

Rpt. 4. **REPORT ON MACHINERY.** No. 8964

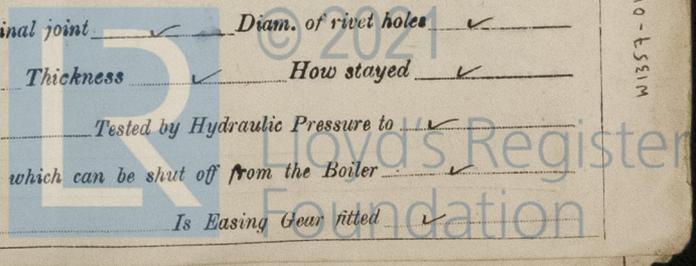
Received at London Office 13. 9. 23

Date of writing Report 19 When handed in at Local Office 19 Port of Belfast
No. in Survey held at Belfast Date, First Survey Oct. 10th 1922 Last Survey Sept 5th 1923
Reg. Book. on the Steel S.S. Berwindmoor (Number of Visits 65)
Master Belfast Built at Belfast By whom built Workman Clark & Co Ltd Tons Gross 6078 Net 3153
Engines made at Belfast By whom made Workman Clark & Co Ltd when made 1923
Boilers made at Belfast By whom made Workman Clark & Co Ltd when made 1923
Registered Horse Power 636 Owners Berwindmoor S.S. Coy Ltd Port belonging to Liverpool
Nom. Horse Power as per Section 28 636 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

ENGINES, &c.—Description of Engines Triple expansion No. of Cylinders Three No. of Cranks Three
Dia. of Cylinders 24 1/2" x 45 1/2" x 46" Length of Stroke 54" Revs. per minute 44 Dia. of Screw shaft as per rule 15.52" Material of screw shaft 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 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'-4 1/2"
Dia. of Tunnel shaft as per rule 14.11" Dia. of Crank shaft journals as per rule 15 1/2" Dia. of Crank pin 15 1/8" Size of Crank webs 28 1/2" x 10" Dia. of thrust shaft under collars 15 1/4" Dia. of screw 18.6" Pitch of Screw 1 1/4" 0" No. of Blades 4 State whether moveable yes Total surface 100 sq ft
No. of Feed pumps Two Diameter of ditto 8" Stroke 22" With automatic regulator yes Can one be overhauled while the other is at work yes
No. of Bilge pumps Two Diameter of ditto 4 3/4" Stroke 24" Can one be overhauled while the other is at work yes
No. of Donkey Engines Five Sizes of Pumps 2 1/2" (weir) 8 x 10 1/2 x 22, 1 1/2" (high pressure) 4 x 6 x 12, 1 Gen Service 8 x 5 1/2 x 8, 10" (pp) 8 x 6 1/2" (dup) 8 x 6 1/2" No. and size of Suctions connected to both Bilge and Donkey pumps 2 @ 3 1/2" No 4 2 @ 3 1/2"
In Engine Room 4 @ 3 1/2" x 1 @ 3 1/2" direct. In Holds, &c. No 5 hold 2 @ 3 1/2" No 4 2 @ 3 1/2"
No. of Bilge Injections 1 sizes 10" Connected to condenser, or to circulating pump yes Is a separate Donkey Suction fitted in Engine room & size yes 3 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 ✓
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 above
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 suction How are they protected wood covering
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 Engines aft. Is it fitted with a watertight door worked from steel on top of deck and

BOILERS, &c.—(Letter for record 5) Manufacturers of Steel Phoenix AG, London, Germany, W. P. Cameron & Co
Total Heating Surface of Boilers 9168 sq ft Is Forced Draft fitted yes No. and Description of Boilers Three Single Ended
Working Pressure 180 lbs Tested by hydraulic pressure to 320 lbs Date of test 17-5-23 No. of Certificate 825
Can each boiler be worked separately yes Area of fire grate in each boiler 43.5 sq ft No. and Description of Safety Valves to each boiler Two Spring loaded Area of each valve 11.05 sq in Pressure to which they are adjusted 185 lbs Are they fitted with easing gear yes
Smallest distance between boilers or uptakes and bunkers or woodwork 2'-3" Mean dia. of boilers 16'-4 1/4" Length 12'-0" Material of shell plates Steel
Thickness 1 3/8" Range of tensile strength 25 to 32 tons Are the shell plates welded or flanged no Descrip. of riveting: cir. seams D.R. lap.
long. seams D.B.S.T.R. Diameter of rivet holes in long. seams 1 3/8" Pitch of rivets 9 1/4" Lap of plates or width of butt straps 20 3/8"
Per centages of strength of longitudinal joint rivets 85-95 Working pressure of shell by rules 184 lbs Size of manhole in shell 16" x 12"
Size of compensating ring 2'-11 1/2" x 1 3/8" No. and Description of Furnaces in each boiler 4 Daignton Material Steel Outside diameter 45 1/4"
Length of plain part top 17' Thickness of plates crown 1 1/8" Description of longitudinal joint Weld No. of strengthening rings ✓
Working pressure of furnace by the rules 182.6 Combustion chamber plates: Material Steel Thickness: Sides 1/4" Back 1/4" Top 1/4" Bottom 1/4"
Pitch of stays to ditto: Sides 8 1/2" x 10 1/2" Back 8 1/2" x 8 1/2" Top 8 1/2" x 9 1/2" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 181 lbs
Material of stays Steel Area at smallest part 173-236 sq in Area supported by each stay 9 1/4" sq in Working pressure by rules 185.5 lbs End plates in steam space:
Material Steel Thickness 1 1/16" Pitch of stays 20" x 16" How are stays secured D.N. Wash Working pressure by rules 186 lbs Material of stays Steel
Area at smallest part 502.5-555 sq in Area supported by each stay 320 sq in Working pressure by rules 191 lbs Material of Front plates at bottom Steel
Thickness 1 5/16" Material of Lower back plate Steel Thickness 8" Greatest pitch of stays 13 1/2" x 8 1/2" Working pressure of plate by rules 190 lbs
Diameter of tubes 2 1/8" Pitch of tubes 3 3/4" x 3 7/8" Material of tube plates Steel Thickness: Front 13/16" Back 3/4" Mean pitch of stays 1 1/4" x 1 1/2"
Pitch across wide water spaces 13 1/2" Working pressures by rules 210 lbs Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 2 @ 8 1/4" x 3 1/4" Length as per rule 2'-10 1/2" Distance apart 4' 8 3/4" Number and pitch of stays in each 2 @ 9 1/2"
Working pressure by rules 180.4 lbs Steam dome: description of joint to shell none % 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 ✓
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 ✓



W1357-0143

IS A DONKEY BOILER FITTED?

yes ✓

If so, is a report now forwarded?

yes

SPARE GEAR. State the articles supplied:-

Two each bolts nuts for top & bottom ends and main bearings, one set coupling bolts, one set feed sledge pump valves. Assorted bolts nuts & iron. Propeller shaft Complete Bronze propeller blade with studs & nuts. Air pump rod, set of valves for air pump. One pair each bushes for top & bottom ends of connecting rods.

The foregoing is a correct description,

FOR WORKMAN, CLARK & CO., LIMITED.

F. Cunningham

Manufacturer.

Dates of Survey while building: During progress of work in shops - 1922 Oct 10, 30, Nov. 3, 10, 22, 28, Dec 6, 1923 Jan 22, 31, Feb 6, 7, 12, 16, 19, 23, 28, Mar 9, 13, 19, 22, 23, Apr 5, 6, 10, 11, 19, 23, 26, 30, May 7, 8, 9, 10, 14, 15, 17, 18, 25, 30, June 1, 5, 6, 8, 11, 18, 23, 26, 28, July 17, 18, 21, 25, 27, 30, 31, Aug 1, 3, 6, 9, 10, 15, 22, 29, Sep 5, Total No. of visits 65.

Is the approved plan of main boiler forwarded herewith? Yes. Bolger Ballast are in E.R. Yes.

Dates of Examination of principal parts - Cylinders 5-4-23 Slides 12-2-23 Covers 12-2-23 Pistons 6-4-23 Rods 6-4-23 Connecting rods 6-4-23 Crank shaft 26-4-23 Thrust shaft 16-23 Tunnel shafts 16-23 Screw shaft 16-23 Propeller 11-5-23 Stern tube 11-5-23 Steam pipes tested 24-1-23 & 1-8-23 Engine and boiler seatings 26-6-23 Engines holding down bolts 25-4-23 Completion of pumping arrangements 9-8-23 Boilers fixed 25-4-23 Engines tried under steam 5-9-23 Completion of fitting sea connections 26-6-23 Stern tube 26-6-23 Screw shaft and propeller 26-6-23 Main boiler safety valves adjusted 10-8-23 Thickness of adjusting washers 4 inch 7/8" 5/8" 3/8" 1/2" 5/16" 5/16" Material of Crank shaft Steel Identification Mark on Do. 2 1/4 W.B. Material of Thrust shaft Steel Identification Mark on Do. 116 W.B. Material of Tunnel shafts INTERMEDIATE Steel Identification Marks on Do. 2 1/4 W.B. Material of Screw shafts Steel Identification Marks on Do. 2 1/4 W.B. Material of Steam Pipes Lap welded Wrought Iron 5 1/2" bore x 1/2" thick Test pressure 500 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? 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 built under special survey, materials & workmanship good & in accordance with the Rules & approved plans. The whole of the machinery has been satisfactorily installed in the vessel & tried under steam & is in good & safe working condition & eligible in my opinion to be classed & have records. ✖ LMC 9-23 Tail Shaft. C.L. in the Register Books.

It is submitted that this vessel is eligible for THE RECORD, + L.M.C. 9-23. F.D. C.L.

14/9/23

William Butler, Engineer Surveyor to Lloyd's Register of Shipping.

Table with columns for fee type (Entry Fee, Special, Donkey Boiler Fee, Travelling Expenses) and amount (£ 6:0 0, £ 106:16 0, £ 14-10-0).

Assigned TUE. 18 SEP. 1923 + L.M.C. 9-23 F.D. C.L.



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