

REPORT ON OIL ENGINE MACHINERY.

No. 20225

Survey Report 19 When handed in at Local Office 19 Port of New York Received at London Office TUE. 17 MAY. 1921
 Survey held at Auburn N.Y. Date, First Survey Last Survey 19
 on the Single Twin Triple Screw vessels ASTMAHCO IV Number of Visits
H. Anderson Built at Manitowoc By whom built Manitowoc S.B.C. Yard No. When built 1917-9
 made at Auburn N.Y. By whom made McIntosh & Seymour Corp. Engine No. 1685 When made 1921-3
 Boilers made at By whom made Boiler No. When made 1917-9
 Horse Power 1000 (500 PER ENG) Owners Astmahco No 4, Inc. Port belonging to New York
 Horse Power as per Rule 200 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

ENGINES, &c.—Type of Engines Vertical Inverted Diesel 2 or 4 stroke cycle 4 Single or double acting Single
 pressure in cylinders 500 No. of cylinders 12 (6 per eng) No. of cranks 6 per eng Diameter of cylinders 16 1/2"
 stroke 24" Revolutions per minute 190 Means of ignition Compression Kind of fuel used Heavy oil
 bearing between each crank Yes Span of bearings (Page 92, Section 2, par. 7 of Rules) 20 1/2"
 between centres of main bearings 36" Is a flywheel fitted Yes Diameter of crank shaft journals as per Rule 9.62"
 of crank pins 9.625" as per Rule 12.8" as fitted 13" Thickness of ditto as per Rule 5.38"
 of flywheel shaft as per Rule 9.62" as fitted 9.625" Diameter of tunnel shaft as per Rule 7.47" as fitted 7.47" Diameter of thrust shaft as per Rule 7.47" as fitted 7.47"
 of screw shaft as per Rule 8" as fitted 9" Is the screw shaft fitted with a continuous liner the whole length of the stern tube Yes
 end of the liner made watertight in the propeller boss Yes If the liner is in more than one length are the joints burned Yes
 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 Yes
 ers are fitted, is the shaft lapped or protected between the liners Yes If without liners, is the shaft arranged to run in oil Yes
 water gland fitted to stern tube Lignum vitae Length of stern bush 3'-0 1/4" Diameter of propeller P-10
 propeller 6'-5" No. of blades 3 state whether moveable No Total surface 21.6 square feet
 reversing Cum shaft Is a governor or other arrangement fitted to prevent racing of the engine when declutched Yes Thickness of cylinder liners 1/4"
 cylinders fitted with safety valves Yes Means of lubrication forced Are the exhaust pipes and silencers water cooled or lagged with Yes
 acting material Lagged If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine Yes
 No. of cooling water pumps 2 Is the sea suction provided with an efficient strainer which can be cleared Yes
 vessel Yes No. of bilge pumps fitted to the main engines None Diameter of ditto Original Stroke pumps
 overhauled while the other is at work Yes No. of auxiliary pumps connected to the main bilge lines 3 How driven 2 Electric, 2 Steam
 pumps No. and sizes of suctions connected to both main bilge pumps and auxiliary bilge pumps:—In engine room
 ds, etc. No. of ballast pumps How driven Sizes of pumps
 ast pump fitted with a direct suction from the engine room bilges State size Is a separate auxiliary pump suction fitted in
 om and size Are all the bilge suction pipes fitted with roses Yes Are the roses in Engine Room always accessible Yes
 ices on Engine Room bulkheads always accessible Yes Are all connections with the sea direct on the skin of the ship Yes
 alves or cocks Both Are they fixed sufficiently high on the ship's side to be seen without lifting the floor plates Yes
 charge 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
 es, 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
 tion between the sea and the bilges Yes Is the screw shaft tunnel watertight Yes Is it fitted with a watertight door Yes
 m Yes If a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork Yes
 n air compressors One per Engine No. of stages 3 Diameters 2 3/4" x 15" x 16" Stroke 12" Driven by Crank on Main Shaft
 liary air compressors One No. of stages 3 Diameters 10" 5 1/2" 2 1/2" Stroke P. 75 cu. ft. per min. Driven by Steam
 ll auxiliary air compressors One No. of stages 2 Diameters 37 cu. ft. per min. Driven by Diesel Engine
 enging air pumps Yes Diameter Stroke Driven by Yes
 auxiliary Diesel Engine crank shafts as per Rule as fitted 7 1/4" Are the air compressors and their coolers made so as to be easy of access Yes

RECEIVERS:—No of high pressure air receivers 7 Internal diameter 9.142" Cubic capacity of each 3325 cu. in.
Steel Seamless, lap welded or riveted longitudinal joint Seamless Range of tensile strength 40 TONS MIN M.
304" working pressure by Rules 1180 lb. No. of starting air receivers 2 (1 per Engine) Internal diameter 56" Mean.
 capacity 500 cu. ft. Material Steel Seamless, lap welded or riveted longitudinal joint Riveted S.B.S.
 tensile strength 55000 Min. thickness 1" Working pressure by rules 325 Is each receiver, which can be isolated,
 safety valve as per Rule Yes Can the internal surfaces of the receivers be examined Yes What means are provided for cleaning their
11" x 15" Manhole Is there a drain arrangement fitted at the lowest part of each receiver Yes

If so, is a report now forwarded?

DESCRIPTION.	DATE OF TEST.	WORKING PRESSURE.	TEST PRESSURE.	STAMPED.	REMARKS.
ENGINE CYLINDERS		500			
" " COVERS		5	70		
" " JACKETS.....		5	70		
" PISTON WATER PASSAGES.....		5	70		
MAIN COMPRESSORS—1st STAGE.....		60			
" 2nd "		200			
" 3rd "		900			
AIR RECEIVERS-STARTING		325	563		
" INJECTION		900	3000		
AIR PIPES		900	1500		
FUEL PIPES		1000	1500		
FUEL PUMPS		1000	1500		
SILENCER		10			
" WATER JACKET		✓			
SEPARATE FUEL TANKS					

During the distance of the works from New York (300 Miles) it is not practicable to witness ship tests on all parts. The system of testing and inspection at the works is a good one and such tests as have been witnessed from time to time have proved entirely satisfactory.

Lines machines all over

Engines tested on water brake to full load & overload and found satisfactory.

Receivers

Separate Tanks

SPARE GEAR / Glinder head complete: 1 on hand valve complete: 1 fuel valve complete: 1 air starting valve complete: 1 safety valve complete: 1 relief valve: 1 piston: 1 set of piston rings: 1 fuel valve needles: 1 fuel valve guide: 1 fuel valve lifting nut: 1 stuffing box & gland: 1 alouizer: 1 burner plate: 1 burner nut & nuts: 1 set of sea valve for drawing cam shaft: 1 full pump complete: 1 set of H.P. M.P. & L.P. compressor piston rings: suction & delivery valves for same: 1 injection air receiver valve also: 2 top end bolts & nuts: 2 main bearing bolts & nuts: 1 set of crank shaft bolts & nuts: 1 set of intermediate shaft coupling bolts & nuts: several lengths of piping for fuel delivery air blast: 1 set of C. linker head studs with nuts: 1 bottom end complete: 1 air compressor crank pin with bolts & nuts: 1 scotch bolts & nuts: 1 glinder liner: 2 main bearing keys (lower half) 1 shaft for glinder cover & nuts: 1 pump for H.P. M.P. & L.P. air compressor suction & delivery valves.

The foregoing is a correct description.

Wm. Linton & Plymouth Ltd. Manufacturer.

Dates of Survey while building	During progress of work in shops--	1919 Jan 31, Mar 12 Apr 15 Aug 9, Sept 22, 1920 Jan 19, Feb 12, Mar 26.
	During erection on board vessel--	1920: Oct 29 Nov 8 15 Dec 27 12 13 20 22 23 28 1921: Jan 2 10 17 19 26 27 Feb 7 16 Mar 1 7 11 17 18
	Total No. of visits	

Dates of Examination of principal parts—Cylinders	17 Jan '20	Covers	17 Jan '20	Pistons	17 Jan '20	Rods	19 Jan '20	Connecting rods	19 Jan '20
Crank shaft	26/3/20	Thrust shaft		Tunnel shafts	✓	Screw shaft	13/2/20	Propeller	2/2/20
Engines holding down bolts	16/2/21	Completion of pumping arrangements		Engines tried under working conditions		Stern tube	2/2/20	Engine seatings	11/2/21
Completion of fitting sea connections		Stern tube	17/4/21	Screw shaft and propeller					
Material of crank shaft	J. Steel	Identification Mark on Do.	1675-76. A.L.	Material of thrust shaft	J. Steel	Identification Mark on Do.			112 AB.
Material of tunnel shafts	✓	Identification Marks on Do.	✓	Material of screw shafts	J. Steel	Identification Marks on Do.			712. C.74

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

Is this machinery duplicate of a previous case ☒ If so, state name of vessel USSC

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

General Remarks (State quality of workmanship, opinions as to class, &c.) These turbines with Kaplan propeller units
 No. 1 & 2 have been constructed under Special Survey and in accordance with the Rules &
 approved plans. They have now been efficiently fitted on board, fitted under working conditions and
 found to operate in a satisfactory manner in either direction. The case is respectfully submitted for the
 notation of L.M.C. N.E. 3-21 and propeller No. 3-21 in the Register Book.

The amount of Entry Fee	...	£	:		When applied for,
Special	...	£	:	\$250 00	19.....
Donkey Boiler Fee	...	£	:		When received,
Travelling Expenses (if any)	£	46	:		19.....

Committee's Minute

New York APR 26 1921

Assigned

See NYK Rpt. 20225

Engineer Surveyor to Lloyd's Register of Shipping