

REPORT ON MACHINERY.

No. 8606

Received at London Office SAT. SEP. 3 1921

Date of writing Report 24 Aug 21 When handed in at Local Office 19 Port of Belfast

No. in Survey held at Belfast Date, First Survey 29 Aug 1919 Last Survey 18 Aug 21 19 21

Reg. Book. T.S.S. Paradise (Number of Visits 108)

Master Belfast Built at Belfast By whom built Hauland & Wolff L. Tons 13144 Gross 8003 Net 1921 When built

Engines made at Belfast By whom made - when made -

Boilers made at - By whom made - when made -

Registered Horse Power 1322 Owners Pennine & Oriental S.V. Co. Ltd belonging to Belfast

Nom. Horse Power as per Section 28 1322 Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Twin Screw Steam Engines Cylinders 8 No. of Cranks 8

Dia. of Cylinders 23½-34½-48½-70 Length of Stroke 54 Revs. per minute 90 Dia. of Screw shaft as per rule 14.74 Material of Steel as fitted 15.0 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 60

Dia. of Tunnel shaft as per rule 13.42 Dia. of Crank shaft journals as per rule 14.1 Dia. of Crank pin 14½ Size of Crank webs 8x10½ Dia. of thrust shaft under collars 14½ Dia. of screw 17-6 Pitch of Screw 17-6 No. of Blades 3 State whether moveable Yes Total surface 72 sq ft.

No. of Feed pumps 2 Diameter of ditto Stroke Can one be overhauled while the other is at work ✓

No. of Bilge pumps 2 Diameter of ditto Stroke Can one be overhauled while the other is at work ✓

No. of Donkey Engines 2 Sizes of Pumps do No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room 5-3½-2-5½-4-4 In Holds, &c. 13-3½-1-3

No. of Bilge Injections 2 sizes 8 Connected to condenser, or to circulating pump Pumps a separate Donkey Suction fitted in Engine room & size 4-4

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 ✓

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 Both

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 For lock suction How are they protected Wood & iron 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 Upper deck

BOILERS, &c.—(Letter for record S) Manufacturers of Steel B. Colville & Sons L.

Total Heating Surface of Boilers 11748 sq ft. Forced Draft fitted Yes No. and Description of Boilers 2 Double End Gbl.

Working Pressure 215 lb. Tested by hydraulic pressure to 430 lb. Date of test 25-1-21 No. of Certificate 782

Can each boiler be worked separately Yes Area of fire grate in each boiler 143 sq ft. No. and Description of Safety Valves to each boiler 3 Direct Spring Area of each valve 2.56 sq in. Pressure to which they are adjusted 215 lb. Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 17 Mean dia. of boilers 16-6 Length 20-0 Material of shell plates Steel

Thickness 1½ Range of tensile strength 30-33 tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seams L. & S.

long. seams Butt Sublimeter of rivet holes in long. seams 1½ Pitch of rivets 10½ Lap of plates or width of butt straps 23½

Per centages of strength of longitudinal joint 92.5 Working pressure of shell by rules 227 lb. Size of manhole in shell 16x12

Size of compensating ring W. Veils No. and Description of Furnaces in each boiler 8-Mansin Material Steel Outside diameter 43½

Length of plain part top 2 Thickness of plates bottom 2 Description of longitudinal joint Weld No. of strengthening rings 1

Working pressure of furnace by the rules 231 lb. Combustion chamber plates: Material Steel Thickness: Sides 2½ Back ✓ Top 2½ Bottom 3/4x2

Pitch of stays to ditto: Sides 8x8 Back ✓ Top 7x7 If stays are fitted with nuts or riveted heads Nuts inside Working pressure by rules 233 lb.

Material of stay Steel Area at smallest part 176 sq in. Area supported by each stay 64 sq in. Working pressure by rules 220 lb. End plates in steam space: Material Steel Thickness 1½ Pitch of stays 16x15 How are stays secured Recessed into plates & double nuts Working pressure by rules 215 lb. Material of stays Steel

Area at smallest part 5.9 sq in. Area supported by each stay 248 sq in. Working pressure by rules 248 lb. Material of Front plates at bottom Steel

Thickness 7/8 Material of Lower back plate ✓ Thickness ✓ Greatest pitch of stays ✓ Working pressure of plate by rules ✓

Diameter of tubes 2½ Pitch of tubes 3x3 Material of tube plates Steel Thickness: Front 7/8 Back 1/6 Mean pitch of stays 7½

Pitch across wide water spaces 13½ Working pressures by rules 346 lb. Orders to Chamber tops: Material Steel Depth and thickness of girder at centre 7½x(7x2) Length as per rule 50½ Distance apart 8x7½ Number and pitch of stays in each 6-7½

Working pressure by rules 261 lb. 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 ✓

UPERHEATER. Type ✓ Date of Approval of Plan ✓ Tested by Hydraulic Pressure to 2020

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 ✓

IS A DONKEY BOILER FITTED? *No* If so, is a report now forwarded? *✓*
SPARE GEAR. State the articles supplied:— *See separate sheet*

The foregoing is a correct description,
For HARLAND & WOLFF, Ltd.

A. Y. Marshall Manufacturer.
Assistant Secretary

Dates of Survey while building { During progress of work in shops - - }
{ During erection on board vessel - - - }
Total No. of visits *108* *29th August 1919 to 18th August 1921*
Is the approved plan of main boiler forwarded herewith *Yes*
" " " donkey " " " *✓*
Dates of Examination of principal parts—Cylinders *27-11-19* Slides *✓* Pistons Rods
Connecting rods *29-1-21* Crank shaft *16-1-20* Thrust shaft *✓* Tunnel shafts Screw shaft *1-11-20* Propeller *10-2-21*
Stern tube *10-2-21* Steam pipes tested *19-5-21* Engine and boiler seatings *16-5-21* Engines holding down bolts *21-5-21*
Completion of pumping arrangements *17-8-21* Boilers fixed *16-5-21* Engines tried under steam *17-8-21*
Completion of fitting sea connections *23-11-20* Stern tube *26-11-20* Screw shaft and propeller *26-11-20*
Main boiler safety valves adjusted *11-8-21* Thickness of adjusting washers *10-12-20*
Material of Crank shaft *S. Steel* Identification Mark on Do. *LLOYD'S 7-5-B 1-17-20* Material of Thrust shaft *do* Identification Mark on Do. *do*
Material of Tunnel shafts *do* Identification Marks on Do. *do* Material of Screw shafts *do* Identification Marks on Do. *do*
Material of Steam Pipes *S. Green Steel* Test pressure *645-lb*
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.)

The machinery of this vessel has been constructed under Special Survey, and in accordance with the Rules. The workmanship and the materials are of good description, and on trial in Belfast Lough, the machinery worked satisfactorily. In our opinion, it is eligible for record + L.M.C. 8-21 with notation "Forced Draft" "Electric Light" + "Lloyd's R.M.C."

It is submitted that this vessel is eligible for THE RECORD. + L.M.C. 8.21. F.D. C.L

Recd 5/9/21 J.M.

The amount of Entry Fee ... £ 6 : 0 :
Special ... £ 133 : 1 :
Donkey Boiler Fee ... £ ✓ :
Travelling Expenses (if any) £ :
When applied for, 24-8-21
When received, 18-10-21

R. L. Bevan & A. P. Southwell
Engineer Surveyors to Lloyd's Register of Shipping.

Committee's Minute

Assigned

+ L.M.C. 8.21

F.D. C.L



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Foundation