

REPORT ON MACHINERY.

3726

No. 3726

Port of Belfast

Received at London Office

THURS 10 JULY 1890

No. in Survey held at

Belfast

Date, first Survey 7 Nov. 1889 Last Survey 5th July 1890

Reg. Book. Sup.

70 on the

Steel & Plassey

(Number of Visits 33)

Tons 2046
3176
2962

Master Jos. Wadley

Built at

Belfast

By whom built

Harland & Wolff

When built

1890

Engines made at

Belfast

By whom made

Harland & Wolff

when made

1890

Boilers made at

do.

By whom made

do.

when made

1890

Registered Horse Power

300

Owners

The African S.S. Co.

Port belonging to

Liverpool

ENGINES, &c.—

Registered Speed 10 1/2 knots.

Description of Engines

Triple Expansion 3 cylinders 3 cranks D.A.S.C.

Diameter of Cylinders

22.36.60

Length of Stroke

48"

No. of Rev. per minute

72

Point of Cut off, High Pressure

.66

Low Pressure

.55

Diameter of Screw shaft

12 1/2"

Diam. of Tunnel shaft

12"

Diam. of Crank shaft journals

12 1/2"

Diam. of Crank pin

12 1/2"

size of Crank webs

15 3/4" x 9"

Diameter of screw

16-0"

Pitch of screw

17-3"

No. of blades

4

state whether moveable

no

total surface

79.0 sq ft.

No. of Feed pumps

2

diameter of ditto

3 1/2"

Stroke

24"

Can one be overhauled while the other is at work

Yes

No. of Bilge pumps

2

diameter of ditto

4"

Stroke

24"

Can one be overhauled while the other is at work

Yes

Where do they pump from

Lead from Hotwell

Bilge from all holds & 4th space, peak & Tunnel.

No. of Donkey Engines

Three

Size of Pumps

1 Duplex pump, 6" cyl. 14" pump, 6" cyl. 2 1/2" cylinder.

Where do they pump from

Sea, ballast tank, evaporator.

all bilges in hold, engine room space, peak, boilers, fresh water tank and 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

5 1/2"

Are they connected to condenser, or to circulating pump

Circulating suction.

How are the pumps worked

By links and levers from crossheads of the two after engines

Are all connections with the sea direct on the skin of the ship

Yes

Are they Valves or Cocks

Cocks & valves

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

below

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

22nd May 1890 before launching

Is the screw shaft tunnel watertight

Yes

and fitted with a sluice door

Yes

worked from

upper deck

BOILERS, &c.—

Number of Boilers

2

Description

blended riv. multitubular

Whether Steel or Iron

Steel

Working Pressure

180 lbs.

Tested by hydraulic pressure to

360 lbs.

Date of test

28th May 1890

cert. No 78.

Description of superheating apparatus or steam chest

none fitted

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

61

Description of safety valves

D. Cockburn's

No. to each boiler

2

Area of each valve

8.3 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

12"

Diameter of boilers

11'6"

Length of boilers

17-0"

description of riveting of shell long. seams

double butt straps

circum. seams

inner tube

Thickness of shell plates

1 1/8"

Diameter of rivet holes

1 1/4"

whether punched or drilled

drilled

pitch of rivets

8 1/2"

Lap of plating

18 1/2" x 3 1/2" or 18"

Percentage of strength of longitudinal joint

85.3

working pressure of shell by rules

181 lbs.

size of manholes in shell

12" x 16"

Size of compensating rings

23" x 27" x 1 1/8" McNeil's patent ring.

No. of Furnaces in each boiler

Four

Outside diameter

38"

length, top

6-9"

bottom

✓

thickness of plates

5 1/8"

description of joint

welded

if rings are fitted

rolled

Greatest length between rings

9"

working pressure of furnace by the rules

210

combustion chamber plating, thickness, sides

19"

back

5 1/8"

top

5 1/8"

Thickness of stays to ditto, sides

7 3/4"

back

✓

top

7 3/4" x 8 1/2"

If stays are fitted with nuts or riveted heads

nutted in

working pressure of plating by

rules

180 lbs.

Diameter of stays at smallest part

1 3/8"

working pressure of ditto by rules

197

Thickness of stays to ditto

18" x 16 1/4"

how stays are secured

double nuts and lapping

working pressure by rules

228 lbs.

with

C-240

diameter of stays at

smallest part

2 3/4"

working pressure by rules

190 lbs.

Front plates at bottom, thickness

1 3/8"

Back plates, thickness

✓

Greatest pitch of stays

14 1/4"

working pressure by rules

180 lbs.

Diameter of tubes

3 1/4"

pitch of tubes

4 1/2" x 4 1/2"

thickness of tube

1 1/2"

how stayed

Stay tubes

pitch of stays

9" x 9"

width of water spaces

bet. 1" & 1 1/2"

bet. 1" & 1 1/2"

✓

Diameter of Superheater or Steam chest

✓

length

DONKEY BOILER— Description *For. Cir. Single ended. Mult. with 2 furnaces. Steel*
 Made at *Belfast* by whom made *Harland & Wolff* when made *1890* where fixed *upper deck*.
 Working pressure *70 lbs.* tested by hydraulic pressure to *140 lbs.* No. of Certificate *79* fire grate area *23.75 sq. ft.* description of safety
 valves *Cockburn's Sp.* No. of safety valves *2* area of each *5.24* if fitted with easing gear *Yes* if steam from main boilers can
 enter the donkey boiler *No* diameter of donkey boiler *9'-0"* length *9'-0"* description of riveting *Lap and double riveted*
 Thickness of shell plates *17/32* diameter of rivet holes *15/16* whether punched or drilled *drilled* pitch of rivets *3 1/4* lap of plating *4 1/2*
 per centage of strength of joint *71* thickness of *end* plates *top 5/8* stayed by *3 1/4" solid iron stays, stay tubes & screw stays*
 Diameter of furnace, top *2'-7"* bottom *2'-7"* length of furnace *5'-10 1/2"* thickness of plates *7/16* description of joint *double butt straps and*
 Thickness of *C.C. side shell* crown plates *1/2"* stayed by *Screw stays W.I. 1 1/4" dia. top with guides* working pressure of shell by rules *77*
 Working pressure of furnace by rules *74 lbs.* diameter of uptake *✓* thickness of plates *✓* thickness of water tubes *✓*

SPARE GEAR. State the articles supplied:— *2 connecting rod top end bolts and 2 con*
rod bottom end bolts with nuts; 2 main bearing bolts & nuts; 1 set of
coupling bolts & nuts; 1 set of feed and bridge pump valves; a piston
ring (from bottom) for each piston; 1 F & L.P. valve spindle; 1 set of air and cir

The foregoing is a correct description,

pump valves.

Harland & Wolff Manufacturer.

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

The machinery of this steamer has been constructed in accordance with the approved plans of main and donkey boilers, the Secretary's letters dated 7th August & 2nd December 1889; the Rules of the Society for New Machinery, or equal thereto and to the satisfaction of the undersigned.

The steel used in the construction of the boilers has been tested as required by the Rules, and signed invoices examined.

The main and auxiliary boilers and main steam pipe were tested by hydraulic to 360 lbs. pressure and showed no signs of weakness or leakage.

The boilers were tested under steam and safety valves adjusted to 180 lbs. & 70 lbs. working pressure on main and auxiliary boilers respectively.

The main and auxiliary engines were tried under steam at full speed.

All shafting when finished was found free from any visible defect.

The electric light was fitted throughout the vessel, the generator being a 4000 watt machine. 92 lights of 16 candle power. The system is Swan's single wire.

The material used in the construction of the machinery and the workmanship throughout are good & satisfactory & I would respectfully recommend that the Notification **+ L.M.C. 790** be granted and recorded in the Register Book.

The amount of Entry Fee .. £ 3 : 0 : 0 received by me,

Special £ 35 : 0 : 0

Donkey Boiler Fee £ :

Certificate (if required) .. £ 3 ratio: 10/11/90

To be sent as per margin.

(Travelling Expenses, if any, £)

Committee's Minute

+ L.M.C. 790

James Claffon

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

Lloyd's Register Foundation