

REPORT ON MACHINERY.

Port of *Glasgow*

Received at London Office **SAT. 11 FEB 1893**

No. in Survey held at *Glasgow* Date, first Survey *28th May 1892* Last Survey *6th Feb. 1892*
Reg. Book. (Number of Visits *54*)

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

Master *Martinez* Built at *Granemouth* By whom built *Granemouth & Co. 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 per rule 9"* 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 *5409. 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.*

1. 2 1/2" safety space forward. 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 sluices 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 *whenever* 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 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 stl.*

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 *top 58'-0"* Thickness of plates *bottom 15/32"* 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 *1/2"* Back *1/2"* Top *1/2"* Bottom *3/4"*

Pitch of stays to ditto: Sides *7"* Back *7"* Top *7 x 7 3/8"* 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 *4909 in* Working pressure by rules *18 lbs* End plates in steam space: Material *Steel* Thickness *2 7/32"* Pitch of stays *14"* How are stays secured *d. nuts* Working pressure by rules *17 lbs* Material of Front plates at bottom *Steel* Diameter at smallest part *2 1/2"* Area supported by each stay *19609 in* Working pressure by rules *17 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 *7/8"* Back *3/4"* Mean pitch of stays *9 1/2"*

Pitch across wide water spaces *19 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. 7"*

Working pressure by rules *165 lbs* Superheater or Steam chest; how connected to boiler *—* 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 *—* Pitch of rivets *—* Working pressure of shell by rules *—* Diameter of flue *—* Material of flue plates *—* Thickness *—* End plates: Thickness *—* How stayed *—*

Working pressure of end plates *—* Area of safety valves to superheater *—* Are they fitted with easing gear *—*

HTH 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 sq ft* 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 enter 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 Rivets *70* Thickness of shell crown plates *5/8"* 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 *5/8"* Description joint *lap* Thickness of furnace crown plates *1/16"* Stayed by *as above* Working pressure of shell by rules *90 lbs*
 Working pressure of furnace by rules *80 lbs by stays* 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 pumps. 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: F.L.M.C. with date of completion of survey. —*

This report forwarded to Leith Surveyor for completion. —
John Sanderford
Glasgow 17. 1. 93. —

Appended One 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: F.L.M.C. 2. 93 —

It is submitted that this vessel is eligible for THE RECORD + 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>15/2/93</i>
Travelling Expenses (if any) £	1 : 3 : 10	<i>15/2/93</i>

John Sanderford Allan McLeod
 Engineer Surveyors to Lloyd's Register of British & Foreign Shipping.

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



The Surveyors are requested not to write on or below the space for Committee's Minutes.