

# REPORT ON MACHINERY.

No. 5668

Received at London Office TUE. OCT. 5 1910

19 When handed in at Local Office 19 Port of Bilbao

Survey held at Bilbao Date First Survey 5/2/20 Last Survey 2/1/21 19 20  
on the steel screw steamer "ARITZ MENDI" (Number of Visits 19) Tons { Gross 5453  
Net 3451

Master C. DE UGALDE Built at Bilbao By whom built la Industrial de Constr. y Rep. de Bilbao When built 1920

Engines made at Sunderland By whom made J. Rickinson & Sons, Ltd. when made 1920

Boilers made at Sunderland By whom made J. Rickinson & Sons, Ltd. when made 1920

Registered Horse Power \_\_\_\_\_ Owners Sota y Agua Port belonging to Bilbao

Nom. Horse Power as per Section 28 456 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

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

Dia. of Cylinders 27 1/2 - 45 - 75 Length of Stroke 48 Revs. per minute 84 Dia. of Screw shaft 14.9 Material of screw shaft scrap iron

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 yes

Is the propeller boss yes 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 Length of stern bush 5'-3"

Are the shafts fitted, is the shaft lapped or protected between the liners \_\_\_\_\_ Length of stern bush 5'-3"

Dia. of Tunnel shaft as per rule 13.52 Dia. of Crank shaft journals as per rule 14.19 Dia. of Crank pin 14 1/2 Size of Crank webs 9 1/2 x 26 Dia. of thrust shaft under collars 14 1/2 Dia. of screw 17-9 Pitch of Screw 16-9 No. of Blades 4 State whether moveable no Total surface 99 sq ft

No. of Feed pumps 2 Diameter of ditto 4 1/2 Stroke 24 Can one be overhauled while the other is at work yes

No. of Bilge pumps 2 Diameter of ditto 4 1/2 Stroke 24 Can one be overhauled while the other is at work yes

No. of Donkey Engines 7 Sizes of Pumps G.S. & MAIN FEED 7 1/2 x 5 x 6 duplex. AUX. 8 x 6 x 15. BALLAST 6 x 9 x 9 No. and size of Suctions connected to both Bilge and Donkey pumps

Engine Room For 3 1/2" 8 R. Air Tank one 3 1/2" In Holds, &c. Nos 1-2-3-4 Two suction each. 1 1/2" Tunnel well one 3 1/2" 7 & A peaks one each, 3"

No. of Bilge Injections 1 sizes 8" Connected to condenser or to circulating pump yes Is a separate Donkey Suction fitted in Engine room & size Two 3 1/2"

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 \_\_\_\_\_

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

Is the Screw Shaft Tunnel watertight yes Is it fitted with a watertight door yes worked from upper deck

ROLLERS, &c.—(Letter for record (S)) Manufacturers of Steel John Spence & Sons Ltd.

Total Heating Surface of Boilers 7494 sq ft Is Forced Draft fitted no No. and Description of Boilers Three S.E. marine

Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 22-10-19 No. of Certificate 3619

Can each boiler be worked separately yes Area of fire grate in each boiler 65 sq ft No. and Description of Safety Valves to each boiler 2 direct spring Area of each valve 83 sq in Pressure to which they are adjusted 185 lbs Are they fitted with easing gear yes

Smallest distance between boilers or uptakes and bunkers or woodwork 13'-9" Dia. of boilers 13'-9" Length 11'-9" Material of shell plates steel

Thickness 1 1/2" Range of tensile strength 28 3/4 - 32 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams lap

Long. seams D.B.S.T.R. Diameter of rivet holes in long. seams 1 5/16 Pitch of rivets 8 15/16 Lap of plates or width of butt straps 19 1/4

Percentage of strength of longitudinal joint 92.46 Working pressure of shell by rules 181 Size of manhole in shell 16" x 12"

Size of compensating ring 8 5/8 x 1 1/32 No. and Description of Furnaces in each boiler 3 Heigh-ton Material steel Outside diameter 4'-2"

Length of plain part 19/32 Thickness of plates 19/32 Description of longitudinal joint welded No. of strengthening rings yes

Working pressure of furnace by the rules 189 Combustion chamber plates: Material steel Thickness: Sides 23/32 Back 1 1/8 Top 23/32 Bottom 23/32

Pitch of stays to ditto: Sides 7 1/2 x 12 Back 10 3/8 x 8 1/2 8 7/8 x 10 stays are fitted with nuts or riveted heads nuts Working pressure by rules 180

Material of stays steel Area at smallest part 2.03 sq in Area supported by each stay 90 sq in Working pressure by rules 203 End plates in steam space: \_\_\_\_\_

Material steel Thickness 1 3/16 Pitch of stays 18 1/2 x 20 How are stays secured D.N. Working pressure by rules 180 Material of stays steel

Area at smallest part 6.5 sq in Area supported by each stay 370 sq in Working pressure by rules 182 Material of Front plates at bottom steel

Thickness 7/8 Material of Lower back plate steel Thickness 27/32 Greatest pitch of stays 12 3/4 x 10 1/2 Working pressure of plate by rules 180

Diameter of tubes 3 1/4 Pitch of tubes 4 1/2 x 4 1/2 Material of tube plates steel Thickness: Front 7/8 Back 7/8 Mean pitch of stays 10 1/8

Pitch across wide water spaces 13 1/4 x 5 1/8 Working pressures by rules 288 Girders to Chamber tops: Material steel Depth and thickness of girder at centre 8 3/4 x 2 1/4 Length as per rule 37 15/32 Distance apart 8 7/8 Number and pitch of stays in each 3 @ 10"

Working pressure by rules 184 Steam dome: description of joint to shell none % of strength of joint \_\_\_\_\_

Diameter \_\_\_\_\_ Thickness of shell plates \_\_\_\_\_ Material \_\_\_\_\_ Description of longitudinal joint \_\_\_\_\_ Diam. of rivet holes \_\_\_\_\_

Pitch of rivets \_\_\_\_\_ Working pressure of shell by rules \_\_\_\_\_ Crown plates \_\_\_\_\_ Thickness \_\_\_\_\_ How stayed \_\_\_\_\_

SUPERHEATER. Type \_\_\_\_\_ Date of Approval of Plan \_\_\_\_\_ Tested by Hydraulic Pressure to \_\_\_\_\_

Date of Test \_\_\_\_\_ Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler \_\_\_\_\_

Diameter of Safety Valve \_\_\_\_\_ Pressure to which each is adjusted \_\_\_\_\_ Is Easing Gear fitted \_\_\_\_\_

IS A DONKEY BOILER FITTED? *no*

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:— *Two top end bolts and nuts, two bottom end bolts and nuts, Two main bearing bolts, one set coupling bolts, one set feed and bilge pump valve, one set of piston springs. Assorted bolts nuts & washers of various sizes. one propeller.*

The foregoing is a correct description,

FOR LA COMPAÑIA EUSKALDUNA DE CONSTRUCCIÓN Y REPARACIÓN DE BUQUES

*El Director, Alejandro de Abalo*

Manufacturer.

Dates of Survey while building { During progress of work in shops - - - }  
{ During erection on board vessel - - - } *1920 FEB. 5, 10 APRIL 22, MAY 6, 11, 14, 18, 20, 21, 24, 28, JUNE 1, 4, 8, 10, 15, 16, 18, 22, AUG 4, 20, 24.*  
Total No. of visits *19*

Is the approved plan of main boiler forwarded herewith?

" " " donkey " " "

Dates of Examination of principal parts—Cylinders  Slides  Covers  Pistons  Rods   
Connecting rods  Crank shaft  Thrust shaft *26/5/20* Tunnel shafts *26/5/20* Screw shaft *26/5/20* Propeller *15/7/20*  
Stern tube *22/4/20* Steam pipes tested *10/7/20* Engine and boiler seatings *10/2/20* Engines holding down bolts *8/7/20*  
Completion of pumping arrangements *22/7/20* Boilers fixed *19/5/20* Engines tried under steam *20/8/20*  
Completion of fitting sea connections *16/7/20* Stern tube *6/5/20* Screw shaft and propeller *15/7/20*  
Main boiler safety valves adjusted *11/8/20* Thickness of adjusting washers *PORT BLK. 5/16 FD.V. 3/8 PORT V. 3/8 STAR V. 9/16*  
Material of Crank shaft *Steel* Identification Mark on Do. *848 L.C.D.* Material of Thrust shaft *Steel* Identification Mark on Do. *848 L.C.D.*  
Material of Tunnel shafts *Steel* Identification Marks on Do. *848 L.C.D.* Material of Screw shafts *Steel* Identification Marks on Do. *848 L.C.D.*  
Material of Steam Pipes *S.D. Copper* Test pressure *360 lbs. sq. in.*

Is an installation fitted for burning oil fuel? *no* Is the flash point of the oil to be used over 150°F?

Have the requirements of Section 49 of the Rules been complied with?

Is this machinery duplicate of a previous case?  If so, state name of vessel

General Remarks (State quality of workmanship, opinions as to class, &c.) *These engines and boiler were examined by me during installation at Bilbao and were afterwards tried under steam and found satisfactory; this vessel is therefore eligible in my opinion to have notation of + LMC 8,20 recorded in the Register Book.*

It is submitted that this vessel is eligible for THE RECORD. + LMC. 8.20.

*Roll*  
*9/10/20*

*ARX*

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

The amount of Entry Fee ...	£ 125. 00 :	When applied for,
Special <i>M. ELEC. LIGHT</i>	£ 250. 00 :	<i>2/9 1920</i>
Donkey Boiler Fee ...	£ 200. 00 :	When received,
Travelling Expenses (if any)	£ 21. 00 :	<i>3/9 1920</i>

*W. G. McKeenley*  
Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute *FRI. OCT. 15 1920*  
Assigned *+ LMC 8.20*



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CERTIFICATE WRITTEN