

## REPORT ON MACHINERY.

No. 22247

Port of Glasgow

Received at London Office

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No. in Survey held at  
Reg. Book.Date, first Survey 28<sup>th</sup> AprilLast Survey 31<sup>st</sup> Oct 1902

(Number of Visits)

on the

Glasgow  
SS "Saint Irene"Tons } Gross  
NetMaster James Hantley Built at Dumbarton By whom built A. McMillan & Son Ltd When built 1904Engines made at Glasgow By whom made Dunsmuir & Jackson Ltd when made 1904Boilers made at Do. By whom made Do. when made 1904Registered Horse Power — Owners Rankine & Milnour Port belonging to GlasgowNom. Horse Power as per Section 28 320 Is Refrigerating Machinery fitted No. Is Electric Light fitted No.

## ENGINES, &amp;c.—Description of Engines

Triple expansionNo. of Cylinders 3 No. of Cranks 3Dia. of Cylinders 24" 40" 65" Length of Stroke 45" Revs. per minute 65 Dia. of Screw shaft as per rule 13.56" Material of IronIs 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 tightin 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 partbetween the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive Yes If twoliners are fitted, is the shaft lapped or protected between the liners Yes Length of stern bush 4'-7"Dia. of Tunnel shaft as per rule 12.11" Dia. of Crank shaft journals as per rule 12.72" Dia. of Crank pin 13" Size of Crank webs 24 1/2 x 8 1/2" Dia. of thrust shaft undercollars 13 1/2" Dia. of screw 16-6" Pitch of screw 18-3" No. of blades 4 State whether moveable No Total surface 90 sqNo. of Feed pumps 2 Diameter of ditto 3 1/4" Stroke 24" Can one be overhauled while the other is at work YesNo. of Bilge pumps 2 Diameter of ditto 4" Stroke 24" Can one be overhauled while the other is at work YesNo. of Donkey Engines 3 Sizes of Pumps S.D. 6 x 4 1/2" Ballast 9 x 10" No. and size of Suctions connected to both Bilge and Donkey pumpsIn Engine Room 4 at 3 1/2" 5 x 3 1/2 x 6" In Holds, &c. No. 1 hold 2 at 3 1/2" No. 2 hold 2 at 3 1/2"No. of bilge injections 1 sizes 5" Connected to condenser, or to circulating pump Yes a separate donkey suction fitted in Engine room & size Yes 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 —Are all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks bothAre 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 aboveAre 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 YesWhat pipes are carried through the bunkers See plan (B) How are they protected —Are all pipes, cocks, valves, and pumps in connection with the machinery and all boiler mountings accessible at all times YesAre the bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges YesWhen were stern tube, propeller, screw shaft, and all connections examined in dry dock not docked Is the screw shaft tunnel watertight YesIs it fitted with a watertight door Yes worked from Eng. room to platform

## BOILERS, &amp;c.—

(Letter for record (7))Total Heating Surface of Boilers 4104 sq Is forced draft fitted YesNo. and Description of Boilers 2 Cyl. single ended Working Pressure 180 lb. Tested by hydraulic pressure to 360 lb.Date of test 9.9.04 Can each boiler be worked separately Yes Area of fire grate in each boiler 51.19 sq No. and Description of safety valves toeach boiler 2 Direct spring loaded Area of each valve 8.29 sq Pressure to which they are adjusted 185 lb. Are they fitted with easing gear YesSmallest distance between boilers or uptakes and bunkers or woodwork 12" Mean dia. of boilers 14'-0" Length 11'-9" Material of shell plates SteelThickness 1 1/2" Range of tensile strength 28-32 Are they welded or flanged No Descrip. of riveting: cir. seams TR & DR 4x long. seams DB strapsDiameter of rivet holes in long. seams 1 3/8" Pitch of rivets 8 1/4" Lap of plates or width of butt straps 1'-5 1/8"Per centages of strength of longitudinal joint 86.3% Working pressure of shell by rules 183 lb. Size of manhole in shell 16" x 12"Size of compensating ring 6" x 10" No. and Description of Furnaces in each boiler 3 Morrison Material Steel Outside diameter 3'-7"Length of plain part top 17'-10" Thickness of plates crown 1 1/2" Description of longitudinal joint welded No. of strengthening rings —Working pressure of furnace by the rules 191 lb. Combustion chamber plates: Material Steel Thickness: Sides 5/8" Back 7/8" Top 7/8" Bottom 7/8"Pitch of stays to ditto: Sides 9 x 8" Back 8 1/2 x 8 1/2" Top 8 x 7 1/2" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 181 lb.Material of stays Iron Diameter at smallest part 1'-9 9/16" Area supported by each stay 74.3 sq Working pressure by rules 200 lb. End plates in steam space:Material Steel Thickness 1 1/2" Pitch of stays 17 x 15" How are stays secured D. N. Working pressure by rules 197 lb. Material of stays SteelDiameter at smallest part 5'-2 1/2" Area supported by each stay 257 sq Working pressure by rules 204 lb. Material of Front plates at bottom SteelThickness 7/8" Material of Lower back plate Steel Thickness 3/4" Greatest pitch of stays 12 1/2" Working pressure of plate by rules 212 lb.Diameter of tubes 2 1/2" Pitch of tubes 3 1/4 x 3 1/8" Material of tube plates Steel Thickness: Front 1 1/2" + 7/8" Back 3/4" Mean pitch of stays 7.37"Pitch across wide water spaces 13 1/2" Working pressures by rules 371, 227 lb. Girders to Chamber tops: Material Iron Depth andthickness of girder at centre 2 (9" x 1") Length as per rule 2'-11" Distance apart 8" Number and pitch of Stays in each 3-7 1/2"Working pressure by rules 202 lb. Superheater or Steam chest; how connected to boiler none Can the superheater be shut off and the boiler workedseparately — Diameter — Length — Thickness of shell plates — Material — Description of longitudinal joint — Diam. of rivetholes — 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 —



**DONKEY BOILER**— No. 1 Description Cyl. single ended.  
 Made at Glasgow By whom made Dunsmuir & Jackson Ltd. When made 1914 Where fixed Bridge house.  
 Working pressure 110 lb. tested by hydraulic pressure to 220 lb. No. of Certificate 7178 Fire grate area 30.6 Description of safety valves Direct spring loaded.  
 No. of safety valves 2 Area of each 5.93 Pressure to which they are adjusted 112 lb. If fitted with easing gear Yes If steam from main boilers can enter the donkey boiler No. Dia. of donkey boiler 10' 0" Length 9' 6" Material of shell plates Steel Thickness 1/16" Range of tensile strength 28-32 Descrip. of riveting long. seams T.R. lap Dia. of rivet holes 1" Whether punched or drilled drilled. Pitch of rivets 4"  
 Lap of plating 6 3/4" Per centage of strength of joint Rivets 33.8 Thickness of shell and plates 7/8" Radius of do. filled No. of Stays to do. 19 x 15"  
 Dia. of stays 5.275" Diameter of furnace Top 3' 0" Bottom 2' 0" Length of furnace 6' 0" Thickness of furnace plates 9/16" Description of joint welded Thickness of shell furnace crown plates 7/8" 1/16" Standard N. P. tube plate 130, 135 lb. Working pressure of shell by rules 110 lb.  
 Working pressure of furnace by rules 130 lb. Diameter of uptake — Thickness of uptake plates — dia. of Thickness of water tubes 3 1/4"

**SPARE GEAR.** State the articles supplied:— 1 solid propeller, 1 prop. shaft, 1 air pump rod, 1 set bottom end brasses, H.P. I.P. & L.P. piston springs, 2 top end and 2 bottom end con. rod bolts & nuts, 2 main bearing bolts & nuts, 1 set comp. bolts, 1 set feed valve, pump valves, main & donkey feed checks, iron, etc etc.

The foregoing is a correct description,  
 for **DUNSMUIR & JACKSON, Limited,** Manufacturer.  
James Fletcher

Dates of Survey while building  
 During progress of work in shops— 1904 Apr. 28, 29, May 3, 11, 17, 19, 20, 25 June 6, 14, 16, 21, 24 July 4, 11, 13  
 During erection on board vessel— Aug. 13, 22, 29, 30, Sept. 1, 16, 19, 22, 23, 27, Oct. 1, 4, 11, 13, 18, 20, 24, 31  
 Total No. of visits 34. Is the approved plan of main boiler forwarded herewith Yes.  
 " " " donkey " " " Yes.

**General Remarks** (State quality of workmanship, opinions as to class, &c.)  
The engines & boilers of this vessel have been built under special survey, the materials and workmanship are of good description when completed the boilers were tested by hydraulic pressure to double their respective pressures & were found tight and sound in every respect. The engines were tried under full working conditions & were found to work well. In my opinion they are eligible for record.  
 ✠ **LMC 10-04**

It is submitted that  
 this vessel is eligible for  
**THE RECORD.** ✠ **LMC 10 04** **FD**

Bal.  
8.11.04  
9.11.04

The amount of Entry Fee. £ 3 :  
 Special " " " £ 36 :  
 Donkey Boiler Fee " " " £ :  
 Travelling Expenses (if any) £ :  
 When applied for, 7 NOV 1904  
 When received, 9.11.1904

As: M. Buchanan  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute Glasgow - 7 NOV 1904.

Assigned ✠ **LMC 10-04**  
Return for to paid