

# REPORT ON MACHINERY.

No. 124

No. in Survey held at Reg. Book.

Dundee

Date, first Survey 19<sup>th</sup> Nov 80 Last Survey

(Received in London Office 8/9/81 18)

Sept 30 1881  
Tons 201

on the

I.S.S. "Waverley"

Master

A. Burgess

Built at

Dundee

When built

1881

Engines made at

Dundee

By whom made

Gourlay Bros

when made

1880

Boilers made at

do

By whom made

do

when made

1881

Registered Horse Power

320

Owners

Williamson Milligan Port belonging to Zine

## ENGINES, &c.—

Description of Engines

Compound direct acting 2nd Cyrs Surface Condensing

Diameter of Cylinders

41" & 78"

Length of Stroke

48"

No. of Rev. per minute

60

Point of Cut off, High Pressure 2 1/2" Low Pressure

Diameter of Screw shaft

14 1/2"

Diameter of Tunnel shaft

13 1/2"

Diameter of Crank shaft journals

14 1/2"

Diameter of Crank pin

14 1/2"

size of Crank

Diameter of screw

18" & 6"

Pitch of screw

19" & 0"

No. of blades

4

state whether moveable Bolt total surface 94.6

No. of Feed pumps

two

diameter of ditto

8 1/2"

Stroke

9"

Can one be overhauled while the other is at work

yes

No. of Bilge pumps

two

diameter of ditto

5 1/2"

Stroke

29"

Can one be overhauled while the other is at work

yes

Where do they pump from

all compartments

No. of Donkey Engines

one

Size of Pumps

7" x 8" x 4 1/2"

Where do they pump from

Pulsometer from

and Compartment. This ship side 28. from Sea Hatch to boilers the Con

Are all the bilge suction pipes fitted with roses

yes

Are the roses always accessible

yes

except those in hold when vessel

No. of bilge injections

one

and sizes

6"

Are they connected to condenser, or to circulating pump

circulating

How are the pumps worked

by pin from end of crank shaft and levers from

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

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 launch 28.7.81

Is the screw shaft tunnel watertight

yes

and fitted with a sluice door

yes

worked from cylinder platform

## BOILERS, &c.—

Number of Boilers

two

Description

Circular tubular fired from both ends

Working Pressure

80 lbs

Tested by hydraulic pressure to

160 lbs

Date of test

13<sup>th</sup> June 1881

Description of superheating apparatus on steam chest

Horizontal dome

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

82 feet

Description of safety valves

Direct Spring load 9.13.

No. to each boiler

two

area of each valve

20.6

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

9 1/2"

Diameter of boilers

12' 9"

Length of boilers

8' 6"

description of riveting of shell long. seams Lap Ribble R. circum. seams Lap D. 1

Thickness of shell plates

25" 3/2"

diameter of rivet holes

1 3/16"

whether punched or drilled drilled pitch of rivets

4 1/2"

Lap of plating

8 1/2" & 6 1/2"

per centage of strength of longitudinal joint

73 & 85 1/2

working pressure of shell by rules

89 lb

Size of manholes in shell

17" x 13"

size of compensating rings

4" x 4" x 3"

No. of Furnaces in each boiler

two each end

outside diameter

45 3/8"

length, top

6' 6"

bottom

6' 6"

Thickness of plates

7/16"

description of joint

Welded

if rings are fitted

greatest length between rings

Working pressure of furnace by the rules

94 lbs

Combustion chamber plating, thickness, sides

15 1/2"

back

15 1/2"

top

9 1/2"

Pitch of stay ditto

—

sides

9" x 8 1/2"

back

8 1/2" x 8 1/2"

top

round

If stays are fitted with nuts or riveted heads

nuts both ends

working pressure of plating by rules

83 lbs

Diameter of stays at smallest part

1 3/2"

B.T.

working pressure of ditto by rules

546.4 lbs

End plates in steam space, thickness

13/16"

pitch of stays to ditto

19" x 14 1/2"

how stays are secured this section

Working pressure by rules

86 lbs

diameter of stays at smallest part

1 1/2"

working pressure by rules

747.1 lbs

Front plates at bottom, thickness

7/16"

Back plates, thickness

—

greatest pitch of stays

working pressure by rules

—



Number of tubes  $3\frac{1}{2}$  pitch of tubes  $4\frac{3}{4}$  thickness of tube plates, front  $\frac{4}{16}$  back  $\frac{4}{16}$   
 Stayed 2 tubes pitch of stays  $9\frac{1}{2} \times 9\frac{1}{2}$  width of water spaces  $1\frac{1}{4}$   
 Number of ~~Superheater~~ Steam chest  $3\frac{1}{2}$  length  $14\frac{0}{16}$   
 Thickness of plates  $\frac{7}{16}$  description of longitudinal joint Lap D.R. diameter of rivet holes  $3\frac{1}{4}$  pitch of rivets  $2\frac{1}{2}$   
 Pressure of shell by rules  $154\frac{1}{2}$  Diameter of flue  $\frac{1}{2}$  thickness of plates  $\frac{1}{2}$   
 With rings  $\frac{1}{2}$  distance between rings  $\frac{1}{2}$  Working pressure by rules  $\frac{1}{2}$   
 Of ~~superheater~~ on steam chest; thickness  $3\frac{1}{4}$  How stayed by 4 lead stays the ends Anti-1  $\frac{23}{32}$  Dia  
 On steam chest; how connected to boiler by two malleable necks riveted to shells  
 BOILER 2 Description Round Vertical  
 By whom made Courlay Bros & Co. when made 1881  
 On Deck working pressure  $50\frac{1}{2}$  Tested by hydraulic pressure to  $100\frac{1}{2}$  No. of Certificate 120  
 Area 12 feet Description of safety valves Direct S.V. No. of safety valves one area of each 4<sup>0</sup>  
 If steam from main boilers can enter the donkey boiler no  
 Easing gear yes  
 Donkey boiler  $4\frac{1}{2} \times 8$  length  $10\frac{0}{16}$  description of riveting Lap D.R.  
 Shell plates  $3\frac{3}{8}$  diameter of rivet holes  $3\frac{1}{4}$  whether punched or drilled Punched  
 Lap of plating  $3\frac{7}{8}$  per centage of strength of joint 73-88%  
 Stayed by 4 Sunset stays  
 Furnace, top  $3\frac{1}{2} \times 6$  bottom  $3\frac{1}{2} \times 11$  length of furnace  $6\frac{0}{16}$   
 Description of joint Lap S.R.  
 Stayed by Dished  
 Pressure of shell by rules  $74\frac{1}{2}$  working pressure of furnace by rules  $50\frac{1}{2}$   
 Thickness of plates  $\frac{3}{8}$  thickness of water tubes  $\frac{5}{16}$

The foregoing is a correct description,  
 Manufacturer.

General Remarks (State quality of workmanship, opinions as to class, &c.) The Boilers and Machinery  
this vessel have been built in accordance with the  
requirements of the Rules and tracings of boiler  
submitted for the Committee's approval dated the  
2 November 1880. The material and workmanship  
are of the best description. The boilers have been  
run under steam and the safety valves set to a  
working pressure of 80 lbs per square inch. The  
machinery at work and all found satisfactory and  
in good working order. and in my opinion are  
eligible to be entered into the Register Book  
with the distinctive mark  $\clubsuit$  Lloyd's R.C. in red.  
9.81.

submitted that  
 vessel is eligible to  
 be entered into the  
 Register Book  
 with the distinctive  
 mark  $\clubsuit$  Lloyd's R.C.  
 in red.  
 M 8/9/81

amount of Entry Fee .. £ 3 : " : " received by me,  
 Special Div. 1000 .. £ 36 : " : "  
 Certificate (if required) .. £ - : 5 : " 18  
 To be sent as per margin.  
 Expenses, if any, £  
 Committee's Minute  
 Friday, September, 9th 1881,  
 + Lloyd's R.C.  
 John Harrocks  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping,  
 Dundee District  
 Lloyd's Register Foundation