

# REPORT ON MACHINERY.

8346

No. 8346

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No. in Survey held at Greenock & Glasgow

Date, first Survey 22<sup>nd</sup> March 1882 Last Survey 9<sup>th</sup> February 1883

Reg. Book. on the S.S. "Elsa"

(Gross Tons) 850.34  
Tons 525.16

Master McKinlay Built at Campheltown When built 1882

Engines made at Glasgow By whom made Kincaid & Co when made 1882

Boilers made at Glasgow By whom made H. Wallace & Co when made 1882

Registered Horse Power 110 Owners The Steamship "Elsa" Coy. Ltd Port belonging to Glasgow  
managers R. Monteith & Co, 28 Henfield St, Glasgow

**ENGINES, &c.—**

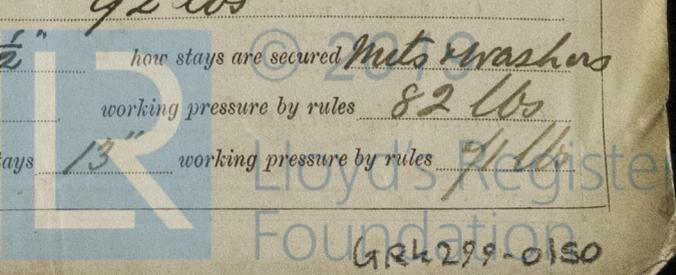
Description of Engines Compound Inverted Direct Acting  
 Diameter of Cylinders 26 & 50 Length of Stroke 33 No. of Rev. per minute 75 Point of Cut off, High Pressure 20 1/2 Low Pressure 20 1/2  
 Diameter of Screw shaft 8 1/4 Diameter of Tunnel shaft 8 1/2 Diameter of Crank shaft journals 8 1/2 Diameter of Crank pin 8 1/2 size of Crank webs 10 x 5 1/8  
 Diameter of screw 12 x 8 Pitch of screw 15 x 0 No. of blades four state whether moveable No total surface 44 sq feet  
 No. of Feed pumps two diameter of ditto 3 Stroke 16 1/2 Can one be overhauled while the other is at work yes  
 No. of Bilge pumps two diameter of ditto 3 Stroke 16 1/2 Can one be overhauled while the other is at work yes  
 Where do they pump from Engine Room, Cargo Holds & Ballast Tanks.  
 No. of Donkey Engines one Size of Pumps 4 1/2 x 8 Where do they pump from Sea, Bilges, Tanks & Hot water.

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 1/2 Are they connected to condenser, or to circulating pump Circ 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 9<sup>th</sup> February 1883

Is the screw shaft tunnel watertight yes and fitted with a sluice door yes worked from Engine Room (top platform) inside shell

**BOILERS, &c.—**

Number of Boilers one Description Cylindrical Multitubular (Iron shell)  
 Working Pressure 70 lbs Tested by hydraulic pressure to 140 lbs Date of test October 18<sup>th</sup> 1882  
 Description of superheating apparatus or steam chest Horizontal Steam Receiver  
 Can each boiler be worked separately — Can the superheater be shut off and the boiler worked separately No superheater  
 No. of square feet of fire grate surface in each boiler 62 Description of safety valves Direct spring  
 No. to each boiler two area of each valve 15.9 sq Are they fitted with easing gear yes  
 No. of safety valves to superheater No superheater area of each valve — are they fitted with easing gear —  
 Smallest distance between boilers and bunkers or woodwork 11"  
 Diameter of boilers 14'-0" Length of boilers 10'-6" description of riveting of shell long. seams Quad Lap. circum. seams Double Lap  
 Thickness of shell plates 7/8" diameter of rivet holes 1 3/32" whether punched or drilled drilled pitch of rivets 5 1/2"  
 Lap of plating 10 1/2" per centage of strength of longitudinal joint Plate riv. 70 working pressure of shell by rules 70 lbs  
 Size of manholes in shell 16" x 12" size of compensating rings 6" x 7/8"  
 No. of Furnaces in each boiler 3 outside diameter 3'-5" length, top 4'-3" bottom 9'-9"  
 Thickness of plates 1/2" description of joint Double Butte Strap rings are fitted on bottom greatest length between rings —  
 Working pressure of furnace by the rules 77 lbs  
 Combustion chamber plating, thickness, sides 7/16" full back 7/16" full top 1/2"  
 Pitch of stays to ditto sides 8" x 8" back 8" x 8" top 8" x 9"  
 If stays are fitted with nuts or riveted heads riveted heads working pressure of plating by rules 70 lbs.  
 Diameter of stays at smallest part 1 1/8" working pressure of ditto by rules 92 lbs  
 End plates in steam space, thickness 3/4" pitch of stays to ditto 15 1/2" x 15 1/2" how stays are secured Nuts & washers  
 Working pressure by rules 87 lbs diameter of stays at smallest part 2" working pressure by rules 82 lbs  
 Front plates at bottom, thickness 7/16" Back plates, thickness 7/16" greatest pitch of stays 13" working pressure by rules 91 lbs



Diameter of tubes  $3\frac{3}{4}$ " pitch of tubes  $4\frac{1}{8} \times 4\frac{1}{8}$ " thickness of tube plates, front  $\frac{5}{8}$ " back  $\frac{5}{8}$ "  
 How stayed *Stay Tubes* pitch of stays  $9\frac{3}{4} \times 14\frac{5}{8}$ " width of water spaces  $6\frac{1}{2}$ "  
 Diameter of Superheater or Steam chest  $3-9$ " length  $8-0$ "  
 Thickness of plates  $\frac{7}{16}$ " description of longitudinal joint *Lap dr.* diameter of rivet holes  $\frac{13}{16}$ " pitch of rivets  $3\frac{1}{4}$ "  
 Working pressure of shell by rules  $111$  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  $\frac{5}{8}$ " How stayed *Dished to 3'-0" radius*  
 Superheater or steam chest; how connected to boiler *By a neck 14" dia. Flanged and riveted to both*  
**DONKEY BOILER—** Description *Vertical with two cross-tubes.*  
 Made at *Glasgow* By whom made *J. Neilson & Son* when made *7.12.82.*  
 Where fixed *in the hole.* working pressure  $70$  lbs Tested by hydraulic pressure to  $140$  lbs No. of Certificate  $936$   
 Fire grate area  $11$  sq feet Description of safety valves *Direct Spring* No. of safety valves *one* area of each  $7.12$   
 If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *yes if stop valve is open*  
 Diameter of donkey boiler  $4'6"$  length  $9'6"$  description of riveting *double & single*  
 thickness of shell plates  $\frac{3}{8}$ " diameter of rivet holes  $\frac{3}{4}$ " whether punched or drilled *punched*  
 pitch of rivets  $2\frac{1}{4}$ " lap of plating  $4"$  per centage of strength of joint  $66$   
 thickness of crown plates  $\frac{1}{2}$ " stayed by *fine rod stays*  $1\frac{1}{4}$ " Effective  
 Diameter of furnace, top  $3-4$ " bottom  $3-10$ " length of furnace  $4-6$ "  
 thickness of plates  $\frac{7}{16}$ " description of joint *Lap single riveted*  
 thickness of furnace crown plates  $\frac{7}{16}$ " stayed by *fine rod stays*  $1\frac{1}{4}$ " Effective  
 Working pressure of shell by rules  $70$  lbs working pressure of furnace by rules  $73$  lbs.  
 diameter of uptake  $11\frac{1}{2}$ "/ $13$ " thickness of plates  $\frac{7}{16}$ " thickness of water tubes  $\frac{3}{8}$ "

*J.M. Negro*

The foregoing is a correct description,  
*James Neilson & Son* Manufacturers of Boilers  
*River Road 170 St. Andrew's Place*  
*Manufacturers of Machinery*

*Thos. Downie*  
*Chief Engineer*

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

*The Engines & Boilers have been specially surveyed during construction: quality of workmanship good. The Machinery & Boilers are now in good order and safe working condition, and are in my opinion eligible to be noted in the Register Book. LLOYD'S M.C. 2, 83.*

*It is submitted that this vessel is eligible to have the notification of M.C. 2, 83. recorded.*  
*R. 12/2/83*

*18*

The amount of Entry Fee .. £ 2 : : : received by me,  
 Special .. £ 16 : 10 : : 6/2/83  
 Certificate (if required) .. £ : : : 10/2/83  
 To be sent as per margin.  
 Travelling Expenses, if any, £ ( )

*Andrew L. Heaton*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.  
 Greenwich District.

Committee's Minute .. *Tuesday, 13th February 1883.*