

# REPORT ON MACHINERY.

No. 35647

Received at London Office WED. 15 DEC. 1915

Date of writing Report *16* When handed in at Local Office *10* Port of *Glasgow*

No. in Survey held at *Glasgow* Date, First Survey *15/4/14* Last Survey *7th October 1915*  
 Reg. Book. *1050 on the* *M.S. BOSTONIAN* (Number of Visits *87*) Gross *6225.03*  
 Net *3963.55*

Master *J. J. Key* 1912-1915 Built at *Glasgow* By whom built *Harland & Wolff Ltd* When built *1915*

Engines made at *Glasgow* By whom made *Burmeister & Wain* when made *1915*

Boilers made at *Annan* By whom made *Cochran* when made *1914-12*

Registered Horse Power \_\_\_\_\_ Owners *7 Leyland & Co Ltd* Port belonging to *Liverpool*

Nom. Horse Power as per Section 28 *534* Is Refrigerating Machinery fitted for cargo purposes *No* Is Electric Light fitted *Yes*

**ENGINES, &c.**—Description of Engines *Two screw driven four stroke cycle* No. of Cylinders *12* No. of Cranks *12*

Dia. of Cylinders *24 3/4" (24.80)* Length of Stroke *33 1/2" (33.46)* Revs. per minute *130* Dia. of Screw shaft *as per rule 298 3/4" (298.75)* Material of screw shaft *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 *Continuous* 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 *Two fits whole length* liners are fitted, is the shaft lapped or protected between the liners *Yes* Length of stern bush *5-8"*

Dia. of Tunnel shaft *as per rule 279 3/4" (279.75)* Dia. of Crank shaft journals *as per rule 359 3/4" (359.75)* Dia. of Crank pin *390 3/4" (390.75)* Size of Crank web *21 1/2 x 7 3/8"* Dia. of thrust shaft under collars *326 3/4" (326.75)* Dia. of screw *12-6"* Pitch of Screw *9-9"* No. of Blades *3* State whether moceable *Yes* Total surface *48 1/2"*

No. of Feed pumps \_\_\_\_\_ Diameter of ditto \_\_\_\_\_ Stroke \_\_\_\_\_ Can one be overhauled while the other is at work \_\_\_\_\_

No. of Bilge pumps *Two* Diameter of ditto *8"* Stroke *8"* Can one be overhauled while the other is at work *Yes*

No. of Donkey Engines *Two* Sizes of Pumps \_\_\_\_\_ No. and size of Suctions connected to both Bilge and Donkey pumps \_\_\_\_\_

In Engine Room *Three 3 1/2" Three 5"* In Holds, &c. *No. 1 Two 3 1/2" No. 2 Two 3 1/2" No. 3 Two 3 1/2"*

No. of Bilge Injections *Two* Connected to *condensers* to circulating pump *Yes* Is a separate Donkey Suction fitted in Engine room & size *5"*

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 *stakehold* plates *Yes* 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 *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 *13-1-15, 11-11-15* of Stern Tube *13-1-15* Screw shaft and Propeller *13-1-15*

Is the Screw Shaft Tunnel watertight *Yes* Is it fitted with a watertight door *Yes* worked from *Main Deck*

**BOILERS, &c.**—(Letter for record) \_\_\_\_\_ Manufacturers of Steel \_\_\_\_\_

Total Heating Surface of Boilers \_\_\_\_\_ Is Forced Draft fitted \_\_\_\_\_ No. and Description of Boilers \_\_\_\_\_

Working Pressure \_\_\_\_\_ Tested by hydraulic pressure to \_\_\_\_\_ Date of test \_\_\_\_\_ No. of Certificate \_\_\_\_\_

Can each boiler be worked separately \_\_\_\_\_ Area of fire grate in each boiler \_\_\_\_\_ No. and Description of Safety Valves to each boiler \_\_\_\_\_

Area of each valve \_\_\_\_\_ Pressure to which they are adjusted \_\_\_\_\_ Are they fitted with easing gear \_\_\_\_\_

Smallest distance between boilers or uptakes and bunkers or woodwork \_\_\_\_\_ Mean dia. of boilers \_\_\_\_\_ Length \_\_\_\_\_ Material of shell plates \_\_\_\_\_

Thickness \_\_\_\_\_ Range of tensile strength \_\_\_\_\_ Are the shell plates welded or flanged \_\_\_\_\_ Descrip. of riveting: cir. seams \_\_\_\_\_

long. seams \_\_\_\_\_ Diameter of rivet holes in long. seams \_\_\_\_\_ Pitch of rivets \_\_\_\_\_ Lap of plates or width of butt straps \_\_\_\_\_

Per centages of strength of longitudinal joint \_\_\_\_\_ Working-pressure of shell by rules \_\_\_\_\_ Size of manhole in shell \_\_\_\_\_

Size of compensating ring \_\_\_\_\_ No. and Description of Furnaces in each boiler \_\_\_\_\_ Material \_\_\_\_\_ Outside diameter \_\_\_\_\_

Length of plain part \_\_\_\_\_ Thickness of plates \_\_\_\_\_ Description of longitudinal joint \_\_\_\_\_ No. of strengthening rings \_\_\_\_\_

Working pressure of furnace by the rules \_\_\_\_\_ Combustion chamber plates: Material \_\_\_\_\_ Thickness: Sides \_\_\_\_\_ Back \_\_\_\_\_ Top \_\_\_\_\_ Bottom \_\_\_\_\_

Pitch of stays to ditto: Sides \_\_\_\_\_ Back \_\_\_\_\_ Top \_\_\_\_\_ If stays are fitted with nuts or riveted heads \_\_\_\_\_ Working pressure by rules \_\_\_\_\_

Material of stays \_\_\_\_\_ Diameter at smallest part \_\_\_\_\_ Area supported by each stay \_\_\_\_\_ Working pressure by rules \_\_\_\_\_ End plates in steam space: \_\_\_\_\_

Material \_\_\_\_\_ Thickness \_\_\_\_\_ Pitch of stays \_\_\_\_\_ How are stays secured \_\_\_\_\_ Working pressure by rules \_\_\_\_\_ Material of stays \_\_\_\_\_

Diameter at smallest part \_\_\_\_\_ Area supported by each stay \_\_\_\_\_ Working pressure by rules \_\_\_\_\_ Material of Front plates at bottom \_\_\_\_\_

Thickness \_\_\_\_\_ Material of Lower back plates \_\_\_\_\_ Thickness \_\_\_\_\_ Greatest pitch of stays \_\_\_\_\_ Working pressure of plate by rules \_\_\_\_\_

Diameter of tubes \_\_\_\_\_ Pitch of tubes \_\_\_\_\_ Material of tube plates \_\_\_\_\_ Thickness: Front \_\_\_\_\_ Back \_\_\_\_\_ Mean pitch of stays \_\_\_\_\_

Pitch across wide water spaces \_\_\_\_\_ Working pressures by rules \_\_\_\_\_ Girders to Chamber tops: Material \_\_\_\_\_ Depth and thickness of girder at centre \_\_\_\_\_ Length as per rule \_\_\_\_\_ Distance apart \_\_\_\_\_ Number and pitch of stays in each \_\_\_\_\_

Working pressure by rules \_\_\_\_\_ 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 \_\_\_\_\_

Is a Report also sent on the Hull of the ship?

Archives copy filed 17.26.



IS A DONKEY BOILER FITTED? *Yes*

If so, is a report now forwarded? *See separate list*

SPARE GEAR. State the articles supplied: *see separate list*

The foregoing is a correct description  
FOR THE BURMEISTER AND WAIN (DIESEL SYSTEM)  
OIL ENGINE COMPANY, LIMITED.

*FBR*

Manufacturer.

Dates of Survey while building  
During progress of work in shops - - *1914 Apr 13-27 Jun 23 July 3-13-14-30 Aug 14-17-27 Sept 2-10-17-18-22-23-30 Oct 5-7-12-15-26 Nov 24-5-12*  
During erection on board vessel - - - *Dec 4-10-14-16-23-29 1915 Jan 6-13-20-25-27-29 Feb 3-10-17 Mar 5-16-17-24-31 Apr 9-16-21-28 May 3-6-10-12-21-25-28*  
Total No. of visits *84*

Is the approved plan of main boiler forwarded herewith

Dates of Examination of principal parts - Cylinders *20-1-15* Slides  Covers *16-4-15* Pistons *16-3-15* Rods *17-3-15*

Connecting rods *17-3-15* Crank shaft *17-3-15* Thrust shaft *4-11-14* Tunnel shafts *26-11-14* Screw shaft *13-1-15* Propeller *13-1-15*  
*(at Belfast)*

Stern tube *13-1-15* Steam pipes tested  Engine and boiler seatings *29-9-15* Engines holding down bolts *29-9-15*

Completion of pumping arrangements *26-11-15* DONKEY Boilers fixed *5-11-15* Engines tried under steam *17-11-15 7-12-15*

Main boiler safety valves adjusted *25-11-15* Thickness of adjusting washers *Starboard 44" Port 46"*

Material of Crank shaft *Steel* Identification Mark on Do. *17-2-15* Material of Thrust shaft *Steel* Identification Mark on Do. *No 466*

Material of Tunnel shafts *Steel* Identification Marks on Do. *RJB 26-11-14* Material of Screw shafts *Steel* Identification Marks on Do. *RJB 26-11-14*

Material of Steam Pipes  Test pressure

Is an installation fitted for burning oil fuel? *Yes in Donkey boiler* Is the flash point of the oil to be used over 150°F. *Yes*

Have the requirements of Section 49 of the Rules been complied with *Yes*

Is this machinery duplicate of a previous case *no* If so, state name of vessel

General Remarks (State quality of workmanship, opinions as to class, &c.) *The materials and workmanship are good. The machinery has been built under special survey in accordance with the approved plans and the requirements of the rules and has been tried at full power and found to work well and is eligible in our opinion to be classed with record of + LMC 12-15*

It is submitted that this vessel is eligible for THE RECORD, + LMC 12. 15. 534 N.H.

Oil Engines. 12 Cy. 24 13/16" - 33 1/2" 45C. SA.  
Burmeister & Wain Gls. D.B. 100hp. (Annual Survey)

The amount of Entry Fee ... £ 3 : 0 :  
Special ... £ 46 : 14 :  
Donkey Boiler Fee ... £ : :  
Travelling Expenses (if any) £ : :  
When applied for, 10/12/1915  
When received, 14/12/1915

*Jas Easthope*  
16/12/15  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute GLASGOW 14 DEC. 1915

Assigned + L.M.C. 12 15  
(Oil Eng.)



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