

REPORT ON OIL ENGINE MACHINERY.

No. 2255
TUE. FEB 13 1923

Received at London Office

Date of writing Report 8 Febr. 1923 When handed in at Local Office 19 Port of Stockholm

No. in Survey held at Stockholm Date, First Survey 30 Oct. 1922 Last Survey 2 Febr. 1923
Reg. Book. M.S. "C11" Number of Visits 9

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

Master Built at Bilbao By whom built Soc. Española de Constr. Naval Yard No. 26 When built 1923.
Engines made at Stockholm By whom made J. & C. G. Bolinders & Co. Ltd. Engine Nos. 15162/15163 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)
(Möller's Order no 169.)
Nom. Horse Power as per Rule 46 Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted No.

OIL ENGINES, &c.—Type of Engines Bolinder Oil Engine 2 stroke cycle — Single ~~double~~ acting

Maximum pressure in cylinders 17 kg/cm. No. of cylinders 4 No. of cranks 4 Diameter of cylinders 300 mm 11 11/16

Length of stroke 123/16 310 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 92, Section 2, par. 7 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 " ✓

Diameter of crank pins 128 mm Breadth of crank webs as per Rule 161 mm
as fitted 170 " Thickness of ditto as per Rule 68 mm
as fitted 71.5 " ✓

The flywheel is fitted at fore end of the crank shaft Diameter of tunnel shaft as per Rule 116 mm
as fitted 118 " ✓

Diameter of flywheel shaft as per Rule 101 mm
as fitted 102 " ✓

Diameter of screw shaft as per Rule 102 mm
as fitted 102 " ✓

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 Guard ring Length of stern bush 400 mm Diameter of propeller 1143 mm ✓

Pitch of propeller 1486 mm No. of blades 3 state whether moveable No. Total surface 40.88 DCm² ✓

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 to funnels ✓

If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine Exhaust to funnels ✓

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 140 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 1-1 1/2 No. and sizes of suctions connected to both main bilge pumps and auxiliary bilge pumps:—In engine room 1-1 1/2 ✓

and in holds, etc. 1-1 1/2 No. of ballast pumps None How driven ✓

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 Yes. ✓

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. ✓ Is the screw shaft tunnel watertight Yes. Is it fitted with a watertight door ✓

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 No. Diameters Stroke Driven by

No. of auxiliary air compressors one No. of stages one Diameters 3 1/8" Stroke 3" Driven by Hand wheel 3-0 dia. ✓

No. of small auxiliary air compressors No. of stages No. Diameters Stroke Driven by

No. of scavenging air pumps No. of stages No. Diameters Stroke Driven by

Diameter of auxiliary Diesel Engine crank shafts as per Rule as fitted 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 Internal diameter 434 mm

Total cubic capacity 280 litres Material S.H. Steel Seamless, lap welded or riveted longitudinal joint lap welded

Range of tensile strength min. 23 tons 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 ✓

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	31.7.23	17 kg/sq. cm.	37 kg/sq. cm.	LLOYDS TEST 37 KG AL 31.1.23 A	
" " COVERS	31.1.23	ditto	ditto		
" " JACKETS	31.1.23		3.5 kg/sq. cm.		
" " PISTON WATER PASSAGES	(open pistons)				
MAIN COMPRESSORS—1st STAGE	none fitted				
" 2nd "					
" 3rd "					
AIR RECEIVERS—STARTING	31.1.23	15 kg/sq. cm.	30 kg/sq. cm.	No 2229 LLOYDS TEST 30 KG W.P. 15 KG AL 31.1.23 A	
" INJECTION					
AIR PIPES					
FUEL PIPES					
FUEL PUMPS					
SILENCER	31.1.23	—	3.5 kg/sq. cm.	HYDR. TEST 3.5 KG AL 31.1.23 A	
" WATER JACKET	31.1.23	—	ditto		
SEPARATE FUEL TANKS					

PLANS. Are approved plans forwarded herewith for shafting *Secretary's letter E 7.11.22* 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. screw valve or piece pump; 3 studs for injection bolts; 1. cylinder stud; 1. thrust bearing bolt; 1. bolt for lubricating pump; 1. bolt for governor weight; 2. disc and 2. screw valves for cyl. pump; and two coupling bolts and nuts.

The foregoing is a correct description.

SOCIEDAD ESPAÑOLA DE CONSTRUCCION NAVAL

R. S. Fullerton

for Construction on Board

JEFE DE MAQUINARIA

Dates of Survey while building: During progress of work in shops — 30, 14.22.30, 14.22; 23.25.31.2.23
During erection on board vessel — Dec. 15/23, Jan. 23/23, Feb. 5. Mar. 12, April 4, 12. 16. 24, May 15, June 8, 19, July 20
Total No. of visits 9 in shop 12 in vessel.

Dates of Examination of principal parts: Cylinders 23.31.23 Covers 23.31.23 Pistons 23.31.23 Rods ✓ Connecting rods 14.22.30, 14.22, 23.31.23
Crank shaft 30.22.30, 14.22, 23.31.23 Thrust shaft 14.22.30, 14.22, 23.31.23 Tunnel shafts ✓ Screw shaft 12.3.23 Propeller 12.3.23 Stern tube 4-4-23 Engine seatings 4-4-23
Engines holding down bolts 8-12-23 Completion of pumping arrangements 20.4.23 Engines tried under working conditions in shop 23.25.23
Completion of fitting sea connections 12.4.23 Stern tube 15.5.23 Screw shaft and propeller 15.5.23
Material of crank shaft L.M. Steel Identification Mark on Do. LLOYDS No 3219 AL 30.11.22 A Material of thrust shaft L.M. Steel Identification Mark on Do. LLOYDS No 3224 AL 22.11.22 A
Material of tunnel shafts ✓ Identification Marks on Do. Material of screw shafts Steel Identification Marks on Do. 14.23.23 M.B.E.
Is the flash point of the oil to be used over 150° F. ✓
Is this machinery duplicate of a previous case Yes If so, state name of vessel and Km. Report no. 2247

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 the record of L.M.C. 4-23.

The amount of Entry Fee ... £ : : When applied for, 7.2 19.23
Special survey in shop 12 : 0 : 0 : 7.2 19.23
Donkey Boiler Fee ... £ : : When received, 31/3/23
Travelling Expenses (if any) £ : : 8/6/23

Committee's Minute

Assigned

FRI. 14 SEP. 1923

+ L.M.C. 7.23

Thomas Miller, A. E. Eason
Engineer Surveyor to Lloyd's Register of Shipping.
assisted by Mr. E. J. Anderson



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