

## REPORT ON MACHINERY.

TUES. 3 JUN 1902

Port of Glasgow

Received at London Office

No. in Survey held at Glasgow  
Reg. Book.Date, first Survey 28th Nov 1901 Last Survey 17 May 1902(Number of Visits 30)

on the

S. S. "MOPSA."Tons { Gross 884.88  
Net 384.68Master W. Denby

Built at

Port Glasgow

By whom built

Murdoch & MurrayWhen built 1902

Engines made at

Glasgow

By whom made

Muir, Houston & Cowhen made 1902

Boilers made at

Glasgow

By whom made

Muir, Houston & Cowhen made 1902

Registered Horse Power

Owners

Bennett Steamship Co. Ltd.

Port belonging to

Gale

Nom. Horse Power as per Section 28

187

Is Refrigerating Machinery fitted

No

Is Electric Light fitted

No

## ENGINES, &amp;c.—Description of Engines

Triple expansion—ScrewNo. of Cylinders 3No. of Cranks 3Dia. of Cylinders 19.32.52Length of Stroke 36"Revs. per minute 100

Dia. of Screw shaft

as per rule 10.91"  
as fitted 11"Lgth. of stern bush 45"

Dia. of Tunnel shaft

as per rule 9.65"  
as fitted 9.34"

Dia. of Crank shaft journals

as per rule 10.13"  
as fitted 10.14"

Dia. of Crank pin

10.14"

Size of Crank webs

6.14"

Dia. of thrust shaft under

collars 10.14"

Dia. of screw

12.0"

Pitch of screw

15.0"No. of blades 4

State whether moveable

no

Total surface

50"No. of Feed pumps 2

Diameter of ditto

3"

Stroke

18"Can one be overhauled while the other is at work yesNo. of Bilge pumps 2

Diameter of ditto

3.1/2"

Stroke

18"Can one be overhauled while the other is at work yesNo. of Donkey Engines 3

Sizes of Pumps

6x4x6 - 4x2x4  
6x6x6

No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room

Two 2 dia + one 2 1/4 dia.

In Holds, &amp;c.

Two in forward hold 2 dia +No. of bilge injections 1sizes 5 1/2"

Connected to condenser, or to circulating pump

pumpIs a separate donkey suction fitted in Engine room & size yes 2 1/4"Are all the bilge suction pipes fitted with roses yesAre the roses in Engine room always accessible yes

Are the sluices on Engine room bulkheads always accessible

noneAre all connections with the sea direct on the skin of the ship yes

Are they Valves or Cocks

cocks & valvesAre 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

yesAre 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

yesWhat pipes are carried through the bunkers noneHow are they protected ✓Are all pipes, cocks, valves, and pumps in connection with the machinery and all boiler mountings accessible at all times yesAre the bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges yesWhen were stern tube, propeller, screw shaft, and all connections examined in dry dock before launch Is the screw shaft tunnel watertight yesIs it fitted with a watertight door yesworked from top platform

## BOILERS, &amp;c.—

(Letter for record

(S) Total Heating Surface of Boilers

3044 sq. ft

Is forced draft fitted

no

No. and Description of Boilers

2 Single Ended

Working Pressure

180 lbs Tested by hydraulic pressure to 360 lbsDate of test 19/4/02Can each boiler be worked separately yes

Area of fire grate in each boiler

41 sq. fteach boiler 2 Pakut Spring

Area of each valve

3.98"

Pressure to which they are adjusted

185 lbsSmallest distance between boilers or uptakes and bunkers or woodwork ✓ 24"

Mean dia. of boilers

13.3"

Length

11.0"

Material of shell plates

steelThickness 1 1/4"

Range of tensile strength

28632

Are they welded or flanged

no

Descrip. of riveting: cir. seams

double

long. seams

treble

Diameter of rivet holes in long. seams

15/16"

Pitch of rivets

9"

Lap of plates or width of butt straps

20/8"

Per centages of strength of longitudinal joint

rivets 89.5  
plate 85.4

Working pressure of shell by rules

210 lbs

Size of manhole in shell

12" x 16"

Size of compensating ring

McNeil's

No. and Description of Furnaces in each boiler

Horrorated

Material

steel

Outside diameter

4.13/4"

Length of plain part

top ✓  
bottom ✓

Thickness of plates

crown 5/8"  
bottom 5/8"

Description of longitudinal joint

welded

No. of strengthening rings

✓

Working pressure of furnace by the rules

202 lbs

Combustion chamber plates: Material

steel

Thickness: Sides

11/16"

Back

19/32"

Top

11/16"

Bottom

7/8"

Pitch of stays to ditto: Sides

9x9"

Back

8x8"

Top

8x9"

If stays are fitted with nuts or riveted heads

nuts

Working pressure by rules

190 lbs

Material of stays

steel

Diameter at smallest part

1.44"

Area supported by each stay

64"

Working pressure by rules

180 lb

End plates in steam space:

Material

steel

Thickness

1 3/32"

Pitch of stays

16x15"

How are stays secured

nuts

Working pressure by rules

226 lbs

Material of stays

steel

Diameter at smallest part

5.34"

Area supported by each stay

240"

Working pressure by rules

226 lbs

Material of Front plates at bottom

steel

Thickness

7/8"

Material of Lower back plate

steel

Thickness

13/16"

Greatest pitch of stays

12 1/2 x 8"

Working pressure of plate by rules

207 lbs

Diameter of tubes

3 1/2"

Pitch of tubes

4 3/4 x 4 1/4"

Material of tube plates

steel

Thickness: Front

7/8"

Back

29/32"

Mean pitch of stays

9 1/2"

Pitch across wide water spaces

14"

Working pressures by rules

337 lbs

Girders to Chamber tops: Material

iron

Depth and

thickness of girder at centre

9x2-1 1/4"

Length as per rule

3.3"

Distance apart

8"

Number and pitch of Stays in each

3-9"

Working pressure by rules

316 lb

Superheater or Steam chest; how connected to boiler

none

Can the superheater be shut off and the boiler worked

separately ✓

Diameter

✓

Length

✓

Thickness of shell plates

✓

Material

✓

Description of longitudinal joint

✓

Diam. of rivet

✓holes ✓

Pitch of rivets

✓

Working pressure of shell by rules

✓

Diameter of flue

✓

Material of flue plates

✓

Thickness

✓

End plates: Thickness

✓

How stayed

✓If stiffened with rings ✓

Distance between rings

✓

Working pressure by rules

✓

End plates: Thickness

✓

How stayed

✓

Are they fitted with easing gear

✓

Working pressure of end plates

✓

Area of safety valves to superheater

✓

Working pressure of end plates

✓

Area of safety valves to superheater

✓

Are they fitted with easing gear

✓

Working pressure of end plates

✓

Area of safety valves to superheater

✓

Are they fitted with easing gear

✓

Working pressure of end plates

✓

Area of safety valves to superheater

✓

Working pressure of end plates



**DONKEY BOILER**— No. *one* Description *Horizontal tubular, dry back.*  
 Made at *Glasgow* By whom made *Muir Houston* When made *1902* Where fixed *in stokehold*  
 Working pressure *80 lb* tested by hydraulic pressure to *160 lb* No. of Certificate *6762* Fire grate area *12 3/4* Description of safety valves *hake spring*  
 No. of safety valves *2* Area of each *3.14* Pressure to which they are adjusted *82 lb* If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no* Dia. of donkey boiler *7.0* Length *5.0* Material of shell plates *steel* Thickness *1/2* Range of tensile strength *24 to 32* Descrip. of riveting long. seams *treble (lap)* Dia. of rivet holes *15/16* Whether punched or drilled *drilled* Pitch of rivets *3 1/4*  
 Lap of plating *7* Per centage of strength of joint *71.1* Rivets *10.8* Thickness of shell *end* plates *1/16* Radius of do. *Rich* No. of Stays to do. *12 1/2 x 13*  
 Dia. of stays. *2.03* Diameter of furnace *Top 3.1 Bottom* Length of furnace *5.1* Thickness of furnace plates *1/2* Description of joint *welded* Thickness of furnace crown plates *1/2* Stayed by *✓* Working pressure of shell by rules *98 lb*  
 Working pressure of furnace by rules *119 lb* Diameter of *tube* *3* Thickness of *tube* plates *1/16* Thickness of *stay* tubes *5/16*

**SPARE GEAR.** State the articles supplied:— *Two top end & two bottom end connecting rod bolts, two main bearing bolts, one set coupling bolts, one set of feed & ludge pump valves. &c.*

The foregoing is a correct description,

*Muir & Houston, Limited*

Manufacturer.

Dates of Survey while building  
 During progress of work in shops— *1901: Nov 28, Dec 10, 20. 1902: Jan 7, 14, 20, 23, 30. Feb 11, 18, 24, 26, 27. Mar 1, 6, 10, 13, 18.*  
 During erection on board vessel— *24, 25, 27. Apr. 7, 10, 19, 28. May. 2, 8, 10, 14, 15, 17.*  
 Total No. of visits *30.* Is the approved plan of main boiler forwarded herewith *yes.*  
 " " " donkey " " " *yes.*

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

Material of screw shaft *iron* Is the screw shaft fitted with a continuous liner the whole length of the stern tube *no*  
 Is the after end of the liner made water tight in the propeller boss *yes* If the liner is in more than one length are the joints burned *no*  
 If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive *✓* If two liners are fitted, is the shaft lapped or protected between the liners *no.*

*The machinery of this vessel has been constructed under Special Survey, the material & workmanship are of good quality, it has been securely fitted on board & tried under steam. In my opinion it is eligible to be classed in the Register Book with the record of L.M.C. 5.02*

*It is submitted that this vessel is eligible for THE RECORD - L M C 5.02*

*Reld 4.6.02*  
*5.6.02*

The amount of Entry Fee.. £ *2* : :  
 Special .. .. £ *28* : :  
 Donkey Boiler Fee .. .. £ : :  
 Travelling Expenses (if any) £ : :  
 When applied for, *2/6/02*  
 When received, *27.6.02*

*J.W. Dimmock*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute *Glasgow. 2-JUN 1902*

Assigned

*+ L.M.C. 5.02*  
*When for*

MACHINERY CERTIFICATE  
 WRITTEN, 14.6.02



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 Foundation

Certificate (if required) to be sent to Committee's Minute.