

# REPORT ON MACHINERY.

No.

No. in Survey held at Reg. Book.

Glasgow & Leith

Date, first Survey June 1881

Last Survey June 12 1882

on the Screw Steamer "Clan MacKenzie"

2686.85  
Tons 2953.63  
1930.29

Master

Rule

Built at

Leith

When built

1881-2

Engines made at

Glasgow

By whom made

David Rowan

when made 1881-2

Boilers made at

"

By whom made

"

when made 1881-2

Registered Horse Power

400

Owners

Cayser Irvine & Coy

Port belonging to

Glasgow

## ENGINES, &c.—

Description of Engines

Compound Inverted Direct Acting

Diameter of Cylinders

39" & 45"

Length of Stroke

48"

No. of Rev. per minute

40

Point of Cut off, High Pressure

.65

Low Pressure .5

Diameter of Screw shaft

14"

Diameter of Tunnel shaft

13.5"

Diameter of Crank shaft journals

14"

Diameter of Crank pin

14.5"

size of Crank webs

16" 10"

Diameter of screw

1 1/2"

Pitch of screw

2 1/2"

No. of blades

four

state whether moveable

yes

total surface

87 sq ft

No. of Feed pumps

Two

diameter of ditto

4"

Stroke

24"

Can one be overhauled while the other is at work

yes

No. of Bilge pumps

Two

diameter of ditto

4"

Stroke

24"

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

9" x 4 3/4" x 10 1/2"

Where do they pump from

Sea Milk & Hotwell

(Centrifugal pump No 6 for Ballast Tanks)

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

yes

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

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

Main Steam pipe

How are they protected

By non casing

yes

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

On Ship previous to being launched

Is the screw shaft tunnel watertight

yes

and fitted with a sluice door

yes

worked from

Upper platform

## BOILERS, &c.—

Number of Boilers

Two

Description

Round Horizontal Double ended

Working Pressure

86 lbs

Tested by hydraulic pressure to

517 lbs

Date of test

11.2.82

Description of ~~superheating apparatus~~ steam chest

Round Longitudinal receiver to each boiler

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

82.5 sq ft

Description of safety valves

Direct Spring (Cockburn's)

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

14"

Diameter of boilers

12' 6"

Length of boilers

16'

description of riveting of shell long. seams

Double butt

Double riveted

Double riveted

Thickness of shell plates

1 1/2"

diameter of rivet holes

1 1/4"

whether punched or drilled

punched

pitch of rivets

5 1/2"

working pressure of shell by rules

93 lbs

Lap of plating

11" x 1/2"

percentage of strength of longitudinal joint

40%

working pressure of shell by rules

93 lbs

Size of manholes in shell

16" x 12"

size of compensating rings

manholes in ends of Receivers

No. of Furnaces in each boiler

Four

outside diameter

3' 10"

length, top

6' 6"

bottom

Through Furnaces

Thickness of plates

1 1/2"

description of joint

Corrugated

if rings are fitted

—

greatest length between rings

—

Working pressure of furnace by the rules

—

Combustion chamber plating, thickness, sides

9/16"

back

—

top

9/16"

Pitch of stays to ditto

sides

9" x 9"

back

—

top

9" x 7 3/4"

If stays are fitted with nuts or riveted heads

Nuts

working pressure of plating by rules

—

95 lbs

Diameter of stays at smallest part

1 1/4"

working pressure

ditto by rules

96 lbs

End plates in steam space, thickness

1 3/16"

pitch of stays to ditto

—

how stays are secured

By Double nuts

working pressure by rules

106 lbs

Working pressure by rules

103 lbs

diameter of stays at smallest part

—

working pressure by rules

106 lbs

Front plates at bottom, thickness

9/16"

Back plates, thickness

—

test pitch of stays

—

working pressure by rules

—



Diameter of tubes  $3\frac{1}{2}$ " pitch of tubes  $4\frac{3}{4}$ " thickness of tube plates, front  $\frac{1}{16}$ " back  $\frac{1}{16}$ "  
How stayed by tubes pitch of stays  $9\frac{1}{2} \times 15$ " width of water spaces  $4\frac{1}{2}$ "  
Diameter of ~~superheater or~~ steam chest  $3\frac{1}{2}$ " length  $16\frac{1}{2}$ "  
Thickness of plates  $\frac{1}{16}$ " description of longitudinal joint ~~double riveted~~ diameter of rivet holes  $\frac{3}{4}$ " pitch of rivets  $2\frac{3}{4}$ "  
Working pressure of shell by rules  $114$  lbs Diameter of flue  $1$ " thickness of plates  $\frac{1}{16}$ "  
If stiffened with rings  $1$ " distance between rings  $1$ " Working pressure by rules  $1$ "  
End plates of ~~superheater or~~ steam chest; thickness  $\frac{1}{16}$ " How stayed *Drilled & fitted with A.S. & Laphroagan plate*  
Superheater or steam chest; how connected to boiler *by two neck pieces*

DONKEY BOILER—

Description *Round vertical (M. Kenney's Patent)*  
Made at *Driskley* By whom made *Dow & McLachlan* when made *1882* signed by *E. R. M. C.*  
Where fixed *in Austin Dock* working pressure *80 lbs* Tested by hydraulic pressure to *160 lbs* No. of Certificates *(454)*  
Fire grate area *12 ft<sup>2</sup>* Description of safety valves *Direct Spring* No. of safety valves *Two* area of each *7"*  
If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no*  
Diameter of donkey boiler *6 ft* height *9' 4"* description of riveting *Double riveted laps*  
thickness of shell plates  *$\frac{1}{16}$ "* diameter of rivet holes  *$\frac{3}{4}$ "* whether punched or drilled *punched & riveted*  
pitch of rivets *3"* lap of plating  $1$ " per centage of strength of joint *73%*  
thickness of crown plates  *$\frac{10}{16}$ "* stayed by *8 Stays  $1\frac{3}{4}$ " dia*  
Diameter of furnace, top  *$4' 10\frac{1}{2}$ "* bottom  *$5' 4"$*  length of furnace  *$5' 6"$*   
thickness of plates  *$\frac{1}{16}$ "* description of joint *Single riveted laps*  
thickness of furnace crown plates  *$\frac{1}{16}$ "* stayed by *Stays  $1\frac{3}{4}$ "*  
Working pressure of shell by rules *86 lbs* working pressure of furnace by rules *89 lbs*  
diameter of uptake *13"* thickness of plates  *$\frac{1}{16}$ "* thickness of water tubes  *$\frac{1}{16}$ "*

The foregoing is a correct description,  
*David Rowan* Manufacturer.

General Remarks (State quality of workmanship, opinions as to class, &c. *These Engines & Boilers are of good workmanship and are now in good order, & safe working condition and eligible in my opinion to be entered in the Register Book.* **✠ Lloyd's M.C.B. 82**

*It is submitted that the above is eligible to have the workman's name entered in the Register Book.*

*26/6/82.*

The amount of Entry Fee *£ 3: 0: 0* received by me  
Special *£ 40: 0: 0*  
Certificate (if required) *£ 0: 0: 0* *26/6/1882*  
To be sent as per margin. *£ 43: 0: 0*  
(Travelling Expenses, if any, *£ 43: 0: 0*)

Committee's Minute

Tuesday, 27th

1882.

*James Morrison*  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.



Lloyd's Register  
Foundation