

REPORT ON MACHINERY.

No. 9631.

FEB. 21, 1917

Received at London Office

Date of writing Report

10

When handed in at Local Office

13/2/17 Port of Middlesbrough

No. in Survey held at Stockton-on-Tees
Reg. Book.Date, First Survey 28th Jan'y/16 Last Survey 6th Feb'y 1917on the Steel Screw Steamer **ETHELARIC**

(S.S. No 506)

Tons { Gross 3231.74
Net 2013.07

Master A. Cathbert 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 Ltd 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 3Dia. of Cylinders 23 $\frac{1}{2}$ - 39 - 64 Length of Stroke 42 Revs. per minute 60 Dia. of Screw shaft as per rule 13.47 Material of iron
as fitted 14 $\frac{1}{2}$ screw shaft

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 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 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 $\frac{1}{4}$ Size of Crank webs 23 $\frac{3}{4}$ x 8 $\frac{1}{2}$ Dia. of thrust shaft undercollars 13 $\frac{1}{4}$ 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 $\frac{1}{2}$ Stroke 30" Can one be overhauled while the other is at work yes

No. of Donkey Engines 2 Sizes of Pumps Ballast 7x10 Fuel 4"x8" No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room 3@3" & one 3 $\frac{1}{2}$ " under boilers In Holds, &c. 2@3" in each hold; Tunnel willone @ 2 $\frac{1}{2}$ "No. of Bilge Injections 1 sizes 6 $\frac{1}{4}$ " Connected to condenser, or to circulating pump yes Is a separate Donkey Suction fitted in Engine room & size yes - 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 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 suction 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, or 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 bunkers or woodwork 2'-0" Mean dia. of boilers 15'-3" Length 10'-3" Material of shell plates steel

Thickness 1 $\frac{3}{8}$ Range of tensile strength 29 $\frac{3}{4}$ - 33 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams 2 R. laplong. seams 2 B-3 Riv Diameter of rivet holes in long. seams 1 $\frac{1}{4}$ Pitch of rivets 8 $\frac{3}{8}$ Lap of plates or width of butt straps 18 $\frac{3}{4}$ x 1 $\frac{1}{8}$

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"

Size of compensating ring 7 $\frac{1}{2}$ x 1 $\frac{3}{8}$ No. and Description of Furnaces in each boiler 3 Morrison Material steel Outside diameter 45 $\frac{3}{8}$ Length of plain part top Thickness of plates crown 7 $\frac{1}{16}$ Description of longitudinal joint Weld No. of strengthening ringsbottom Working pressure of furnace by the rules 192 Combustion chamber plates: Material steel Thickness: Sides 7 $\frac{1}{16}$ Back 7 $\frac{1}{16}$ Top 7 $\frac{1}{16}$ Bottom 7 $\frac{1}{16}$ Pitch of stays to ditto: Sides 9 $\frac{1}{2}$ x 9 $\frac{1}{2}$ Back 9 $\frac{1}{2}$ x 9 Top 10 x 8 $\frac{1}{2}$ 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 $\frac{3}{32}$ Pitch of stays 18 $\frac{1}{2}$ x 20 $\frac{1}{2}$ How are stays secured nuts & 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 $\frac{1}{16}$ Material of Lower back plate steel Thickness 1 $\frac{1}{16}$ Greatest pitch of stays 16 $\frac{5}{8}$ x 9 Working pressure of plate by rules 233Diameter of tubes 3 $\frac{1}{2}$ Pitch of tubes 4 $\frac{3}{8}$ x 4 $\frac{3}{8}$ Material of tube plates steel Thickness: Front 1 $\frac{1}{16}$ Back 1 $\frac{1}{16}$ Mean pitch of stays 11 $\frac{1}{16}$ Pitch across wide water spaces 14 $\frac{1}{2}$ Working pressures by rules 192 Girders to Chamber tops: Material steel Depth andthickness of girder at centre 7 $\frac{1}{4}$ x 1 $\frac{1}{8}$ Length as per rule 26 $\frac{1}{2}$ Distance apart 10 Number and pitch of stays in each 2 @ 8 $\frac{1}{2}$

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

007754-007761-0229

Lloyd's Register
Foundation

IS A DONKEY BOILER FITTED? *yes*

If so, is a report now forwarded? *yes* - Indt N^o 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 H.P. & M.P. Ramsbottom piston rings, and minor gear.*

The foregoing is a correct description,

FOR BLAIR & CO., LIMITED.

Ero Nettishup

SECRETARY

Manufacturer.

Dates of Survey while building
During progress of work in shops -- *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.*
During erection on board vessel --
Total No. of visits *88.*

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

" " " donkey " " " *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 $P-\frac{1}{2}t$; Star-Bls $P-\frac{1}{32}$*

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

Material of Tunnel shafts *By Stud 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 N^o 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 ∇ LMC-2.17 in the Register Book

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

APR

JWD. 21/2/17

The amount of Entry Fee ... £ *2 : 0 - 0*
Special ... £ *33 : 18 - 0*
Donkey Boiler Fee ... £ *✓*
Travelling Expenses (if any) £ *✓*

When applied for,

13/2/17

When received,

15/2/17

Sub. W^m 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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