

REPORT ON MACHINERY.

Received at London Office

SAT. SEP. 3 1921

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

Port of Belfast

No. in Survey held at Belfast
Reg. Book.

Date, First Survey 29 Aug 1919 Last Survey 18 Sept 21 19 21
(Number of Visits 108)

on the T.S.S. Paradise

Master Belfast Built at Belfast By whom built Hauland & Wolff L^{td} 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 Peninsular & Oriental S. N. Coy belonging to Belfast

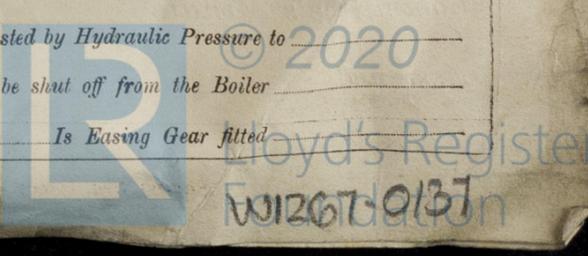
Nom. Horse Power as per Section 28 1322 Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Twin Screw Double Expansion Cylinders 8 No. of Cranks 8
 Dia. of Cylinders 23 1/2 - 34 1/2 - 48 1/2 - 70 Length of Stroke 54 Revs. per minute 90 Dia. of Screw shaft 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 13.42 as per rule 13.5 Dia. of Crank shaft journals 14.1 as per rule 14.25 Dia. of Crank pin 14 1/2 Size of Crank webs 18 x 10 1/2 Dia. of thrust shaft under
 collars 14 1/2 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 } Diameter of ditto Stroke Can one be overhauled while the other is at work
 No. of Bilge pumps } See separate list Diameter of ditto Stroke Can one be overhauled while the other is at work
 No. of Donkey Engines do Sizes of Pumps do No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room 5-3 1/2 - 2-5 1/2 - 4-4 In Holds, &c. 13-3 1/2 - 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 See hold sections 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. Colvelts Sons L^{td}
 Total Heating Surface of Boilers 11748 sq ft forced Draft fitted Yes No. and Description of Boilers 2 Double End Gal.
 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 ft 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 about 17 Mean dia. of boilers 16.6 Length 20.0 Material of shell plates Steel
 Thickness 1 1/2 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 1 1/2 Pitch of rivets 10 1/2 Lap of plates or width of butt straps 2 3/4
 Per centages of strength of longitudinal joint rivets 92.5 Working pressure of shell by rules 227 lb Size of manhole in shell 16 x 12
 plate 84.8
 Size of compensating ring W. Veils No. and Description of Furnaces in each boiler 8-Manson Material Steel Outside diameter 43 1/2
 Length of plain part top 2 Thickness of plates crown 3 5/8 Description of longitudinal joint Weld No. of strengthening rings 0
 bottom 8 bottom 3 5/8
 Working pressure of furnace by the rules 231 lb Combustion chamber plates: Material Steel Thickness: Sides 2 1/2 Back ✓ Top 2 1/2 Bottom 3 1/2
 Pitch of stays to ditto: Sides 8 x 8 Back ✓ Top 8 x 7 1/2 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 Area supported by each stay 64 sq Working pressure by rules 220 lb End plates in steam space:
 Material Steel Thickness 1 1/2 Pitch of stays 16 x 15 1/2 How are stays secured Recess in plates double nuts Working pressure by rules 215 lb Material of stays Steel
 Area at smallest part 5.9 sq Area supported by each stay 248 sq 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 2 1/2 Pitch of tubes 3 1/2 x 3 3/4 Material of tube plates Steel Thickness: Front 7/8 Back 1 1/2 Mean pitch of stays 7 1/2
 Pitch across wide water spaces 13 1/2 Working pressures by rules 346 lb with 3 doubler orders to Chamber tops: Material Steel Depth and
 thickness of girder at centre 7 1/2 x (7/8 x 2) Length as per rule 50 7/8 Distance apart 8 x 7 1/4 Number and pitch of stays in each 6-7 1/4
 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 --- } 29th August 1919 to 18th Sept 1921
Total No. of visits 108 Is the approved plan of main boiler forwarded herewith Yes

Dates of Examination of principal parts—Cylinders 27-11-21 Slides do Pistons do Rods do

Connecting rods 29-1-21 Crank shaft 16-1-20 Thrust shaft do Tunnel shafts do 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 10-13-21

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 records + 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.

Roll
5/19/21 J.M.

The amount of Entry Fee ... £ 6 : 0 :
Special ... £ 133 : 1 :
Donkey Boiler Fee ... £ ✓ : :
Travelling Expenses (if any) £ : :
When applied for, 24-8-1921
When received, 18-10-1921

R. L. Beveridge A.P. Southwell
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute
Assigned + L.M.C. 8.21

F.D. C.L.



Certificate (if required) to be sent to Lloyd's Office

The Surveyors are requested not to write on or below the space for Committee's Minute.