

# REPORT ON MACHINERY.

Port of Greenock

Received at London Office **18 AUGUST 1890**

No. 10029

No. in Survey held at Port Glasgow  
Reg. Book.

Date, first Survey 28<sup>th</sup> April 1889 Last Survey 14<sup>th</sup> August 1890

(Number of Visits 38) 45.10

Tons 45.10

on the S.S. Tug. "William Flower"

Master                      Built at Port Glasgow By whom built D. J. Dunlop & Co. When built 1890

Engines made at Port Glasgow By whom made D. J. Dunlop & Co. when made 1890

Boilers made at Port Glasgow By whom made do do when made 1890

Registered Horse Power 30 Owners Flower & Everett Port belonging to London

## ENGINES, &c.—

Description of Engines Compound Inverted Direct Acting

Diameter of Cylinders 15 1/2 & 28 Length of Stroke 18" No. of Rev. per minute 120 Point of Cut off, High Pressure 12 3/4 Low Pressure 13 3/8

Diameter of Screw shaft 5 1/8 Diam. of <sup>Intermediate</sup> Tunnel shaft 5" Diam. of Crank shaft journals 5" Diam. of Crank pins 5" size of Crank webs 5 1/2 x 3 1/2

Diameter of screw 6 1/4 Pitch of screw 9..9" No. of blades Four state whether moveable no total surface 16.3 square feet

No. of Feed pumps one diameter of ditto 2 3/4 Stroke 9" Can one be overhauled while the other is at work —

No. of Bilge pumps one diameter of ditto 2 3/4 Stroke 9" Can one be overhauled while the other is at work —

Where do they pump from Engine Room & Fore Compartment

No. of Donkey Engines one Duplex Size of Pumps 2 1/4 x 5" Where do they pump from Sea, Bilges & Hot well

Are all the bilge suction pipes fitted with roses yes Are the roses always accessible yes Are the sluices on Engine room bulkheads always accessible yes

No. of bilge injections one and sizes 2 1/2 Are they connected to condenser, or to circulating pump Circulating pump

How are the pumps worked By levers

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 None How are they protected —

Are all pipes, cocks, valves, and pumps in connection with the machinery accessible at all times yes

Are the pipes, cocks, and valves arranged so as to prevent an unintentional connection between the sea and the bilges yes

When were stern tube, propeller, screw shaft, and all connections examined in dry dock on slip before vessel was launched

Is the screw shaft tunnel watertight no tunnel and fitted with a sluice door — worked from —

## BOILERS, &c.—

Number of Boilers one Description Round Horizontal Multitubular Whether Steel or Iron Steel

Working Pressure 70 lbs Tested by hydraulic pressure to 140 lbs per square inch Date of test 24<sup>th</sup> July 1890

Description of superheating apparatus or steam chest none fitted

Can each boiler be worked separately — Can the superheater be shut off and the boiler worked separately —

No. of square feet of fire grate surface in each boiler 22 Description of safety valves Direct spring No. to each boiler Two

Area of each valve 5.94 sq. in. 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 9 1/2 Diameter of boilers 8' 6"

Length of boilers 8' 7" description of riveting of shell long. seams Lap double circum. seams Lap double Thickness of shell plates 1/2"

Diameter of rivet holes 1" whether punched or drilled drilled pitch of rivets 3 1/4 Lap of plating 5 3/4

Percentage of strength of longitudinal joint 69.2 working pressure of shell by rules 72 lbs size of manholes in shell 16 3/4 x 12 3/4

Size of compensating rings 5" x 7/8" No. of Furnaces in each boiler Two plain

Outside diameter 30" length, top 6' 0" bottom 8' 0" thickness of plates 1 3/8 & 1 1/2" description of joint Double butt strap if rings are fitted no

Greatest length between rings — working pressure of furnace by the rules 75 lbs combustion chamber plating, thickness, sides 7/16" back 7/16" top 7/16"

Pitch of stays to ditto, sides 7 3/4 x 7 3/4 back 7 3/4 x 7 3/4 top 7 3/4 x 7 3/4 If stays are fitted with nuts or riveted heads riveted working pressure of plating by rules 73 lbs

Diameter of stays at smallest part 1 1/8" working pressure of ditto by rules 104 lbs end plates in steam space, thickness 2 1/2"

Pitch of stays to ditto 14 1/2 x 14 how stays are secured Double nuts working pressure by rules 73 lbs diameter of stays at smallest part 1 1/2 full

working pressure by rules 70 lbs Front plates at bottom, thickness 5/8" Back plates, thickness 7/16"

Greatest pitch of stays 10 1/2" working pressure by rules 88 lbs Diameter of tubes 3 1/4" x 40' 9" pitch of tubes 4 1/2" thickness of tube plates, front 5/8" back 5/8" how stayed Stay tubes pitch of stays 9 x 9" width of water spaces 6"

Diameter of Superheater or Steam chest — length — thickness of plates — description of longitudinal joint — diam. of rivet holes —

Pitch of rivets — working pressure of shell by rules — 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 — how stayed —

Superheater or steam chest; how connected to boiler —



**DONKEY BOILER—** Description *No Donkey Boilers in this vessel.*  
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:— *2 top end & 2 bottom end bolts & nuts 2 Main bearing bolts.  
1 set coupling bolts. 1 set feed & bilge pump valves. 1 set of valves for air pump. 1 set for  
Main boiler. 2 sets packing & 20 screws ferrules for Condenser tubes. piston springs  
1 spring for safety valves & a quantity of bolts nuts & rivets assorted.*

The foregoing is a correct description,  
*David J. Dunlop* Manufacturer.

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

*These Engines and Main Boilers have been specially surveyed during  
Construction, workmanship good. Shafts examined when being turned and  
found apparently free from defects. Main Steam pipe tested by hydraulic  
pressure to 140 lbs per sq. in. test satisfactory. Engines and Boilers are satisfactory  
fitted on board, and have been tested under full steam, they are now in  
good order and safe working condition. And are in my opinion eligible  
to be noted in the Register Book. LMC. 8. 90.*

*It is submitted that this Vessel is  
eligible to have + L.M.C. 8-90  
recorded. M.A.  
18-8-90*

The amount of Entry Fee .. £ 1 : - : received by me,  
Special .. .. £ 8 : - :  
Donkey Boiler Fee .. .. £ - : - :  
Certificate (if required) .. £ Gratia 15<sup>th</sup> Aug 1890.  
To be sent as per margin.

(Travelling Expenses, if any, £ .. ..)

Committee's Minute

10 AUGUST 1890

FRI 29 AUGUST 1890

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

Greenock District  
Foundation