & nuts, 12 junk ring spaced nuts, 1 propeller, 50 condenser fanules, 100 condenser tube packings, 6 studs of each size fitted to Boiler Mounting covers, 6 air pump valves, 2 rings of packing for each piston rod and slide rod, 1 spring for feed pump escape valve, 1 valve box for main engine stop valve, 1 diaphragm for each size reducing valve, 1 set piston rings for connecting pump engine, 1 overhead hook, 1 nut pin hook, 1 main bearing head of each size for air pump, 1 set piston & ball bucket rings - of feed donkey, 1 general donkey & ballast donkey, 1 set piston rings for engine & 3 winches, 20 firebars & patterns, 27 baffleplate iron, 2 bolts & nuts assorted etc.*

The foregoing is a correct description,

FOR SWAN, HUNTER & WIGHAM RICHARDSON, LTD.

J. Durham Christie

Manufacturer.

DIRECTOR.

Dates of Survey while building: During progress of work in shops - *May 19. 28. Jun 2. 11. 13. 20. Jul 1. 4. 8. 10. 15. 23. 28. 31. Aug 5. 7. 12. 18. 20. 21. 22. 25. 26. Sep 9. 11. 15. 22. 26. 30.*
 During erection on board vessel - *6. 2. 8. 9.*
 Total No. of visits *31*

Is the approved plan of main boiler forwarded herewith *no*
 " " " donkey " " " *none*

Dates of Examination of principal parts - Cylinders *5/8/19* Slides *5/8/19* Covers *22-9-19* Pistons *5/8/19* Rods *7/8/19*
 Connecting rods *7/8/19* Crank shaft *See Report* Thrust shaft *B.V. Smead* Tunnel shafts *B.V. Smead* Screw shaft *18/8/19* Propeller *18/8/19*
 Stern tube *21/8/19* Steam pipes tested *18-9-19* Engine and boiler seatings *26/8/19* Engines holding down bolts *22-9-19*
 Completion of pumping arrangements *30-9-19/9-10-19* Boilers fixed *22-9-19* Engines tried under steam *30-9-19*
 Completion of fitting sea connections *21/8/19* Stern tube *26/8/19* Screw shaft and propeller *22-9-19*
 Main boiler safety valves adjusted *9-10-19* Thickness of adjusting washers *S.B. 5 1/2 P 9/16 C.B. 5 1/2 P 9/16 P.B. 5 1/2 P 1/2*

Material of Crank shaft *Steel* Identification Mark on Do. *2777 D* Material of Thrust shaft *Steel* Identification Mark on Do. *WRH*
 Material of Tunnel shafts *Steel* Identification Marks on Do. *WRH* Material of Screw shafts *Steel* Identification Marks on Do. *WRH*
 Material of Steam Pipes *Steel* *See below flanges expanded & Vaulsey head* Test pressure *540 lb sq in* *Weyburn Lines*

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. *Es. Barbadian (Standard A)*

General Remarks (State quality of workmanship, opinions as to class, &c.)

The engines of this vessel have been constructed under Bureau Veritas, Survey, and the Boilers have been constructed under Lloyd's Register, Survey and the material and workmanship are sound and good.
The machinery fitted up on board - the engines have been tried under steam and the boiler safety valves adjusted for the working pressure.
In our opinion the machinery is now in good condition and safe working order, and eligible to have the notation of L.M.C. 10-19, made in the Register Book.

NEWCASTLE-ON-TYNE

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

It is submitted that this vessel is eligible for THE RECORD LMC 10. 19. F.D.

J.W.D.
30/10/19
A.P.R.

The amount of Entry Fee ... £ : : When applied for, *28 OCT 1919*
 Special *A* ... £ *25* : : *L. G. Challers & Co.*
 Donkey Boiler Fee ... £ : : When received, *30/10/19*
 Travelling Expenses (if any) £ : : *Wm. Austin*
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute *TUE. NOV. 4 1919*
 Assigned *L.M.C. 10-19 FD*

