

# REPORT ON MACHINERY.

No. 72877.

Received at London Office SAT. MAR. 20. 1915

Date of writing Report 13 MAR 1915 When handed in at Local Office 13 MAR 1915 Port of LIVERPOOL

No. in Survey held at Liverpool Date, First Survey Feb 12 Last Survey Mar 9 1915  
Reg. Book. 252 on the Steel Twin Screw Steamer "Lapland" (Number of Visits 13)

Master J. Bradshaw Built at Belfast By whom built Harland & Wolff, Ltd. Tons { Gross 18565  
Net 11607

Engines made at Belfast By whom made Harland & Wolff, Ltd. when made 1908

Boilers made at Belfast By whom made Harland & Wolff, Ltd. when made 1908

Registered Horse Power 1524 Owners International Navigation Co. Ltd. Port belonging to Liverpool

Nom. Horse Power as per Section 28 1348 <sup>2343 N.H.P.</sup> Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

**ENGINES, &c.**—Description of Engines Quadruple Expansion, Twin Screw No. of Cylinders 8 No. of Cranks 8  
 Dia. of Cylinders 32 1/2", 47", 68", 98" Length of Stroke 63" Revs. per minute 77 Dia. of Screw shaft as per rule 18.7" Material of screw shaft Steel  
 as fitted 19 1/2"  
 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 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 8'0"  
 Dia. of Tunnel shaft as per rule 17.48" Dia. of Crank shaft journals as per rule 18.35" Dia. of Crank pin 20" Size of Crank webs 14" x 36 3/4" Dia. of thrust shaft under  
 as fitted 18" as fitted 19 1/2"  
 collars 19" Dia. of screw 19'6" Pitch of Screw 25'0" No. of Blades 4 State whether moveable Yes Total surface 100 sq. ft.  
 No. of Feed pumps 4 Diameter of ditto 1 1/2" Stroke 26" Can one be overhauled while the other is at work Yes  
 No. of Bilge pumps 2 Diameter of ditto 10" Stroke 10" Can one be overhauled while the other is at work Yes  
 No. of Donkey Engines 13 Sizes of Pumps 6" to 12" No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room & Stokehold 3-4", 2-4 1/2" In Holds, &c. 2-3 1/2" in each hold, 2-2 1/2" on each tank top  
1-4" in fore peak, 1-3" in after peak.  
 No. of Bilge Injections 2 sizes 15" Connected to condenser, or to circulating pumps Yes Is a separate Donkey Suction fitted in Engine room & size No  
 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 None  
 Are all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks Valves and Cocks  
 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 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  
 Dates of examination of completion of fitting of Sea Connections Yes of Stern Tube Yes Screw shaft and Propeller Yes  
 Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Deck

**BOILERS, &c.**—(Letter for record S) Manufacturers of Steel Yes  
 Total Heating Surface of Boilers 42704 <sup>42704</sup> Is Forced Draft fitted No No. and Description of Boilers 8-Double ended cylindrical  
 Working Pressure 215 lb per sq. in. Tested by hydraulic pressure to Yes Date of test Yes No. of Certificate Yes  
 Can each boiler be worked separately Yes Area of fire grate in each boiler 7048 131 No. and Description of Safety Valves to  
 each boiler 4-Spring loaded Area of each valve 11.04 sq. in. Pressure to which they are adjusted 215 lb per sq. in. Are they fitted with easing gear Yes  
 smallest distance between boilers or uptakes and bunkers or woodwork 2'2" Mean dia. of boilers 15'9" Length 19'6" Material of shell plates Steel  
 thickness 1 1/8" Range of tensile strength 29/32 tons per sq. in. Are the shell plates welded or flanged No Descrip. of riveting: cir. seams TR & DR lap.  
 long. seams TR - double butt strip Diameter of rivet holes in long. seams 1 1/8" Pitch of rivets 10'5" Lap of plates or width of butt straps 1 1/2"  
 Per centages of strength of longitudinal joint rivets 98.7 Working pressure of shell by rules 250 lb per sq. in. Size of manhole in shell 16" x 12"  
 plate 8.3/12  
 Size of compensating ring 8" x 1 1/8" No. and Description of Furnaces in each boiler 6-Moniam boiler Material Steel Outside diameter 4'13"  
 Length of plain part top Yes Thickness of plates crown 23.32 Description of longitudinal joint Weld No. of strengthening rings None  
 bottom Yes Working pressure of furnace by the rules 240 lb Combustion chamber plates: Material Steel Thickness: Sides 5/8" Back Yes Top 5/8" Bottom 3/8" & 1/2"  
 Pitch of stays to ditto: Sides 8" x 7 3/4" Back Yes Top 8 1/2" x 7 1/4" If stays are fitted with nuts or riveted heads Both Working pressure by rules 215 lb  
 Material of stays Steel Diameter at smallest part 1 7/8" Area supported by each stay 62 sq. in. Working pressure by rules 255 lb End plates in steam space:  
 Material Steel Thickness 1 5/32" Pitch of stays 1/6" x 1 3/32" How are stays secured Automatic Working pressure by rules 215 lb Material of stays Steel  
 Diameter at smallest part 5.06 sq. in. Area supported by each stay 291.375 sq. in. Working pressure by rules 252 lb Material of Front plates at bottom Steel  
 Thickness 7/8" Material of Lower back plate Yes Thickness Yes Greatest pitch of stays Yes Working pressure of plate by rules Yes  
 Diameter of tubes 2 5/8" Pitch of tubes 37/8" Material of tube plates Steel Thickness: Front 7/8" Back 13/16" & 27/32" Mean pitch of stays 7 3/4"  
 Pitch across wide water spaces 1'1 3/4" Working pressures by rules 215 lb Girders to Chamber tops: Material Steel Depth and  
 thickness of girder at centre 8 1/2" x 2 1/8" Length as per rule 2'5" Distance apart 8 1/2" Number and pitch of stays in each 6-7 1/2"  
 Working pressure by rules 278 lb Superheater or Steam chest; how connected to boiler None Can the superheater be shut off and the boiler worked  
 separately Yes Diameter Yes Length 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 Diameter of flue Yes Material of flue plates Yes Thickness Yes  
 If stiffened with rings Yes Distance between rings Yes Working pressure by rules Yes End plates: Thickness Yes How stayed Yes  
 Working pressure of end plates Yes Area of safety valves to superheater Yes Are they fitted with easing gear Yes

Im. 513. T.

Lloyd's Register Foundation  
W558-0048

IS A DONKEY BOILER FITTED? *No.*

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:—

*In excess of Rule requirements. See list forwarded herewith.*

The foregoing is a correct description,

Manufacturer.

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

Is the approved plan of main boiler forwarded herewith *Yes*

" " " donkey " " "

Dates of Examination of principal parts—Cylinders Slides Covers Pistons Rods  
Connecting rods Crank shaft Thrust shaft Tunnel shafts Screw shaft Propeller  
Stern tube Steam pipes tested Engine and boiler seatings Engines holding down bolts  
Completion of pumping arrangements Boilers fixed Engines tried under steam  
Main boiler safety valves adjusted Thickness of adjusting washers  
Material of Crank shaft Identification Mark on Do. Material of Thrust shaft Identification Mark on Do.  
Material of Tunnel shafts Identification Marks on Do. Material of Screw shafts Identification Marks on Do.  
Material of Steam Pipes Test pressure

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 If so, state name of vessel

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

*The workmanship is good. The engines and boilers were made under the supervision of the Board of Trade. Same have now been opened up examined and found in good condition. The dimensions have been checked. In our opinion, the machinery of this vessel is eligible to be classed with records of LMC 3,15 and tail shafts examined P8,14-S3,15. See Secretary's letter (S) 1<sup>st</sup> March 1915. Rules approved 15. 1. 14.*

Certificate (if required) to be sent to

The amount of Entry Fee ... £ : : When applied for, 19 MAR 1915  
Special ... £ 50 : - : Not Del.  
Donkey Boiler Fee ... £ : : When received, 24 Mar 1915  
Travelling Expenses (if any) £ : : 30/3/15

*B. G. Bedford & John Dykes*  
Engineer Surveyors to Lloyd's Register of British & Foreign Shipping.

Committee's Minute LIVERPOOL. 19 MAR 1915

Assigned

*See report attached.*



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