

REPORT ON MACHINERY.

Port of *Glasgow*

Received at London Office

SAT. 11 FEB 1893

No. in Survey held at *Glasgow*Date, first Survey *28 May 1892* Last Survey *6 Feb. 1892*

Reg. Book.

(Number of Visits *54*)

on the

*S. S. Ciudad de Reus*Tons { Gross *1899.21*
Net *1210.07*

Master

*Marshall*Built at *Grangemouth*

By whom built

*Grangemouth Ship Coy*When built *1892*

Engines made at

Glasgow

By whom made

*Nutson & Corbett*when made *1892*

Boilers made at

Glasgow

By whom made

*Nutson & Corbett*when made *1892*

Registered Horse Power

171

Owners

*Sociedad La Mutua*Port belonging to *Barcelona*Nom. Horse Power as per Section 28 *171*

ENGINES, &c.—

Description of Engines

Triple Expansion

No. of Cylinders

Three

Diameter of Cylinders

20, 33 & 54"

Length of Stroke

36"

Revolutions per minute

70

Diameter of Screw shaft

as per rule 9.5"

Diameter of Tunnel shaft

as fitted 9 3/8"

Diameter of Crank shaft journals

9 3/4"

Diameter of Crank pin

9 3/4"

Size of Crank webs

built

Diameter of screw

13'-0"

Pitch of screw

12 to 15 feet

No. of blades

4

State whether moveable

yes

Total surface

54 sq. ft

No. of Feed pumps

2

Diameter of ditto

3"

Stroke

18"

Can one be overhauled while the other is at work

yes

No. of Bilge pumps

2

Diameter of ditto

3"

Stroke

18"

Can one be overhauled while the other is at work

yes

No. of Donkey Engines

Two

Sizes of Pumps

Forward 6 cyl. 7 stroke. 4 pump

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

In Engine room 4 x 3"

In Holds, &c.

*1.3" suction & safety space aft.**one 2 1/2" in cargo hold forward and one 2 1/2" to fore peak.*

No. of bilge injections

1

sizes

4 1/2"

Connected to condenser, or to circulating pump

yes

Is a separate donkey suction fitted in Engine room & size

one 3"

Are all the bilge suction pipes fitted with roses

yes

Are the roses in Engine room always accessible

yes

Are the staves on Engine room bulkheads always accessible

none

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

below

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 and all boiler mountings accessible at all times

yes

Are the bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges

yes

When were stern tube, propeller, screw shaft, and all connections examined in dry dock

while building

Is the screw shaft tunnel watertight

none

Is it fitted with a watertight door

—

worked from

—

Engine room

right aft.

BOILERS, &c.—

(Letter for record *a.*)Total Heating Surface of Boilers *2520.*

No. and Description of Boilers

2. Multitubular

Working Pressure

160 lbs

Tested by hydraulic pressure to

320 lbs

Date of test

24.11.92

Can each boiler be worked separately

yes

Area of fire grate in each boiler

51.7

No. and Description of safety valves to

*each boiler**2. direct spring*

Area of each valve

4.069

Pressure to which they are adjusted

162 lbs

Are they fitted

yes

with easing gear

yes

Smallest distance between boilers or uptakes and bunkers or woodwork

10"

Mean diameter of boilers

13'-0"

Length

10'-0"

Material of shell plates

Steel

Thickness

1 1/2"

Description of riveting: circum. seams

d. riv. lap

long. seams

d. butt str.

Diameter of rivet holes in long. seams

1 1/8"

Pitch of rivets

8 1/2" & 4 1/8"

Lap of plates or width of butt straps

17 1/2"

Per centages of strength of longitudinal joint

86.8

Working pressure of shell by rules

160 lbs

Size of manhole in shell

12" x 16"

Size of compensating ring

6" x 1 1/2"

No. and Description of Furnaces in each boiler

3. Furnaces

Material

Steel

Outside diameter

32 3/8"

Length of plain part

58'-0"

Thickness of plates

1 1/2"

Description of longitudinal joint

welded

No. of strengthening rings

—

Working pressure of furnace by the rules

172 lbs

Combustion chamber plates: Material

Steel

Thickness: Sides

3/8"

Back

1/2"

Top

3/4"

Pitch of stays to ditto: Sides

4"

Back

4"

Top

7 1/8"

If stays are fitted with nuts or riveted heads

nuts

Working pressure by rules

176 lbs

Material of stays

iron

Diameter at smallest part

1 3/8"

Area supported by each stay

49 sq. in.

Working pressure by rules

186 lbs

End plates in steam space:

Material Steel Thickness 2 1/2"

Diameter at smallest part

2 1/2"

Area supported by each stay

196 sq. in.

Working pressure by rules

176 lbs

Material of Front plates at bottom

Steel

Thickness

3/4"

Material of Lower back plate

Steel

Thickness

3/4"

Greatest pitch of stays

12"

Working pressure of plate by rules

160 lbs

Diameter of tubes

3 1/2"

Pitch of tubes

4 3/4"

Material of tube plates

Steel

Thickness: Front

3/8"

Back

3/4"

Pitch across wide water spaces

14 1/2"

Working pressures by rules

160 lbs

Girders to Chamber tops: Material

iron

Depth and

Thickness of girder at centre 4 1/2" x 3/4"

Length as per rule

30"

Distance apart

7 3/8"

Number and pitch of Stays in each

3. 4"

Working pressure by rules

165 lbs

Superheater or Steam chest; how connected to boiler

—

Can the superheater be shut off and the boiler worked

—

Diameter

—

Length

—

Thickness of shell plates

—

Material

—

Description of longitudinal joint

—

Pitch of rivets

—

Working pressure of shell by rules

—

Diameter of flue

—

Material of flue plates

—

Thickness

—

Diameter of rivets

—

Working pressure of shell by rules

—

End plates: Thickness

—

How stayed

—

Working pressure of end plates

—

Area of safety valves to superheater

—

Are they fitted with easing gear

*—**—**—**—**—*

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Lloyd's Register Foundation

H 563-0038

DONKEY BOILER— Description *Vertical with cross-tubes*
 Made at *Glasgow* By whom made *Hutton & Corbett* When made *1892* Where fixed *Under deck*
 Working pressure *80 lbs* tested by hydraulic pressure to *160 lbs* No. of Certificate *3334* Fire grate area *25 ft²* Description of safety valves *4 spring*
 No. of safety valves *2*. Area of each *5"* Pressure to which they are adjusted *80 lbs* If fitted with easing gear *Yes* If steam from main boiler enters the donkey boiler *no*. Diameter of donkey boiler *7'-0"* Length *14'-0"* Material of shell plates *steel* Thickness *1/2"*
 Description of riveting long seams *d. riv. lap* Diameter of rivet holes *7/8"* Whether punched or drilled *drilled* Pitch of rivets *3"*
 Lap of plating *4 1/2"* Per centage of strength of joint *70* Rivets *70* Thickness of shell crown plates *7/8"* Radius of do. *flat* No. of stays to do. *10*
 Dia. of stays *2 1/8"* Diameter of furnace Top *5'-6"* Bottom *6'-2"* Length of furnace *8'-0"* Thickness of furnace plates *7/8"* Description of joint *lap* Thickness of furnace crown plates *1 1/16"* Stayed by *as above* Working pressure of shell by rules *90 lbs*
 Working pressure of furnace by rules *80 lbs by rules* Diameter of uptake *18"* Thickness of uptake plates *7/16"* Thickness of water tubes *7/16"*

SPARE GEAR. State the articles supplied:— *Top and bottom end bolts. Main bearing & coupling bolts. Feed and bilge pump valves and two propeller blades. —*

The foregoing is a correct description,
 Manufacturer. *Hutton & Corbett*

General Remarks (State quality of workmanship, opinions as to class, &c.) *The above mentioned engines and boilers have been built under special survey and are of good workmanship material. They have now been forwarded to Grangemouth, where they will be fitted outboard the vessel. When this part of the survey has been favourably reported upon I am of opinion that the vessel will be eligible to the notation: **T.L.M.C.** with date of completion of survey. —*

This report forwarded to Leith Surveyor for completion. —
John Sanderford
Glasgow 17.1.93. —

Appended Our Forging Report
Tracing of Main boilers

*In the absence of Mr Darling the above survey has now been completed in a satisfactory manner and the vessel is in our opinion eligible to the notation recommended above viz: **T.L.M.C. 2.93** —*

*It is submitted that this vessel is eligible for THE RECORD **T.L.M.C.***

Certificate (if required) to be sent to *Glasgow Office*

The amount of Entry Fee.	£ 2 : — : —	When applied for, <i>Jan. 11/2/93</i>
Special	£ 25 : 13 : —	<i>9th Feb 1893</i>
Donkey Boiler Fee	£ : : —	When received, <i>15th Feb 1893</i>
Travelling Expenses (if any)	£ 1 : 3 : 10	<i>15th Feb 1893</i>

John Sanderford Allan McEland
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute *TUES. 14 FEB 1893*
 Assigned *+ L.M.C. 2,93*
 MACHINERY CERTIFICATE WRITTEN.