

REPORT ON MACHINERY.

No. 101

No. in Survey held at
Reg. Book.

Zeith

Date, first Survey

(Received in London Office 12/8/80)

Last Survey 21st June 1880

504 on the

I.S.S. "Ellie",

Tons 443.

Master

J. Wilkie

Built at

Inverkeithing

When built

1870

Engines made at

Inverkeithing

By whom made

J. Scott & Sons

when made

1870

Boilers made at

Zeith

By whom made

Hawthorn & Co

when made

1880

Registered Horse Power

65

Owners

James Cormack

Port belonging to

Zeith

ENGINES, &c.—

Description of Engines

Compound Int. Cyls Surface Condensing

Diameter of Cylinders

20" 36"

Length of Stroke

27"

No. of Rev. per minute

80

Point of Cut off, High Pressure

Low Pressure

Diameter of Screw shaft

8"

Diameter of Tunnel shaft

8"

Diameter of Crank shaft journals

8" 8"

Diameter of Crank pin

8" 8"

size of Crank webs 6" x 9" 3/4

Diameter of screw

9" 8"

Pitch of screw

14" 6"

No. of blades

4

state whether moveable

Solid

total surface 29 feet

No. of Feed pumps

two

diameter of ditto

3 1/2"

Stroke

16"

Can one be overhauled while the other is at work

yes

No. of Bilge pumps

two

diameter of ditto

3 7/8"

Stroke

16"

Can one be overhauled while the other is at work

yes

Where do they pump from

Engine room and after hold

No. of Donkey Engines

two

Size of Pumps

8" x 9" x 4 1/2"

Where do they pump from

Tanks. Sea engine

room on deck from sea to boiler

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

Circulating

How are the pumps worked

by levers

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

only blow off cock below fitted with lock key

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

seen on beach 15.5.80

Is the screw shaft tunnel watertight covered and fitted with a sluice door

yes

to hold

worked from cylinder platform

BOILERS, &c.—

Number of Boilers

one

Description

Circular Tubular

Working Pressure

70 lbs

Tested by hydraulic pressure to

140 lbs

Date of test

27.1.80

Description of superheating apparatus on steam chest

Horizontal dumb used on former boiler but

has been tested at this time by hydraulic pressure to 140 lbs per square inch

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

28 feet

Description of safety valves

direct spring load

No. to each boiler

two

area of each valve

9.62"

Are they fitted with easing gear

yes

No. of safety valves to superheater

yes

area of each valve

9.62"

are they fitted with easing gear

yes

Smallest distance between boilers and bunkers or woodwork

6"

Diameter of boilers

10" 7"

Length of boilers

9" 6"

description of riveting of shell long. seams

butt D.R.

circum. seams lap D.R.

Thickness of shell plates

7/8"

diameter of rivet holes

1 1/8"

whether punched or drilled

drilled

pitch of rivets

4 1/2"

Lap of plating

12 3/4" x 6 3/8"

per centage of strength of longitudinal joint

72 rivets 79

working pressure of shell by rules

98 lbs

Size of manholes in shell

17" x 11"

size of compensating rings

5 1/2" x 7/8"

No. of Furnaces in each boiler

three

outside diameter

2" 9"

length, top

6" 3"

bottom

8" 9"

Thickness of plates

top 7/16" bottom 9/16"

description of joint

butt S.R.

if rings are fitted

no

greatest length between rings

Working pressure of furnace by the rules

top 83 lbs

bottom 137 lbs

Combustion chamber plating, thickness, sides

1/2"

back

1/2"

top

1/2"

Pitch of stays to ditto

sides

9" x 7"

back

8" x 8"

top

9" x 8 1/2"

If stays are fitted with nuts or riveted heads

rivets

working pressure of plating by rules

79 lbs

Diameter of stays at smallest part

1 1/2"

B.I.

working pressure of ditto by rules

4609 lbs

End plates in steam space, thickness

1/16" and 1/8"

lining inside

pitch of stays to ditto

17" x 12"

how stays are secured

Working pressure by rules

83 lbs

diameter of stays at smallest part

2 1/2"

working pressure by rules

2914 lbs

Front plates at bottom, thickness

5/8"

Back plates, thickness

1/16"

greatest pitch of stays

13" x 8"

working pressure by rules

5918 lbs

IRON 494-0303

Diameter of tubes $3\frac{1}{4}$ " pitch of tubes $4\frac{1}{2}$ " thickness of tube plates, front $\frac{1}{16}$ " back $\frac{10}{16}$ "
How stayed *tubes & nuts* pitch of stays $13\frac{1}{2} \times 13\frac{1}{2}$ " width of water spaces $1\frac{1}{4}$ "
Diameter of Superheater or Steam chest $3\frac{1}{2}$ " length $8\frac{3}{4}$ " 27502 Jan.
Thickness of plates $\frac{7}{16}$ " description of longitudinal joint *butt D.R.* diameter of rivet holes $\frac{1}{16}$ " pitch of rivets $\frac{1}{16}$ "
Working pressure of shell by rules $\frac{1}{16}$ " Diameter of flue $\frac{1}{16}$ " thickness of plates $\frac{1}{16}$ "
If stiffened with rings $\frac{1}{16}$ " distance between rings $\frac{1}{16}$ " Working pressure by rules $\frac{1}{16}$ "
End plates of superheater or steam chest; thickness $\frac{9}{16}$ " How stayed *dished and one bolt stay in center*
Superheater or steam chest; how connected to boiler *malleable neck riveted to shell*

DONKEY BOILER.— Description *Round Multitubular*
Made at *Birkenhead* By whom made *Cochran & Co* when made *1880*
Where fixed *Stokefold* working pressure *45 lbs* Tested by hydraulic pressure to $\frac{1}{16}$ " No. of Certificate $\frac{1}{16}$ "
Fire grate area *10 feet* Description of safety valves *Levers height* No. of safety valves *one* area of each $\frac{1}{16}$ "
If fitted with easing gear *can be eased by hand* If steam from main boilers can enter the donkey boiler *no*
Diameter of donkey boiler $4\frac{1}{2}$ " length $7\frac{1}{2}$ " description of riveting *lap and butt*
thickness of shell plates $\frac{3}{8}$ " diameter of rivet holes $\frac{1}{16}$ " whether punched or drilled *punched*
pitch of rivets $2\frac{1}{2}$ " lap of plating $2\frac{1}{2} + 4\frac{1}{2}$ " per centage of strength of joint *Seam 66. Rivets 87*
thickness of crown plates $\frac{7}{16}$ " stayed by *dished and three $1\frac{1}{2}$ " diagonal stays to shell*
Diameter of furnace, top *round* bottom $3\frac{1}{2}$ " length of furnace $1\frac{1}{2}$ "
thickness of plates $\frac{3}{8}$ " description of joint *lap*
thickness of furnace crown plates $\frac{3}{8}$ " stayed by *round*
Working pressure of shell by rules *74 lbs* working pressure of furnace by rules $\frac{1}{16}$ "
diameter of uptake $11"$ thickness of plates $\frac{3}{8}$ " thickness of water tubes *2" Diameter*

The foregoing is a correct description,

Manufacturers

Hawthornes & Co

General Remarks (State quality of workmanship, opinions as to class, &c. *New Boilers have been fitted on board of this vessel at this time; agreeable to tracing submitted for the Committee's approval dated 19th September 1879, and in accordance with the requirements of the Rules. The engines have received a general overhaul the machinery have been seen at work under steam, and the safety valves set to a working pressure of 70 lbs per square inch. and in my opinion all is now in satisfactory working order and eligible to be entered into the Register Books Lloyd's M.C in need 21.6.80.*

This submitted that this vessel is eligible to have the notification MS 80 & Lloyd's M.C. recorded in the Register Book J.M. 12/8/80

The amount of Entry Fee £ $3 : 3 : 0$ received by me, *J.P.*

Special .. £ $3 : 3 : 0$

Certificate (if required) .. £ 7 August 1880

To be sent as per margin.

(Travelling Expenses, if any, £ $4 : 13 : 0$)

Committee's Minute

Friday, August 13th, 1880

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