

REPORT ON MACHINERY.

No. 280

Received at London Office DEC 1883

No. in Survey held at *Aberdeen* Date, first Survey *18/8/82* Last Survey *21 Sept 1883*
Reg. Book. (Number of Visits) *29.79*
on the *ISS "North Star"* Tons *15.60*

Master *M. Bond* Built at *Aberdeen* By whom built *J. Duthie & Sons* When built *1883*
Engines made at *Aberdeen* By whom made *Hall Russell & Co* when made *1883*
Boilers made at *Aberdeen* By whom made *Hall Russell & Co* when made *1883*
Registered Horse Power *60* Owners *Wm Pyper & Co* Port belonging to *Aberdeen*

ENGINES, &c.—

Description of Engines *Direct Acting Compound Inlet Cyls surface Condensing*
Diameter of Cylinders *19" & 38"* Length of Stroke *24"* No. of Rev. per minute *100* Point of Cut off, High Pressure *1/2* Low Pressure *1/2*
Diameter of Screw shaft *6 1/2"* Diam. of Tunnel shaft *6 1/2"* Diam. of Crank shaft journals *7"* Diam. of Crank pin *7"* size of Crank webs *4 1/2" x 5 1/2" x 8"*
Diameter of screw *8" & 4 1/2"* Pitch of screw *14" & 6"* No. of blades *4* state whether moveable *sol* total surface *30.8 feet*
No. of Feed pumps *one* diameter of ditto *2 1/2"* Stroke *16"* Can one be overhauled while the other is at work *—*
No. of Bilge pumps *one* diameter of ditto *2 1/2"* Stroke *16"* Can one be overhauled while the other is at work *—*
Where do they pump from *all compartments*
No. of Donkey Engines *one* Size of Pumps *5" x 7" x 3" D.A.* Where do they pump from *sea Hotwell all compartments this Condenser to boiler and on deck*
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 *2 1/2"* Are they connected to condenser, or to circulating pump *Circulating*
How are the pumps worked *by levers from after engine*
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 *before being launched*
Is the screw shaft tunnel watertight *none* and fitted with a sluice door *—* worked from *—*

BOILERS, &c.—

Number of Boilers *one* Description *Circular Tubular* Whether Steel or Iron *steel*
Working Pressure *100 lbs* Tested by hydraulic pressure to *200 lbs* Date of test *14 September 1883*
Description of ~~superheating apparatus~~ steam chest *Vertical dumb*
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 *38 feet* Description of safety valves *Direct S.Z* No. to each boiler *two*
Area of each valve *11.04* 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 *4 1/2"* Diameter of boilers *11" 0"*
Length of boilers *9" 0"* description of riveting of shell long. seams *Built D.N.* circum. seams *Lap D.N.* Thickness of shell plates *3 3/8"*
Diameter of rivet holes *1 5/8"* whether punched or drilled *drilled* pitch of rivets *3 3/4"* Lap of plating *10" & 4 1/2"*
Per centage of strength of longitudinal joint *75 & 82 %* working pressure of shell by rules *104 lbs* size of manholes in shell *16" x 12"*
Size of compensating rings *angle 3 1/2" x 3 1/2" x 3"* No. of Furnaces in each boiler *three*
Outside diameter *36"* length, top *6" 0"* bottom *8" 6"* thickness of plates *1/2"* description of joint *Built S.N.* if rings are fitted *1/2"*
Greatest length between rings *6" 0"* working pressure of furnace by the rules *103 lbs* combustion chamber plating, thickness, sides *1/2"* back *1/2"* top *1/2"*
Pitch of stays to ditto, sides *8 1/2" x 8 1/2"* back *8 1/2" x 8 1/2"* top *round* If stays are fitted with nuts or riveted heads *nut & lock wash* working pressure of plating by rules *101 lbs* Diameter of stays at smallest part *1 1/8" steel* working pressure of ditto by rules *772 lbs* and plates in steam space, thickness *3/16"*
Pitch of stays to ditto *15 1/2" x 15 1/2"* how stays are secured *thus ends nut* working pressure by rules *102 lbs* diameter of stays at smallest part *2 3/8" steel* working pressure by rules *6642 lbs* Front plates at bottom, thickness *3/16"* Back plates, thickness *3/16"*
Greatest pitch of stays *10" x 8 3/4"* working pressure by rules *729 lbs* Diameter of tubes *3"* pitch of tubes *4 1/2" x 4"* thickness of tube plates, front *13/16"* back *4/16"* how stayed *tubes* pitch of stays *8" x 8 1/2"* width of water spaces *1 1/4" & 1"*
Diameter of ~~superheater~~ Steam chest *3" 0"* length *3" 9"* thickness of plates *1/2"* description of longitudinal joint *Lap D.N.* diam. of rivet holes *1 3/16"*
Pitch of rivets *2 1/2"* working pressure of shell by rules *200 lbs* diameter of flue *—* thickness of plates *—* If stiffened with rings *—*
Distance between rings *—* working pressure by rules *—* end plates of ~~superheater~~ steam chest; thickness *3/4"* how stayed *Dished*
~~Superheater~~ steam chest; how connected to boiler *riveted to shells*

DONKEY BOILER—

Description None

Made at _____ by whom made _____ when made _____ where fixed _____
 Working pressure _____ tested by hydraulic pressure to _____ No. of Certificate _____ 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 Top end bolts for connecting Rod and 2
 for lower end 2 main bearing bolts 5 Coupling bolts 20 bolts assorted
 several pieces of iron. piston springs. feed and bilge pump
 valves &c

The foregoing is a correct description,

Hall Russell & Co. Manufacturer. 8

General Remarks

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

The Engines and Boiler of
 this vessel have been built under special survey. The material
 and workmanship are of the best description. The Engines and
 boilers have been tested under steam and the safety valves
 set to 100 lbs working pressure. and in my opinion all are
 in good and safe working order and eligible to be entered
 into the Register Book with the distinctive mark **LMC. 9. 83**

The amount of Entry Fee .. £ 1 : 0 : 0 received by me,

Special .. £ 9 : 0 : 0

Donkey Boiler Fee .. £ - : - : -

Certificate (if required) .. £ - : - : - *for 28 1883*

To be sent as per margin.

(Travelling Expenses, if any, £ 2.16.3)

Committee's Minute

TUESDAY 4 DEC 1883

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

Sunder & District

Lloyd's Register
 Foundation