

## REPORT ON OIL ENGINE MACHINERY.

No. 2256

Date of writing Report 8 Feb. 1923 When handed in at Local Office

Received at London Office

JAN FEB 13 1923

No. in Survey held at Stockholm  
Reg. Book.

Port of Stockholm

Date, First Survey 30 Oct. 1922 Last Survey 2 Feb. 1923

Number of Visits 8

Single }  
on the Twin } Screw vessels  
Triple }Tons { Gross 31.44  
Net

Master

Built at

M.S. "C12"  
Bilbao

By whom built

Soc. Española de Constr. Naval

Yard No. 24

When built 1923

Engines made at Stockholm

By whom made

J. &amp; C. G. Bolinders Co. Ltd.

Engine Nos. 15166/69

When made 1923

Donkey Boilers made at

By whom made

Boiler No.

When made

Brake Horse Power 160

Owners Sociedad Española de Construcción Naval

Port belonging to

Bilbao

Nom. Horse Power as per Rule 146

Is Refrigerating Machinery fitted for cargo purposes

Is Electric Light fitted

## OIL ENGINES, &amp;c.—Type of Engines

Cylinder Oil Engine

2 or 4 stroke cycle — Single or double acting

Maximum pressure in cylinders 17 kg./sq. cm.

No. of cylinders 4

No. of cranks 4

Diameter of cylinders 300 mm

Length of stroke 310 mm

Revolutions per minute 350

Means of ignition Hot bulb

Kind of fuel used Crude Oil

Is there a bearing between each crank

Yes

Span of bearings (Page 87, Section 2, par. 1 of Rules) 600 mm

Distance between centres of main bearings 600 mm

Is a flywheel fitted

Yes

Diameter of crank shaft journals as per Rule 121 mm

as fitted 128 mm

Diameter of crank pins 128 mm

Breadth of crank webs as per Rule 161 mm

as fitted 170 mm

Thickness of ditto as per Rule 68 mm

as fitted 71.5 mm

Diameter of flywheel shaft as per Rule

Diameter of tunnel shaft as per Rule

Diameter of thrust shaft as per Rule

as fitted 116 mm

Diameter of screw shaft as per Rule

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 watertight in the propeller boss

Yes

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

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

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

No

If without liners, is the shaft arranged to run in oil

Type of outer gland fitted to stern tube

Liquid Ring

Length of stern bush

4 1/2 in

Diameter of propeller 1143 mm

Pitch of propeller 1524 mm

No. of blades 3

state whether moveable

No

Total surface 3792 cm<sup>2</sup>

Method of reversing

Timing

Is a governor or other arrangement fitted to prevent racing of the engine when declutched

Yes

Thickness of cylinder liners none fitted

Are the cylinders fitted with safety valves

No

Means of lubrication pumps

Are the exhaust pipes and silencers water cooled or lagged with

non-conducting material lagged the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine

No. of cooling water pumps 2

Is the sea suction provided with an efficient strainer which can be cleared

within the vessel

No. of bilge pumps fitted to the main engines 1

Diameter of ditto 100 mm

Stroke 50 mm

Can one be overhauled while the other is at work

No. of auxiliary pumps connected to the main bilge lines

None

How driven

Sizes of pumps

No. and sizes of suctions connected to both main bilge pumps and auxiliary bilge pumps:—In engine room 1—1 1/2 in

and in holds, etc.

1—1 1/2 in

No. of ballast pumps

How driven

Sizes of pumps

Is the ballast pump fitted with a direct suction from the engine room bilges

State size

Is a separate auxiliary pump suction fitted in

Engine Room and size

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

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

Are they valves or cocks

Both

Are they fixed sufficiently high on the ship's side to be seen without lifting the floor 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 all pipes, cocks, valves and pumps in connection with the machinery 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

No tunnel

worked from

If a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork

No. of main air compressors none fitted

No. of stages

Diameters

Stroke

Driven by

No. of auxiliary air compressors one

No. of stages one

Diameters 3 1/2 in

Stroke 3

Driven by Hand wheel &amp; foot

No. of small auxiliary air compressors

No. of stages

Diameters

Stroke

Driven by

No. of scavenging air pumps

Diameter

Stroke

Driven by

Diameter of auxiliary Diesel Engine crank shafts

as per Rule

Are the air compressors and their coolers made so as to be easy of access

## AIR RECEIVERS:—No. of high pressure air receivers

Internal diameter

Cubic capacity of each

material

Seamless, lap welded or riveted longitudinal joint

Range of tensile strength

thickness

working pressure by Rules

No. of starting air receivers 1

Internal diameter 434 mm

Total cubic capacity 280 litres

Material S. M. Steel

Seamless, lap welded or riveted longitudinal joint lap welded

Range of tensile strength min. 23 tons/sq. inch

thickness 8 mm

Working pressure by rules 257 lbs

Is each receiver, which can be isolated.

fitted with a safety valve as per Rule

Can the internal surfaces of the receivers be examined

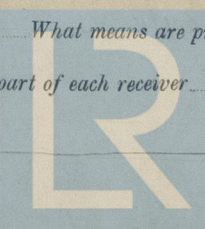
Yes

What means are provided for cleaning their

inner surfaces Manhole door

Is there a drain arrangement fitted at the lowest part of each receiver

Yes

Lloyd's Register  
Foundation

007214-007234-0226

IS A DONKEY BOILER FITTED?

If so, is a report now forwarded?

HYDRAULIC TESTS:—

DESCRIPTION.	DATE OF TEST.	WORKING PRESSURE.	TEST PRESSURE.	STAMPED.	REMARKS.
ENGINE CYLINDERS	2.2.23	17 kg/cm.	37 kg/cm.	LLOYD'S TEST 37 KG AI. 2.2.23 A	
COVERS	2.2.23	ditto	ditto		
JACKETS	2.2.23		3.5 kg/cm.		
PISTON WATER PASSAGES	(open pistons)				
MAIN COMPRESSORS—1st Stage					
2nd					
3rd					
AIR RECEIVERS—STARTING	2.2.23	15 kg/cm.	30 kg/cm.	Nº 2230 LLOYD'S TEST 30 KG WP. 15 KG AI. 2.2.23 A	
INJECTION					
AIR PIPES					
FUEL PIPES					
FUEL PUMPS					
SILENCER	2.2.23		3.5 kg/cm.	HYDR. TEST 3.5 KG AI. 2.2.23 A	
WATER JACKET	2.2.23		ditto		
SEPARATE FUEL TANKS					

PLANS.

Are approved plans forwarded herewith for shafting

(If not, state date of approval)

Receivers, starting E 8.3.16. Separate Tanks

SPARE GEAR

to be supplied and inspected on delivery. — 2- top end bolts and nuts; 2- main bearing studs and nuts; 1- disc and 1- sec. valve for pig pump; 3- ignition bulb studs; 1- cylinder stud; 1- thrust bearing bolt; 1- bolt for lubricating apparatus; 1- red pump eccentric bolt; 1- bolt for oscillating lever; 1- bolt for governor weight; 2- sec and 2 disc valves for air pump and two coupling bolts and nuts.

The foregoing is a correct description,

ACIADAD ESPANOLA DE CONSTRUCCION

C. S. Pullerton

for Board

Dates of Survey while building  
During progress of work in shops - 30.14.22, 30.12.22, 30.31.22, 23  
During erection on board vessel - Dec. 15/22, Jan. 23/23, Feb. 5/23, Mar. 3, 12/23, Apr. 4, 12, 14, 24/23, May. 15, June 8, 19, 26, July 18/23.  
Total No. of visits 8 in shop 13 in vessel.

Dates of Examination of principal parts - Cylinders 30.2.23, Covers 30.2.23, Pistons 30.2.23, Rods 30.2.23, Connecting rods 14.22, 30.2.23  
Crank shaft 30.3.23, Thrust shaft 14.22, 30.2.23, Tunnel shafts 30.2.23, Screw shaft 4-4-23, Propeller 12-3-23, Stern tube 4-4-23, Engine seatings 18-4-23, Engines holding down bolts 8-6-23, Completion of pumping arrangements 18-7-23, Engines tried under working conditions on shop 30.31.23  
Completion of fitting sea connections 12-4-23, Stern tube 15-5-23, Screw shaft and propeller 15-5-23  
Material of crank shaft I.M. Steel, Identification Mark on Do. LLOYD'S Nº 3220 AI. 30.11.22 A, Material of thrust shaft I.M. Steel, Identification Mark on Do. LLOYD'S Nº 3223 AI. 2.2.11.22 A  
Material of tunnel shafts Identification Marks on Do., Material of screw shafts Steel, Identification Marks on Do. 145-23-1-23 WBE  
Is the flash point of the oil to be used over 150° F. Yes.  
Is this machinery duplicate of a previous case yes If so, state name of vessel and Skm. Report no 2247, P. 6.2.23.

General Remarks

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

I am of opinion, that this motor is of superior material and workmanship, and as it has been designed and constructed under my special survey, I have respectfully to submit, that it will be eligible to be classed \*LMC, as soon as it has been fitted in a classed vessel to the satisfaction of the Society's Surveyors.

This machinery has been securely fitted on board, the materials and workmanship are good and has been tried under working conditions and found satisfactory. In my opinion it is eligible to be classed with record of L.M.C. 4-23.

The amount of Entry Fee ... £  
Special survey, in shops 12 0 0  
Donkey Boiler Fee ... £  
Travelling Expenses (if any) £

When applied for,

7.2.19.23

When received,

31/3/23

Committee's Minute

Assigned

FRI. 14 SEP. 1923

- P. 6.7.23

Thomas Miller, Assistant

Engineer Surveyor to Lloyd's Register of Shipping.

assisted by Mr. K. J. Anderson



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