

# REPORT ON MACHINERY.

Port of Glasgow  
 Received at London Office WED. SEP. 26. 1900  
 No. in Survey held at Paisley Date, first Survey 27 July Last Survey 13th Sept 1900  
 1. Book. (Number of Visits 7)  
 50 on the S.S. Southern Cross Tons { Gross 5050  
 Net 3311  
 Master R Phipps Built at Belfast By whom built Horsman Clark & Co Ld When built 1892-9  
 Engines made at Belfast By whom made Horsman Clark & Co Ld when made 1892-9  
 Boilers made at Paisley By whom made Boyer & Co when made 1892-9  
 Auxiliary Boilers at Paisley By whom made Boyer & Co when made 1900  
 Registered Horse Power 511 Owners Boyer Bros & Co Ld Port belonging to London  
 m. Horse Power as per Section 28 Is Refrigerating Machinery fitted  Is Electric Light fitted

**GINES, &c.**—Description of Engines  
 a. of Cylinders 3 Length of Stroke 100 1/2 Revs. per minute 100 Dia. of Screw shaft 6.00 No. of Cylinders 3 No. of Cranks 6  
 b. of Tunnel shaft as per rule 100 1/2 Dia. of Crank shaft journals 6.00 Dia. of Crank pin 1.99 Size of Crank webs 5.00 Lgth. of stern bush 6.00  
 c. of Bars Dia. of screw 100 1/2 Pitch of screw 6.00 No. of blades 1.99 State whether moceable R.M.C. 6.00 Total surface 5.00  
 d. of Feed pumps Diameter of ditto 100 1/2 Stroke 6.00 Can one be overhauled while the other is at work 1.99  
 e. of Bilge pumps Diameter of ditto 100 1/2 Stroke 6.00 Can one be overhauled while the other is at work 1.99  
 f. of Donkey Engines Sizes of Pumps 100 1/2 No. and size of Suctions connected to both Bilge and Donkey pumps 6.00  
 Engine Room In Holds, &c. 1.99  
 g. of bilge injections sizes 100 1/2 Connected to condenser, or to circulating pump 6.00 Is a separate donkey suction fitted in Engine room & size 1.99  
 h. all the bilge suction pipes fitted with roses 100 1/2 Are the roses in Engine room always accessible 6.00 Are the sluices on Engine room bulkheads always accessible 1.99  
 i. all connections with the sea direct on the skin of the ship 100 1/2 Are they Valves or Cocks 6.00  
 j. are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates 100 1/2 Are the discharge pipes above or below the deep water line 6.00  
 k. are they each fitted with a discharge valve always accessible on the plating of the vessel 100 1/2 Are the blow off cocks fitted with a spigot and brass covering plate 6.00  
 l. that pipes are carried through the bunkers 100 1/2 How are they protected 6.00  
 m. are all pipes, cocks, valves, and pumps in connection with the machinery and all boiler mountings accessible at all times 100 1/2  
 n. are the bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges 100 1/2  
 o. were stern tube, propeller, screw shaft and all connections examined in dry dock 100 1/2 Is the screw shaft tunnel watertight 6.00

**Boilers.** worked from 100 1/2  
**MILLERS, &c.** (Letter for record S) Total Heating Surface of Boilers 1313 Is forced draft fitted No  
 a. No. and Description of Boilers One single Ended Working Pressure 170lb Tested by hydraulic pressure to 340lb  
 b. date of test 13/9/00 Can each boiler be worked separately Yes Area of fire grate in each boiler 42 1/2 No. and Description of safety valves to each boiler Two, spring Area of each valve 2.910 Pressure to which they are adjusted 170lb Are they fitted with easing gear Yes  
 c. smallest distance between boilers or uptakes and bunkers or woodwork 1 1/8 Mean dia. of boilers 12-1 1/8 Length 10-6 Material of shell plates Steel  
 d. thickness 1 1/8 Range of tensile strength 28/32 Are they welded or flanged Neither Descrip. of riveting: cir. seam Double R. Sep. long. seams Table R. Butt.  
 e. diameter of rivet holes in long. seams 1 3/16 Pitch of rivets 8 Lap of plates 18 width of butt straps 18  
 f. percentages of strength of longitudinal joint rivets 91.6 Working pressure of shell by rules 204lb Size of manhole in shell 16"x12"  
 g. size of compensating ring 27"x31"x1 1/8 No. and Description of Furnaces in each boiler 3. Deighton's Material Steel Outside diameter 38"  
 h. length of plain part top 24" Thickness of plates crown 1 15/32 Description of longitudinal joint Welded No. of strengthening rings None  
 i. Working pressure of furnace by the rules 152 Combustion chamber plates: Material Steel Thickness: Sides 19/32 Back 19/32 Top 19/32 Bottom 7/8  
 j. pitch of stays to ditto: Sides 8 1/2 x 7 3/4 Back 8 x 7 3/4 Top 9 x 7 3/4 If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 173  
 k. Material of stay Steel Diameter at smallest part 2 3/8 Area supported by each stay 69 1/4 Working pressure by rules 189 End plates in steam space: None  
 l. Material Steel Thickness 1 5/32 Pitch of stays 17 x 15 How are stays secured Double Nuts Working pressure by rules 232lb Material of stays Steel  
 m. Diameter at smallest part 5.050 Area supported by each stay 254 Working pressure by rules 198 Material of Front plates at bottom Steel  
 n. Thickness 1" Material of Lower back plate Steel Thickness 3/4" Greatest pitch of stays 13" Working pressure of plate by rules 377  
 o. Diameter of tubes 3 1/2 Pitch of tubes 4 1/2 Material of tube plates Steel Thickness: Front 1" Back 23/32 Mean pitch of stays 9"  
 p. Pitch across wide water spaces 15 Working pressures by rules 170lb Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 8 1/2 x 1 3/8 Length as per rule 27" Distance apart 9" Number and pitch of Stays in each Two, 7 3/4"  
 q. Working pressure by rules 197lb Superheater or Steam chest; how connected to boiler None Can the superheater be shut off and the boiler worked separately Yes  
 r. Diameter 10 Length 10 Thickness of shell plates 1/2 Material Steel Description of longitudinal joint Welded Diam. of rivet 10  
 s. Pitch of rivets 8 Working pressure of shell by rules 170lb Diameter of flue 10 Material of flue plates Steel Thickness 1/2  
 t. stiffened with rings Yes Distance between rings 10 Working pressure by rules 170lb End plates: Thickness 1/2 How stayed None  
 u. Working pressure of end plates 170lb Area of safety valves to superheater 10 Are they fitted with easing gear Yes

**DONKEY BOILER**— No. *See other side.* Description *See other side.*

Made at *By whom made* When made *Where fixed*

Working pressure tested by hydraulic pressure to *No. of certificate* *Grate area* Description of safety valves

No. of safety valves Area of each Pressure to which they are adjusted 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 Rivets *Plates* Thickness of shell crown plates Radius of do. No. of Stays to do.

Lap of plating Per. centage of strength of joint Diameter of furnace Top Bottom Length of furnace Thickness of furnace plates Description of joint

Thickness of furnace crown plates Stayed by Working pressure of shell by rules

Working pressure of furnace by rules Diameter of uptake Thickness of uptake plates Thickness of water tubes

SPARE GEAR. State the articles supplied:—

The foregoing is a correct description,

Manufacturer. *Bow, McLachlan & Co*

Dates of Survey while building

During progress of work in shops— *1900:— July. 27. Aug. 20. 23. 30. Sep. 7. 8. 13.*

During erection on board vessel— *7.*

Total No. of visits *7.*

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

General Remarks (State quality of workmanship, opinions as to class, &c.) *This boiler has been built under special survey, the material & workmanship being of good quality, it has been tested by hydraulic pressure to (340) three hundred & forty pounds per square inch and found tight and sound at that pressure.*

*This boiler is being forwarded to Liverpool to be fitted on board the S.S. Southern Cross.*

The amount of Entry Fee. . . £ : : When applied for, *19/9/00*

Special . . . . . £ *4 : 10* : : *When received, 25/11/00*

Donkey Boiler Fee . . . . . £ : : *25/11/00*

Travelling Expenses (if any) £ : : *25/11/00*

*George Murdoch*  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute *Glasgow. 25 SEP. 1900*

Assigned

*Deferred for completion.*

*M.L.M. 27/9/00.*

FRI. 19 OCT 1900  
FRI. MAY 31 1901  
THES. 30 OCT 1900  
THES. 5 FEB 1901  
Lloyd's Register Foundation

Certificate (if required) to be sent to

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