

Rpt. 4.

## REPORT ON MACHINERY.

No. 5442

Port of Bilbao

No. in Survey held at

Bilbao

Reg. Book.

on the

SS "COVADONGA"

Date, first Survey 17/9/18

Received at London Office

Last Survey 26<sup>th</sup> 8 1919

(Number of Visits 19)

Master MANUEL FERNAN

Built at Bilbao

By whom built Astilleros Ardanaz

Engines made at

Bilbao

By whom made

ELECTRO MECHANICA OF DEUSTO (BILBAO)

Gross 249

Net 130.47

When built 1919

Boilers made at

Santander

By whom made

Corcho y Hijos

When made 1919

Registered Horse Power

Owners LUIS IBRAÑ

Port belonging to AVILES

Nom. Horse Power as per Section 28

245

Is Refrigerating Machinery fitted for cargo purposes

no

Is Electric Light fitted

no

ENGINES, &amp;c.

Description of Engines

Triple compound

No. of Cylinders 3

No. of Cranks 3

Dia. of Cylinders

195 x 315 x 525

Length of Stroke 350

Revs. per minute 140

Dia. of Screw shaft

4.54

Material of

steel

Is the screw shaft fitted with a continuous liner the whole length of the stern tube

yes

Is the after end of the liner made water tight

If the liner is in more than one length are the joints burned

yes

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

yes

If two

liners are fitted, is the shaft lapped or protected between the liners

yes

Length of stern bush 520

Dia. of Tunnel shaft

3.72

Dia. of Crank shaft journals

99.0

Dia. of Crank pin 100

Size of Crank webs

70 x 165

Dia. of thrust shaft under

collars 100

Dia. of screw 1860

Pitch of Screw 1680

No. of Blades 4

State whether moveable

no

Total surface

1.071 sq m

No. of Feed pumps one

Diameter of ditto 50

Stroke 190

Can one be overhauled while the other is at work

yes

No. of Bilge pumps one

Diameter of ditto 50

Stroke 190

Can one be overhauled while the other is at work

yes

No. of Donkey Engines 2

Sizes of Pumps

114 x 95 x 102

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

2 of 60% dia

In Engine Room one at the after well of 10% and 3 of 60% dia

In Holds, &amp;c.

2 of 60% dia

No. of Bilge Injections one

sizes 100

Connected to condenser or to circulating pump

yes

Is a separate Donkey Suction fitted in Engine room &amp; size

yes

60%

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

yes

Are all connections with the sea direct on the skin of the ship

yes

Are they Valves or Cocks

yes

valves &amp; cocks

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 the Blow Off Cocks fitted with a spigot and brass covering plate

yes

yes

What pipes are carried through the bunkers

none

How are they protected

yes

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

Dates of examination of completion of fitting of Sea Connections

20/8/19

of Stern Tube

4/30/19

Screw shaft and Propeller

20/8/19

Is the Screw Shaft Tunnel watertight

yes

Is it fitted with a watertight door

yes

worked from

yes

BOILERS, &amp;c. (Letter for record S)

Manufacturers of Steel ALTOS HERNANDEZ DE VIZCAYA

Total Heating Surface of Boilers 45 sq m

Is Forced Draft fitted

no

No. and Description of Boilers

one multitubular

Working Pressure 170 lb sq in

Tested by hydraulic pressure to

360 lb sq in

Date of test

24-8-19

No. of Certificate

42

Can each boiler be worked separately

yes

Area of fire grate in each boiler

1.35 sq m

No. and Description of Safety Valves to

each boiler

2 direct spring

Smallest distance between boilers or uptakes and bunkers or woodwork

834 mm

Mean dia. of boilers

2000

Length

2640

Material of shell plates

steel

Thickens 8-0

Range of tensile strength

none

Are the shell plates welded or flanged

none

Descrip. of riveting: cir. seams

2. R.

long. seams 3 R.

Diameter of rivet holes in long. seams

27

Pitch of rivets

100

Lap of plates or width of butt straps

180

Per centages of strength of longitudinal joint

rivets 106%

plate 73%

Working pressure of shell by rules

177 lb sq in

Size of manhole in shell

400 x 300

Size of compensating ring

160 x 18

No. and Description of Furnaces in each boiler

one

Material

steel

Outside diameter

800

Length of plain part

top 1673

Thickness of plates

155%

Description of longitudinal joint

welded

No. of strengthening rings

none

Working pressure of furnace by the rules

177 lb sq in

Combustion chamber plates: Material

steel

Thickness: Sides

16

Back

17.5

Pitch of stays to ditto: Sides

195

Back

200

Top

175

If stays are fitted with nuts or riveted heads

yes

Material of stays

steel

Diameter at smallest part

36%

Area supported by each stay

4000

Working pressure by rules

222 lb sq in

Material

steel

Thickness

19%

Pitch of stays

350

How are stays secured

not + washers

Diameter at smallest part

60%

Area supported by each stay

1225

Working pressure by rules

241 lb sq in

Material of Front plates at bottom

steel

Thickness

19

Material of Lower back plate

steel

Thickness

19

Greatest pitch of stays

200

Diameter of tubes

63

Pitch of tubes

90 x 90

Material of tube plates

steel

Thickness: Front

19

Pitch across wide water spaces

300

Working pressures by rules

330 lb sq in

Girders to Chamber tops: Material

steel

Depth and

thickness of girder at centre

150 x 36

Length as per rule

yes

Distance apart

175

Number and pitch of stays in each

one

Working pressure by rules

258

Superheater or Steam chest; how connected to boiler

separately

Can the superheater be shut off and the boiler worked

yes

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

How stayed

If stiffened with rings

Distance between rings

Working pressure by rules

End plates: Thickness

How stayed

Working pressure of end plates

Area of safety valves to superheater

Are they fitted with easing gear

yes

Working pressure of end plates

Area of safety valves to superheater

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Working pressure of end plates

Area of safety valves to superheater

Are they fitted with easing gear

yes



# VERTICAL DONKEY BOILER—Manufacturers of Steel

No.	Description			
Made at	By whom made	When made	Where fixed	
Working pressure	tested by hydraulic pressure to	Date of test	No. of Certificate	Fire grate area
Valves	No. of Safety Valves	Area of each	Pressure to which they are adjusted	Date of adjustment
If fitted with easing gear	If steam from main boilers can enter the donkey boiler		Dia. of donkey boiler	Length
Material of shell plates	Thickness	Range of tensile strength	Descrip. of riveting long. seams	
Dia. of rivet holes	Whether punched or drilled	Pitch of rivets	Lap of plating	Per centage of strength of joint
Working pressure of shell by rules	Thickness of shell crown plates	Radius of do.	No. of stays to do.	Dia. of stays
Diameter of furnace Top	Bottom	Length of furnace	Thickness of furnace plates	Description of joint
Working pressure of furnace by rules	Thickness of furnace crown plates	Stayed by		
Diameter of uptake	Thickness of uptake plates	Thickness of water tubes	Dates of survey	

SPARE GEAR. State the articles supplied:— 2 connecting rod bottom end bolts and nuts  
Piston rod top end bolts and nuts. 2 main bearing bolts. 1 set of coupling bolts  
1 set of feed and lift pumps valves. 1 set of piston springs + a quantity of assorted bolts  
and nuts + iron, of various sizes

The foregoing is a correct description.

Manufacturer.

Dates of Survey while building { During progress of work in shops - 1918 SEP 17, 24, 26, 30 OCT. 11, 31 NOV 15 = 1919 APRIL 30 MAY 20, 30  
During erection on board vessel - 1919 MAY 31 JUNE 3, 14 AUG 12, 18, 20, 21, 24, 26  
Total No. of visits 19

Is the approved plan of main boiler forwarded herewith yes

Dates of Examination of principal parts—Cylinders 8/5/19 Slides 8/5/19 Covers 8/5/19 Pistons 11/10/18 Rods 11/10/18  
Connecting rods 14/6/19 Crank shaft 14/6/19 Thrust shaft 30/5/19 Tunnel shafts ✓ Screw shaft 30/5/19 Propeller 30/5/19  
Stern tube Steam pipes tested 25/8/19 Engine and boiler seatings 29/4/19 Engines holding down bolts 25/8/19  
Completion of pumping arrangements 20/8/19 Boilers fixed 30/5/19 Engines tried under steam 27/8/19  
Main boiler safety valves adjusted 27/8/19 Thickness of adjusting washers Port side 45 <sup>7</sup>/<sub>16</sub> St. side 38 <sup>7</sup>/<sub>16</sub>  
Material of Crank shaft Steel Identification Mark on Do. ✓ Material of Thrust shaft Steel Identification Mark on Do. ✓  
Material of Tunnel shafts Steel Identification Marks on Do. ✓ Material of Screw shafts steel Identification Marks on Do. ✓  
Material of Steam-Pipes copper Test pressure 360 lbs per sq. in.

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

The engine and boiler of this vessel have been examined and all the parts found satisfactory.  
The material of the shafting have been tested and same made of slightly less diameter than is needed by the Rules. (see letters E 16-9-19)  
The main boiler have been examined and dimensions of same taken and found as the approved plan with the exception of the shell and the furnace plating where the actual thickness are 18 and 15.5 <sup>7</sup>/<sub>16</sub> respectively.  
The doubling plate between the two rows of tubes on the port combustion chamber plate have been removed and a dog stay as indicated on the approved plan has been fitted and the boiler tested to 360 lbs per sq. in. and the safety valves adjusted to 170 lbs per sq. in. The Main boiler certificate we enclose herewith for signature

The amount of Entry Fee. . . . . P5 100: When applied for.  
Special . . . . . 100-00 32-9 1919  
Donkey Boiler Fee . . . . . : : When received.  
Travelling Expenses (if any) . . . . . 31: 18/10/19

Committee's Minute

FRI. 10 OCT. 1919

Assigned

A. de Nareño

Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.



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