

# REPORT ON MACHINERY

No. 146 B Received at London Office THURS NOV 11  
 No. in Survey held at Thorskog Date, first Survey 6 June 1883 Last Survey October 1886  
 Reg. Book. on the S.S. Solon (Number of Visits) Tons 408/302  
 Master J. A. Samuelson Built at Thorskog By whom built P. Larsson When built 1886  
 Engines made at J. & C. Bolinders By whom made Stockholm when made 1886  
 Boilers made at Thorskog By whom made P. Larsson when made 1886  
 Registered Horse Power 60 Owners P. Larsson Port belonging to Thorskog

## ENGINES, &c.—

Description of Engines Vertical Compound Inverted  
 Diameter of Cylinders 16 1/2 x 31 1/4 Length of Stroke 20 1/2 No. of Rev. per minute \_\_\_\_\_ Point of Cut off, High Pressure 0.5 Low Pressure 0.5  
 Diameter of Screw shaft 6 1/4 Diam. of Tunnel shaft 6 Diam. of Crank shaft journals 6 1/4 Diam. of Crank pin 6 1/4 size of Crank webs 7 1/2 x 4 1/2  
 Diameter of screw 8 Pitch of screw 11 No. of blades 4 state whether moveable No total surface 20 sq'  
 No. of Feed pumps 1 diameter of ditto 2 3/4 Stroke 10 1/4 Can one be overhauled while the other is at work —  
 No. of Bilge pumps 1 diameter of ditto 2 3/4 Stroke 10 1/4 Can one be overhauled while the other is at work —  
 Where do they pump from Engine room and hold bilges  
 No. of Donkey Engines 1 double acting Size of Pumps 2 1/2" Dntr 6" Stroke Where do they pump from from sea and all compartments  
 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 1 and sizes 3" Are they connected to condenser, or to circulating pump to circulating pumps  
 How are the pumps worked by hand from the main engines crosshead  
 Are all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks Valves and Cocks  
 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 October 1886  
 Is the screw shaft tunnel watertight Yes and fitted with a sluice door Yes worked from Raised Quarter Deck

## BOILERS, &c.—

Number of Boilers One Description Horizontal Multitubular Whether Steel or Iron Steel  
 Working Pressure 80 lbs per sq in Tested by hydraulic pressure to 160 lbs per sq in Date of test 23 October 1883  
 Description of superheating apparatus or steam chest Vertical Cylindrical  
 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 26.4 Description of safety valves Adams Spring Safety No. to each boiler Two  
 Area of each valve 7.0 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 2" Diameter of boilers 10'-1"  
 Length of boilers 8'-8" description of riveting of shell long. seams double butt shape circum. seams Thickness of shell plates 5/8"  
 Diameter of rivet holes 7/8" whether punched or drilled drilled pitch of rivets 3 1/2" Lap of plating 4 1/4"  
 Per centage of strength of longitudinal joint 75% working pressure of shell by rules 96 lbs size of manholes in shell 16" x 11"  
 Size of compensating rings 3 1/2" x 3/8" No. of Furnaces in each boiler 2  
 Outside diameter 34 length, top 6'-7" bottom 8'-2" thickness of plates 1/2" description of joint Single Lap if rings are fitted Yes  
 Greatest length between rings 4' working pressure of furnace by the rules 165 lbs combustion chamber plating, thickness, sides 1 1/2" back 1 1/2" top 1/2"  
 Pitch of stays to ditto, sides 7 1/2" back 7 1/2" top — If stays are fitted with nuts or riveted heads riveted heads working pressure of plating by rules 156 Diameter of stays at smallest part 1 1/4" working pressure of ditto by rules 108 end plates in steam space, thickness front 1 1/2" back 1 1/2"  
 Pitch of stays to ditto 15 1/2" x 13" how stays are secured to stay plates with screw bolts working pressure by rules 100 lbs diameter of stays at smallest part 1 3/4" working pressure by rules 80 lbs Front plates at bottom, thickness 1 1/2" Back plates, thickness 5/8"  
 Greatest pitch of stays 7 1/2" working pressure by rules 105 lbs Diameter of tubes 3" pitch of tubes 4 1/4" thickness of tube plates, front 3/4" back 3/4" how stayed Stay holes pitch of stays 15" x 9" width of water spaces 2 1/4"  
 Diameter of Superheater or Steam chest 36" length 3' thickness of plates 1/16" description of longitudinal joint Simple Lap diam. of rivet holes 7/8"  
 Pitch of rivets 2 3/4" working pressure of shell by rules 146 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 9/16" how stayed curved with 3" radius  
 Superheater or steam chest; how connected to boiler with thick piece 15" Dntr 7" high  
3/4" plate



DONKEY BOILER— Description *Vertical cylindrical*  
Made at *Saleshead* by whom made *Clarke Chapman & Co.* when made \_\_\_\_\_ where fixed *Engine Room*  
Working pressure *80 lbs* tested by hydraulic pressure to *160 lbs* No. of Certificate *N: 2012* 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 Connecting rod top end and 2 bottom end bolts, 2 Main-bearing bolts, 1 Set coupling bolts, 1 Set feed and bridge pump valves, a quantity of assorted bolts and nuts, iron of various sizes*

The foregoing is a correct description,

Manufacturer.

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

*The Machinery is of a good construction. The Material and Workmanship is of good quality.*

*The steel used in the boiler is tested at Glasgow by the Lloyd's Surveyors in accordance with their Report N: 2913*

*The Engine and boiler is examined by me at various times from the commencement of the work until the final test under steam and found to be in good order and safe working condition and in my opinion merit the favorable consideration of the Committee  
to be notified in the Register Book L.M.C.*

The amount of Entry Fee .. £ 1 : : received by me,  
Special .. £ 9 : :  
Donkey Boiler Fee .. £ : :  
Certificate (if required) .. £ 2 : 6 Nov 1886  
(To be sent as per margin.)

(Travelling Expenses, if any, £ )

Committee's Minute

FRIDAY NOV 12 1886

*L. M. C.*

*add 20/11/86*

*Submitted that the vessel is eligible to have L.M.C. 10.86  
M 11.11.86*

*C. J. M. Allen*

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



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Foundation