

# REPORT ON MACHINERY.

ED FROM  
MEMOR. 29 MAY 1906

Port of LIVERPOOL.

Received at London Office WED. 30 MAY 1906

No. in Survey held at Liverpool  
Reg. Book 22 Supp. the "Iris"

Date, first Survey 4 Oct 1905 Last Survey 26 May 1906  
(Number of Visits 56)

Master Built at Newcastle By whom built H. Stephenson & Co. Ltd  
Engines made at Liverpool By whom made D. Hall & Sons.  
Boilers made at Liverpool By whom made D. Hall & Sons.  
Registered Horse Power 217 Owners Wallace & Co. District Council  
Nom. Horse Power as per Section 28 148 Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted Yes.

ENGINES, &c.—Description of Engines Triple Expansion No. of Cylinders 6 No. of Cranks 6  
Dia. of Cylinders 16"-24"-41" Length of Stroke 21" Revs. per minute 140 Dia. of Screw shaft as per rule 4.94" Material of screw shaft as fitted 8 1/2" steel  
Is the screw shaft fitted with a continuous liner the whole length of the stern tube No. 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 No 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 Yes Length of stern bush 3'-0"  
Dia. of Tunnel shaft as per rule 4.04" as fitted 4 1/2" Dia. of Crank shaft journals as per rule 4.42" as fitted 4 1/2" Dia. of Crank pin 4 1/2" Size of Crank webs 9x5" Dia. of thrust shaft under collars 4 1/2" Dia. of screw 4'-6" Pitch of Screw 10'-6" No. of Blades 3 State whether moveable No Total surface 23.6 sq ft  
No. of Feed pumps 2 Diameter of ditto 5 1/2" Stroke 15" Can one be overhauled while the other is at work Yes.  
No. of Bilge pumps 2 Diameter of ditto 3 1/2" Stroke 4 1/2" Can one be overhauled while the other is at work Yes.  
No. of Donkey Engines 1 Sizes of Pumps 5 1/4" x 3 1/4" x 10" No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room 2-2" dia. In Holds, &c. 12-2" dia.

No. of Bilge Injections 6 sizes 6" Connected to condenser, or to circulating pump pump Is a separate Donkey Suction fitted in Engine room & size 1-2" dia.  
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 Yes  
Are all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks Valves and cocks  
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  
Date of examination of completion of fitting of Sea Connections 19/4/06. of Stern Tube 28/4/06. Screw shaft and Propeller 28/4/06.  
Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door worked from

BOILERS, &c.—(Letter for record 3) Manufacturers of Steel The Steel Co. of Scotland.  
Total Heating Surface of Boilers 4054 sq ft Is Forced Draft fitted No No. and Description of Boilers Two cylindrical multitubular  
Working Pressure 180 lbs. Tested by hydraulic pressure to 360 lbs. Date of test 12/2/06 No. of Certificate 1494  
Can each boiler be worked separately Yes Area of fire grate in each boiler 58.5 sq ft No. and Description of Safety Valves to each boiler Two direct spring Area of each valve 9.6 sq ft Pressure to which they are adjusted 185 lbs. Are they fitted with easing gear Yes  
Smallest distance between boilers or uptakes and bunkers or woodwork 9" Mean dia. of boilers 10'-3" Length 14'-0" Material of shell plates Steel  
Thickness 15/16" Range of tensile strength 28/32 Are the shell plates welded or flanged No Descrip. of riveting: cir. seams D.H. lap long. seams L.R. & butts Diameter of rivet holes in long. seams 1" Pitch of rivets 6 3/4" Lap of plates or width of butt straps 1'-2 1/2"  
Per centages of strength of longitudinal joint rivets 92. plate 85.1 Working pressure of shell by rules 188 lbs. Size of manhole in shell 16" x 12"  
Size of compensating ring 4 1/2" x 15/16" No. and Description of Furnaces in each boiler 2 Heights as Material steel Outside diameter 3'-4 1/4"  
Length of plain part top bottom Thickness of plates crown 14/32" Description of longitudinal joint welded No. of strengthening rings  
Working pressure of furnace by the rules 189 Combustion chamber plates: Material steel Thickness: Sides 9/16" Back 1 1/16" Top 9/16" Bottom 9/16"  
Pitch of stays to ditto: Sides 4 3/4" Back 15 3/4" Top 4 3/4" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 182 lbs.  
Material of stays steel Diameter at smallest part 1 3/8" Area supported by each stay 60 sq in Working pressure by rules 194 End plates in steam space: Material steel Thickness 1" Pitch of stays 15 1/2" x 15 1/2" How are stays secured Nuts & washers Working pressure by rules 225 Material of stays steel  
Diameter at smallest part 5.05" Area supported by each stay 245 sq in Working pressure by rules 202 Material of Front plates at bottom steel  
Thickness 1" Material of Lower back plate steel Thickness 1" Greatest pitch of stays 14" Working pressure of plate by rules 196 lbs.  
Diameter of tubes 3" Pitch of tubes 4 1/8" x 4 1/2" Material of tube plates steel Thickness: Front 1" Back 1" Mean pitch of stays 8 3/8"  
Pitch across wide water spaces 14" Working pressures by rules 196 lbs. Girders to Chamber tops: Material steel Depth and thickness of girder at centre 9 1/2" x 12" Length as per rule 2'-4" Distance apart 4 3/4" Number and pitch of stays in each 3-4 3/4"  
Working pressure by rules 240 lbs. Superheater or Steam chest; how connected to boiler 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 \_\_\_\_\_

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:— Spare propeller shaft, stern push, 12 coupling bolts, 2 top & 2 bottom end bolts & nuts, 2 main bearing bolts & nuts, eccentric & strap, 2 pair connecting rod brasses, feed & bilge pump valves, propeller.

The foregoing is a correct description,

Manufacturer.

*David Ross & Sons*

1905. Oct. 4. 13. 21. 24. 30. Nov. 3. 7. 11. 20. 21. 27. Dec. 1. 6. 12. 15. 15. 16. 22. 24. 30.

1906. Jan. 11. 19. 24. 24. 23. 26. 27. 31. Feb. 2. 8. 12. 13. 14. 17. 20. 21. 26. No. Feb. 5. 6. 12. 14. 20. 21. 26.

Total No. of visits 56. 31. Apr. 10. 19. 25. 26. 28. 30. May 3. 16. 22. Is the approved plan of main boiler forwarded herewith  Yes.

Dates of Examination of principal parts—Cylinders 1/12/05 Slides 8/12/05 Covers 8/12/05 Pistons 8/12/05 Rods 8/12/05

Connecting rods 8/12/05 Crank shaft 26/2/06 Thrust shaft 2/1/06 Tunnel shafts 8/2/06 Screw shaft 6/3/06 Propeller 19/4/06.

Stern tube 19/4/06 Steam pipes tested 30/4/06. Engine and boiler seatings 19/4/06 Engines holding down bolts 3/5/06.

Completion of pumping arrangements 3/5/06. Boilers fixed 3/5/06. Engines tried under steam 22/5/06.

Main boiler safety valves adjusted 22/5/06. Thickness of adjusting washers P. 3/8 - 3/8 + 5/16 3/8.

Material of Crank shaft *Steel* Identification Mark on Do. *1041344* Material of Thrust shaft *Steel* Identification Mark on Do. *1041344*

Material of Tunnel shafts *Steel* Identification Marks on Do. *1041344* Material of Screw shafts *Steel* Identification Marks on Do. *1041344*

Material of Steam Pipes *Copper* Test pressure *360 lbs.*

General Remarks (State quality of workmanship, opinions as to class, &c.)

The machinery of this vessel has been built under special survey, the material and workmanship are of good description, the boilers have been tested by hydraulic pressure to 360 lbs and found satisfactory and the safety valves adjusted under steam to 185 lbs., the engines have been tried under steam and found satisfactory.

The vessel is in our opinion <sup>eligible</sup> for the notification + h. M. C. 5, 06.

It is submitted that this vessel is eligible for THE RECORD F.L.M.C. 5-06. ELEC: LIGHT.

*J. L. Davidson & J. H. Ashlow*  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

The amount of Entry Fee..	£ 2 : 0 : 0	When applied for, 29 MAY 1906 Not Det. When received, 9.6.06
Special .. .. .	£ 26 : 14 : 0	
Donkey Boiler Fee .. .	£ : : :	
Travelling Expenses (if any) £	: : :	

Committee's Minute LIVERPOOL: 29 MAY 1906

Assigned Transmit to London.

WED. 6 JUN 1906

Lloyd's Register Foundation

MACHINERY CERTIFICATE WRITTEN.

Certificate (if required) to be sent to (The Surveyors are requested not to write on or below the space for Committee's Minute.)