

## REPORT ON MACHINERY.

No. 15205.

Port of Greenock Received at London Office TUES. 15 OCT. 1907  
 No. in Survey held at Glasgow & Port Gls. Date, first Survey 13<sup>th</sup> June 1907 Last Survey 18<sup>th</sup> Sept 1907  
 Reg. Book. on the SCREW STEAMER "HELMSDALE" (Number of Visits 15)

Master                      Built at Port Glasgow By whom built A. Rodger & Co.  
 Engines made at Glasgow By whom made A. Rodger & Co.  
 Boilers made at Port Glasgow By whom made Clyde S.S. & Eng. Co. Ltd.  
 Registered Horse Power                      Owners E. C. Downing Esq.  
 Nom. Horse Power as per Section 28 305 Is Refrigerating Machinery fitted for cargo purposes ☒ Is Electric Light fitted yes

ENGINES, &c.—Description of Engines Triple Expansion No. of Cylinders 3 No. of Cranks 3  
 Dia. of Cylinders 24"-40"-65" Length of Stroke 42" Revs. per minute 65 Dia. of Screw shaft as per rule 13.735 Material of Steel  
 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 ☒ 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 yes If two  
 liners are fitted, is the shaft lapped or protected between the liners ☒ Length of stern bush 4'-7"  
 Dia. of Tunnel shaft as per rule 11.3548 Dia. of Crank shaft journals as per rule 11.4212.4 Dia. of Crank pin 12 1/2" Size of Crank webs 20"x8 1/2" Dia. of thrust shaft under  
 collars 12 1/2" Dia. of screw 16'-6" Pitch of Screw 17'-6" No. of Blades 4 State whether moveable no Total surface 80 ft<sup>2</sup>  
 No. of Feed pumps 2 Diameter of ditto 4" Stroke 21" Can one be overhauled while the other is at work yes  
 No. of Bilge pumps 2 Diameter of ditto 4" Stroke 21" Can one be overhauled while the other is at work yes  
 No. of Donkey Engines 3 Sizes of Pumps 8"x9"x8"x7"x5"x8" No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room 3-3 1/2" Engine Room well. In Holds, &c. 2 @ 3 1/2" to each hold  
Tunnel well 1 @ 3 1/2"  
 No. of Bilge Injections 1 sizes 6" Connected to condenser, or to circulating pump pump Is a separate Donkey Suction fitted in Engine room & size 1 @ 3 1/2"  
 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 none  
 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 none How are they protected ☒  
 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 29/8/07 of Stern Tube 29/8/07 Screw shaft and Propeller 29/8/07  
 Is the Screw Shaft Tunnel watertight yes Is it fitted with a watertight door yes worked from Top platform.

BOILERS, &c.—(Letter for record \$) Manufacturers of Steel Steel Co. of Scotland  
 Total Heating Surface of Boilers 4486 ft<sup>2</sup> Is Forced Draft fitted no No. and Description of Boilers 2: Open end Singly ended  
 Working Pressure 180 lb Tested by hydraulic pressure to 360 lb Date of test 29/8/07 No. of Certificate 846  
 Can each boiler be worked separately yes Area of fire grate in each boiler 64 sq. ft. No. and Description of Safety Valves to  
 each boiler 2: Dual Spring Area of each valve 9.42 Pressure to which they are adjusted 185 Are they fitted with easing gear yes  
 Smallest distance between boilers or uptakes and bunkers or woodwork 2 ft. Mean dia. of boilers 16' 0" Length 10' 6" Material of shell plates Steel  
 Thickness 1 1/2" Range of tensile strength 28 to 32 tons Are the shell plates welded or flanged no Descrip. of riveting: cir. seams Lap Double  
 long. seams Double Butt Lap Diameter of rivet holes in long. seams 1 1/8" Pitch of rivets 8 1/2" 4 1/2" Lap of plates or width of butt straps 1' 7 1/2"  
 Per centages of strength of longitudinal joint 89.3 Working pressure of shell by rules 180 lb Size of manhole in shell 16" x 12"  
 Size of compensating ring 33" x 24" x 1 1/2" No. and Description of Furnaces in each boiler 3: Deighton's Material Steel Outside diameter 50 1/2"  
 Length of plain part 6' 6" Thickness of plates 1 1/2" Description of longitudinal joint Weld No. of strengthening rings none  
 Working pressure of furnace by the rules 184 lb Combustion chamber plates: Material Steel Thickness: Sides 5" Back 3 1/2" Top 5" Bottom 4"  
 Pitch of stays to ditto: Sides 8" x 9" Back 8 1/2" x 7 1/2" Top 9" x 8" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 185 lb  
 Material of stays Steel Diameter at smallest part 1 3/8" Area supported by each stay 66" Working pressure by rules 180 lb End plates in steam space:  
 Material Steel Thickness 1 1/8" Pitch of stays 16 1/4" x 19" How are stays secured Double nuts Working pressure by rules 182 lb Material of stays Steel  
 Diameter at smallest part 2 5/8" Area supported by each stay 309" Working pressure by rules 184 Material of Front plates at bottom Steel  
 Thickness 3/4" Material of Lower back plate Steel Thickness 1 1/8" Greatest pitch of stays 13 1/4" Working pressure of plate by rules 183 lb  
 Diameter of tubes 3 1/4" Pitch of tubes 4 1/2" x 4 1/2" Material of tube plates Steel Thickness: Front 1 1/8" Back 3/4" Mean pitch of stays 11 1/4"  
 Pitch across wide water spaces 14 1/4" Working pressures by rules no Girders to Chamber tops: Material Steel Depth and  
 thickness of girder at centre 9 1/2" x 1 1/4" Length as per rule 35" Distance apart 9" Number and pitch of stays in each 3: 8"  
 Working pressure by rules 185 lb Superheater or Steam chest; how connected to boiler None Can the superheater be shut off and the boiler worked  
 separately                      Diameter                      Length                      Thickness of shell plates                      Material                      Description of longitudinal joint                      Diam. of rivet  
                     Pitch of rivets                      Working pressure of shell by rules                      Diameter of flue                      Material of flue plates                      Thickness                       
                     stiffened with rings                      Distance between rings                      Working pressure by rules                      End plates: Thickness                      How stayed                       
 Working pressure of end plates                      Area of safety valves to superheater                      Are they fitted with easing gear



# VERTICAL DONKEY BOILER—Manufacturers of Steel

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:—

2 Top & 2 Bottom End bolts for Connecting Rods 2 Main Bearing Bolts  
1 Set of Coupling Bolts. 1 Set of Feed & Bilge Valves. 1 Set of Piston Springs  
A quantity of assorted bolts & nuts & iron of various sizes

The foregoing is a correct description,

THE GLYDE SHIPBUILDING & ENGINEERING CO. LIMITED,

Manufacturer.

John Brown

Dates of Survey while building During progress of work in shops - 1907. June 13. 17. July. 1. 18. 23. 25. Aug. 5. 21. 23. 27. 29. Sep. 5. 16. 17. 18.  
During erection on board vessel - 1907. June 13. 17. July. 1. 18. 23. 25. Aug. 5. 21. 23. 27. 29. Sep. 5. 16. 17. 18.  
Total No. of visits 15 (Glas) 27 Gls.

Is the approved plan of main boiler forwarded herewith Yes

Dates of Examination of principal parts—Cylinders 29.8.07 Slides 28.9.07 Covers 21.8.07 Pistons 21.8.07 Rods 5.8.07  
Connecting rods 8.8.07 Crank shaft 8.8.07 Thrust shaft 8.8.07 Tunnel shafts 8.8.07 Screw shaft 8.8.07 Propeller 8.8.07  
Stern tube 5.8.07 Steam pipes tested 23/9/07 Engine and boiler seatings 21.9.07 Engines holding down bolts 21.9.07  
Completion of pumping arrangements 25.9.07 Boilers fixed 25.9.07 Engines tried under steam 3.10.07  
Main boiler safety valves adjusted 27.9.07 Thickness of adjusting washers 1/16 1/8 1/4 3/8 1/2 5/8 3/4 7/8 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 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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 3/4 151 151 1/4 151 1/2 151 3/4 152 152 1/4 152 1/2 152 3/4 153 153 1/4 153 1/2 153 3/4 154 154 1/4 154 1/2 154 3/4 155 155 1/4 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