

REPORT ON MACHINERY.

Port of Glasgow

THUR. 5 JUL 1902

No. in Survey held at Penryn Date, first Survey 14 Octr of Last Survey 11 June 1902
 Reg. Book. on the Twin Screw Steam Pump Dredge "Grampus" (Number of Visits 43)
 Master Penryn Built at Penryn By whom built Tom Simons & Co. Ltd Tons 1028.73
 Gross 1028.73 Net 603.43 When built 1902
 Engines made at Penryn By whom made Tom Simons & Co. Ltd when made 1902
 Boilers made at Glasgow By whom made Londou & Glasgow S.P. & Co. when made 1902
 Registered Horse Power 1674 Owners Natal Government Port belonging to Durban
 Nom. Horse Power as per Section 28 1674 Is Refrigerating Machinery fitted No Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Twin screw Dupl expansion No. of Cylinders 6 No. of Cranks 6
 Dia. of Cylinders 16 1/2" 24 1/2" 39" Length of Stroke 24" Revs. per minute 130 Dia. of Screw shaft 7 1/2" Lgth. of stern bush 36 1/2"
 Dia. of Tunnel shaft 7 1/2" Dia. of Crank shaft journals 7 1/2" Dia. of Crank pin 7 5/8" Size of Crank webs 12 3/4 x 5 1/4" Dia. of thrust shaft under collars 7 1/2" Dia. of screw 8-3" Pitch of screw 10-0" No. of blades 4 State whether moveable No Total surface 27 sq ft
 No. of Feed pumps two Diameter of ditto 3 1/4" Stroke 12" Can one be overhauled while the other is at work yes
 No. of Bilge pumps two Diameter of ditto 3 1/4" Stroke 12" Can one be overhauled while the other is at work yes
 No. of Donkey Engines two Sizes of Pumps 2-6 x 8 x 15-1 dup 5 1/2 x 4 1/4 x 6 No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room than 2 1/4 In Holds, &c. six 2 1/4"
 No. of bilge injections two sizes 3" Connected to condenser, or to circulating pump pumps Is a separate donkey suction fitted in Engine room & size one 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 no
 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 forward steam & exhaust How are they protected by strong steel casing
 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
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock by launch Is the screw shaft tunnel watertight yes
 Is it fitted with a watertight door worked from

BOILERS, &c.— (Letter for record 0) Total Heating Surface of Boilers 26700 sq ft Is forced draft fitted no
 No. and Description of Boilers two single ended cylindrical Working Pressure 160 lbs Tested by hydraulic pressure to 320 lbs
 Date of test 29/1/02 Can each boiler be worked separately yes Area of fire grate in each boiler 52 sq ft No. and Description of safety valves to each boiler one pair direct opening Area of each valve 7.06 sq in Pressure to which they are adjusted 165 lbs Are they fitted with easing gear yes
 Smallest distance between boilers or uptakes and bunkers or woodwork 24" Mean dia. of boilers 13-0 Length 10-0 Material of shell plates steel
 Thickness 5/8" Range of tensile strength 27/32 Are they welded or flanged no Descrip. of riveting: cir. seams double lap long. seams double butt
 Diameter of rivet holes in long. seams 1 3/16 Pitch of rivets 8 1/4" Lap of plates width of butt straps 17 1/4"
 Per centages of strength of longitudinal joint rivets 89 Working pressure of shell by rules 184 Size of manhole in shell 16 x 12"
 Size of compensating ring 7 in rivets No. and Description of Furnaces in each boiler 3 Morrison Material steel Outside diameter 42 1/4
 Length of plain part top Thickness of plates bottom 3 1/8" Description of longitudinal joint welded No. of strengthening rings none
 Working pressure of furnace by the rules 163 Combustion chamber plates: Material steel Thickness: Sides 5/8" Back 9/16" Top 5/8" Bottom 3/4"
 Pitch of stays to ditto: Sides 8 1/4 x 8 Back 8 1/4 x 8 Top 8 1/2 x 8 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 167 lbs
 Material of stays steel Diameter at smallest part 1.41" Area supported by each stay 68 sq in Working pressure by rules 166 End plates in steam space: Material steel Thickness 7/8" Pitch of stays 16 1/2 x 15" How are stays secured 2 nuts Working pressure by rules 173 lbs Material of stays iron
 Diameter at smallest part 5.05" Area supported by each stay 214 sq in Working pressure by rules 176 lbs Material of Front plates at bottom steel
 Thickness 3/4" Material of Lower back plate steel Thickness 3/4" Greatest pitch of stays 12 7/8" Working pressure of plate by rules 378 lbs
 Diameter of tubes 3 1/4" Pitch of tubes 4 1/2 x 4 1/2" Material of tube plates steel Thickness: Front 1 5/16" Back 3/8" Mean pitch of stays 11 1/4"
 Pitch across wide water spaces 14 1/4" Working pressures by rules 336 lbs Girders to Chamber tops: Material steel Depth and thickness of girder at centre 8" x 1" double Length as per rule 36 7/16" Distance apart 8 1/2" Number and pitch of Stays in each two 8
 Working pressure by rules 254 lbs Superheater or Steam chest; how connected to boiler none 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

DONKEY BOILER— No. *100* Description *Vertical cross tube*
 Made at *Newark* By whom made *Abbott* When made *1902* Where fixed *in stockhold*
 Working pressure *100* tested by hydraulic pressure to *200* No. of Certificate *112* Description of safety valves *Spring loaded*
 No. of safety valves *2* Area of each *3.14* Pressure to which they are adjusted *100 lbs* If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no* Dia. of donkey boiler *4.6* Length *11.6* Material of shell plates *Steel* Thickness *3/8* Range of tensile strength *27/32* Descrip. of riveting long. seams *double riveted lap* Dia. of rivet holes *13/16* Whether punched or drilled *drilled* Pitch of rivets *2 3/4*
 Lap of plating *4"* Per centage of strength of joint *98.7* Rivets *98.7* Thickness of shell crown plates *3/16* Radius of do. *4.6* No. of Stays to do. *4*
 Dia. of stays. *1 1/4"* Diameter of furnace Top *3.9* Bottom *4.0* Length of furnace *4.7 1/2* Thickness of furnace plates *1/2* Description of joint *single lap* Thickness of furnace crown plates *3/16* Stayed by *drilled 4 stays* Working pressure of shell by rules *100 lbs*
 Working pressure of furnace by rules *101.5 lbs* Diameter of uptake *12"* Thickness of uptake plates *1/2"* Thickness of water tubes *3/8*

SPARE GEAR. State the articles supplied:— *1 set of top end bolts & nuts, 1 set bottom end bolts & nuts, 1 set coupling bolts & nuts, 2 main bearing bolts, 1 set of feed & bridge pump valves, bolts & nuts assorted & iron of various sizes.*

The foregoing is a correct description,

WM. SIMONS & CO., LIMITED Manufacturer.

Dates of Survey while building
 During progress of work in shops— *1901: Oct. 14, 21, 23, 25, 29, 31. Nov. 7, 12, 14, 15, 20, 25, 27. Dec. 3, 6, 10, 11.*
 During erection on board vessel— *14, 20, 26, 1902: Jan. 7, 9, 23, 24, 29. Feb. 18, 20, 25. Mar. 3, 14, 17, 28. Apr. 7, 17.*
 Total No. of visits *43* *23, 30, May. 2, 12, 14, 23, 29. Is the approved plan of main boiler forwarded herewith* *yes*
Jun. 4, 11. " " " " donkey " " "

General Remarks (State quality of workmanship, opinions as to class, &c. *+ L M C 6 02*)

Material of screw shaft *Iron* Is the screw shaft fitted with a continuous liner the whole length of the stern tube *no liner*
 Is the after end of the liner made water tight in the propeller boss If the liner is in more than one length are the joints burned
 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 *no liners*

This machinery has been built under special survey the materials and workmanship are of good description the same have been well fitted on board and tried under steam.
In my opinion this machinery is eligible to have the above notification in the Register Book.
Our Frying report is hereto appended.

It is submitted that this vessel is eligible for THE RECORD — *L M C 6 02 Elec. Light*

The amount of Entry Fee. £ *2:* : When applied for, *27/10/02*
 Special £ *24. 12* : *Not*
 Donkey Boiler Fee £ : : *When received, 9.7.02*
 Travelling Expenses (if any) £ : : *8/17/02*
 A. M. C. 6. 02
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute **GLASGOW. 27 JUL 1902**
 Assigned *+ L M C 6. 02.*
When fee paid

