

REPORT ON MACHINERY.

No. 4558

FRIDAY 30 JULY 1886

No. in Survey held at Glasgow Date, first Survey 27th Decem^r 1885 Last Survey 22nd July 1886
 Reg. Book. 468 on the S.S. Glenorchy (Number of Visits 37) Tons 2824
 Master Gedye Built at Glasgow By whom built J. Elder & Co When built 1872
 Engines made at Glasgow By whom made J. Elder & Co when made 1872
 Boilers made at Do By whom made London & Glasgow Co. when made 1886
 Registered Horse Power 400 Owners M^r Gregor Gow & Co Port belonging to Glasgow

ENGINES, &c.—

Description of Engines
 Diameter of Cylinders _____ Length of Stroke _____ No. of Rev. per minute _____ Point of Cut off, High Pressure _____ Low Pressure _____
 Diameter of Screw shaft _____ Diam. of Tunnel shaft _____ Diam. of Crank shaft journals _____ Diam. of Crank pin _____ size of Crank webs _____
 Diameter of screw _____ Pitch of screw _____ No. of blades _____ state whether moveable _____ total surface _____
 No. of Feed pumps _____ diameter of ditto _____ Stroke _____ Can one be overhauled while the other is at work _____
 No. of Bilge pumps _____ diameter of ditto _____ Stroke _____ Can one be overhauled while the other is at work _____
 Where do they pump from _____
 No. of Donkey Engines _____ Size of Pumps _____ Where do they pump from _____
 Are all the bilge suction pipes fitted with roses _____ Are the roses always accessible _____ Are the sluices on Engine room bulkheads always accessible _____
 No. of bilge injections _____ and sizes _____ Are they connected to condenser, or to circulating pump _____
 How are the pumps worked _____
 Are all connections with the sea direct on the skin of the ship _____ Are they Valves or Cocks _____
 Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates _____ Are the discharge pipes above or below the deep water line _____
 Are they each fitted with a discharge valve always accessible on the plating of the vessel _____ Are the blow off cocks fitted with a spigot and brass covering plate _____
 What pipes are carried through the bunkers _____ How are they protected _____
 Are all pipes, cocks, valves, and pumps in connection with the machinery accessible at all times _____
 Are the pipes, cocks, and valves arranged so as to prevent an unintentional connection between the sea and the bilges _____
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock _____
 Is the screw shaft tunnel watertight _____ and fitted with a sluice door _____ worked from _____

BOILERS, &c.—

Number of Boilers Two Description Cylindrical - Mult. Whether Steel or Iron Steel - from furnace fronts.
 Working Pressure 70 lbs Tested by hydraulic pressure to 140 lbs Date of test April 16th 1886
 Description of superheating apparatus or steam chest Horizontal
 Can each boiler be worked separately Yes Can the superheater be shut off and the boiler worked separately ✓
 No. of square feet of fire grate surface in each boiler 107 Description of safety valves Direct spring No. to each boiler Two
 Area of each valve 28.27 Are they fitted with easing gear Yes No. of safety valves to superheater _____ area of each valve _____
 Are they fitted with easing gear ✓ Smallest distance between boilers and bunkers or woodwork 12" Diameter of boilers 13-3"
 Length of boilers 16-0" description of riveting of shell long. seams Butt double circum. seams Lap double Thickness of shell plates 11/16"
 Diameter of rivet holes 1 1/16" whether punched or drilled Drilled pitch of rivets 4 7/16" Lap of plating 11 x 5/8 butt
 Per centage of strength of longitudinal joint 76 working pressure of shell by rules 82 lbs size of manholes in shell 16 x 12"
 Size of compensating rings Riveted ring No. of Furnaces in each boiler Six
 Outside diameter 40" length, top 6-0 bottom ✓ thickness of plates 1/2" description of joint Welded butt if rings are fitted Yes T.
 Greatest length between rings 5-0" working pressure of furnace by the rules 93 lbs combustion chamber plating, thickness, sides 7/16" back ✓ top 7/16"
 Pitch of stays to ditto, sides 8 1/2 x 8 1/2 back ✓ top 8 1/2 x 8 If stays are fitted with nuts or riveted heads Nuts working pressure of plating by rules 75 lbs
 Diameter of stays at smallest part 1 3/8 working pressure of ditto by rules 133 lbs end plates in steam space, thickness 11/16"
 Pitch of stays to ditto 15 1/2" how stays are secured Nuts working pressure by rules 70-6 lbs diameter of stays at smallest part 2 1/4 working pressure by rules 90 lbs Front plates at bottom, thickness 11/16" Back plates, thickness ✓
 Greatest pitch of stays ✓ working pressure by rules ✓ Diameter of tubes 3 1/2" pitch of tubes 4 3/4" thickness of tube plates, front 5/8" back 5/8" how stayed Tubes pitch of stays 14 1/2 x 9 1/2 width of water spaces 5 1/2 x 6 1/2
 Diameter of Superheater or Steam chest 4-3" length 21-0" thickness of plates 9/16" description of longitudinal joint Lap double diam. of rivet holes 11/16"
 Pitch of rivets 3 1/2" working pressure of shell by rules 87 lbs diameter of flue ✓ thickness of plates ✓ If stiffened with rings ✓
 Distance between rings ✓ working pressure by rules ✓ end plates of superheater, or steam chest; thickness 5/8" how stayed gunnet stays
11 x 1/2 and end plate dished Superheater or steam chest; how connected to boiler Nuts 16" dia 1 3/4 iron

Form No. 8-1000-14/85-Transfer Ink.

GL5152-0192 (1/2)

DONKEY BOILER— Description

Made at _____ by whom made _____ when made _____ where fixed _____

Working pressure _____ tested by hydraulic pressure to _____ No. of Certificate _____ fire grate area _____ description of safety
valves _____ No. of safety valves _____ area of each _____ if fitted with easing gear _____ if steam from main boilers can
enter the donkey boiler _____ diameter of donkey boiler _____ length _____ description of riveting _____

Thickness of shell plates _____ diameter of rivet holes _____ whether punched or drilled _____ pitch of rivets _____ lap of plating _____

per centage of strength of joint _____ thickness of crown plates _____ stayed by _____

Diameter of furnace, top _____ bottom _____ length of furnace _____ thickness of 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 plates _____ thickness of water tubes _____

SPARE GEAR. State the articles supplied:—

The foregoing is a correct description,

Manufacturer.

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

The new main boilers of this vessel have been constructed under special survey. They are of good material & workmanship. They have been well fitted on board and satisfactorily tested under steam.

The engines have been opened out and overhauled and there were examined the cylinders, pistons, slide valves, pumps, condenser, pipes, crankshaft & shafting.

When the vessel was in Dry Dock the sea cocks, valves, propeller & fastenings were all examined. The sea cocks have been moved from flat of ship's bottom to bilge above level of stowhold plates.

The following repairs have been carried out. Cylinders removed to shop. The low pressure bored out. new neck and gland bushes for each. Joint face of H.P. piston planed. Piston rods turned up. New packing ring & springs for L.P. piston.

New Feed & Bilge pumps & shafts. The old ones were found much wasted and not in good condition. Condenser cleaned. about 140 new tubes fitted.

New blow off copper pipes, and main steam pipe partly renewed. Gearing fitted to main engine to work deck pumps. Main and expansion valve gear adjusted.

On account of strain in fillet of Forward crank pin a new half crank shaft has been fitted. main bearings lined up. Tunnel bearings all removed to shop and filled with white metal. Thrust shaft turned in lathe & rings fitted with white metal faces.

Donkey engines thoroughly repaired. Winch boiler removed to shop & fitted with new tubes. excepting a few screw stays all the stays have been renewed. small patches on account of corrosion at junction of furnace to fire box.

All mountings overhauled. On completion of these repairs the boiler was tested by hydraulic pressure to 20 lbs per sq inch at which pressure it showed no signs of weakness & was quite tight. A new

The amount of Entry Fee .. £ - : - : - received by me,

Special Damage £ 5: 5: -
Main Donkey Boilers Fee .. £ 10: 10: -

Certificate (if required) .. £ - : 5: - 24/4/1886

To be sent to per margin.

(Travelling Expenses, if any, £)

Committee's Minute

TUESDAY 3 AUGUST 1886

+ J. B. 86

M. 86

Walter R. Robson.

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



propeller shaft has been fitted and stem tube bearings refitted with lignum vitae wood. On examination of this shaft it was found to be reduced in diameter near to brass bush and the bush was slack on shaft. In view of the increased boiler pressure & reduction in diameter a new shaft was decided upon.

It is stated that during the voyage from London to Glasgow the vessel stranded on the Island of Arran and on account of damage then sustained a new propeller boss & blades have been fitted. Old boss fractured in two places and all the blades were broken the pieces varying from two feet seven inches to five feet in length.

The whole of the above mentioned repairs have been satisfactorily carried out and I am of opinion the machinery of this vessel is now in good & safe working condition and eligible to be classed **L.M.C. 7-86** in the Register Book with the additional notification ***N.B. 86**.

Appended hereto are four Reports on Steel Tests and one Report on Forging also the approved tracing of main boiler.

Walter Robson.

It is submitted that this vessel is eligible to have **L.M.C. 7.86** and ***N.B. 86** recorded **M 3/8/86**.



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Foundation

GL5152-0192 (2/2)