

## REPORT ON OIL ENGINE MACHINERY.

No. 7.

Date of writing Report 2<sup>nd</sup> Nov. 1920 When handed in at Local Office2<sup>nd</sup> Nov. 1920

Received at London Office

DEC. 1920

No. in Survey held at Winterthur

Date, First Survey 19<sup>th</sup> May, 20. Last Survey 19

Number of Visits

Type of engine on the Triples Screw vessels AORANGI

Built at Glasgow

By whom built Winterthur No. 603 When built 1924

Engines made at Winterthur

By whom made Sulzer Bros. Soc. Anon. Engine No. 2971 When made 1920

Donkey Boilers made at

By whom made

Boiler No. When made

Brake Horse Power 420

Owners

Port belonging to

Nom. Horse Power as per Rule 82.

Is Refrigerating Machinery fitted for cargo purposes

Is Electric Light fitted

OIL ENGINES, &amp;c.—Type of Engines Sulzer Marine Diesel Engine 2 or 4 stroke cycle 2 Single or double acting Single

Maximum pressure in cylinders 35 Ats.

No. of cylinders 4

No. of cranks 4

Diameter of cylinders 340 mm

Length of stroke 540 mm

Revolutions per minute 200

Means of ignition Temperature due to compression

Kind of fuel used Heavy fuel oil.

Is there a bearing between each crank

Yes

Span of bearings (Page 92, Section 2, par. 7 of Rules)

430 mm

Distance between centres of main bearings

650 mm

Is a flywheel fitted

Yes to crankshaft.

Diameter of crank shaft journals as per Rule 207 mm

as fitted 215 mm

Diameter of crank pins

215 mm

Breadth of crank webs as per Rule 275 mm

as fitted 280 mm

Thickness of ditto as per Rule 116 mm

as fitted 115 mm

Diameter of flywheel shaft as per Rule

None fitted

Diameter of tunnel shaft as per Rule

as fitted

Diameter of thrust shaft as per Rule

as fitted

After end of the liner made watertight in the propeller boss

as fitted

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

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

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

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

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

If outer gland fitted to stern tube

Length of stern bush

Diameter of propeller

of propeller

No. of blades

state whether moveable

Total surface

square feet

of reversing Direct

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

Yes

Thickness of cylinder liners 27 1/2 mm

cylinders fitted with safety valves

Yes

Means of lubrication

Forced

Are the exhaust pipes and silencers water cooled or lagged with

insulating material

Yes

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

the vessel

No. of bilge pumps fitted to the main engines

Double acting

Diameter of ditto

115 mm

Stroke

110 mm

be overhauled while the other is at work

No. of auxiliary pumps connected to the main bilge lines

How driven

pumps

No. and sizes of suction connected to both main bilge pumps and auxiliary bilge pumps:—In engine room

holds, etc.

No. of ballast pumps

How driven

Sizes of pumps

Ballast pump fitted with a direct suction from the engine room bilges

State size

Is a separate auxiliary pump suction fitted in

Room and size

Are all the bilge suction pipes fitted with roses

Are the roses in Engine Room always accessible

Roses on Engine Room bulkheads always accessible

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

valves or cocks

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

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

1.

No. of stages

3.

Diameters

390/350/175 mm

Stroke

280 mm

Driven by Crank Shaft

No. of auxiliary air compressors

No. of stages

Diameters

Stroke

Driven by

No. of small auxiliary air compressors

No. of stages

Diameters

Stroke

Driven by

No. of scavenging air pumps

1 double acting

Diameter

400 mm

Stroke

450 mm

Driven by Crank Shaft

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

Yes

AIR RECEIVERS:—No of high pressure air receivers

1.

Internal diameter

250 mm

Cubic capacity of each 100 Litres

Material S.M. Steel

Seamless, lap welded or riveted longitudinal joint

Seamless

Range of tensile strength 45/55 Kg. per cm<sup>2</sup>

Thickness 10 mm

Working pressure by Rules

7.5 Ats.

No. of starting air receivers

Internal diameter

Total cubic capacity

Material

Seamless, lap welded or riveted longitudinal joint

Range of tensile strength

thickness

Working pressure by rules

Is each receiver, which can be isolated,

fitted with a safety valve as per Rule

Yes

Can the internal surfaces of the receivers be examined

Yes

What means are provided for cleaning their

inner surfaces

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

Yes



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## 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 .....	1-11-20	35 ATs.	45 ATs.	R.	Test Satisfactory
" " COVERS .....	1-11-20	-do-	-do-	"	-do-
" " JACKETS .....	1-11-20	1 ATs.	3 ATs.	"	-do-
" PISTON WATER PASSAGES .....	10-6-20	5 "	3 "	"	-do-
MAIN COMPRESSORS—1st STAGE .....	-do-	3 "	35 "	"	-do-
" 2nd " .....	-do-	17.5 "	35 "	"	-do-
" 3rd " .....	-do-	40 "	140 "	"	-do-
AIR RECEIVERS—STARTING .....					
" INJECTION .....	2-11-20.	40 ATs.	140 ATs.	R.	-do-
AIR PIPES .....	19-5-20 20-5-20	40 "	140 "	"	-do-
FUEL PIPES .....	-do- -do-	40 "	140 "	"	-do-
FUEL PUMPS & VALVES .....	10-6-20	40 "	140 "	"	-do-
SILENCER .....	-do-	1 "	3 "	"	-do-
" WATER JACKET .....					
SEPARATE FUEL TANKS .....					

PLANS. Are approved plans forwarded herewith for shafting  
(If not, state date of approval)

SENT TO LONDON 31/1/20 Receivers

IN LONDON OFFICE  
APPROVED 1/6/20

Separate Tanks

## SPARE GEAR

The foregoing is a correct description

Sulzer Frères

Société Anonyme

H. de lais

H. Tobler

Manufacturers.

Dates of Survey while building { During progress of work in shops - 19-5-20, 20-5-20, 10-6-20, 18-10-20, 25-10-20, 26-10-20, 1-11-20, 2-11-20.  
During erection on board vessel - -  
Total No. of visits

Dates of Examination of principal parts—Cylinders 1-11-20 Covers 1-11-20 Pistons 10-6-20. Rods 25-10-20 Connecting rods 25-10-20

Crank shaft 1-11-20 Thrust shaft Tunnel shafts Screw shaft Propeller Stern tube Engine seatings

Engines holding down bolts Completion of pumping arrangements Engines tried under working conditions

Completion of fitting sea connections Stern tube Screw shaft and propeller

Material of crank shaft SM. INGOT STEEL Identification Mark on Do. R. 1-11-20 Material of thrust shaft Identification Mark on Do.

Material of tunnel shafts Identification Marks on Do. Material of screw shafts Identification Marks on Do.

Is the flash point of the oil to be used over 150° F. Yes.

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.) Stock Engine Constructed under Ordinary Survey. Materials and workmanship good. Full power trial in shops satisfactory. This machinery has been satisfactorily fitted on board the above vessel.

The amount of Entry Fee ... £ 2 - 0 - 0 :  
Special ... £ 20 - 10 - 0 :  
Donkey Boiler Fee ... £ :  
Travelling Expenses (if any) £ :  
When applied for, 29<sup>th</sup> Nov 1920  
When received, 3<sup>rd</sup> Dec 1920

Committee's Minute

GLASGOW

13 JAN 1925

Assigned

See Wintertbury Rpt. 40  
attached to Gls. Rpt. 44285

LR-FAP-739.190

W.B. Vallis M. Law  
Engineer Surveyor to Lloyd's Register of Shipping



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