

REPORT ON MACHINERY.

No. 9631.

REC'D FEB 21 1917

Received at London Office

Date of writing Report 13/2/17 When handed in at Local Office 13/2/17 Port of Middlesbrough
 No. in Survey held at Stockton-on-Tees Date, First Survey 28th Jan 1916 Last Survey 6th Feb 1917
 Reg. Book. on the Steel Screw Steamer "ETHELARIC" (S.S. No. 506) (Number of Visits 88) Tons { Gross 3231.74 Net 2013.07 }
 Master A. Cuthbert Built at Stockton By whom built Messrs Ropner & Sons Ltd When built 1917
 Engines made at Stockton By whom made Messrs Blair & Co Ltd (No 1841) when made 1917
 Boilers made at Stockton By whom made Messrs Blair & Co Lim. when made 1917
 Registered Horse Power Owners The Harrowing S S Co Ltd Port belonging to Whitby
 Nom. Horse Power as per Section 28 278 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted no

ENGINES, &c.—Description of Engines Tri-Compound No. of Cylinders 3 No. of Cranks 3
 Dia. of Cylinders 23 1/2 - 39 - 64 Length of Stroke 42 Revs. per minute 60 Dia. of Screw shaft as per rule 13.47 Material of screw shaft iron
 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 in one 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 tight fit If two liners are fitted, is the shaft lapped or protected between the liners yes Length of stern bush 5'-1"
 Dia. of Tunnel shaft as per rule 11.67 Dia. of Crank shaft journals as per rule 12.25 Dia. of Crank pin 13 1/4 Size of Crank webs 23 3/4 x 8 1/2 Dia. of thrust shaft under collars 13 1/4 Dia. of screw 17'-0" Pitch of Screw 16'-6" No. of Blades 4 State whether moveable no Total surface 82 sq
 No. of Feed pumps 2 Diameter of ditto 3" Stroke 30" Can one be overhauled while the other is at work yes
 No. of Bilge pumps 2 Diameter of ditto 4 1/2" Stroke 30" Can one be overhauled while the other is at work yes
 No. of Donkey Engines 2 Sizes of Pumps Ballast 7x10; Fuel 4x8 No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room 3 @ 3" & one 3 1/2" under boilers In Holds, &c. 2 @ 3" in each hold; Tunnel well one @ 2 1/2"
 No. of Bilge Injections 1 sizes 6 1/4" Connected to condenser, or to circulating pump yes Is a separate Donkey Suction fitted in Engine room & size yes - 4" tunnel recess
 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 yes
 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 suctions to forward holds How are they protected wood ceiling
 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 see hull rpt Is it fitted with a watertight door yes worked from top platform

BOILERS, &c.—(Letter for record (S)) Manufacturers of Steel Messrs John Spencer & Sons Ltd
 Total Heating Surface of Boilers 4142 Is Forced Draft fitted no No. and Description of Boilers Two single ended
 Working Pressure 180 Tested by hydraulic pressure to 360 Date of test 6.10.16 No. of Certificate 5693
 Can each boiler be worked separately yes Area of fire grate in each boiler 59.8 sq No. and Description of Safety Valves to each boiler 2 direct spring Area of each valve 7.07 Pressure to which they are adjusted 185 lbs Are they fitted with easing gear yes
 Smallest distance between boilers or upstair and bunkers or woodwork 2'-0" Mean dia. of boilers 15'-3" Length 10'-3" Material of shell plates steel
 Thickness 1 3/8" Range of tensile strength 29 3/4 - 33 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams 2 R. lap long. seams 2 B - 3 Riv Diameter of rivet holes in long. seams 1 1/4" Pitch of rivets 8 3/8" Lap of plates or width of butt straps 18 3/4 x 1 1/8"
 Per centages of strength of longitudinal joint rivets 91.9 Working pressure of shell by rules 188 Size of manhole in shell 16" x 12" plate 85.07
 Size of compensating ring 7 1/2" x 1 3/8" No. and Description of Furnaces in each boiler 3 Morrison Material steel Outside diameter 45 1/8"
 Length of plain part top 7 1/2" Thickness of plates crown 1 1/8" Description of longitudinal joint Weld No. of strengthening rings 1 bottom 1 1/8"
 Working pressure of furnace by the rules 199 Combustion chamber plates: Material steel Thickness: Sides 1/4" Back 1/4" Top 1/4" Bottom 1/4"
 Pitch of stays to ditto: Sides 9 1/2 x 9 1/2 Back 9 1/2 x 9 Top 10 x 8 1/2 If stays are fitted with nuts or riveled heads nuts Working pressure by rules 188
 Material of stays steel Area at smallest part 1.99 Area supported by each stay 85.5 Working pressure by rules 210 End plates in steam space: Material steel Thickness 1 3/8" Pitch of stays 18 1/2 x 20 How are stays secured nuts & 7 x 1 washers Working pressure by rules 199 Material of stays steel
 Area at smallest part 7.24 Area supported by each stay 380 Working pressure by rules 198 Material of Front plates at bottom steel
 Thickness 1 1/8" Material of Lower back plate steel Thickness 1 1/8" Greatest pitch of stays 16 1/8 x 9 Working pressure of plate by rules 233
 Diameter of tubes 3 1/2" Pitch of tubes 4 3/4 x 4 1/2" Material of tube plates steel Thickness: Front 1 1/8" Back 1 3/16" Mean pitch of stays 11 1/2"
 Pitch across wide water spaces 14 1/2" Working pressures by rules 192 Girders to Chamber tops: Material steel Depth and thickness of girder at centre 7 1/4" x 1 3/8" Length as per rule 26 1/2" Distance apart 10" Number and pitch of stays in each 2 @ 8 1/2"
 Working pressure by rules 191 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 none 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 _____

IS A DONKEY BOILER FITTED? *yes*

If so, is a report now forwarded? *yes - Indt. No. 9556*

SPARE GEAR. State the articles supplied: - *Two each of con. rod top-end & bottom-end bolts and nuts; 2 main bearing bolts and nuts; one set of coupling bolts and nuts; one set of feed and bilge pump valves; assorted bolts and nuts; iron of various sizes; one propeller; one tail-end shaft; one set each of HP & MP Ramsbottom piston rings, and minor gear.*

The foregoing is a correct description,

FOR BLAIR & CO., LIMITED.

Evo Nettleship

Manufacturer.

SECRETARY 1916. Jan 28-31. Mar 15. April 5-7-10-12-13-16-28. May 2-10-12-15-19-29. June 2-15-19-21-28-30. July 3-7-11-14-17-21-26-28. Aug 3-7-9-15-17-22-24. Sep 1-11-13-19-21-26. Oct 2-6-10-12-14-17-19-20-23-26-30. Nov 1-3-4-7-8-9-13-15-17-20-22-23-25-27-28-30. Dec 4-6-13-14-15-18-20-21-27. 1917 Jan 2-10-12-24-26-30 Feb 2-6.

Dates of Survey while building

Total No. of visits *88.*

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

Is the approved plan of donkey boiler forwarded herewith *yes*

Dates of Examination of principal parts - Cylinders *7-11-16* Slides *9-11-16* Covers *7-11-16* Pistons *10-10-16* Rods *20-11-16*

Connecting rods *20-11-16* Crank shaft *17-11-16* Thrust shaft *2-5-16* Tunnel shafts *13/4-16* Screw shaft *18-12-16* Propeller *18-12-16*

Stern tube *3-11-16* Steam pipes tested *26-1-17* Engine and boiler seatings *8-11-16* Engines holding down bolts *17-1-17*

Completion of pumping arrangements *2-2-17* Boilers fixed *2-2-17* Engines tried under steam *2-2-17*

Completion of fitting sea connections *8-11-16* Stern tube *8-11-16* Screw shaft and propeller *27-12-16*

Main boiler safety valves adjusted *2-2-17* Thickness of adjusting washers *Port Bls $P-\frac{7}{16}$; Star Bls $P-\frac{11}{32}$*

Material of Crank shaft *By Steel Identification Mark on Do. 7063* Material of Thrust shaft *By Steel Identification Mark on Do. 1418 N.*

Material of Tunnel shafts *By Steel Identification Marks on Do. 1418 N.* Material of Screw shafts *Iron Identification Marks on Do. 7063*

Material of Steam Pipes *Solid drawn copper ($6\frac{1}{2} \times \frac{3}{8}$ & $5 \times \frac{1}{4}$)* Test pressure *400 lbs.*

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 *yes* If so, state name of vessel *S.S. Maplewood; RPL No. 9105*

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

The machinery of this vessel has been built under special survey; The materials and workmanship are sound and good; The boilers and main steam pipes were tested by hydraulic pressure and the engines and boilers examined under steam and all found satisfactory.

The machinery is now in a good and safe working condition and renders the vessel eligible in my opinion to have the notation of $\frac{1}{2}$ LMC-2-17 in the Register Book.

It is submitted that this vessel is eligible for THE BROOD. + LMC. 2. 17.

APR

JWD. 21/2/17

The amount of Entry Fee ... £ *2 : 0 - 0* When applied for, *13/2/17*
Special ... £ *33 : 18 - 0*
Donkey Boiler Fee ... £ *✓*
Travelling Expenses (if any) £ *✓* When received, *15/2/17*

Sub. Wm Morrison
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute *FRI. 23 FEB. 1917*

Assigned *+ L.M.C. 2-17*

MACHINERY CERTIFICATE
WRITTEN.



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MIDDLEBRO

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

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