

Rpt. 4b.

## REPORT ON OIL ENGINE MACHINERY.

No. 40

Received at London Office 14.10.1925  
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No. in Survey held at Winterthur.

Reg. Book.

Single QUADRUPLE  
on the Twin Screw vessel  
Triple

FORANGI

Master.

Built at Glasgow

By whom built The Fairfield S.E. Co. Ltd. Yard No. 603. When built 1923

Engines made at Winterthur

By whom made Messrs. Sulzer Bros. Engine Nos. 2065, 2067. When made 1923.

Aux.

Boilers made at Glasgow

By whom made The Fairfield S.E. Co. Ltd. Boiler No. 603 When made 1923.

Brake Horse Power 420 EACH ENG. = 1680 TOTAL.

Owners The Union S.S. Co. of New Zealand. Port belonging to London

Nom. Horse Power as per Rule

{ 82 EACH ENG.

TOTAL 320

Is Refrigerating Machinery fitted for cargo purposes Yes

Is Electric Light fitted Yes

II. ENGINES, &amp;c. Type of Engine Sulzer Auxiliary Diesel Engines 2 or 4 stroke cycle 2 Single or double acting single

Maximum pressure in cylinders 35 ATs. No. of cylinders 4 EACH ENg. Number of cranks 4 EACH ENg. Diameter of cylinders 340 mm.

Length of stroke 540 mm. Revolutions per minute 200. Means of ignition Temperature due to compression and 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

Diameter of crank shaft journals as per Rule as fitted

196.5 mm.

Diameter of crank pins 215 mm.

Breadth of crank webs as per Rule as fitted

261 mm.

215 mm.

Diameter of flywheel shaft as per Rule as fitted 196.5 mm.

215 mm.

Diameter of tunnel shaft as per Rule as fitted

280 mm.

110 mm. ✓

Diameter of screw shaft as per Rule as fitted

✓

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

Thickness of ditto as per Rule as fitted

115 mm. ✓

Is the after end of the liner made watertight in the propeller boss

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

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

Type of outer gland fitted to stern tube

✓

Length of stern bush

Diameter of propeller

✓

Pitch of propeller

No. of blades

state whether moveable

Total surface

square feet

Method of reversing In reversible Is a governor or other arrangement fitted to prevent racing of the engine Yes Thickness of cylinder liners 275 mm.

Are the cylinders fitted with safety valves Yes Means of lubrication Forced Are the exhaust pipes and silencers water cooled or lagged with

Conducting 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 Exhaust led up forward

No. of cooling water pumps EACH ENg. EACH ENg. 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 EACH ENg. Diameter of ditto 115 mm. Stroke 110 mm.

Can one be overhauled while the other is at work No. of auxiliary pumps connected to the main bilge lines How driven

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

Used in holds, etc. No. of ballast pumps How driven Sizes of pumps

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 Are the roses in Engine Room always accessible

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 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

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

of main air compressors 1 EACH ENg. No. of stages 3. Diameters 390/360/15 Stroke 280 mm. Driven by Engine Shaft.

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

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

of scavenging air pumps 1 D.A. EACH ENg. Diameter 100 mm. Stroke 450 mm. Driven by Engine Shaft.

Are the auxiliary Diesel Engine crank shafts as per Rule as fitted Are the air compressors and their coolers made so as to be easily of access Yes

INJECTION

8 RECEIVERS:—No. of high pressure air receivers 1 EACH ENg. Internal diameter 248 mm. Cubic capacity of each 100 LITRES.

Material S.M. ING. STEEL. Seamless, lap welded or riveted longitudinal joint seamless. Range of tensile strength 28 to 35 Ton's per sq. in.

Thickness 9.5 mm. Working pressure by Rules 69 ATs. No. of starting air receivers Internal diameter

Actual 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,

Is there 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 Opening 65 mm dia. at one end. Is there a drain arrangement fitted at the lowest part of each receiver Yes



IS A DONKEY BOILER FITTED?  
HYDRAULIC TESTS:-

If so, is a report now forwarded?

DESCRIPTION.	DATE OF TEST.	WORKING PRESSURE.	TEST PRESSURE.	STAMPED.	REMARKS.
ENGINE CYLINDERS	12-7-20, 4-8-20, 5-8-20, 17-8-20, 1-11-20.	35 ATs.	15 ATs.	R	Test satisfactory
COVERS	- - - - -	- - -	- - -	R	-do-
JACKETS	- - - - -	1 -	3 -	R	-do-
PISTON WATER PASSAGES	10-6-20, 14-6-20, 22-7-20, 18-8-20	- - -	- - -	R	-do-
MAIN COMPRESSORS—1st STAGE	10-6-20, 21-6-20, 22-7-20, 13-8-20	3 -	35 -	R	-do-
2nd	- - - - -	17.5 -	- - -	R	-do-
3rd	- - - - -	14.8-20	140 -	R	-do-
AIR RECEIVERS-STARTING					
INJECTION		10 -	- - -		
AIR PIPES	11-6-20, 27-7-20, 6-8-20, 19-5-20, 20-5-20	10 -	140 -	R	Test satisfactory
FUEL PIPES	- - - - -	10 -	- - -	R	-do-
FUEL PUMPS & VALVES	14-6-20, 28-7-20, 16-8-20, 10-6-20, 25-9-20.	10 -	- - -	R	-do-
SUPERHEAT EXHAUST PIPES	10-6-20, 12-6-20, 22-7-20, 9-8-20.	1 -	3 -	R	-do-
WATER JACKET	10-6-20, 12-6-20, 22-7-20, 9-8-20.	- - -	- - -		-do-
SEPARATE FUEL TANKS					

PLANS. Are approved plans forwarded herewith for shafting  
(If so, state date of approval)

Yes.

Receivers

4-6-23.

Separate Tanks

SPARE GEAR 2 cylinder covers without valves, 4 cylinder liners, 4 combined fuel + air starting valves complete, 12 fuel needles with guides, 2 working pistons complete with piston rods, 95 piston rings, 2 complete con. rod bottom + top end bearings with bolts nuts, 2 con. rod bottom and bolts nuts, 2 con. rod top end bolts nuts, 2 main bearing bolts nuts, 2 coupling bolts for crank shaft, 24 piston rings for HP + LP compressor pistons, 20 piston rings for LP compressor piston, 4 piston rings for scavenging pump. 2 suction + delivery valves for HP compressor, 24 outer + 24 inner valves for LP + LP. Compressor, Suction + delivery valves for fuel pump. 2 pistons with bushes for fuel pump. 2 con. rods complete for fuel pump, crosshead pins for fuel pump, 21 bushings for scavenging pump valves, 4 valves with seats for lubricating pump, 14 bolts nuts for working cylinder.

The foregoing is a correct description. 95 metres pipes for starting air, 16 metres pipes for injection air, 16 metres pipes for fuel delivery, all pipes fitted with unions.

Sulzer Brothers

Manufacturer:

Hobby pp Bachmann Limited

Dates of Survey while building  
During progress of work in shops - - -  
During erection on board vessel - - -  
Total No. of visits

19-5-20, 20-5-20, 10-6-20, 11-6-20, 12-6-20, 14-6-20, 21-6-20, 22-7-20, 26-7-20, 27-7-20, 28-7-20, 10-8-20, 11-8-20, 12-8-20, 13-8-20, 14-8-20, 15-8-20, 16-8-20, 17-8-20, 18-8-20, 19-8-20, 20-8-20, 21-8-20, 19-10-20, 20-10-20, 21-10-20, 22-10-20, 23-10-20, 24-10-20, 25-10-20, 26-10-20, 27-10-20, 28-10-20, 29-10-20, 21-11-20, 22-11-20, 23-11-20, 24-11-20, 25-11-20, 26-11-20, 27-11-20, 28-11-20, 29-11-20, 1-12-20, 2-12-20, 3-12-20, 4-12-20, 5-12-20, 6-12-20, 7-12-20, 8-12-20, 9-12-20, 10-12-20, 11-12-20, 12-12-20, 13-12-20, 14-12-20, 15-12-20, 16-12-20, 17-12-20, 18-12-20, 19-12-20, 20-12-20, 21-12-20, 22-12-20, 23-12-20, 24-12-20, 25-12-20, 26-12-20, 27-12-20, 28-12-20, 29-12-20, 1-1-21, 2-1-21, 3-1-21, 4-1-21, 5-1-21, 6-1-21, 7-1-21, 8-1-21, 9-1-21, 10-1-21, 11-1-21, 12-1-21, 13-1-21, 14-1-21, 15-1-21, 16-1-21, 17-1-21, 18-1-21, 19-1-21, 20-1-21, 21-1-21, 22-1-21, 23-1-21, 24-1-21, 25-1-21, 26-1-21, 27-1-21, 28-1-21, 29-1-21, 1-2-21, 2-2-21, 3-2-21, 4-2-21, 5-2-21, 6-2-21, 7-2-21, 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