

REPORT ON MACHINERY.

No. 8723

Received at London Office

FRI APR 7 1922

Date of writing Report 3rd April 22 When handed in at Local Office

10 Port of Belfast

No. in Survey held at Belfast

Date, First Survey 29th Aug 1914 Last Survey 30th March 1922

Reg. Book. on the T.S.S. Barrabool

(Number of Visits 184)

Master Built at Belfast By whom built Harland & Wolff L^{td} When built 1921

Engines made at Belfast By whom made - when made -

Boilers made at - By whom made - when made -

Registered Horse Power Owners Peninsular & Oriental S. S. 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 Duplex Engine of Cylinders 8 No. of Cranks 8
 Dia. of Cylinder 23 $\frac{1}{2}$ "-34 $\frac{1}{2}$ "-48 $\frac{1}{2}$ "-70 Length of Stroke 54 Revs. per minute 90 Dia. of Screw shaft as per rule 14 $\frac{1}{4}$ " Material of screw shaft as fitted 15" S. Steel
 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 ✓ 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 $\frac{1}{2}$ " Dia. of Crank shaft journals as per rule 14 $\frac{1}{4}$ " Dia. of Crank pin 14 $\frac{1}{4}$ " Size of Crank webs 18" x 10 $\frac{1}{2}$ " Dia. of thrust shaft under collars 14 $\frac{1}{4}$ " Dia. of screw 17"-6 Pitch of Screw 17"-6 No. of Blades 3 State whether mocable 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 } Diameter of ditto Stroke Can one be overhauled while the other is at work
 No. of Donkey Engines 2 Sizes of Pumps 2 No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room 5-3 $\frac{1}{2}$ " 2-5 $\frac{1}{2}$ " 4-4" In Holds, &c. 13-3 $\frac{1}{2}$ " 1-3"

No. of Bilge Injections 2 sizes 8 Connected to condenser, or to circulating pump Pump Is 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 Fore hold suction How are they protected Rod & 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 20919) Manufacturers of Steel G. Colville & Sons L^{td} 20.8.23 3 S.B.
 Total Heating Surface of Boilers 11748 sq. ft. Forced Draft fitted Yes No. and Description of Boilers 2 D End Gland
 Working Pressure 215 lbs. sq. Tested by hydraulic pressure to 430 lbs. sq. Date of test 28-10-21 No. of Certificates 804 & 803
 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 12.56 sq. Pressure to which they are adjusted 215 lbs. 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 28'-0" Material of shell plates Steel
 Thickness 1 $\frac{1}{2}$ " Range of tensile strength 30-33 tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seams L. D. & P. long. seams D. Butt Let Diameter of rivet holes in long. seams 1 $\frac{1}{32}$ " Pitch of rivets 10 $\frac{1}{2}$ " Lap of plates or width of butt straps 23 $\frac{1}{4}$ "
 Per centages of strength of longitudinal joint rivets 92.5 plate 84.8 Working pressure of shell by rules 227 lbs. Size of manhole in shell 16" x 12"
 Size of compensating ring No. No. and Description of Furnaces in each boiler 8 - Morrison Material Steel Outside diameter 43 $\frac{1}{2}$ "
 Length of plain part top 2" bottom 8" Thickness of plates crown 3 $\frac{1}{2}$ " bottom 3 $\frac{1}{2}$ " Description of longitudinal joint Weld No. of strengthening rings 0
 Working pressure of furnace by the rules 231 lbs. Combustion chamber plates: Material Steel Thickness: Sides 2 $\frac{1}{2}$ " Back 2 $\frac{1}{2}$ " Top 2 $\frac{1}{2}$ " Bottom 2 $\frac{1}{2}$ "
 Pitch of stays to ditto: Sides 8" x 8" Back 8" x 7 $\frac{1}{2}$ " Top 7 $\frac{1}{2}$ " x 7 $\frac{1}{2}$ " If stays are fitted with nuts or riveted heads Lute inside Working pressure by rules 233 lbs.
 Material of stays Steel Area at smallest part 1176 sq. Area supported by each stay 64 sq. Working pressure by rules 220 lbs. End plates in steam space: Material Steel Thickness 1 $\frac{1}{2}$ " Pitch of stays 14" x 15 $\frac{1}{2}$ " How are stays secured Screwed into Working pressure by rules 215 lbs. Material of stays Steel
 Area at smallest part 592 sq. Area supported by each stay 248 sq. Working pressure by rules 248 lbs. Material of Front plates at bottom Steel
 Thickness 1 $\frac{1}{2}$ " Material of Lower back plate 3 $\frac{1}{2}$ " x 3 $\frac{1}{2}$ " Thickness 3 $\frac{1}{2}$ " Greatest pitch of stays 4" Working pressure of plate by rules 233 lbs.
 Diameter of tubes 2 $\frac{1}{2}$ " Pitch of tubes 4 $\frac{1}{4}$ " x 3 $\frac{1}{4}$ " Material of tube plate Steel Thickness: Front 1 $\frac{1}{2}$ " Back 1 $\frac{1}{2}$ " Mean pitch of stays 7 $\frac{1}{2}$ "
 Pitch across wide water spaces 13 $\frac{1}{2}$ " Working pressures by rules 346 lbs. with Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 7 $\frac{1}{2}$ " x (7 $\frac{1}{2}$ " x 2) Length as per rule 50 $\frac{1}{2}$ " Distance apart 8" x 7 $\frac{1}{2}$ " Number and pitch of stays in each 6-7 $\frac{1}{2}$ "
 Working pressure by rules 261 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 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?

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:—

In other sheet

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

F. E. Rebeck

Manufacturer.

Dates of Survey
while building
(During progress of work in shops --)
(During erection on board vessel --)
Total No. of visits

29th Augth 1919 to 30th March 1922

114

Is the approved plan of main boiler forwarded herewith

Yes

" " " donkey " " "

Yes

Dates of Examination of principal parts—Cylinders 20 - 3 Slides 20 Covers 20 Pistons 20 Rods 20

Connecting rod 26 - 10 - 2 / Crank shaft 16 - 4 Thrust shaft 5 Tunnel shafts 7 - 11 - 2 / Screw shaft 7 - 11 - 2 / Propeller 22 - 8 - 2

Stern tube 22 - 8 - 2 / Steam pipes tested 11 - 1 - 22 Engine and boiler seatings 13 - 12 - 2 / Engines holding down bolts 13 - 12 - 2 /

Completion of pumping arrangements 16 - 3 - 22 Boilers fixed 13 - 12 - 2 / Engines tried under steam 16 - 3 - 22

Completion of fitting sea connections 16 - 4 - 21 Stern tube 25 - 10 - 21 Screw shaft and propeller 27 - 10 - 21

Main boiler safety valves adjusted 16 - 3 - 22 Thickness of adjusting washers 9 - 11 - 22

Material of Crank shaft S. S. Identification Mark on Do. Lloyds 7-11-21 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. Lloyds 22-8-21

Material of Steam Pipes S. S. Identification

Test pressure 645 lbs

Is an installation fitted for burning oil fuel No

Is the flash point of the oil to be used over 150°F. Yes

Have the requirements of Section 49 of the Rules been complied with Yes

Is this machinery duplicate of a previous case Yes If so, state name of vessel T.S.S. "Panathina"

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. 3-22 with notations "Electric Light", "Forced Draft" and "Refrigerating Machinery".

It is submitted that
this vessel is eligible for
THE RECORD.

F. L. M. C. - 3. 22. F. D. C. L.

10/4/22

The amount of Entry Fee ... £ 6 : 0 :
Special ... £ 133 : 1 :
Donkey Boiler Fee ... £ : :
Travelling Expenses (if any) £ : :
When applied for, 31-3-1922
When received, 10/4/22

Committee's Minute

THU. 13 APR. 1922

Assigned

+ L.M.C. 3.22

F. D. C. L.

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

MACHINERY CERT
WRITTEN



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Foundation