

REPORT ON MACHINERY.

No. 10328

On 11 March 1919

Received at London Office

of writing Report 12.3.1919 When handed in at Local Office 12.3.1919 Port of Middlesbrough
 in Survey held at Stockton-on-Tees Date, First Survey 19.6.18 Last Survey 4.4.1919
 Book. 39 on the Steel Screw Steamer "Cairngowan" (S.S. N° 320) Tons { Gross 5295
Melling Built at Sunderland By whom built Sunderland S.P. Co Net 3257
 When built 1919
 Lines made at Stockton By whom made Messrs Blair & Lim (N° 1894) when made 1919
 Lines made at Stockton By whom made Messrs Blair & Lim when made 1919
 Rated Horse Power 518.517 Owners Cairn Line of Steamers Ltd Port belonging to Newcastle
 Horse Power as per Section 28 518.517 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

INES, &c.—Description of Engines Tri-compound No. of Cylinders 3 No. of Cranks 3
 of Cylinders 27"-44"-73" Length of Stroke 48" Revs. per minute 77 Dia. of Screw shaft 14.7" Material of Ing Steel
 as per rule 13.73 as fitted 15.5" screw shaft
 Is the after end of the liner made water tight 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
 on the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive tight fit If two
 are fitted, is the shaft lapped or protected between the liners yes Length of stern bush 3'-14"
 of Tunnel shaft 13.73 Dia. of Crank shaft journals 14.0 Dia. of Crank pin 14.5 Size of Crank webs 28" x 9" Dia. of thrust shaft under
 as fitted 13.5 as fitted 14.2
 Dia. of screw 17'-6" Pitch of Screw 16'-6" No. of Blades 4 State whether moveable no Total surface 98.2 sq ft
 of Feed pumps 2 Diameter of ditto 4" Stroke 24" Can one be overhauled while the other is at work yes
 of Bilge pumps 2 Diameter of ditto 4" Stroke 24" Can one be overhauled while the other is at work yes
 of Donkey Engines 3 Sizes of Pumps 10 1/2" x 14" x 24" 2 @ 9 1/2" x 7" x 18" No. and size of Suctions connected to both Bilge and Donkey pumps
 Engine Room 4 @ 3 1/2" In Holds, &c. 2 @ 3 1/2" in each hold, except aftermost

Is a separate Donkey Suction fitted in Engine room & size yes - 3 1/2"
 Are the roses in Engine room always accessible yes Are the sluices on Engine room bulkheads always accessible yes
 Are they Valves or Cocks both
 Are the Discharge Pipes above or below the deep water line above
 Are the Blow Off Cocks fitted with a spigot and brass covering plate yes
 How are they protected Wood ceiling
 Are they fitted with a watertight door yes Is it fitted with a watertight door yes Is it worked from top platform
 Manufacturers, &c.—(Letter for record S) Manufacturers of Steel Messrs John Spencer & Sons Ltd
Hudders
 Heating Surface of Boilers 7668 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 16. Dec 1918 No. of Certificate 5952

each boiler be worked separately yes Area of fire grate in each boiler 63.3 sq ft No. and Description of Safety Valves to
 boiler 2 direct spring Area of each valve 9.62 Pressure to which they are adjusted 185 lbs Are they fitted with easing gear yes
 least distance between boilers on uptakes and bunkers or woodwork 7'-0" Mean dia. of boilers 15'-6" Length 11'-6" Material of shell plates steel
 Range of tensile strength 28-32 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams 2 R. lap
 seams 2 B-3 Riv Diameter of rivet holes in long. seams 1 1/2" Pitch of rivets 9 1/2" Lap of plates or width of butt straps 19 1/2" x 1 1/2" out
 5 Rivets per pitch
 percentages of strength of longitudinal joint 88.3 Working pressure of shell by rules 182 Size of manhole in 16" x 12"
 plate 85.64

of compensating ring Flanged No. and Description of Furnaces in each boiler 3 Deighton Material steel Outside diameter 50 3/4"
 of plain part top Thickness of plates 12" Description of longitudinal joint Weld No. of strengthening rings 1
 bottom bottom 32
 Working pressure of furnace by the rules 188 Combustion chamber plates: Material steel Thickness: Sides 23/32" Back 11/16" Top 23/32" Bottom 23/32"
 of stays to ditto: Sides 10 5/8" x 9 1/4" Back 10 1/4" x 8 3/4" Top 10 5/8" x 9 1/4" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 180
 Material of stays steel Area at smallest part 2.31 Area supported by each stay 98.5 Working pressure by rules 211 End plates in steam space:
 Material steel Thickness 1 1/2" Pitch of stays 21 1/2" How are stays secured nuts & washers Working pressure by rules 191 Material of stays steel
 at smallest part 8.29 Area supported by each stay 467 Working pressure by rules 185 Material of Front plates at bottom steel
 Thickness 31/32" Material of Lower back plate steel Thickness 27/32" Greatest pitch of stays 13 5/8" x 8 3/4" Working pressure of plate by rules 187
 Diameter of tubes 2 3/4" Pitch of tubes 4" x 3 3/8" Material of tube plates steel Thickness: Front 31/32" Back 3/4" Mean pitch of stays 9 1/2"
 across wide water spaces 13 5/8" Working pressures by rules 181 Girders to Chamber tops: Material steel Depth and
 thickness of girder at centre 10" x 1 1/2" Length as per rule 35 1/2" Distance apart 10 5/8" Number and pitch of stays in each 3 @ 9 1/4"
 Working pressure by rules 188 Steam dome: description of joint to shell none % of strength of joint

Thickness of shell plates 31/32" Material steel Description of longitudinal joint Weld Diam. of rivet holes 1 1/2"
 of rivets 31/32" Working pressure of shell by rules 188 Crown plates 31/32" Thickness 31/32" How stayed by stays
 ERHEATER. Type Horizontal Date of Approval of Plan 15.3.1919 Tested by Hydraulic Pressure to 360
 of Test 15.3.1919 Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler yes
 of Safety Valve 1 Pressure to which each is adjusted 180 Is Easing Gear fitted yes

IS A DONKEY BOILER FITTED? *no*

If so, is a report now forwarded? ☒

SPARE GEAR. State the articles supplied:— *Two each of connecting rod top-end, bottom-end and main bearing bolts and nuts: 3 crank shaft and 3 tunnel shaft coupling bolts and nuts: one set each of feed and bily pump valves: 3 each of main and donkey feed check valves: one set each of H.P. & M.P. rambottom piston rings: assorted bolts and nuts, iron of various sizes: one cast iron propeller and minor gear.*

The foregoing is a correct description,
For BLAIR & Co., LIMITED.

Geo. H. Atkinson

Manufacturer.

Dates of Survey while building { During progress of work in shops -- } 1918. June 19. 20. 24 Aug 1. 2. 6. 8. 9. 12. 14. 15. 26. 28. 31 Sep 3. 6. 9. 11. 13. 16. 19. 20. 24. 26 Oct 1. 2. 5. 8. 11. 14. 16. 18. 21. 23. 25. 28. 30. Nov 1. 4. 8. 11. 14. 18. 19. 22. 24. 28. Dec 2. 4. 6. 9. 10. 12. 15. 17. 19
{ During erection on board vessel -- } 1919. Jan 6. 20 Feb 5. 6. 7. 12. 13. 14. 17. 18. 21. 24. 28. Mar 14.
Total No. of visits *69* Is the approved plan of main boiler forwarded herewith *no*
75 Sld. 1918. Dec 18. Mar 11. 20. 24. 26 Apr 4. Forwarded with report *no* 10233 on the S.
" " " donkey " " " War Time

Dates of Examination of principal parts—Cylinders 31. 8. 18 Slides 20. 9. 18 Covers 13. 9. 18 Pistons 13. 9. 18 Rods 13. 9. 18
Connecting rods 20. 9. 18 Crank shaft 16. 9. 18 Thrust shaft 6. 8. 18 Tunnel shafts 21. 10. 18 Screw shaft 6. 1. 19 Propeller 20. 1. 19
Stern tube 11. 11. 18 Steam pipes tested *14. 2. 19* Engine and boiler seatings 18. 12. 18 Engines holding down bolts 18. 2. 19
Completion of pumping arrangements 4. 3. 19 Boilers fixed 4. 3. 19 Engines tried under steam 4. 3. 19
Completion of fitting sea connections 18. 12. 18 Stern tube 18. 12. 18 Screw shaft and propeller 5. 2. 19
Main boiler safety valves adjusted 4. 3. 19 Thickness of adjusting washers P. Blk S- 3/8 B. C. B S- 3/8 f. S. B S- 3/8
Material of Crank shaft *Ing Steel* Identification Mark on Do. 7149. Material of Thrust shaft *Ing Steel* Identification Mark on Do. 7149
Material of Tunnel shafts *Ing Steel* Identification Marks on Do. 3563. N Material of Screw shafts *Ing Steel* Identification Marks on Do. 7149
Material of Steam Pipes *Lapwelded Steel* Test pressure 540 lb
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 *Standard B*

General Remarks (State quality of workmanship, opinions as to class, &c. *The machinery of this vessel has been built under special survey in accordance with the Rules and the specification. The materials and workmanship are sound and good. On completion the engines, boilers and auxiliaries were examined under steam and found satisfactory.*

The machinery is in a good and safe working condition and renders the vessel eligible in my opinion to have the notation of L.M.C 4-19 (with a date) when the survey has been completed in accordance with the letter addressed to the Sunderland Surveyors on 5. 3. 19 a copy of which is attached hereto.

Sunderland 4-4-19 Now done. Distiller fitted pumping arrangement completed. Shaft stuffing box fitted. WT door gear fitted. Winch spare gear and pumping plans supplied.

It is submitted that this vessel is eligible for THE RECORD. + L.M.C. 4-19 F.D.

J.H.D. 17/4/19

Tonnage required for her

The amount of Entry Fee ... £ 3 :
Special ... £ 45 : 17
Donkey Boiler Fee ... £ 52 : 0
Travelling Expenses (if any) £ :
When applied for, 30/4/19
When received, 7/5/19

Committee's Minute

Assigned

+ L.M.C 4-19 F.D.

W. Morrison
Engineer Surveyor to Lloyd's Register of Shipping.



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