

REPORT ON MACHINERY.

No. 6449

No. in Survey held at *Glasgow*
Reg. Book.

Date, first Survey *26th June 1884* Last Survey *5th March 1884*
(Number of Visits *24*)

on the *Screw Steamer Dunedin*

Tons *1325.68*
858.05

Master *A. J. Campbell* Built at *Glasgow* By whom built *A. Stephen & Sons* When built *1884*.

Engines made at *Glasgow* By whom made *A. Stephen & Sons* when made *1884*.

Boilers made at *Do* By whom made *A. Stephen & Sons* when made *1884*.

Registered Horse Power *140* Owners *Menderson & W. McIntosh* Port belonging to *Leith*.

ENGINES, &c.—

Description of Engines *Inverted Direct acting. Surface Condensing. Compound.*

Diameter of Cylinders *28 & 52* Length of Stroke *36* No. of Rev. per minute *60* Point of Cut off, High Pressure *1/2* Low Pressure *1/2*

Diameter of Screw shaft *9 1/2* Diam. of Tunnel shaft *9* Diam. of Crank shaft journals *9 1/2* Diam. of Crank pin *9 3/4* size of Crank webs *10 1/2 x 6*

Diameter of screw *13-3* Pitch of screw *17-0* No. of blades *Four* state whether moveable *None* total surface *40 sq ft.*

No. of Feed pumps *Two* diameter of ditto *3 1/2* Stroke *1-8* Can one be overhauled while the other is at work *Yes*

No. of Bilge pumps *Two* diameter of ditto *3 1/2* Stroke *1-8* Can one be overhauled while the other is at work *Yes*

Where do they pump from *Connected to all compartments*

No. of Donkey Engines *One* Size of Pumps *8 gal. 4 pump x 8 stroke* Where do they pump from *Sea, bilges, hotwell & tanks*

Also two injectors connected to 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* Are they connected to condenser, or to circulating pump *Circulating*

How are the pumps worked *By levers from crosshead of each 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 launching.*

Is the screw shaft tunnel watertight *Yes* and fitted with a sluice door *Yes* worked from *Engine room at deck.*

BOILERS, &c.—

Number of Boilers *One* Description *Mult. Cylind.* Whether Steel or Iron *Iron Shell*

Working Pressure *75 lbs* Tested by hydraulic pressure to *150 lbs* Date of test *January 19th 1884*

Description of ~~superheating apparatus~~ or steam chest *Horizontal.*

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 *492 sq ft* Description of safety valves *Direct springs* No. to each boiler *Two*

Area of each valve *15.9 sq ins* 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 *10* Diameter of boilers *14-0*

Length of boilers *11-0* description of riveting of shell long. seams *Weld & Butt* circum. seams *Lap. double* Thickness of shell plates *1 3/32*

Diameter of rivet holes *1 3/16* whether punched or drilled *Drilled* pitch of rivets *5 1/8* Lap of plating *Butt 13*

Per centage of strength of longitudinal joint *Weld 70* working pressure of shell by rules *85 lbs* size of manholes in shell *15 x 11 1/2*

Size of compensating rings *4 1/2 x 78 double riveted* No. of Furnaces in each boiler *Three*

Outside diameter *3-7 1/2 x 3-3* length, top *7-6* bottom *7-6* thickness of plates *1 1/32* description of joint *Double butt* if rings are fitted *No*

Greatest length between rings *—* working pressure of furnace by the rules *78 lbs* combustion chamber plating, thickness, sides *7/16* back *7/16* top *7/16*

Pitch of stays to ditto, sides *7 1/2* back *7 1/2* top *—* If stays are fitted with nuts or riveted heads *Nuts* working pressure of plating by rules *90 lbs*

Diameter of stays at smallest part *1 1/4 in* working pressure of ditto by rules *100 lbs* end plates in steam space, thickness *3/4*

Pitch of stays to ditto *15* how stays are secured *Nuts & washers* working pressure by rules *90 lbs* diameter of stays at smallest part *2 3/16*

working pressure by rules *100 lbs* Front plates at bottom, thickness *3/4* Back plates, thickness *3/4*

Greatest pitch of stays *15 1/4* working pressure by rules *75 lbs* Diameter of tubes *3 1/2* pitch of tubes *4 3/4* thickness of tube plates, front *3/4* back *7/16*

how stayed *Stay tubes* pitch of stays *15 x 14 1/4* width of water spaces *3 1/2 to 7 1/2*

Diameter of ~~Superheater or~~ Steam chest *3-0* length *6-9* thickness of plates *7/16* description of longitudinal joint *Lap. double* diam. of rivet holes *3/4*

Pitch of rivets *2 3/4* working pressure of shell by rules *140 lbs* diameter of flue *—* thickness of plates *—* If stiffened with rings *—*

Distance between rings *—* working pressure by rules *—* end plates of superheater, or steam chest; thickness *1/2* how stayed *Ends drilled*

& one stay 1 1/2 dia Superheater or steam chest; how connected to boiler *Two necks 15 dia 78 thick*

(State if Report is also sent on the Hull of the Ship)

Form No. 8—2000—3/7/83

GL149 - 0059

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DONKEY BOILER— Description *Vertical*
Made at *Richmond* by whom made *Cochran & Co* when made *1883* where fixed *In Mokeho*
Working pressure *60lb* tested by hydraulic pressure to *120lb* No. of Certificate *361* fire grate area *14 1/2 sq ft* description of
valves *Direct spring* No. of safety valves *Two* area of each *7 sq in* if fitted with easing gear *Yes* if steam from main boiler
enter the donkey boiler *No* diameter of donkey boiler *5'-6"* length *12'-3"* description of riveting *Lap double*
Thickness of shell plates *7/16"* diameter of rivet holes *3/4"* whether punched or drilled *Punched* pitch of rivets *2 1/2"* lap of plating *4*
per centage of strength of joint *70* thickness of crown plates *7/16"* stayed by *Hemispherical*
Diameter of furnace, top *2'-3"* bottom *4'-6"* length of furnace *3'-3"* thickness of plates *7/16"* description of joint *Single lap*
Thickness of furnace crown plates *7/16"* stayed by *Hemispherical* working pressure of shell by rules *7*
Working pressure of furnace by rules *65lb* diameter of uptake *1'-3"* thickness of plates *7/16"* thickness of water tubes —

SPARE GEAR. State the articles supplied:— *Two top & bottom end bolts & nuts - Two main*
bearing bolts - One set of coupling bolts - Feed & bilge pump
assembled bolts & nuts - iron &c -

The foregoing is a correct description,
Ally Stephen & sons Manufacturer.

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

These Engines & Boilers have been
constructed under Special Survey - They are good
material & workmanship - They have been well
fitted on board & satisfactorily tested under steam
& I am of opinion they are eligible to be classed
"ALLOYD'S M.C." 3-84. in the Register Book.

Appended hereto are the reports on Forgings &
tests of Steel plates - The approved trading of the
main boiler of this vessel is attached to the report on
machinery of L. L. Blau Davidson N° 6355
The funnel shafting in this instance were examined by me while
finishing at the engineers works.

It is submitted that this
vessel is eligible to have
the notification + end
3-84 recorded.

The amount of Entry Fee £ *2* : 0 : 0 received by me,
Special £ *21* : 0 : 0
Donkey Boiler Fee £ *0* : 0 : 0
Certificate (if required) £ *0* : 0 : 0 *5/3/1884*
To be sent as per margin.
(Travelling Expenses, if any, £ — *8/-*.)

Committee's Minute

FRIDAY 7 MARCH

+ M. J.

Walter E. Robson 2019
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Glasgow Lloyd's Register
Foundation