4a.

REPORT ON MACHINERY. No. 1940

Received at London Office FRI. 24 JUN. 1921

Date of writing Report June 21st 1921 When handed in at Local Office June 21st 1921 Port of BARCELONA.

Name in Survey held at FERROL Date, First Survey March 2nd 1919 Last Survey May 21st 1921

Official No. Book. 414 on the Steel Twin Sc. ALFONSO XIII. (No 1 Sestao.) (Number of Visits 18) Tons Gross 10,137 Net 5,564

Master Built at Bilbao By whom built Soc. Española de Construccion Naval When built

Engines made at Ferrol By whom made Soc. Española de Construccion Naval when made 1919-21

Boilers made at Bilbao By whom made do do do (Bbo.) when made

Registered Horse Power Owners Cia. Trasatlantica Port belonging to Barcelona

Shaft Horse Power at Full Power 10,300 Max. 9,800 Service Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes

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TURBINE ENGINES, &c.—Description of Engines Single reduction geared No. of Turbines 2 sets

Diameter of Rotor Shaft Journals, H.P. 170 m/m L.P. 170 m/m Diameter of Pinion Shaft 150 m/m

Diameter of Journals 150 m/m Distance between Centres of Bearings 857 m/m Diameter of Pitch Circle 8·59 inches

Diameter of Wheel Shaft 380 m/m Distance between Centres of Bearings 1928 m/m Diameter of Pitch Circle of Wheel 114·46 inches

Length of Face 1474 m/m Diameter of Thrust Shaft under Collars 375 m/m ✓ (356 rule) Diameter of Tunnel Shaft as per rule 13 3/8" inches ✓ as fitted 14" do

Number of Screw Shafts 2 Diameter of same as per rule 14 3/8 inches as fitted 15 do ✓ Diameter of Propeller 15'-0" ✓ Pitch of Propeller 14'-0"

Number of Blades 4 State whether Moveable No Total Surface 68 ☐ft Diameter of Rotor Drum, H.P. 560 m/m L.P. 680 m/m Astern 1020 m/m 700 m/m

Thickness at Bottom of Groove, H.P. 102 m/m L.P. 162 m/m Disc Astern 168 m/m Revs. per Minute at Full Power, Turbine 1830 MAX. 1700 Service Propeller 152 MAX. 134 Service

PARTICULARS OF BLADING.

	H.P.			L.P.			ASTERN.		
	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.
EXPANSION	30	620	8	52	1124	2	27	754	2
"	38	636	8	64	1148	2	38	776	2
"	48	656	8	79	1178	2	54	808	2
"	40	760	5	98	1216	2	76	852	2
"	49	778	5	120	1260	2	108	916	2
"	60	800	5	146	1312	2	108	916	2
"	74	828	5	178	1376	4	108	916	2
"	90	860	5	216	1452	2			
				255	1530	3			

Material and size of Feed pumps

Material and size of Bilge pumps

Material and size of Bilge suctions in Engine Room

In Holds, &c.

Number of Bilge Injections sizes Connected to condenser, or to circulating pump Is a separate Donkey Suction fitted in Engine Room & size

Are all the bilge suction pipes fitted with roses Are the rôses in Engine room always accessible

Are all connections with the sea direct on the skin of the ship Are they Valves or Cocks

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Are the Discharge Pipes above or below the deep water line

Are they each fitted with a Discharge Valve always accessible on the plating of the vessel Are the Blow Off Cocks fitted with a spigot and brass covering plate

Where pipes are carried through the bunkers How are they protected

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times

Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges

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

BOILERS, &c.—(Letter for record) Manufacturers of Steel

Total Heating Surface of Boilers Is Forced Draft fitted No. and Description of Boilers

Working Pressure Tested by hydraulic pressure Date of test No. of Certificate

Can each boiler be worked separately Area of fire grate in each boiler No. and Description of Safety Valves to boiler Area of each valve Pressure to which they are adjusted Are they fitted with easing gear

Smallest distance between boilers or uptakes and bunkers or woodwork Mean dia. of boilers Length Material of shell plates

Thickness Range of tensile strength Are the shell plates welded or flanged Descrip. of riveting: cir. seams

long. seams Diameter of rivet holes in long. seams Pitch of rivets Lap of plates or width of butt straps

Percentages of strength of longitudinal joint rivets plates Working pressure of shell by rules Size of manhole in shell

Area of compensating ring No. and Description of Furnaces in each Boiler Material Outside diameter

Width of plain part top bottom Thickness of plate top bottom Description of longitudinal joint No. of strengthening rings

Working pressure of furnaces by rules Combustion chamber plates: Material Thickness: Sides Back Top Bottom

Pitch of stays to ditto: Sides Back Top If stays are fitted with nuts or riveted heads Working pressure by rules

Material of stays Diameter at smallest part Area supported by each stay Working pressure by rules End plates in steam space

Material Thickness Pitch of stays How are stays secured Working pressure by rules Material of stays

Diameter at smallest part Area supported by each stay Working pressure by rules Material of Front plates at bottom

Thickness Material of Lower back plate Thickness Greatest pitch of stays Working pressure of plate by rules

Diameter of tubes Pitch of tubes Material of tube plates Thickness: Front Back Mean pitch of stays

Pitch across wide water spaces Working pressures by rules Girders to Chamber tops: Material Depth and thickness of girder at centre Length as per rule Distance apart Number and pitch of stays in each

Working pressure by rules Steam dome: description of joint to shell % of strength of joint Diameter

Thickness of shell plates Material Description of longitudinal joint Diameter of rivet holes Pitch of rivets

Working pressure of shell by rules Crown plates: Thickness How stayed

Boilers to be constructed at Bilbao by the I.R. de C.N.

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? ~~—~~ *If so, is a report now forwarded?* ____

SPARE GEAR. *State the articles supplied:—* ____

To be placed on board in Bilbao.

~~The foregoing~~ *is a correct description,*

Whitaker Works Manager for Manufacturer.
La Sociedad Espanola de Construccion Naval

Dates of Survey while building — *During progress of work in shops* — March 2. May 2. June 4. July 17. 18. 1919 — Jan. 29. March 30. 31. May 20. 21. Jul. 11. Oct. 6. 7. 8 Nov. 22. 23. May 17. 21.
During erection on board vessel —
Total No. of visits Eighteen *Is the approved plan of main boiler forwarded herewith* No
" " " *donkey* " " " ✓

Dates of Examination of principal parts—Casings 2-5-19 *Rotors* 17-7-19 *Blading* 6-10-20 *Gearing* 22-11-2

Rotor shaft 6-10-20 *Thrust shaft* 29-1-20, 31-3-20 *Tunnel shafts* 29-1-20, 31-3-20, 17-5-21 *Screw shaft* 29-1-20, 31-3-20 *Propeller* 29-1-

Stern tube 30-3-20 *Steam pipes tested* ✓ *Engine and boiler seatings* ✓ *Engines holding down bolts* ✓

Completion of pumping arrangements ✓ *Boilers fixed* ✓ *Engines tried under steam* ✓

Main boiler safety valves adjusted ✓ *Thickness of adjusting washers* ✓

Material and tensile strength of Rotor shaft Steel 28-32 *Identification Mark on Do.* See List attd

Material and tensile strength of Pinion shaft Steel 28-32 *Identification Mark on Do.* do

Material of Wheel shaft Steel *Identification Mark on Do.* *Material of Thrust shaft* Steel *Identification Mark on Do.* do

Material of Tunnel shafts Steel *Identification Marks on Do.* *Material of Screw shafts* Steel *Identification Marks on Do.* do

Material of Steam Pipes ✓ *Test pressure* ✓

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 a duplicate of a previous case No *If so, state name of vessel* ✓

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

These Machines being well constructed of material tested to Rule requirements and according to approved plans are, in my opinion, eligible for Classification.
The notation of ✠ L.M.C., with date, to be deferred pending the receipt of a satisfactory report as to fitting on board and performance under steam.

The amount of Entry Fee ...	£	6,600 :	When applied for, June 21 / 21
Special	£	pesetas :	
Donkey Boiler Fee ...	£	: :	When received, Paid 19
Travelling Expenses (if any)	£	5,525 :	

Arthur R. Palmer.
Engineer Surveyor to Lloyd's Register of Shipping.

TUE OCT. 9 1923

Committee's Minute FRI. SEP. 7 1923

Assigned TUE. 11 DEC. 1923

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

Certificate (if required) to be sent to ____