

# REPORT ON MACHINERY.

8331

No. 8331

Port of Glasgow

Received at London Office SAT 4 FEB 1888

No. in Survey held at  
Reg. Book.

Date, first Survey 30<sup>th</sup> Aug 1887 Last Survey 27<sup>th</sup> 1888

1420 on the S.S. "Curco"

(Number of Visits 30) 2519

Tons 3918

Master James Nixon Built at Glasgow

By whom built J. Elden & Co

When built 1871-1872

Engines made at Glasgow

By whom made The Fairfield Coy (Limited)

when made 1884-8

Boilers made at " "

By whom made " "

when made 1884-8

Registered Horse Power 600

Owners Orient Steam Navigation Co (Limited)

Port belonging to Liverpool

## ENGINES, &c.—

Description of Engines Triple Expansion  
Diameter of Cylinders 35 54 90 Length of Stroke 54 No. of Rev. per minute 42 Point of Cut off, High Pressure — Low Pressure —  
Diameter of Screw shaft 16 Diam. of Tunnel shaft — Diam. of Crank shaft journals 16 1/2 Diam. of Crank pin 14 size of Crank webs 12 x 24 x 33  
Diameter of screw 18 1/2 Pitch of screw 24 1/2 No. of blades 4 state whether moveable Yes total surface 102 ft  
No. of Feed pumps Two diameter of ditto 6 1/2 Stroke 23 Can one be overhauled while the other is at work Yes  
No. of Bilge pump Two diameter of ditto 6 1/2 Stroke 23 Can one be overhauled while the other is at work Yes  
Where do they pump from All Compartments  
No. of Donkey Engines Double End 9 1/2 x 5 x 10 1/2 Where do they pump from Sea Ruler & Hotwell  
Heads 11 1/2 x 8 x 10 (Single)

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 3 Are they connected to condenser, or to circulating pump To Circulating  
How are the pumps worked by Levers Condensers  
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 Yes  
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 Bilge pipes to fore hold and How are they protected by wood + iron casing  
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 Decr 8<sup>th</sup> 1888  
Is the screw shaft tunnel watertight Yes and fitted with a sluice door Yes worked from Upper Deck

## BOILERS, &c.—

Number of Boilers Three Description Double ended Cylindrical Whether Steel or Iron Steel  
Working Pressure 150 lbs Tested by hydraulic pressure to 300 lbs Date of test 25<sup>th</sup> November 1888  
Description of superheating apparatus or steam chest None  
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 108 ft Description of safety valves Direct Spring No. to each boiler Two  
Area of each valve 14.19 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 Double ended Diameter of boilers 12.8  
Length of boilers 16.9 description of riveting of shell long. seams Double butt strap scum. seams Treble riveted Thickness of shell plates 13/32  
Diameter of rivet holes 1 1/16 whether punched or drilled Drilled pitch of rivets 4 1/2 x 3 3/8 Lap of plating straps 25/32  
Per centage of strength of longitudinal joint 85% working pressure of shell by rules 150 lbs size of manholes in shell 16 x 12  
Size of compensating rings Looped rings No. of Furnaces in each boiler Six  
Outside diameter 3.3 length, top 6.10 1/2 bottom — thickness of plates 8/16 description of joint Corrugated if rings are fitted  
Greatest length between rings — working pressure of furnace by the rules 154 lbs combustion chamber plating, thickness, sides 8/16 back 7/16 top 8/16  
Pitch of stays to ditto, sides 4 x 4 back 6 x 4 top 6 x 4 If stays are fitted with nuts or riveted heads Nuts working pressure of plating by rules 156 lbs  
Pitch of stays to ditto 14 x 14 how stays are secured by double nuts working pressure of ditto by rules 163 lbs plates in steam space, thickness 13/16  
smallest part 2 3/8 = 3.55 working pressure by rules 162 lbs Front plates at bottom, thickness 11/16 Back plates, thickness —  
Greatest pitch of stays — working pressure by rules 150 lbs Diameter of tubes 3 1/4 pitch of tubes 4 3/8 x 4 3/8 thickness of tube —  
plates, front 12/16 back 13/16 how stayed by tubes pitch of stays 8 3/4 x 8 3/4 width of water spaces 6  
Diameter of Superheater or Steam chest None 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

Ans. Boiler dome not fitted as originally intended

GLS155-0015



8331 Gls

DONKEY BOILER— Description *Round Multitubular*  
Made at *Glasgow* by whom made *Fairfield & Co* when made *1888* where fixed *on main deck*  
Working pressure *150 lbs* tested by hydraulic pressure to *300 lbs* No. of Certificate *1898* fire grate area *12 1/2* description of safety  
valves *Direct Spring* No. of safety valves *one* area of each *4"* if fitted with easing gear *yes* if steam from main boilers can  
enter the donkey boiler *no* diameter of donkey boiler *6' 6"* length *4 1/2* description of riveting *Double riveted*  
Thickness of shell plates *2 1/32"* diameter of rivet holes *1 5/16"* whether punched or drilled *Drilled* pitch of rivets *4 1/2"* lap of plating *4"*  
per centage of strength of joint *4 3/4%* thickness of *end* plates *1 3/16"* stayed by *bar stays 14" x 11"* pitch *14"* *stayed*  
Diameter of furnace *2' 9"* bottom *—* length of furnace *5 1/2* thickness of plates *3/16"* description of joint *Corrugated*  
Thickness of *combustion* plates *3/16"* stayed by *Screw stays 7" x 7"* pitch *1 1/2"* dia working pressure of shell by rules *175 lbs*  
Working pressure of furnace by rules *151 lbs* diameter of *same* *2' 4"* thickness of plates *—* thickness of water tubes *—*

SPARE GEAR. State the articles supplied: *2 bolts & nuts for bottom end of each connecting rod, & 14 for top ends*  
*2 main bearing bolts & 9 Coupling bolts (shafting) 2 Piston rods, 1 Air pump rod, 1 Feed & Balge pumps*  
*pump & 1 set valve spindle, 3 pairs Crank pin brasses & 3 Crosshead brasses, 1 bush*  
*for stem tube & puddle post complete, 6 valves for feed & air pumps, Air pump bucket & complete*  
*valves for all the pumps, and a considerable*  
*quantity of other gear*  
The foregoing is a correct description,  
THE FAIRFIELD SHIPBUILDING AND ENGINEERING CO. LIMITED, Manufacturer

General Remarks (State quality of workmanship, opinions as to class, &c.) *This vessel has now been*  
*fitted with new Engines and Boilers complete, including new*  
*Shafting and all the sea connections. The workmanship and*  
*materials are of the best description and on the Engines &*  
*boilers being tried under steam were found to be in*  
*good order and safe working condition and eligible in*  
*our opinion to be noted in the Register Book* *Lloyd's*  
*M. C. 1/88.*

*The Copper Steam pipes in this case were not tested*  
*(in the presence of a Surveyor to the Society) under*  
*Hydraulic pressure as required by the Committee*  
*(See Secretary's letter of 24<sup>th</sup> January 1888)*

*It is submitted that this*  
*vessel is eligible to have the*  
*notification + Lms 1.88*  
*recorded.*

*4/2/88*

The amount of Entry Fee £ *3* : - : - received by me,  
Special £ *52* : *10* : -  
Donkey Boiler Fee £ - : - : -  
Certificate (if required) £ - : - : - *3/2/1888*  
To be sent as per margin.  
(Travelling Expenses, if any, £ - : - : -)

Committee's Minute **TUESDAY 7 FEB 1888**

*+ Lms 1/88*

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

*Clyde District*  
Lloyd's Register  
Foundation