

REPORT ON MACHINERY.

No. 1137e

MUN. SEP. 14 1922

Date of writing Report 14 August 1922 When handed in at Local Office 25 August 1922 Port of Middlesbrough
 No. in Survey held at Middlesbrough Date, First Survey Sept 30th 1920 Last Survey August 15th 1922
 Reg. Book. 66510 on the Manchester Regiment (R.R.C. No. 2544) (Number of Vessels 101)
 Master ✓ Built at Haverton Hill m. S.S. By whom built Hurness S.B.C. Ltd. Tons Gross 4680
 Engines made at Hartlepool By whom made Richardsons Westgarth & Co. Ltd. when made 1922
 Boilers made at Middlesbrough By whom made ✓ when made 1922
 Registered Horse Power 1010 Owners Manchester liners Ltd. Port belonging to Manchester
 Nom. Horse Power as per Section 28 1004 Is Refrigerating Machinery fitted for cargo purposes ✓ Is Electric Light fitted ✓

ENGINES, &c.—Description of Engines Geared Turbines (441 hp/110.15959) Cylinders ✓ No. of Cranks ✓
 Dia. of Cylinders ✓ Length of Stroke ✓ Revs. per minute ✓ Dia. of Screw shaft ✓ as per rule ✓ Material of ✓
 Is the screw shaft fitted with a ✓ whole length of the stern tube ✓ Is the after end of the liner made water tight ✓
 in the propeller boss ✓ If the liner is in ✓ the joints ✓ If the liner does not fit tightly at the part ✓
 between the bearings in the stern tube, is the space charged with a plastic ✓ insoluble in water and non-corrosive ✓ If two ✓
 liners are fitted, is the shaft lapped or protected between the liners ✓ Length of stern bush ✓
 Dia. of Tunnel shaft ✓ as per rule ✓ Dia. of Crank shaft journals ✓ as per rule ✓ Dia. of Crank pin ✓ Size of Crank webs ✓ Dia. of thrust shaft under ✓
 collars ✓ Dia. of screw ✓ Pitch of Screw ✓ No. of Blades ✓ State whether moveable ✓ Total surface ✓
 No. of Feed pumps 2 Diameter of ditto 10" Stroke 26" Can one be overhauled while the other is at work ✓
 No. of Bilge pumps 2 Diameter of ditto 6"x6" Stroke 10" Can one be overhauled while the other is at work ✓
 No. of Donkey Engines 1 Sizes of Pumps 9"x6"x10" 9"x5"x15" No. and size of Suctions connected to both Bilge and Donkey pumps ✓
 In Engine Room 4 of 3 1/2" and 1 of 2 1/2" in Buckle In Holds, &c. 2 of 3 1/2" in H¹, 2 x 3 holds and Ford & 1/2" deep
Yanks. and 1 of 3 1/2" in H¹ hold. 1 of 2 1/2" in Tunnel well.
 No. of Bilge Injections 1 sizes 1 1/4" Connected to condenser, or to circulating pump ✓ Are the bilge suction pipes fitted with roses ✓
 Are all the bilge suction pipes fitted with roses ✓ Are the roses in Engine room always accessible ✓ Are the sluices on Engine room bulkheads always accessible ✓
 Are all connections with the sea direct on the skin of the ship ✓ Are they Valves or Cocks Both
 Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates ✓ Are the Discharge Pipes above or below the deep water line Below
 Are they each fitted with a Discharge Valve always accessible on the plating of the vessel ✓ Are the Blow Off Cocks fitted with a spigot and brass covering plate ✓
 What pipes are carried through the bunkers Forward bilge pipes How are they protected String wood casings
 Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times ✓
 Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges ✓
 Is the Screw Shaft Tunnel watertight ✓ Is it fitted with a watertight door ✓ worked from Shelter deck

BOILERS, &c.—(Letter for record (S)) Manufacturers of Steel Messrs J. Spencer & Sons Ltd. & David Colville & Sons Ltd.
 Total Heating Surface of Boilers 13168 Is Forced Draft fitted ✓ No. and Description of Boilers 4 S.E. Mather Cyl.
 Working Pressure 190 lb. Tested by hydraulic pressure to 330 lb. Date of test 28. 11. 21 No. of Certificate 6256
 Can each boiler be worked separately ✓ Area of fire grate in each boiler 81 1/4 sq ft No. and Description of Safety Valves to ✓
 each boiler ✓ direct spring loaded ✓ Area of each valve 12.56 sq in Pressure to which they are adjusted 195 lb. Are they fitted with easing gear ✓
 Smallest distance between boilers or uptakes and bunkers or woodwork 2'-6" Mean dia. of boilers 14'-6" Length 12'-0" Material of shell plates Steel
 Thickness 1 3/16" Range of tensile strength 29-33 Are the shell plates welded or flanged ✓ Descrip. of riveting: cir. seams R.R. lap.
 long. seams Y.R. R.B.S. Diameter of rivet holes in long. seams 1 1/2" Pitch of rivets 10 3/8" Lap of plates or width of butt straps 22 3/8"
 Per centages of strength of longitudinal joint 85.4 Working pressure of shell by rules 201 lb. Size of manhole in shell 16 x 12
 Size of compensating ring 32 1/4 x 31 1/4 x 1 3/4 No. and Description of Furnaces in each boiler 4 Righton Material Steel Outside diameter 46 3/4"
 Length of plain part top Thickness of plates cross 5/8" Description of longitudinal joint Weld. No. of strengthening rings ✓
 Working pressure of furnace by the rules 215 lb. Combustion chamber plates: Material Steel Thickness: Sides 2 1/2" Back 2 1/2" Top 1 1/2" Bottom 1 1/2"
 Pitch of stays to ditto: Sides 10 3/8" x 8 1/2" Back 10 3/8" x 8" Top 11 1/4" x 5" If stays are fitted with nuts or riveled heads nuts Working pressure by rules 193 lb.
 Material of stays Steel Area at smallest part 2.03 sq in Area supported by each stay 90.5 sq in Working pressure by rules 202 lb. End plates in steam space: ✓
 Material Steel Thickness 1 3/4" Pitch of stays 20 1/2" x 16 3/4" Are stays secured Hub & Washer Working pressure by rules 190 lb. Material of stays Steel
 Area at smallest part 4.24 sq in Area supported by each stay 344 sq in Working pressure by rules 219 lb. Material of Front plates at bottom Steel
 Thickness 1 1/2" Material of Lower back plate Steel Thickness 2 1/2" Greatest pitch of stays 15" x 8" Working pressure of plate by rules 196 lb.
 Diameter of tubes 3 3/4" Pitch of tubes 11 1/2" x 4 1/2" Material of tube plates Steel Thickness: Front 1 1/4" Back 2 1/2" Mean pitch of stays 13 1/2" x 9"
 Pitch across wide water spaces 14 1/4" x 9" Working pressures by rules 193 lb. Girders to Chamber tops: Material Steel Depth and ✓
 thickness of girder at centre 9 x 2" Length as per rule 2'-8 1/2" Distance apart 10 1/4" Number and pitch of stays in each 3 @ 8"
 Working pressure by rules 196 lb. Steam dome: description of joint to shell ✓ % 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 Schmidt Date of Approval of Plan 2. 8. 21 Tested by Hydraulic Pressure to 400 lb.
 Date of Test 14. 12. 21 Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the boiler ✓
 Diameter of Safety Valve 2 1/2" Pressure to which each is adjusted 195 lb. Is Easing Gear fitted ✓



If so, is a report now forwarded?

See Harttupool Report No 15959

For and on behalf of
RICHARDSON, WESTGARTH & Co., Ltd.

Manufacture.

Dates of Survey while building	During progress of work in shops - -	1920. Sept 30. Oct 12. 14. 26. Nov 3. 10. 12. 15. 22. 25. Dec 3. 7. 9. 20. 23. 30.	1921. Jan 12. 14. 27. Feb 1. 3. 10. 13. 17. 24. Mar 3. 9.
	During erection on board vessel - -	11. 16. 21. 24. 1. 3. 11. 13. 21. 27. May 14. 19. 23. June 1. 4. 11. 22. July 12. 22. Aug 2. 29. Sep 1. 2. 4. 20. 25. 27. 28. Oct 3. 12. 17. 20. 21. 25.	1922. Jan 6. 11. 17. 21. 23. 25. Feb 3. Mar 1. 7. 10. 14. 22. 23. Apr 4. May 2. 5. June 1. 2. 4. 22. 23. July 4. 12. 15. 18. 19. 22. Dec. 1. 6. 7. 13. 14. 22.
Total No. of visits		42	42

The approved plan of main boiler forwarded herewith

Dates of Examination of principal parts—Cylinders ✓ Slides ✓ Covers ✓ Pistons ✓ Rods ✓
Connecting rods ✓ Crank shaft ✓ Thrust shaft *14.1.21* Tunnel shafts *29.11.21* Screw shaft *29.11.21* Propeller *14.11.21*
Stern tube *3.11.21* Steam pipes tested *18.4.22* Engine and boiler seatings *6.1.22* Engines holding down bolts *14.4.22*
Completion of pumping arrangements *18.8.22* Boilers fixed *14.4.22* Engines tried under steam *18.8.22*
Completion of fitting sea connections *10.8.22* Stern tube *22.11.21* Screw shaft and propeller *6.1.22*
Main boiler safety valves adjusted *28.4.22* Thickness of adjusting washers *SV 1/16 1/8 1/4 3/8 1/2 3/4 1 1 1/4 1 1/2 1 3/4 2 2 1/4 2 1/2 2 3/4 3 3 1/4 3 1/2 3 3/4 4 4 1/4 4 1/2 4 3/4 5 5 1/4 5 1/2 5 3/4 6 6 1/4 6 1/2 6 3/4 7 7 1/4 7 1/2 7 3/4 8 8 1/4 8 1/2 8 3/4 9 9 1/4 9 1/2 9 3/4 10 10 1/4 10 1/2 10 3/4 11 11 1/4 11 1/2 11 3/4 12 12 1/4 12 1/2 12 3/4 13 13 1/4 13 1/2 13 3/4 14 14 1/4 14 1/2 14 3/4 15 15 1/4 15 1/2 15 3/4 16 16 1/4 16 1/2 16 3/4 17 17 1/4 17 1/2 17 3/4 18 18 1/4 18 1/2 18 3/4 19 19 1/4 19 1/2 19 3/4 20 20 1/4 20 1/2 20 3/4 21 21 1/4 21 1/2 21 3/4 22 22 1/4 22 1/2 22 3/4 23 23 1/4 23 1/2 23 3/4 24 24 1/4 24 1/2 24 3/4 25 25 1/4 25 1/2 25 3/4 26 26 1/4 26 1/2 26 3/4 27 27 1/4 27 1/2 27 3/4 28 28 1/4 28 1/2 28 3/4 29 29 1/4 29 1/2 29 3/4 30 30 1/4 30 1/2 30 3/4 31 31 1/4 31 1/2 31 3/4 32 32 1/4 32 1/2 32 3/4 33 33 1/4 33 1/2 33 3/4 34 34 1/4 34 1/2 34 3/4 35 35 1/4 35 1/2 35 3/4 36 36 1/4 36 1/2 36 3/4 37 37 1/4 37 1/2 37 3/4 38 38 1/4 38 1/2 38 3/4 39 39 1/4 39 1/2 39 3/4 40 40 1/4 40 1/2 40 3/4 41 41 1/4 41 1/2 41 3/4 42 42 1/4 42 1/2 42 3/4 43 43 1/4 43 1/2 43 3/4 44 44 1/4 44 1/2 44 3/4 45 45 1/4 45 1/2 45 3/4 46 46 1/4 46 1/2 46 3/4 47 47 1/4 47 1/2 47 3/4 48 48 1/4 48 1/2 48 3/4 49 49 1/4 49 1/2 49 3/4 50 50 1/4 50 1/2 50 3/4 51 51 1/4 51 1/2 51 3/4 52 52 1/4 52 1/2 52 3/4 53 53 1/4 53 1/2 53 3/4 54 54 1/4 54 1/2 54 3/4 55 55 1/4 55 1/2 55 3/4 56 56 1/4 56 1/2 56 3/4 57 57 1/4 57 1/2 57 3/4 58 58 1/4 58 1/2 58 3/4 59 59 1/4 59 1/2 59 3/4 60 60 1/4 60 1/2 60 3/4 61 61 1/4 61 1/2 61 3/4 62 62 1/4 62 1/2 62 3/4 63 63 1/4 63 1/2 63 3/4 64 64 1/4 64 1/2 64 3/4 65 65 1/4 65 1/2 65 3/4 66 66 1/4 66 1/2 66 3/4 67 67 1/4 67 1/2 67 3/4 68 68 1/4 68 1/2 68 3/4 69 69 1/4 69 1/2 69 3/4 70 70 1/4 70 1/2 70 3/4 71 71 1/4 71 1/2 71 3/4 72 72 1/4 72 1/2 72 3/4 73 73 1/4 73 1/2 73 3/4 74 74 1/4 74 1/2 74 3/4 75 75 1/4 75 1/2 75 3/4 76 76 1/4 76 1/2 76 3/4 77 77 1/4 77 1/2 77 3/4 78 78 1/4 78 1/2 78 3/4 79 79 1/4 79 1/2 79 3/4 80 80 1/4 80 1/2 80 3/4 81 81 1/4 81 1/2 81 3/4 82 82 1/4 82 1/2 82 3/4 83 83 1/4 83 1/2 83 3/4 84 84 1/4 84 1/2 84 3/4 85 85 1/4 85 1/2 85 3/4 86 86 1/4 86 1/2 86 3/4 87 87 1/4 87 1/2 87 3/4 88 88 1/4 88 1/2 88 3/4 89 89 1/4 89 1/2 89 3/4 90 90 1/4 90 1/2 90 3/4 91 91 1/4 91 1/2 91 3/4 92 92 1/4 92 1/2 92 3/4 93 93 1/4 93 1/2 93 3/4 94 94 1/4 94 1/2 94 3/4 95 95 1/4 95 1/2 95 3/4 96 96 1/4 96 1/2 96 3/4 97 97 1/4 97 1/2 97 3/4 98 98 1/4 98 1/2 98 3/4 99 99 1/4 99 1/2 99 3/4 100 100 1/4 100 1/2 100 3/4 101 101 1/4 101 1/2 101 3/4 102 102 1/4 102 1/2 102 3/4 103 103 1/4 103 1/2 103 3/4 104 104 1/4 104 1/2 104 3/4 105 105 1/4 105 1/2 105 3/4 106 106 1/4 106 1/2 106 3/4 107 107 1/4 107 1/2 107 3/4 108 108 1/4 108 1/2 108 3/4 109 109 1/4 109 1/2 109 3/4 110 110 1/4 110 1/2 110 3/4 111 111 1/4 111 1/2 111 3/4 112 112 1/4 112 1/2 112 3/4 113 113 1/4 113 1/2 113 3/4 114 114 1/4 114 1/2 114 3/4 115 115 1/4 115 1/2 115 3/4 116 116 1/4 116 1/2 116 3/4 117 117 1/4 117 1/2 117 3/4 118 118 1/4 118 1/2 118 3/4 119 119 1/4 119 1/2 119 3/4 120 120 1/4 120 1/2 120 3/4 121 121 1/4 121 1/2 121 3/4 122 122 1/4 122 1/2 122 3/4 123 123 1/4 123 1/2 123 3/4 124 124 1/4 124 1/2 124 3/4 125 125 1/4 125 1/2 125 3/4 126 126 1/4 126 1/2 126 3/4 127 127 1/4 127 1/2 127 3/4 128 128 1/4 128 1/2 128 3/4 129 129 1/4 129 1/2 129 3/4 130 130 1/4 130 1/2 130 3/4 131 131 1/4 131 1/2 131 3/4 132 132 1/4 132 1/2 132 3/4 133 133 1/4 133 1/2 133 3/4 134 134 1/4 134 1/2 134 3/4 135 135 1/4 135 1/2 135 3/4 136 136 1/4 136 1/2 136 3/4 137 137 1/4 137 1/2 137 3/4 138 138 1/4 138 1/2 138 3/4 139 139 1/4 139 1/2 139 3/4 140 140 1/4 140 1/2 140 3/4 141 141 1/4 141 1/2 141 3/4 142 142 1/4 142 1/2 142 3/4 143 143 1/4 143 1/2 143 3/4 144 144 1/4 144 1/2 144 3/4 145 145 1/4 145 1/2 145 3/4 146 146 1/4 146 1/2 146 3/4 147 147 1/4 147 1/2 147 3/4 148 148 1/4 148 1/2 148 3/4 149 149 1/4 149 1/2 149 3/4 150 150 1/4 150 1/2 150 3/4 15*

The boilers of this vessel have been built under Special Survey in accordance with the approved plans. The workmanship and materials are good. They have been efficiently mounted and fitted on board, together with the Turbines and Gears. (Hartlepool report No 15959). The whole of the machinery has been tried under working conditions and proved satisfactory.

In our opinion the vessel is eligible to have the notation of ~~U.S.~~ **U.S.** 8.22 made in the Register Book.

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

THE RECORD. + L.M.C. 8.22 F.D. C.L. 1004 N.H.

"Fitted for Oil Fuel" 8.22 F.P. above 150° F.

2 Steam Turbines geared to one screw shaft.

5/9/22

The amount of Entry Fee ... £	:	:	When applied for,
Special sub-protection £ 48	:	15-9	2-9 15-22
Donkey Boiler Fee ... £	:	:	When received,
Travelling Expenses (if any) £	:	:	28-9 22

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

Committee's Minute FRI. 8 SEP. 1922

Assigned

+ Prob. 8.22
T.D. C.L.
Landed for oil fuel 8.22
70° above 150° F