

## REPORT ON MACHINERY.

No. 64588

SAT. 13 AUG 1910

Date of writing Report 27<sup>th</sup> July 1910 When handed in at Local Office -2 AUG 1910 Port ofNo. in Survey held at Birkenhead Date, First Survey 25 Aug Last Survey 27 July 1910  
Reg. Book. 1352 on the twin S.S. "Snaefell" (Number of Visits 8)Master Built at Birkenhead By whom built Cammell Laird & Co. Ltd. Tons { Gross Net  
When built 1910

Engines made at Birkenhead By whom made Cammell Laird &amp; Co. Ltd. when made 1910

Boilers made at ditto By whom made ditto when made 1910

Registered Horse Power Owners Isle of Man Steam Packet Co. Ltd. Port belonging to Douglas

Nom. Horse Power as per Section 28 670 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

ENGINES, &amp;c.—Description of Engines Triple expansion twin screw No. of Cylinders 8 No. of Cranks 8

Each engine Dia. of Cylinders 2 1/2-3 1/4-4 0-4 0 Length of Stroke 30" Revs. per minute Dia. of Screw shaft as per rule 11 3/32 Material of screw shaft Ingot Steel

Is the screw shaft fitted with a continuous liner the whole length of the stern tube no liners 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 If two

liners are fitted, is the shaft lapped or protected between the liners Cedervall's pat. gland fitted length of stern bush 4-5"

Dia. of Tunnel shaft as per rule 10 09 Dia. of Crank shaft journals as per rule 10 59 Dia. of Crank pin 11 3/8 Size of Crank webs 7 1/2 x 8 Dia. of thrust shaft under

collars 10 7/8 Dia. of screw 10 6 Pitch of Screws 12 9 No. of Blades 3 State whether moveable no Total surface 35 4 ft<sup>2</sup> each

No. of Feed pumps 2 Diameter of ditto 9" Stroke 24" Can one be overhauled while the other is at work yes Independent feed pumps

No. of Bilge pumps 2 Diameter of ditto 3 3/4 Stroke 16" Can one be overhauled while the other is at work yes

No. of Donkey Engines 2 duplex Sizes of Pumps 9 x 6 1/2 x 10 No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room One of 2 1/2" x two of 2" In Holds, &amp;c. two of 2" in each hold

two of 2" in each boiler room one of 2 1/2" in tunnel

No. of Bilge Injections 1 sizes 10" Connected to condenser, or to circulating pump C.P. Is a separate Donkey Suction fitted in Engine room &amp; size yes 2 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 24-5-10 of Stern Tube 11-2-10 Screw shaft and Propeller 24-5-10

Is the Screw Shaft Tunnel watertight see ship report it fitted with a watertight door yes worked from upper grating

BOILERS, &amp;c.—(Letter for record (70)) Manufacturers of Steel Steel Co. of Scotland

Total Heating Surface of Boilers 11158 Is Forced Draft fitted yes No. and Description of Boilers 4 single ended

Working Pressure 195 lbs. Tested by hydraulic pressure to 390 lbs. Date of test 18-2-10 No. of Certificate 1905

Can each boiler be worked separately yes Area of fire grate in each boiler 75 1/2 sq ft No. and Description of Safety Valves to

each boiler 2 direct spring Area of each valve 11 79 sq in Pressure to which they are adjusted 195 lbs Are they fitted with easing gear yes

Smallest distance between boilers or uptakes and bunkers or woodwork no side bunkers Int. dia. of boilers 15 0 Length 11 7 Material of shell plates Steel

Thickness 1 5/32 Range of tensile strength 28 1/2/32 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams D.R.L.

long. seams J.R.D.B.S. Diameter of rivet holes in long. seams 1 1/2 Pitch of rivets 9 3/4 Lap of plates or width of butt straps 21 1/16

Per centages of strength of longitudinal joint rivets 91 78 plate 84 61 Working pressure of shell by rules 225 lbs Size of manhole in shell 16 1/4 x 19 1/2

Size of compensating ring 9 x 1 1/2 No. and Description of Furnaces in each boiler 3 Morrison's Super Material Steel Outside diameter 41 2

Length of plain part top 21 Thickness of plates crown 32 Description of longitudinal joint welded No. of strengthening rings

Working pressure of furnace by the rules 214 Combustion chamber plates: Material Steel Thickness: Sides 32 Back 32 Top 32 Bottom 16

Pitch of stays to ditto: Sides 7 1/2 x 7 1/2 Back 8 1/2 x 7 1/2 Top 7 1/2 x 7 1/2 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 212

Material of stays Iron Area Diameter at smallest part 1 722 Area supported by each stay 60 84 Working pressure by rules 195 End plates in steam space:

Material Steel Thickness 1 Pitch of stays 15 1/2 x 15 1/2 How are stays secured D.R.W. Working pressure by rules 197 Material of stays Steel

Diameter at smallest part 2 5/8 Area supported by each stay 232 5 Working pressure by rules 242 Material of Front plates at bottom Steel

Thickness 1 Material of Lower back plate Steel Thickness 1 Greatest pitch of stays 13 5/8 x 6 Working pressure of plate by rules 311

Diameter of tubes 2 1/2 Pitch of tubes 3 1/2 x 3 1/2 Material of tube plates Steel Thickness: Front 1 Back 13/16 Mean pitch of stays 7 x 7

Pitch across wide water spaces 13 1/2 Working pressures by rules 211 Girders to Chamber tops: Material Steel Depth and

thickness of girder at centre 7 1/4 x 1 1/2 Length as per rule 31 19/32 Distance apart 7 1/4 Number and pitch of stays in each three 7 1/2

Working pressure by rules 196 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



# VERTICAL DONKEY BOILER—

Manufacturers of Steel

No. \_\_\_\_\_ Description None  
 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 Saf \_\_\_\_\_  
 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 sets of bolts & nuts for connecting rods & piston  
2 main bearing bolts and nuts, 1 set coupling bolts & nuts, 2 sets of feet  
and bilge pump valves, 1 set piston springs, 2 pair piston rod braces  
2 pair connecting rod braces, 1 centrifugal circulating pump impeller  
 The foregoing is a correct description,

Manufacturer.

G. W. P. Laird  
 MANAGER

Dates of Survey while building  
 During progress of work in shops— 1909. Aug 25. 30. Sep 8. 15. 22. Oct 4. 13. 18. 25. 28. Nov 1. 4. 10. 11. 12. 17. 18. 19. 23. 24. 26. 27. 29. 30. Dec 1. 7. 9. 10. 13.  
 During erection on board vessel— 1910. Jan 11. 15. 17. 25. 26. 31. Feb 8. 9. 11. 14. 15. 18. 21. 22. 25. Mar 1. 4. 8. 9. 10. 11. 14. 22. 30. Apr 6. 6. 7. 9. 11. 12.  
 Total No. of visits 20. 25. 28. May 2. 9. 12. 19. 24. 30. June 6. 9. 14. 17. July 6. 13. 18. 19. 20. 23. 25. 26. 27. 28. 29. 30. 31. Aug 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. Sep 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. Oct 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. Nov 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. Dec 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31.  
 Is the approved plan of main boiler forwarded herewith Yes

Dates of Examination of principal parts—Cylinders 14/3 Slides 11/3/10 Covers 1/3/10 Pistons 8/3/10 Rods 30/3/10  
 Connecting rods 30/3/10 Crank shaft 25/2 Thrust shaft 25/2/10 Tunnel shafts 25/2/10 Screw shaft 19/5/10 Propeller 19/5/10  
 Stern tube 9/2/10 Steam pipes tested 24/5 Thrust Engine and boiler seatings 9/2/10 Engines holding down bolts 9/5/10  
 Completion of pumping arrangements 30/5/10 Boilers fixed 9/5/10 Engines tried under steam 9/5/10  
 Main boiler safety valves adjusted 6/6/10 Thickness of adjusting washers F.P. A 5/2 F.S.A 5/2 A.P.A 5/2 A.S  
 Material of Crank shaft Ingot S. Identification Mark on Do. RLA Material of Thrust shaft Ingot S. Identification Mark on Do. 178D F.C.  
 Material of Tunnel shafts Ingot S. Identification Marks on Do. 17PD F.C. Material of Screw shafts Ingot S. Identification Marks on Do. 178D F.C.  
 Material of Steam Pipes Steel, solid drawn. Test pressure 580 lbs.

General Remarks (State quality of workmanship, opinions as to class, &c. This vessel's machinery has been built under Special Survey. The materials and workmanship are good and efficient. On completion it has been tried under full steam satisfactorily, and in our opinion is eligible to have the record L.M.C. 7.10. Forced draught is fitted on the closed stokehold system. At the first official trial trip owing to shortness of water in the starboard after boiler the combustion chambers were seriously damaged, and have been repaired as follows. In the starboard chamber the top, back, one side, and the tube plate renewed, and one side faired. In the centre chamber the top and tube plate renewed and the back faired. In the port chamber the top, and back and tube plate renewed and side faired. All tubes renewed and all screwed stays in way of damage renewed. To effect repairs the top half of front end plate removed. On completion the boiler tested to 39 lbs and afterwards run under steam.

The amount of Entry Fee... £ 3 : 0 : 0 When applied for, 12 AUG 1910  
 Special... £ 53 : 10 : 0 When received, 12 AUG 1910  
 Donkey Boiler Fee... £ 1 : 0 : 0  
 Travelling Expenses (if any) £ ✓  
 Committee's Minute LIVERPOOL  
 Assigned L.M.C. 7.10 F.D.  
 When Fee is Paid.