

REPORT ON MACHINERY.

No. 3870

No. in Survey held at
Reg. Book.

Aberdeen

Date, first Survey 20 Dec 1887 Last Survey 2 June 1888

(Number of Vessels 45)

on the *Steel S. S. INANDA*

Tons 1128

Master *Stuart* Built at *Aberdeen* By whom built *Hall Russell & Co* When built *1888*

Engines made at *Aberdeen* By whom made *Hall Russell & Co* when made *1888*

Boilers made at *D* By whom made *D* when made *1888*

Registered Horse Power *220* Owners *J J Rennie Son & Co* Port belonging to *Aberdeen*

ENGINES, &c.—

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

Diameter of Cylinders *21-34-56* Length of Stroke *42* No. of Rev. per minute *70* Point of Cut off, High Pressure *28 1/4* Low Pressure *24*

Diameter of Screw shaft *11 1/2* Diam. of Tunnel shaft *11* Diam. of Crank shaft journals *11 1/4* Diam. of Crank pin *11 1/4* size of Crank webs *14 x 7 1/8*

Diameter of screw *14-2* Pitch of screw *17-0* No. of blades *4* state whether moveable *no* total surface *58 sq ft.*

No. of Feed pumps *2* diameter of ditto *3* Stroke *23* Can one be overhauled while the other is at work *yes*

No. of Bilge pumps *2* diameter of ditto *3 3/4* Stroke *23* Can one be overhauled while the other is at work *yes*

Where do they pump from *all compartments & Sea*

No. of Donkey Engines *Two* Size of Pumps *8 D² x 10 S. 3 3/4 D² x 10 S* Where do they pump from *all compartments, Sea*

tanks & 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 *One* and sizes *4 1/2* Are they connected to condenser, or to circulating pump *Circ. Pump*

How are the pumps worked *lever over condenser*

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 *Fore & Main Tank & Bilge Suction* How are they protected *by stout boxing of wood*

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 *while building*

Is the screw shaft tunnel watertight *yes* and fitted with a sluice door *yes* worked from *top platform*

BOILERS, &c.—

Number of Boilers *Two* Description *Cylindrical* Whether Steel or Iron *Steel*

Working Pressure *160* Tested by hydraulic pressure to *320* Date of test *27 April 1888*

Description of superheating apparatus or steam chest *Horizontal drum*

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 *55* Description of safety valves *spring* No. to each boiler *2*

Area of each valve *11 sq* 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 *10* Diameter of boilers *13-4*

Length of boilers *10-4* description of riveting of shell long. seams *Double Lap* circum. seams *Double Lap* Thickness of shell plates *1 7/32*

Diameter of rivet holes *1 1/4* whether punched or drilled *drilled* pitch of rivets *8 1/2* Lap of plating *20 Shaps.*

Per centage of strength of longitudinal joint *85* working pressure of shell by rules *168* size of manholes in shell *18 x 12*

Size of compensating rings *28 D² x 1 1/2* No. of Furnaces in each boiler *three*

Outside diameter *41* length, top *7-0* bottom *✓* thickness of plates *19 1/32* description of joint *Ribbed* furnaces if rings are fitted *half 5*

Greatest length between rings *as per plan* working pressure of furnace by the rules *182* combustion chamber plating, thickness, sides *17 1/32* back *17 1/32* top *17 1/32*

Pitch of stays to ditto, sides *7 1/8* back *7 3/8* top *7 1/4* If stays are fitted with nuts or riveted heads *nuts* working pressure of plating by

rules *160* Diameter of stays at smallest part *1 1/4 x 1 3/8* working pressure of ditto by rules *182* end plates in steam space, thickness *1*

Pitch of stays to ditto *14 3/4 x 14 1/2* how stays are secured *dn & washer* working pressure by rules *164* diameter of stays at

smallest part *2 5/16* working pressure by rules *176* Front plates at bottom, thickness *13 1/16* Back plates, thickness *7 1/8*

Greatest pitch of stays *as per plan* working pressure by rules *as per plan* Diameter of tubes *3 7/8* pitch of tubes *4 3/4* thickness of tube

plates, front *31 1/32* back *7 1/8* how stayed *tube* pitch of stays *as per plan* width of water spaces *1 1/4*

Diameter of Superheater or Steam chest *3-3* length *6-6* thickness of plates *7 1/16* description of longitudinal joint *double lap* diam. of rivet holes *13 1/16*

Pitch of rivets *2 3/4* working pressure of shell by rules *169* 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 *5/8* how stayed *disks & 1 Stay*

2 1/2 Effective Diam Superheater or steam chest; how connected to boiler *Contracted neck*

3870 alm.

DONKEY BOILER— Description *Vertical x Tube Steel*
 Made at *Aberdeen* by whom made *Hall Russell & Co* when made *27.4.88* where fixed *Shokholm*
 Working pressure *80* tested by hydraulic pressure to *160* No. of Certificate *33* fire grate area *25 sq ft* description of safety
 valves *spring* No. of safety valves *2* area of each *7 sq ft* if fitted with easing gear *yes* if steam from main boilers can
 enter the donkey boiler *no* diameter of donkey boiler *6-6* length *13-0* description of riveting *d lap*
 Thickness of shell plates *1/2* diameter of rivet holes *13/16* whether punched or drilled *p & annealed* pitch of rivets *2 13/16* lap of plating *1 1/2*
 per centage of strength of joint *62* thickness of crown plates *13/16* stayed by *uptake & 8 stays 1 15/16 Diae Eff Diae*
 Diameter of furnace, top *5-0* bottom *6-0* length of furnace *6-3* thickness of plates *5/8* description of joint *Single Lap*
 Thickness of furnace crown plates *5/8* stayed by *di. bar & as above* working pressure of shell by rules *117*
 Working pressure of furnace by rules *70 + 1 row of stays as compensation* diameter of uptake *1 1/8* thickness of plates *1/2* thickness of water tubes *3/8*

SPARE GEAR. State the articles supplied:— *Propeller, half crank shaft, tail shaft,*
Two top end, two bottom end, two main bearings & one set
coupling bolts, feed & bilge pump valves, assorted bolts & nuts,
a few bars of iron & spare piston springs
 The foregoing is a correct description,
Hall Russell & Co. Manufacturers

General Remarks (State quality of workmanship, opinions as to class, &c.)
The Machinery has been built under special survey. The
material & workmanship is good throughout,
This vessel is eligible in my opinion to have I.M.C. 6.88
recorded.

It is submitted that
this vessel is eligible to
have I.M.C. 6.88 recorded
5.6.88

The amount of Entry Fee £ 2 : - : received by me, *ap Rsn*
 Special *Machinery Certificate* £ 31 : - : *JH*
 Donkey Boiler Fee .. £ 2 : 2 :
 Certificate (if required) .. £ gratis : *6/6/88*
 To be sent as per margin.
 (Travelling Expenses, if any, £ *✓*)

John H Heck
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping

Committee's Minute *TUES 5 JUNE 1888*
+ LMB 6/88