

# REPORT ON MACHINERY.

Received at London Office

WED. 17 FEB 1909

Date of writing Report 19 When handed in at Local Office 13<sup>th</sup> Feb 1909 Port of Glasgow  
 No. in Survey held at Glasgow Date, First Survey 24<sup>th</sup> Aug 1908 Last Survey 8<sup>th</sup> Feb 1909  
 Reg. Book. 49 Sub: on the S.S. "Beothic" (Number of Visits 39)  
 Master Built at Glasgow By whom built D.W. Henderson & Co when built 1909  
 Engines made at Glasgow By whom made D.W. Henderson & Co when made 1909  
 Boilers made at Glasgow By whom made D.W. Henderson & Co when made 1909  
 Registered Horse Power 328 Owners Job Bros Port belonging to St John's NFL  
 Nom. Horse Power as per Section 28 328 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted yes

**ENGINES, &c.**—Description of Engines Triple expansion No. of Cylinders Three No. of Cranks Three  
 Dia. of Cylinders 22" 36" 59" Length of Stroke 39" Revs. per minute 107 Dia. of Screw shaft as per rule 11.7" Material of screw shaft as fitted 14" 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 length 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 Length of stern bush 60"  
 Dia. of Tunnel shaft as per rule 10.8" Dia. of Crank shaft journals as per rule 11.3" Dia. of Crank pin 12.2" Size of Crank webs 15" x 4 3/4" Dia. of thrust shaft under collars 12 1/2" Dia. of screw 14.0" Pitch of Screw 13-9 No. of Blades 4 State whether moveable yes Total surface 739"  
 No. of Feed pumps 2 Diameter of ditto 3 3/4" Stroke 21" Can one be overhauled while the other is at work yes  
 No. of Bilge pumps 2 Diameter of ditto 3 3/4" Stroke 21" Can one be overhauled while the other is at work yes  
 No. of Donkey Engines 3 Sizes of Pumps 7" x 5" x 8", 8" x 8" x 8", 6" x 5" x 6" No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room three 2 1/2" In Holds, &c. two in each hold 2 1/2"  
 No. of Bilge Injections 1 sizes 6 1/2" Connected to condenser, or to circulating pump pump Is a separate Donkey Suction fitted in Engine room & 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 now  
 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 bilge pipes and How are they protected by wood casings  
 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 19/12/08 of Stern Tube 19/12/08 Screw shaft and Propeller 19/12/08  
 Is the Screw Shaft Tunnel watertight yes Is it fitted with a watertight door yes worked from main deck

**BOLLERS, &c.**—(Letter for record 5318) Manufacturers of Steel Tom Beardmore & Co Ltd  
 Total Heating Surface of Boilers 4015.16 Is Forced Draft fitted yes No. and Description of Boilers 2 cylindrical return tube  
 Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 10/12/08 No. of Certificate 9762  
 Can each boiler be worked separately yes Area of fire grate in each boiler 55.09 sq ft No. and Description of Safety Valves to each boiler 1 pair direct spring Area of each valve 14.18 sq in Pressure to which they are adjusted 180 lbs Are they fitted with easing gear yes  
 Smallest distance between boilers or uptakes and bunkers or woodwork 18" Mean dia. of boilers 14.0" Length 11' 6" Material of shell plates steel  
 Thickness 1 1/8" Range of tensile strength 28/32 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams double lap long. seams table both Diameter of rivet holes in long. seams 1 3/16" Pitch of rivets 8 7/16" Lap of plates or width of butt straps 16 5/8"  
 Per centages of strength of longitudinal joint rivets 86.7 plate 85.9 Working pressure of shell by rules 180 lbs Size of manhole in shell 16" x 12"  
 Size of compensating ring 29 1/2" x 25 1/2" No. and Description of Furnaces in each boiler 3 Brighton Material steel Outside diameter 44 5/16"  
 Length of plain part top 17" Thickness of plates crown 17" Description of longitudinal joint weld No. of strengthening rings bottom 32  
 Working pressure of furnace by the rules 180 Combustion chamber plates: Material steel Thickness: Sides 5/8" Back 3/4" Top 9/8" Bottom 7/8"  
 Pitch of stays to ditto: Sides 8 1/2" x 8 1/2" Back 9" x 9" Top 9" x 8" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 184 lbs  
 Material of stays steel Diameter at smallest part 1.686 Area supported by each stay 725 Working pressure by rules 187 1/2 End plates in steam space:  
 Material steel Thickness 1 5/32" Pitch of stays 18" x 18 1/4" How are stays secured 2 nuts Working pressure by rules 184 Material of stays steel  
 Diameter at smallest part 5 7/8" Area supported by each stay 328 1/2 Working pressure by rules 184 Material of Front plates at bottom steel  
 Thickness 1 5/16" Material of Lower back plate steel Thickness 1 3/16" Greatest pitch of stays 13 1/8" Working pressure of plate by rules 180  
 Diameter of tubes 2 1/2" Pitch of tubes 3 1/8" x 3 3/4" Material of tube plates steel Thickness: Front 1 3/32" x 5/16" Back 1/4" Mean pitch of stays 9 2/16"  
 Pitch across wide water spaces 14 1/2 Working pressures by rules 195 9 243 Girders to Chamber tops: Material steel Depth and thickness of girder at centre 7 1/2" x 1" Length as per rule 28 1/2" Distance apart 9" Number and pitch of stays in each (2) 8"  
 Working pressure by rules 219 Superheater or Steam chest; how connected to boiler now 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 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  
 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 *Iron*

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 \_\_\_\_\_

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:— *Four top end bolts & nuts, 2 bottom end bolts & nuts, 1 set of coupling bolts & nuts, 2 main bearing bolts & nuts, 1 cut & riveted bolts & nuts & iron, 1 set of valves and seats for fuel and belp pumps, 1 propeller shaft, 1 propeller, 1 set Ramsbottom pump for H.P. piston.*

The foregoing is a correct description,  
 For DAVID & WILLIAM HENDERSON & CO., LIMITED.  
*D. W. Henderson* Manufacturer.

Dates { During progress of work in shops - - } 1908. Aug. 21. 24. Sep. 3. 5. 8. 11. 14. 15. 19. 24. Oct. 6. 7. 15. 21. Nov. 3. 13.  
 { During erection on board vessel - - } 19. 21. 24. 26. Dec. 7. 9. 10. 11. 15. 19. 28. 30 1909. Jan. 6. 7. 13. 14. 18. 20. 21. 22. 28.  
 { while building } Feb. 3. 8.  
 Total No. of visits... 39.

Is the approved plan of main boiler forwarded herewith *Yes*

Dates of Examination of principal parts—Cylinders *13/11/08* Slides *14/9/08* Covers *14/9/08* Pistons *14/9/08* Rods *21/10/08*  
 Connecting rods *21/10/08* Crank shaft *15/10/08* Thrust shaft *15/10/08* Tunnel shafts *15/10/08* Screw shaft *15/10/08* Propeller *9/12/08*  
 Stern tube *9/12/08* Steam pipes tested *7/1/09* Engine and boiler seatings *9/12/08* Engines holding down bolts *28/12/08*  
 Completion of pumping arrangements *18/1/09* Boilers fixed *6/1/09* Engines tried under steam *28/1/09*  
 Main boiler safety valves adjusted *21/1/09* Thickness of adjusting washers *M.B.P. 32 S. 13 S. 7 S. 15* *Qualy Bolts P 21 S 4*  
 Material of Crank shaft *Steel* Identification Mark on Do. *3952* Material of Thrust shaft *Steel* Identification Mark on Do. *4015-4171*  
 Material of Tunnel shafts *Steel* Identification Marks on Do. *See report* Material of Screw shafts *Steel* Identification Marks on Do. *706186-2077*  
 Material of Steam Pipes *Copper (brayed joint)* Test pressure *400 lbs.*

General Remarks (State quality of workmanship, opinions as to class, &c.) *These engines and boilers have been built under special survey the materials and workmanship are of good description, they have been well fitted on board and tried under steam. In my opinion the machinery of this vessel is eligible to have notification of F.L.M.C 2.09 in the Register Book.*

It is submitted that this vessel is eligible for THE RECORD. **F.L.M.C 2.09**  
 2 SB (FD) 1 Aux SB. Elec Light.

*See later Rpt Bl 49*

The amount of Entry Fee .. £ 3 : :  
 Special .. £ 36 : :  
 Donkey Boiler Fee .. £ : :  
 Travelling Expenses (if any) £ : :  
 Committee's Minute

When applied for, 15/2/09  
 When received, 17/2/09

GLASGOW 10 FEB. 1909

Assigned + LMC 2.09  
 FD.

*A. M. Keand*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.



Certificate (if required) to be sent to Glasgow.

The Surveyors are requested not to write on or below the space for Committee's Minute.