

AUXILIARY ENGINES. REPORT ON OIL ENGINE MACHINERY.

No. 42.

apt. 4b.

Received at London Office

Date of writing Report 14th Dec. 1923 When handed in at Local Office 17th Dec. 1923 Port of Winterthur
 Date, First Survey 4th July, 1921 Last Survey 27th March, 1923

No. in Survey held at Winterthur Number of Visits _____
 on the Single } Screw vessels
Twin }
Triple }
 Master _____ Built at Kobe By whom built Kobe Steel Works Yard No. _____ When built _____
 Engines made at Winterthur By whom made Messrs. Sulzer, Bros. Engine No. 5195 When made 1923
5197
5291
 Boiler No. _____ When made _____
 Donkey Boilers made at _____ By whom made _____
 Brake Horse Power 270 (3 ENG.) TOTAL Owners _____ Port belonging to _____
 Nom. Horse Power as per Rule 42 (3 ENG.) Is Refrigerating Machinery fitted for cargo purposes _____ Is Electric Light fitted _____

ALL ENGINES, &c.—Type of Engines Auxiliary Sulzer Diesel Engines, 2 or 4 stroke cycle 4 Single or double acting single
 Maximum pressure in cylinders 38 Atm. No. of cylinders 2 EACH ENG. No. of cranks 2 Each Eng. Diameter of cylinders 310 mm.
 Length of stroke 360 mm. Revolutions per minute 300 Means of ignition Temperature and 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) 390 mm.
 Distance between centres of main bearings 620 mm. Is a flywheel fitted Yes Diameter of crank shaft journals as per Rule 166 mm
as fitted 175 "
 Diameter of crank pins 175 " Breadth of crank webs as per Rule 221 mm Thickness of ditto as per Rule 93 "
as fitted 270 "
 Diameter of flywheel shaft as per Rule 166 mm Diameter of tunnel shaft as per Rule 185 mm Diameter of thrust shaft as per Rule 185 mm
as fitted 200 "
 Diameter of screw shaft as per Rule 166 mm Is the screw shaft fitted with a continuous liner the whole length of the stern tube _____
as fitted 185 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 non-reversible Is a governor or other arrangement fitted to prevent racing of the engine when disconnected Yes Thickness of cylinder liners 24 mm
 Are the cylinders fitted with safety valves Yes Means of lubrication Forced Are the exhaust pipes and silencers water cooled or lagged with _____
 non-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 _____
 No. of cooling water pumps 1 Is the sea suction provided with an efficient strainer which can be cleared _____

4-23 within the vessel _____ No. of bilge pumps fitted to the main engines _____ Diameter of ditto _____ Stroke _____
 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 _____
 and in holds, etc. _____ 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 _____ 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 _____

the 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 Each Eng. No. of stages 3 Diameters 205/180/40 Stroke 150 mm Driven by main 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 _____ 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 Yes
as fitted

AIR RECEIVERS:—No. of high pressure air receivers 1 Each Eng. Internal diameter 190 mm Cubic capacity of each 20 litres
 material S.M. Steel Seamless, lap welded or riveted longitudinal joint Seamless Range of tensile strength 28 to 32 Tons per sq.
 thickness 10 mm working pressure by Rules 96 at. 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 Opening 120 mm dia. at upper end. Is there a drain arrangement fitted at the lowest part of each receiver _____

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	25-1-22, 28-1-22 , 17-8-22	38 ATs.	75 ATs.	B.	Test satisfactory
" " COVERS	-do- -do-	-do-	-do-	-do-	-do-
" " JACKETS.....	30-1-22 -do-	1 ATs.	3 ATs.	-do-	-do-
" PISTON WATER PASSAGES.....	✓	✓	✓	✓	none.
MAIN COMPRESSORS—1st STAGE.....	30-1-22 1-2-22, 2-2-22, 31-1-22, 13-4-22	3 ATs	10 ATs.	B.	Test satisfactory
" 2nd "	" " " 6-2-22, "	17.5 "	35 "	-do-	-do-
" 3rd "	" " " 3-10-22	70 "	140 "	-do-	-do-
AIR RECEIVERS—STARTING	✓	✓	✓	✓	✓
" INJECTION	17-1-22, 24-11-22, 16-1-23	70 ATs	140 ATs.	H.K. B.	Test satisfactory
AIR PIPES	6-9-22, 10-4-22, 1-3-23	70 ATs.	-do-	B.	-do-
FUEL PIPES	-do- -do- -do-	-do-	-do-	-do-	-do-
FUEL PUMPS + VALVES.....	9-2-22, 9-6-22, 9-8-22	-do-	-do-	-do-	-do-
STEAMER EXHAUST PIPE.....	20-5-22,	1 ATs.	3 ATs	-do-	-do-
" WATER JACKET	-do-, 2-6-22, 22-3-23	-do-	-do-	-do-	-do-
SEPARATE FUEL TANKS					

PLANS. Are approved plans forwarded herewith for shafting 23-7-21
(If not, state date of approval)

Receivers ^{Injection} 6-20, 10-4-22. Separate Tanks ✓

SPARE GEAR

The foregoing is a correct description,

M. Bachmann
Switzer Brothers Limited
Manufacturer.

Dates of Survey while building
 During progress of work in shops - 4-7-21, 22-7-21, 7-11-21, 2-12-21, 24-12-21, 17-1-22, 25-1-22, 26-1-22, 30-1-22, 31-1-22, 1-2-22, 2-2-22, 6-2-22, 8-2-22, 9-2-22, 21-2-22, 24-2-22, 10-3-22, 22-3-22, 6-4-22, 10-4-22, 12-4-22, 20-4-22, 9-5-22, 11-5-22, 18-5-22, 26-5-22, 2-6-22, 28-7-22, 9-8-22, 17-8-22, 13-9-22, 3-10-22, 16-1-23, 1-3-23, 21-3-23, 22-3-23, 26-3-23
 During erection on board vessel - - -
 Total No. of visits

Dates of Examination of principal parts—Cylinders 15-5-22, 9-6-22 Covers 15-5-22, 9-6-22 Pistons 15-5-22, 9-6-22 Rods ✓ Connecting rods 15-5-22, 17-6-22
 + FLYWHEEL 26-3-23
 Crank shafts 15-5-22, 17-6-22 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 3846 B 7-11-21 H^o 5195 + 5197. Screw shaft and propeller ✓
 Material of crank shaft 5 M. Landing Steel Identification Mark on Do. 3656 B 10-3-22 H^o 5291. 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 *no.* If so, state name of vessel

General Remarks (State quality of workmanship, opinions as to class, &c. *This machinery has been constructed under Special Survey in accordance with the requirements of the Rules, the Secretary's letters and the approved plans. Materials and workmanship good. Full power trials of Engines in shop satisfactory*

The amount of Entry Fee ... £	:	:	When applied for,
Special £	:	:	19
Donkey Boiler Fee ... £	:	:	When received,
Travelling Expenses (if any) £	:	:	19

W.S. Gallis
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI. 20 FEB 1925

TUES. 12 MAY 1925

Assigned

FRI. 19 JUN 1925



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