

## REPORT ON MACHINERY.

No. 3022

Port of *Genoa*Received at London Office **MUN. 25 JAN 1904**No. in Survey held at  
Reg. Book.Date, first Survey *March 3<sup>rd</sup> 03* Last Survey *Jan 22* 19 *04*(Number of Visits *31*)

on the

*Screw Steamer "Barb"*Tons *430*  
Net *152*  
When built *1904*Master *Barachius* Built at *Sampierdarena* By whom built *Società Cooperativa di Produzione*Engines made at *Sampierdarena* By whom made *Soc Coop di Produzione* when made *1904*Boilers made at *SE* By whom made *SE* when made *1904*Registered Horse Power *117* Owners *Società Anonima per Ricupero - Sottomarini* Port belonging to *Genoa*Nom. Horse Power as per Section 28 *117* Is Refrigerating Machinery fitted *no* Is Electric Light fitted *yes*

**ENGINES, &c.**—Description of Engines *Triple Expansion* No. of Cylinders *3* No. of Cranks *3*

Dia. of Cylinders *18.89-29.5-50"* Length of Stroke *29.53* Revs. per minute *105* Dia. of Screw shaft *9.37* as per rule *9.37* Material of *steel*  
as fitted *9.2* screw shaft

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 *no* If two liners are fitted, is the shaft lapped or protected between the liners *yes* Length of stern bush *35.04*

Dia. of Tunnel shaft *8.34* as per rule *8.34* Dia. of Crank shaft journals *8.76* as per rule *8.76* Dia. of Crank pin *8.3* Size of Crank webs *10x6* Dia. of thrust shaft under collars *8.3* as fitted *8.32* Dia. of screw *10-2* Pitch of screw *13-11* No. of blades *4* State whether moveable *yes* Total surface *22.6* ft<sup>2</sup>

No. of Feed pumps *one* Diameter of ditto *3"* Stroke *14 3/4"* Can one be overhauled while the other is at work *yes* } arranged so as to be either feed or bilge pumps.

No. of Bilge pumps *one* Diameter of ditto *3"* Stroke *14 3/4"* Can one be overhauled while the other is at work *yes*

No. of Donkey Engines *one* Sizes of Pumps *6 1/8 x 4 1/2 x 5 1/8* duplex No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room *one 2" also Ejector 2"* In Holds, &c. *fore hold one 2" after hold one 2"*

No. of bilge injections *one* sizes *1/8"* Connected to condenser, or to circulating pump *yes* Is a separate donkey suction fitted in Engine room & size *yes 2"*

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 *yes*

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 *no*

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 *before launching* Is the screw shaft tunnel watertight *yes*

Is it fitted with a watertight door *yes* worked from *upper deck*

**BOILERS, &c.**—(Letter for record *S*) Total Heating Surface of Boilers *1556* ft<sup>2</sup> Is forced draft fitted *no*

No. and Description of Boilers *2 Horizontal Multitubular* Working Pressure *150* lbs Tested by hydraulic pressure to *300* lbs

Date of test *29.4.03* Can each boiler be worked separately *yes* Area of fire grate in each boiler *47.4* ft<sup>2</sup> No. and Description of safety valves to each boiler *2 Spring* Area of each valve *5.95* ft<sup>2</sup> Pressure to which they are adjusted *155* lbs Are they fitted with easing gear *yes*

Smallest distance between boilers or uptakes and bunkers or woodwork *12"* Mean dia. of boilers *11-9 3/4"* Length *10-1 1/4"* Material of shell plates *steel*

Thickness *3/8"* Range of tensile strength *28-32* Are they welded or flanged *no* Descrip. of riveting: cir. seams *double* long. seams *as per plan*

Diameter of rivet holes in long. seams *3/32"* Pitch of rivets *3.3 x 6.6* Lap of plates or width of butt straps *10 1/4"*

Special joint *no* taken as rivets *80* Working pressure of shell by rules *150* Size of manhole in shell *12" x 16"*

Per centages of strength of longitudinal joint plate *80*

Size of compensating ring *4 1/8" x 13/16"* No. and Description of Furnaces in each boiler *2 Morrison's* Material *steel* Outside diameter *47.24*

Length of plain part *top 2" bottom 2"* Thickness of plates *top 2" bottom 2"* Description of longitudinal joint *welded* No. of strengthening rings *no*

Working pressure of furnace by the rules *159.75* Combustion chamber plates: Material *steel* Thickness: Sides *7/16"* Back *7/16"* Top *7/16"* Bottom *3/32"*

Pitch of stays to ditto: Sides *7.08 x 7.87"* Back *6.4 x 6.4"* Top *7.87 x 7.28"* If stays are fitted with nuts or riveted heads *nuts* Working pressure by rules *148-175* lbs

Material of stays *steel* Diameter at smallest part *1.03"* Area supported by each stay *60"* Working pressure by rules *184-201* lbs End plates in steam space: *as per plan*

Material *steel* Thickness *13/16"* Pitch of stays *14.6 x 13.2"* How are stays secured *225 lbs* Working pressure by rules *192* lbs Material of stays *steel*

Diameter at smallest part *2 3/8"* Area supported by each stay *192.5* Working pressure by rules *165* lbs Material of Front plates at bottom *steel*

Thickness *13/16"* Material of Lower back plate *steel* Thickness *13/16"* Greatest pitch of stays *13.2 x 7.5"* Working pressure of plate by rules *196.5* lbs

Diameter of tubes *3"* Pitch of tubes *4 1/8 x 4 1/8"* Material of tube plates *steel* Thickness: Front *53/64"* Back *25/32"* Mean pitch of stays *8.11*

Pitch across wide water spaces *13 5/32"* Working pressures by rules *150* Girders to Chamber tops: Material *steel* Depth and thickness of girder at centre *5.9 x 1.57"* Length as per rule *23.62* Distance apart *4.28* Number and pitch of Stays in each *2-7.87"*

Working pressure by rules *199.5* Superheater on Steam chest; how connected to boiler *Rivited* Can the superheater be shut off and the boiler worked separately *no* Diameter *3 1/5"* Length *32"* Thickness of shell plates *1/2"* Material *steel* Description of longitudinal joint *double* Diam. of rivet holes *86* Pitch of rivets *2.8* Working pressure of shell by rules *234* Diameter of flue *no* Material of flue plates *no* Thickness *no*

If stiffened with rings *no* Distance between rings *no* Working pressure by rules *no* End plates: Thickness *no* How stayed *no*

Working pressure of end plates *no* Area of safety valves to superheater *no* Are they fitted with easing gear *no*



**DONKEY BOILER—** No. *One* Description *Horizontal Multitubular*  
 Made at *Ampisidone* By whom made *Societa Coop di Produzione* When made *1904* Where fixed *on deck*  
 Working pressure *115* tested by hydraulic pressure to *230* No. of Certificate *56* Fire grate area *7.44* Description of safety valves *Spring*  
 No. of safety valves *2* Area of each *1.92* Pressure to which they are adjusted *115* If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No* Dia. of donkey boiler *50 1/2* Length *89.76* Material of shell plates *steel* Thickness *1 1/2* Range of tensile strength *29.32* Descrip. of riveting long. seams *Stitch Lap* Dia. of rivet holes *5/8* Whether punched or drilled *Yes* Pitch of rivets *2.83*  
 Lap of plating *4 1/2* Per centage of strength of joint Rivets *45.44* Thickness of shell crown plates *6.9* Radius of do. *Flat* No. of Stays to do. *6*  
 Dia. of stays. *1 1/4* Diameter of furnace Top *None* Bottom *None* Length of furnace *39.4* Thickness of furnace plates *1 1/2* Description of joint *Single Lap* Thickness of furnace crown plates *1 1/2* Stayed by *Screws stays 5 1/2" apart* Working pressure of shell by rules *148.73*  
 Working pressure of furnace by rules *115* Diameter of uptake *✓* Thickness of uptake plates *—* Thickness of water tubes *—*

**SPARE GEAR.** State the articles supplied:— *2 Top & 2 bottom end bolts & nuts, 2 holding down bolts & nuts. One set of coupling bolts & nuts. One set of piston rings for H.P. cylinder. One set of feed & bilge pump valves. A quantity of assorted bolts & nuts, iron of various sizes.*

The foregoing is a correct description,

*J. E. Brown* Manufacturer.

Dates During progress of work in shops— *1903-March 3<sup>rd</sup>. April 2-23. May 22. June 10. July 1-7. 16. 23. 29. Aug 8-18. 28*  
 of Survey while building During erection on board vessel— *1903-Aug 18-28. Sept 2-10. 18-28. Oct 10. Nov 3-6. 11-14. 19-23. Dec 9-15. 22-28. Jan 2-2*  
 Total No. of *31*

Is the approved plan of main boiler forwarded herewith *Yes*

" " " donkey " " " *Yes*

**General Remarks** (State quality of workmanship, opinions as to class, &c. *These engines & boilers have been examined during construction, and the materials & workmanship found to be good & in accordance with the plans as approved, and the requirements of the rules. The circulating pump is worked by an independent engine, & the feed & bilge pumps are made interchangeable. The main & donkey boilers tested by water pressure, and the main steam pipe also tested by water pressure to double the working pressure, & found tight & sound. The engines were seen running under steam, and the main & donkey safety valves adjusted to their respective working pressures. The donkey boiler is fixed temporarily in the ship, but can also be removed & placed on board of any ship which is in course of being raised. The steam pipe connections to the auxiliary machinery are made removable. This vessel is to be used for Salvage purposes.*

*She is therefore eligible as regards the machinery to be classed under the notation of + LMC. 1.04 in the R. Book.*

*In addition to her ordinary engines she possesses a considerable amount of auxiliary engines for salvage purposes.—*

*Note. The donkey boiler which it was proposed to fit— as per Secretary's letter dated 6/10/03. &c. in place of the original one as per Secretary's letter dated 30/6/03 has not been fitted. The original one is now fitted.*

*Secretary's letters. Dated 9.2.03— 30.6.03— 23.7.03— 6.10.03. &c.*

*Plans enclosed. Main Boiler. Donkey Boiler. Pumping plan. Steel tests. Fitting reports.*

*It is submitted that this vessel is eligible for*

**THE RECORD** + LMC. 1.04 ELEC: LIGHT.

The amount of Entry Fee.. £ 2 : 0 :  
 Special .. £ 14 : 12 :  
 Donkey Boiler Fee .. £ 2 : 2 :  
 Travelling Expenses (if any) £ 1 : 0 :  
 When applied for, *Jan 22<sup>nd</sup> 1904*  
 When received, *21.4.04*  
*20.1.19.24 not advised*

*Maurice Nelson* Engineer Surveyor to Lloyd's Register of British & Foreign Shipping

Committee's Minute

FRI. 29 JAN 1904

Assigned

+ LMC 1.04

MACHINERY CERTIFICATE  
 WRITTEN.



Lloyd's Register  
 Foundation

Lloyd's Register

Certificate (if required) to be sent to

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