

# REPORT ON MACHINERY

No. 8641.

Received at London Office

FRI. NOV. 20. 1914  
TUE. SEP. 22. 1914

MIDDLESBRO

When handed in at Local Office Sept. 21<sup>st</sup> 1914 Port of Stockton-on-Tees  
Date, First Survey June 4<sup>th</sup> 1914 Last Survey Sept. 17<sup>th</sup> 1914  
(Number of Visits 37)  
Gross 4302  
Net 2731  
Tons

Survey held at Stockton-on-Tees  
By whom made Messrs Blair & Co. Ltd. (No 1803) when made 1914  
Boilers made at Stockton  
By whom made Messrs Blair & Co. Ltd. when made 1914  
Registered Horse Power 559  
Owners (W. H. Wilhelmsen) Port belonging to Tonsberg  
Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted no

Engines made at Stockton  
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Engines, &c.—Description of Engines Tri-compound  
No. of Cylinders 3 No. of Cranks 3  
Diameter of Cylinders 28-46-75 Length of Stroke 51 Revs. per minute 65 Dia. of Screw shaft 15.36 Material of screw shaft Hy steel  
Is the after end of the liner made water tight yes

Is the screw shaft fitted with a continuous liner the whole length of the stern tube yes  
If the liner is in more than one length are the joints burned in iron  
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 5-7 1/2

Dia. of Tunnel shaft 13.95 Dia. of Crank shaft journals 14.65 Dia. of Crank pin 15.2 Size of Crank webs 30 1/2 x 10 Dia. of thrust shaft under 14 1/2  
Collars 15 3/4 Dia. of screw 18-3 Pitch of Screw 18-9 No. of Blades 4 State whether moveable no Total surface 104 sq

No. of Feed pumps 2 Diameter of ditto 3 1/2 Stroke 36 Can one be overhauled while the other is at work yes  
No. of Bilge pumps 2 Diameter of ditto 5 Stroke 36 Can one be overhauled while the other is at work yes  
No. of Donkey Engines 2 Sizes of Pumps Ballast 11 1/2 x 11; Feed 5 x 6 No. and size of Suctions connected to both Bilge and Donkey pumps 2 @ 3 1/2 in each hold

In Engine Room 4 @ 3 1/2  
Is a separate Donkey Suction fitted in Engine room & size yes 4"  
No. of Bilge Injections 1 sizes 8" Connected to condenser or to circulating pump yes Are the sluices on Engine room bulkheads always accessible none

Are all the bilge suction pipes fitted with roses yes Are the roses in Engine room always accessible yes Are the valves or cocks both  
Are all connections with the sea direct on the skin of the ship yes Are the Discharge Pipes above or below the deep water line above  
Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates yes Are the Blow Off Cocks fitted with a spigot and brass covering plate yes

Are they each fitted with a Discharge Valve always accessible on the plating of the vessel yes How are they protected wood casing  
What pipes are carried through the bunkers connections to four holds  
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 8/7/14 of Stern Tube 8/7/14 Screw shaft and Propeller 3.9.14

Is the Screw Shaft Tunnel watertight see hull Rpt Is it fitted with a watertight door yes worked from top platform  
OILERS, &c.—(Letter for record (S)) Manufacturers of Steel Messrs John Hancock & Sons Ltd.  
Total Heating Surface of Boilers 8253 Is Forced Draft fitted yes No. and Description of Boilers 3 single ended  
Working Pressure 180 Tested by hydraulic pressure to 360 Date of test 31.8.14 No. of Certificate 5371

Can each boiler be worked separately yes Area of fire grate in each boiler 63 sq No. and Description of Safety Valves to yes  
each boiler 2 direct spring Area of each valve 12.56 Pressure to which they are adjusted 185 Are they fitted with easing gear yes  
Smallest distance between boilers or uptakes and bunkers or woodwork 8'-0" Mean dia. of boilers 15'-9" Length 11'-6" Material of shell plates steel

Thickness 1 1/2 Range of tensile strength 29 1/2 - 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 1/2 Pitch of rivets 8 1/2 Lap of plates or width of butt straps 19 x 1 1/2  
Per centages of strength of longitudinal joint 88.6 Working pressure of shell by rules 184 Size of manhole in shell 16" x 12"

Size of compensating ring 7 1/2 x 1 1/2 No. and Description of Furnaces in each boiler 3 Dighton Material steel Outside diameter 49 1/2  
Length of plain part top 4 1/2 Thickness of plates bottom 4 1/2 Description of longitudinal joint Welded No. of strengthening rings 2

Working pressure of furnace by the rules 209 Combustion chamber plates: Material steel Thickness: Sides 3/8 Back 3/8 Top 3/8 Bottom 3/8  
Pitch of stays to ditto: Sides 7 1/2 x 7 1/2 Back 7 1/2 x 7 1/2 Top 8 1/2 x 7 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 229 End plates in steam space: yes

Material of stays steel Diameter at smallest part 1.69 Area supported by each stay 59 Working pressure by rules 229 Material of stays steel  
Material steel Thickness 1 1/2 Pitch of stays 16 1/2 How are stays secured nuts + washers Working pressure by rules 208 Material of Front plates at bottom steel

Material steel at smallest part 7.85 Area supported by each stay 351 Working pressure by rules 232 Material of Front plates at bottom steel  
Thickness 1" Material of Lower back plate steel Thickness 1 1/2 Greatest pitch of stays 16 1/2 x 7 1/2 Working pressure of plate by rules 243  
Diameter of tubes 2 1/2 Pitch of tubes 3 3/4 x 3 3/4 Material of tube plates steel Thickness: Front 1" Back 1 1/2 Mean pitch of stays 8 1/2

Pitch across wide water spaces 13 1/2 Working pressures by rules 196 Girders to Chamber tops: Material steel Depth and yes  
thickness of girder at centre 7 1/2 x 1 1/2 Length as per rule 28 1/2 Distance apart 8 1/2 Number and pitch of stays in each 3 @ 7"  
Working pressure by rules 189 Superheater or Steam chest; how connected to boiler none Can the superheater be shut off and the boiler worked yes

separately yes Diameter Length Thickness of shell plates Material Description of longitudinal joint Diam. of rivet  
holes Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness  
If stiffened with rings Distance between rings Working pressure by rules End plates: Thickness How stayed yes

Working pressure of end plates Area of safety valves to superheater Are they fitted with easing gear yes



VERTICAL DONKEY BOILER—

Manufacturers of Steel

None

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

SPARE GEAR. State the articles supplied:—

Two top end & 2 bottom end bolts, 2 main bearing bolts,  
 1 set of coupling bolts, 1 set of feed & bilge pump valves  
 a quantity of assorted bolts nuts & iron.

The foregoing is a correct description,

For BLAIR & CO., LIMITED.

Geo H. Marsh

Manufacturer.

Dates { During progress of work in shops - - - - - 1914. Jun. 4. 11. 15. 17. 22. 24. 26. 29. Jul. 1. 3. 6. 7. 10. 13. 15. 16. 17. 20. 22. 23. 24. 27. 29. 30. Aug. 4. 6. 11.  
 of Survey { During erection on board vessel - - - - - 14. 26. 31. Sep. 3. 7. 10. 14. 15. 17. 1914. Oct. 5. 26. Nov. 12.  
 while building { Total No. of visits 24. + 4

Is the approved plan of main boiler forwarded herewith yes

" " " donkey " " " yes

Dates of Examination of principal parts—Cylinders 6.7.14 Slides 10.7.14 Covers 12.7.14 Pistons 15.7.14 Rods 10.7.14  
 Connecting rods 15.7.14 Crank shaft 16.7.14 Thrust shaft 29.6.14 Tunnel shafts 24.7.14 Screw shaft 6.8.14 Propeller 6.8.14  
 Stern tube 22.6.14 Steam pipes tested 10.9.14 Engine and boiler seatings 8/7/14 Engines holding down bolts 15.9.14  
 Completion of pumping arrangements 17.9.14 Boilers fixed 17.9.14 Engines tried under steam 17.9.14  
 Main boiler safety valves adjusted 17.9.14 Thickness of adjusting washers P.B.H. 5-3/8; C.B.H. 5-3/8; S.M.H. 5-3/8  
 Material of Crank shaft Hy Steel Identification Mark on Do. 6913 Material of Thrust shaft Hy Steel Identification Mark on Do. 493-N  
 Material of Tunnel shafts Hy Steel Identification Marks on Do. 493-N Material of Screw shafts Hy Steel Identification Marks on Do. 6913  
 Material of Steam Pipes Solid drawn copper Test pressure 400

General Remarks (State quality of workmanship, opinions as to class, &c. To complete the survey the safety valve casing gear requires to be fitted and the spare gear examined. It is proposed to complete the survey at Newcastle. The surveyors have been advised.

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.

In our opinion this vessel will be eligible to have the notation of L.M.C. 11.14 (with a date) when the survey has been completed.

It is submitted that this vessel is eligible for THE RECORD + L.M.C. 11.14. E.D.

The amount of Entry Fee £ 3 : 0 : 0 When applied for.  
 Special . . . . £ 47 : 19 : 0 21.9.1914  
 Donkey Boiler Fee . . . £ : : When received, as per LOR  
 Travelling Expenses (if any) £ : : as per 25/11/14

Committee's Minute

TUE. NOV. 24. 1914

Assigned

+ L.M.C. 11.14

F.D.

Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Charles Cooper



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MACHINERY CERTIFICATE  
 ENTERED

Middlesbrough: on Dec.

Certificate (if required) to be sent to Committee's Minute.