

# REPORT ON MACHINERY.

8590

No. **8590**

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

Date, first Survey **12<sup>th</sup> Sept. 1884** Last Survey **June 13<sup>th</sup> 1888**

Received at London Office

(Number of Visits **57**) Tons **2412.44**  
**1358.66**

on the

**S S Saitko Maru**

Master **Wilson Walker** Built at **Glasgow** By whom built **The London & Glasgow Co Ltd** When built **1888**

Engines made at **Glasgow** By whom made **The London & Glasgow Co Ltd** when made **1888**

Boilers made at **Gt.** By whom made **Gt.** when made **1888**

Registered Horse Power **4400 Horses** Owners **Nippon Yusen Kaisha** Port belonging to **Shio. Japan**

**ENGINES, &c.**

Description of Engines **Inverted Direct Acting Triple Expansion Surface Condensing**

Diameter of Cylinders **33 1/2, 54, 87** Length of Stroke **15 1/2** No. of Rev. per minute **66** Point of Cut off, High Pressure **.75** Low Pressure **.7**

Diameter of Screw shaft **16 1/2** Diam. of Tunnel shaft **15 1/8** Diam. of Crank shaft journals **16 1/16** Diam. of Crank pin **16 1/16** size of Crank webs **12 + 23**

Diameter of screw **17-0** Pitch of screw **26-9** No. of blades **Four** state whether moveable **Yes** total surface **95 1/2 sq ft.**

No. of Feed pumps **Two** diameter of ditto **5** Stroke **30** Can one be overhauled while the other is at work **Yes**

No. of Bilge pumps **Two** diameter of ditto **5 1/4** Stroke **30** Can one be overhauled while the other is at work **Yes**

Where do they pump from **Holds & Bilges**

No. of Donkey Engines **Two** Size of Pumps **Ballast 14 cwt 12 pump 12 cwt** Where do they pump from **Ballast engine from Sea, bilge, holds, condenser & tanks**

**Northampton from Sea, Condenser & Hotwell** Ballast engine also from Hotwell

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 **Three** and sizes **10 dia** Are they connected to condenser, or to circulating pump **Circulating pump**

How are the pumps worked **By pump, also Feed & Bilge from cross head of L.P. engine** **Two 14" centrifugal pumps for circulating**

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

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 **Forward Hold suction** How are they protected **Wood 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 **Before launching**

Is the screw shaft tunnel watertight **Yes** and fitted with a sluice door **Yes** worked from **Engine room platform at deck**

**BOILERS, &c.**

Number of Boilers **Four** Description **Cyl. Mult. Two Triple & Two double ended** Whether Steel or Iron **Steel**

Working Pressure **160 lb.** Tested by hydraulic pressure to **320 lb.** Date of test

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 **Yes**

No. of square feet of fire grate surface in each boiler **110** Description of safety valves **Direct springs** No. to each boiler **Two**

Area of each valve **7** Are they fitted with easing gear **Yes** No. of safety valves to superheater **None** area of each valve **None**

Are they fitted with easing gear **Yes** Smallest distance between boilers and bunkers or woodwork **No bunkers at side** Diameter of boilers **13-6**

Length of boilers **5.3. 10-0** description of riveting of shell long. seams **Butt. Three rows circum. seams Lap. ends double** Thickness of shell plates **1 1/4**

Diameter of rivet holes **1 3/16** whether punched or drilled **Drilled** pitch of rivets **7 1/16 or 3 1/32** Lap of plating **1-8 3/4**

Per centage of strength of longitudinal joint **81.4** working pressure of shell by rules **163 lb.** size of manholes in shell **16 x 12**

Size of compensating rings **Double riveted, doubling plate 1 1/8 thick** No. of Furnaces in each boiler **3.3. Three**

Outside diameter **39** length, top **7-0** bottom **7-0** thickness of plates **1 1/32** description of joint **Weld** if rings are fitted **Annular**

Greatest length between rings **9** working pressure of furnace by the rules **160 lb.** combustion chamber plating, thickness, sides **9/16** back **9/16** top **9/16**

Pitch of stays to ditto, sides **7 1/2 + 7 1/2** back **7 1/2** top **7 1/2** If stays are fitted with nuts or riveted heads **Nuts** working pressure of plating by rules **173 lb.**

Diameter of stays at smallest part **1 1/2 + 1 3/16** working pressure of ditto by rules **190 lb.** end plates in steam space, thickness **1 5/16** 10" riveted ships

of stays to ditto **15 x 15** how stays are secured **Nuts** working pressure by rules **160 lb.** diameter of stays at smallest part **2 1/2**

Greatest pitch of stays **12 x 7 1/2** working pressure by rules **160 lb.** Diameter of tubes **3 1/2 (trans)** pitch of tubes **5 1/8 x 4 3/4** thickness of tube plates, front **7/8** back **29/32**

how stayed **Steel tubes** pitch of stays **14 1/2 x 9 1/2** width of water spaces **5 1/6**

Diameter of Superheater or Steam chest **None** length **None** thickness of plates **None** description of longitudinal joint **None** diam. of rivet holes **None**

Pitch of rivets **None** working pressure of shell by rules **None** diameter of flue **None** thickness of plates **None** If stiffened with rings **None**

Distance between rings **None** working pressure by rules **None** end plates of superheater, or steam chest; thickness **None** how stayed **None**

Superheater or steam chest; how connected to boiler **None**

Form No. 8-2460-27/83

Lloyd's Register  
Foundation

**DONKEY BOILER**— Description *Cylindrical - Multitubular.*  
 Made at *Glasgow* by whom made *The London & Glasgow Co* when made *1888* where fixed *Main Deck*  
 Working pressure *100 lbs* tested by hydraulic pressure to *200 lbs* No. of Certificate \_\_\_\_\_ fire grate area *16 1/2 sq ft* description of safety  
 valves *Direct opening* No. of safety valves *4* area of each *3.14 sq ft* if fitted with easing gear *Yes* if steam from main boilers can  
 enter the donkey boiler *No* diameter of donkey boiler *7-7"* length *7-6"* description of riveting *Butt. Double riveted*  
 Thickness of shell plates *9/16"* diameter of rivet holes *7/8"* whether punched or drilled *Drilled* pitch of rivets *3"* lap of plating *8"*  
 per centage of strength of joint *71* thickness of ~~iron~~ plates *25/32"* stayed by *Steel stay. 2 rows. pitch 14 1/2 + 11*  
 Diameter of furnace, top *43"* bottom *-* length of furnace *5-3"* thickness of plates *17/32"* description of joint *Weld*  
 Thickness of ~~furnace~~ <sup>comb cham</sup> plates *1/2"* stayed by *1 3/8" stay. 8x8 pitch. sub. = 120 lbs* working pressure of shell by rules *100*  
 Working pressure of furnace by rules *100 lbs* diameter of ~~water~~ <sup>water</sup> tubes *3 1/2 in.* thickness of plates *25/32 + 5/8"* thickness of water tubes *-*

**SPARE GEAR.** State the articles supplied:— *As per requirements, also according to list appended hereto.*

The foregoing is a correct description,  
*Wm. G. Wilson* Manufacturer

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

These Engines & boilers have been constructed under special survey - they are of good material & workmanship - they have been well fitted on board - satisfactorily tested under steam and I am of opinion they are eligible to be classed **L.M.C. 6-88** in the Register Book.  
 Since the completion of the work by the Engineers the owners have fitted in the engine room a double acting pair of Worthington pumps, 5 1/4" cylinders 4" pumps, the suction <sup>from</sup> the sea is taken from a cock on the side of the main injection valve, fitted when the vessel was in Dry Dock on the 14<sup>th</sup> inst. - the discharge is connected to Main & donkey boilers and Deck. These alterations & additions are satisfactory.  
 The ballast engine discharges into Main & donkey boilers, tanks, sanitary tank, hydrant pipes for fire on board & on deck.  
 Appended hereto are the photo tracings approved for main boilers also amended tracings of same - <sup>highly altered</sup> ~~fully altered~~ Reports on Steel tests and one Report on Forgings and full list of spare gear.

*Spare gear list will be forwarded tomorrow*

*No submitter that this vessel is eligible to have the notation + L.M.C. 6-88 recorded + same*  
*W.G. Wilson 14/6/88*

*W.G. Wilson*

The amount of Entry Fee £ *3* : - : - received by me,  
 Special £ *42* : - : -  
 Donkey Boiler Fee .. £ - : - : -  
 Certificate (if required) .. £ - : - : - *13/6 1888*  
 To be sent as per margin.

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

Committee's Minute *+ dml 6/88* **FRIDAY 15 JUNE 1888**

