

REPORT ON MACHINERY.

No. 32426
THU. MAR. 6 - 1913

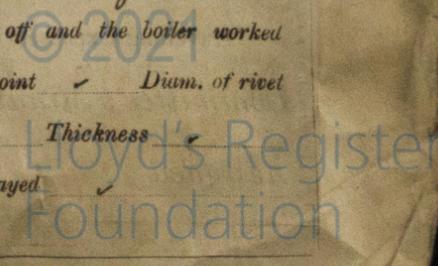
Received at London Office

Date of writing Report 19 When handed in at Local Office 5/3/13 Port of Glasgow
 No. in Survey held at Clydebank Date, First Survey 13. 11. 11 Last Survey 4. 5. 1913
 Reg. Book. (Number of Visits 85)
 11 Supp on the Stul. Triple screw 1/3 Niagara Tons } Gross 13415
 } Net 7582
 Master Built at Clydebank By whom built John Brown & Co Ltd When built 1913
 Engines made at Clydebank By whom made John Brown & Co Ltd when made 1913
 Boilers made at do By whom made do when made 1913
 Registered Horse Power Owners Canadian Australasian Royal Mail Port belonging to London
 Nom. Horse Power as per Section 28 2145 Is Refrigerating Machinery fitted for cargo purposes yes Is Electric Light fitted yes

ENGINES, &c.—Description of Engines Twin screw triple expansion + 1 LP ^{separate sheet} No. of Cylinders 8 No. of Cranks 4 each
 Dia. of Cylinders 27 1/2 - 42 - 44 - 44 Length of Stroke 54 Revs. per minute Dia. of Screw shaft as per rule 15.9 Material of screw shaft Iron
 as fitted 14 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 5-3/4
 Dia. of Tunnel shaft as per rule 15.1 Dia. of Crank shaft journals as per rule 15.8 Dia. of Crank pin 14 Size of Crank webs 33 x 11 3/4 Dia. of thrust shaft under
 collars 16 1/4 Dia. of screw 16-0 Pitch of Screw 20-0 No. of Blades 4 State whether moveable yes Total surface 66 sq ft
 No. of Feed pumps 3 Weirs Diameter of ditto 14-12 1/2 Stroke 24 Can one be overhauled while the other is at work yes
 1 motor sprunger
 No. of Bilge pumps 2 duplex Diameter of ditto 10-11 Stroke 9 Can one be overhauled while the other is at work yes
 No. of Donkey Engines 13 Sizes of Pumps 1 duplex 6-3 1/2 x 6 2 duplex 9-11-21 oil fuel pumps 2 duplex 6-4 x 6 2 duplex 7 1/2 - 5 x 6 2 duplex 7 1/2 - 6 x 10
 In Engine Room 5 of 3 1/2 Forw. stokehold 5 of 3 1/2 aft stokehold 4 of 3 1/2 In Holds, &c. Chain locker 1 of 2 1/2 No. 1 Hold 2 of 3 1/2 No. 2 Hold 2 of 3 1/2
 No. 2 Hold or bunker 2 of 3 1/2 No. 3 Hold or bunker 2 of 3 1/2 No. 4 Hold 2 of 3 1/2 No. 5 Hold 1 of 3 1/2 Tunnels 2 of 3 1/2 Tunnel well 1 of 3 1/2
 No. of Bilge Injections 2 sizes 13 1/2 Connected to condenser, or to circulating pump circ pp Is a separate Donkey Suction fitted in Engine room & size yes 2 of 5 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 none
 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 below
 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 Bilge & oil fuel How are they protected Bilge pipes in limbers Iron casings round oil fuel pipes
 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 7. 8. 12 of Stern Tube 7. 8. 12 Screw shaft and Propeller 7. 8. 12
 Is the Screw Shaft Tunnel watertight yes Is it fitted with a watertight door yes worked from upper deck.

BOILERS, &c.—(Letter for record to) Manufacturers of Steel & Colville Sons. Stul Co of Scotland
 Total Heating Surface of Boilers 31564 sq ft Is Forced Draft fitted yes No. and Description of Boilers Two Double ended
 Working Pressure 220 lbs Tested by hydraulic pressure to 440 lbs Date of test A 16.4.12 No. of Certificate A 11525
 B 26.4.12 B 11555
 Can each boiler be worked separately yes Area of fire grate in each boiler 157 sq ft No. and Description of Safety Valves to
 each boiler 3 direct spring loaded Area of each valve 12.56 sq in Pressure to which they are adjusted 220 lbs Are they fitted with easing gear yes
 Smallest distance between boilers or uptakes and bunkers or woodwork 18 in Mean dia. of boilers 14-0 Length 21-10 Material of shell plates steel
 Thickness 1 3/4 Range of tensile strength 31/35 tons Are the shell plates welded or flanged no Descrip. of riveting: cir. seams DR & TR lap
 g. seams DBS, TR Diameter of rivet holes in long. seams 1 3/4 Pitch of rivets 10 1/2 Lap of plates or width of butt straps 24 1/2
 Percentages of strength of longitudinal joint rivets 97.3 Working pressure of shell by rules 220 lbs Size of manhole in shell 14 x 12
 plate 83.3
 No. and Description of Furnaces in each boiler 8 Morrison Material steel Outside diameter 46 5/8
 Length of plain part top Thickness of plates crown 11/16 Description of longitudinal joint welded No. of strengthening rings
 bottom Working pressure of furnace by the rules 242 Combustion chamber plates: Material steel Thickness: Sides 5/8 Back 21/32 Top 5/8 Bottom 27/32
 Length of stays to ditto: Sides 7 1/2 x 7 1/2 Back 8 x 8 1/4 Top 7 1/2 x 7 1/2 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 225
 Material of stays iron Diameter at smallest part 1.76 Area supported by each stay 56.25 Working pressure by rules 249 End plates in steam space:
 Material steel Thickness 1 5/32 Pitch of stays 16 1/8 x 16 3/8 How are stays secured DN Working pressure by rules 227 Material of stays steel
 Diameter at smallest part 6.49 Area supported by each stay 262 Working pressure by rules 255 Material of Front plates at bottom steel
 Thickness 15/16 Material of Lower back plate Thickness — Greatest pitch of stays 13 1/2 Working pressure of plate by rules 410
 Diameter of tubes 2 1/2 Pitch of tubes 3 3/4 x 3 3/4 Material of tube plates steel Thickness: Front 15/16 Back 15/16 Mean pitch of stays 9 3/8
 Distance across wide water spaces 13 1/2 Working pressures by rules 349 Girders to Chamber tops: Material steel Depth and
 Thickness of girder at centre 2 plates 8 3/8 x 3/4 Length as per rule 2-6 Distance apart 7 1/2 Number and pitch of stays in each 3 of 7 1/2
 Working pressure by rules 220 Superheater or Steam chest; how connected to boiler none Can the superheater be shut off and the boiler worked
 Diameter Length Thickness of shell plates Material Description of longitudinal joint Diam. of rivet
 Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness
 lined with rings Distance between rings Working pressure by rules End plates: Thickness How stayed
 Working pressure of end plates Area of safety valves to superheater Are they fitted with easing gear

1910-1913



VERTICAL DONKEY BOILER— Manufacturers of Steel

No. _____ Description _____ When made _____ Where fixed _____
 Made at _____ By whom made _____ No. of Certificate _____ Fire grate area _____ Description of Safety _____
 Working pressure tested by hydraulic pressure to _____ Date of test _____ Pressure to which they are adjusted _____ Date of adjustment _____
 Valves No. of Safety Valves _____ Area of each _____ Dia. of donkey boiler _____ Length _____
 If fitted with easing gear _____ If steam from main boilers can enter the donkey boiler _____ Descrip. of riveting long. seams _____
 Material of shell plates Thickness _____ Range of tensile strength _____ Lap of plating _____ Per centage of strength of joint _____ Rivets _____ Plates _____
 Dia. of rivet holes _____ Whether punched or drilled _____ Pitch of rivets _____ No. of stays to do _____ Dia. of stays _____
 Working pressure of shell by rules Thickness of shell crown plates _____ Radius of do. _____ Description of joint _____
 Diameter of furnace Top _____ Bottom _____ Length of furnace _____ Thickness of furnace plates _____ Stayed by _____
 Working pressure of furnace by rules _____ Thickness of furnace crown plates _____ Radius of do. _____
 Diameter of uptake _____ Thickness of uptake plates _____ Thickness of water tubes _____ Dates of survey _____

SPARE GEAR. State the articles supplied:— 4 top end, 4 bottom end, 2 main bearing + 16 coupling bolts nuts. 1 set of feed bilge pump valves. 4 pairs top end brasses. 2 pairs bottom end brasses. 2 piston rods. 1 eccentric strap. 1 valve spindle. 1 air pump head valve. Circulating pump impeller shaft. Weis pump piston pump rod. Assorted iron bolts nuts.

The foregoing is a correct description,

M. Henderson
 Assistant Secretary.

Manufacturer.

1911. Nov. 13-20-27. Dec. 7-15.	1912. Jan. 8-12-19-22. Feb. 1-13-14-21-28. March 11-15-22-29. April 10-16-26-30.
May 6-8-14-20-21-27. June 4-6-12-19-21-26-28. July 4-5. Aug. 7-10-21-26. Sept 2-5-9-12-16-19-26. Oct 2-4-8-16-23-29.	Nov. 5-7-8-13-14-21-25-27. Dec. 4-9-12-18-14-27. 1913. Jan. 8-15-16-20-24-28-29. Feb. 4-5-11-17-19-21-24.

Dates of Survey while building: During progress of work in shops -- March 3-4. During erection on board vessel --- 85. Total No. of visits 85.

Is the approved plan of main boiler forwarded herewith yes

Dates of Examination of principal parts—

Cylinders 15-12-11-6-5-12	Slides 20-5-12	Covers 31-5-12	Pistons 20-5-12	Rods 29-3-12
Connecting rods 29-3-12	Crank shaft 19-6-12	Thrust shaft 30-4-12	Tunnel shafts 12-6-12	Screw shafts 16-4-12
Stern tube 19-6-12	Steam pipes tested 29-1-13	Engine and boiler seatings 7-8-12	Engines holding down bolts 8-10-12	Engines tried under steam 3-3-13
Completion of pumping arrangements 20-1-13	Boilers fixed 14-11-12	Engines tried under steam 3-3-13	Thickness of adjusting washers PB PV 7/16 CV 7/16 SV 13/32	SB PV 3/8 CV 3/8 SV 3/8 full
Main boiler safety valves adjusted 21-2-13	Material of Crank shaft steel	Identification Mark on Do. 920D-FC	Material of Thrust shaft steel	Identification Mark on Do. 415 HC
Material of Tunnel shafts steel	Identification Marks on Do. 415 HC	Material of Screw shafts Iron	Identification Marks on Do. 415 HC	Test pressure 660 lbs
Material of Steam Pipes Iron				

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

The machinery of this vessel (two triple expansion reciprocating engines and 1 LP turbine) has been constructed under special survey in accordance with the rules and approved plans enclosed and has been seen working satisfactorily under steam. Materials and workmanship are good.

All bunkers are constructed for carrying coal or oil fuel (see approved plans) and a complete installation for burning oil fuel (WallSEND Howden system) has been fitted and boilers seen at work on oil fuel and also on coal.

No 4 Hold and Tween decks and No 5 Tween decks are fitted for carrying refrigerated cargo see refrigerating machinery report.

The machinery of this vessel is eligible in my opinion to be classed + LMC 3-13 fitted for oil fuel 3-13.

It is submitted that this vessel is eligible for THE RECORD + LMC 3.13. F.D.

1 Low pressure turbine Fitted for oil fuel 3.13 FP above 150° F. Ref. Mch. Harry Clarke 6/3/13

Glasgow

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

The amount of Entry Fee .. £ 3 : 0 : 0	When applied for, 5/3/13
Special .. £ 99 : 4 : 0	When received, 8/3/13
Donkey Boiler Fee .. £ :	
Travelling Expenses (if any) £ :	

Committee's Minute

Assigned

+ LMC 3.13
 Fitted for oil fuel 3.13

Surveyor's Signature



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