

REPORT ON OIL ENGINE MACHINERY.

No. 4418

MON. JUL 31 1922

Received at London Office

Date of writing Report JULY 11 1922 When handed in at Local Office JULY 11 1922 Port of PHILADELPHIA

No. in Survey held at PHILADELPHIA Date, First Survey 6<sup>th</sup> AUG. 1920 Last Survey JULY 6<sup>th</sup> 1922. Reg. Book. Number of Visits 16

on the Single } Screw vessels "MISSOURIAN"  
Twin }  
Triple }

Tons } Gross 7899.  
Net 4915.

Master. Built at CHESTER, PA. By whom built MERCHANT S.B. Co. Yard No. 386 When built 1922.

Engines made at PHILADELPHIA By whom made THE WM. CRAMP & SONS S.B. Co. Engine No. 498-9 When made 1922.

Donkey Boilers made at Do. By whom made Do. Boiler No. Do. When made 1922.

Brake Horse Power 3500. Owners AMERICAN-HAWAIIAN S.S. Co. Port belonging to NEW YORK.

Nom. Horse Power as per Rule 856 Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted YES.

IL ENGINES, &c.—Type of Engines 2 VERTICAL DIESEL OIL ENGINES or 4 stroke cycle 4 Single or double acting SINGLE

Maximum pressure in cylinders 500 lbs. per sq. in. No. of cylinders 12 (8 port) No. of cranks 12 (6 star) Diameter of cylinders 29 1/8"

Length of stroke 45 1/4" Revolutions per minute 115 Means of ignition AIR COMPRESSION Kind of fuel used CRUDE OIL (F.P. ABOVE 150°F)

Is there a bearing between each crank YES. Span of bearings (Page 92, Section 2, par. 7 of Rules) 39 1/8"

Distance between centres of main bearings 39 1/8" Is a flywheel fitted YES. Diameter of crank shaft journals as per Rule 17.4" as fitted 18"

Diameter of crank pins 18" Breadth of crank webs as per Rule 23.14" as fitted 39" Thickness of ditto as per Rule 9.74" as fitted 11 3/4"

Diameter of flywheel shaft as per Rule 17.4" as fitted 18" Diameter of tunnel shaft as per Rule 13.5" as fitted 14" Diameter of thrust shaft as per Rule 14.175" as fitted 14.5"

Diameter of screw shaft as per Rule 14.4" as fitted 15" Is the screw shaft fitted with a continuous liner the whole length of the stern tube YES. If the liner is in more than one length are the joints burned YES.

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

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 66" Diameter of propeller 13.6"

Pitch of propeller 11'-9" No. of blades 4. state whether moveable NO. Total surface 59.35 square feet

Method of reversing DIRECT Is a governor or other arrangement fitted to prevent racing of the engine when declutched YES. Thickness of cylinder liners 2 3/8"

Are the cylinders fitted with safety valves YES. Means of lubrication FORCED LUBRICATION Are the exhaust pipes and silencers water cooled or lagged with non-conducting material BOTH. 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 FUNNEL ABOVE ENGINE CASING No. of cooling water pumps 3 SEAWATER, 1 FRESH WATER. Is the sea suction provided with an efficient strainer which can be cleared

within the vessel YES. No. of bilge pumps fitted to the main engines NONE Diameter of ditto — Stroke —

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

Sizes of pumps TWO-3 PLUNGER 8" No. and sizes of suctions connected to both main bilge pumps and auxiliary bilge pumps:—In engine room 5-3 1/2" 3-4"

and in holds, etc. FORD: HOLD 8-3 1/2" AFTER HOLD 6-3 1/2" No. of ballast pumps ONE How driven ELECTRO-MOTOR Rotary ring pump 150 TONS.

Is the ballast pump fitted with a direct suction from the engine room bilges YES. State size 6" Is a separate auxiliary pump suction fitted in

Engine Room and size YES. 2-7" 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 NONE Are all connections with the sea direct on the skin of the ship YES.

Are they valves or cocks VALVES. 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 YES. Is the screw shaft tunnel watertight YES. Is it fitted with a watertight door YES.

Worked from TOP PLATFORM 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 ONE EACH ENGINE No. of stages THREE Diameters 29 1/2", 7 3/4", 26 1/8", 14" Stroke 13 3/4" Driven by MAIN ENGINES.

No. of auxiliary air compressors ONE No. of stages TWO Diameters 18 1/2", 15 1/2", 10 1/4" Stroke 10 1/4" Driven by ELECTRO-MOTOR.

No. of small auxiliary air compressors ONE No. of stages TWO Diameters 4 3/8", 1 5/8" Stroke 8 1/2" Driven by STEAM ENGINE DIRECT COUPLED.

No. of scavenging air pumps NONE Diameter — Stroke — Driven by —

Diameter of auxiliary Diesel Engine crank shafts as per Rule — as fitted SEE N.Y.K. RPT. Are the air compressors and their coolers made so as to be easy of access YES.

R RECEIVERS:—No. of high pressure air receivers TWO, THREE, FOUR. Internal diameter 18", 16", 8" Cubic capacity of each 30700 CUB. INCHES, 15410 " " 2980 " "

Material O.H. STEEL. Seamless, lap welded or riveted longitudinal joint SEAMLESS. Range of tensile strength 26-30 TONS.

Thickness 7/8", 3/4", 7/16" working pressure by Rules 30.7 AM. 85.1, 91.6 No. of starting air receivers TWO Internal diameter 6'-0"

Total cubic capacity 1600 CUB. FT. Material O.H. STEEL. Seamless, lap welded or riveted longitudinal joint Riveted.

Range of tensile strength 60,000 lbs. thickness 7/16" Working pressure by rules 3580 PSI. 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 MANHOLES. Is there a drain arrangement fitted at the lowest part of each receiver YES.



IS A DONKEY BOILER FITTED? YES

If so, is a report now forwarded? YES.

Rpt. 4

HYDRAULIC TESTS:—

DESCRIPTION.	DATE OF TEST.	WORKING PRESSURE.	TEST PRESSURE.	STAMPED.	REMARKS.
ENGINE CYLINDERS	22 3 6 11 1921-2	15 1/2 lb	142 7/8 lb	L.R.	
COVERS	29 5 6 23 10 11 1 1	"	"	"	
JACKETS	29 5 6 23 10 11 1 1	"	"	"	
PISTON WATER PASSAGES	29 5 6 23 10 11 1 1	"	"	"	
MAIN COMPRESSORS—1st STAGE	20-12-21, 15-2-22	"	"	"	
2nd	20-12-21, 15-2-22	"	"	"	
3rd	19-1-22, 13-2-22	60 ATM.	90 ATM.	"	No 530. LLOYD'S TEST 587 7/8. W.P. 350 " 10-8-21. W.W.
AIR RECEIVERS—STARTING	10-9-21	25 "	39 "	"	
INJECTION	21-7-21	65 "	130 "	"	
AIR PIPES	15-5-22	60 "	90 "	"	
FUEL PIPES	16-6-22	75 "	150 "	L.R.	
FUEL PUMPS	16-6-22	75 "	150 "	"	
SILENCER	16-6-22	75 "	150 "	"	
WATER JACKET	8-2-22, 9-2-22	15 1/2 lb	50 7/8 lb	"	
SEPARATE FUEL TANKS	2-12-21	"	10 "	"	

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

Receivers YES.

Separate Tanks YES.

SPARE GEAR AS PER RULES, ALSO THE FOLLOWING ADDITIONAL SPARES. ONE TAIL SHAFT. ONE RIGHT AND ONE LEFT HAND PROPELLER. 25 TUBES FOR FRESH WATER COOLER. ONE MAIN ENGINE CYLINDER LINER. ALSO A NUMBER OF SPARES OF MISCELLANEOUS SMALL PARTS. ASSORTED BOLTS & IRON OF VARIOUS SIZES.

The foregoing is a correct description,

J. F. Miller  
MANUFACTURER.  
CHIEF ENGINEER

Dates of Survey while building	During progress of work in shops--	1920. Aug. 6, Sep. 9, 16, 22, 29, Oct. 6, 13, 21, 29, Nov. 3, 12, 24, Dec. 3, 10, 27.	1921. Jan. 13, 21, Feb. 2, 3, 10, 23,	the c										
	During erection on board vessel--	Mar. 7, 10, 22, Apr. 5, 13, 21, 25, May 9, 10, 21, 26, Jun. 6, 14, 16, 23, 30, Jul. 19, 22, 23, Aug. 10, 15, 20, 28, 31, Nov. 2, 5, 14, 17, 22, 25, 30, Dec. 1, 4, 11, 18, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 1921. Jan. 3, 4, 5, 6, 9, 12, 14, 16, 18, 21, 23, 25, 27, 28, 29, 30, 31, 1922. Feb. 1, 2, 7, 8, 9, 10, 13, 14, 16, 18, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 1922. Mar. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 1922. Apr. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 1922. May 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 1922. Jun. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 1922. Jul. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 1922. Aug. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 1922. Sep. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 1922. Oct. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 1922. Nov. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 1922. Dec. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 1922.	on-cou											
	Total No. of visits													
	Dates of Examination of principal parts	Cylinders	29-10-21	Covers	22-12-21	Pistons	29-12-21	Rods	22-6-21	Connecting rods	23-5-21	within th		
Crank shaft	23-6-21	Thrust shaft	5-4-21	Tunnel shafts	16-6-21	Screw shaft	10-5-21	Propeller	6-9-21	Stern tube	6-9-21	Engine seatings	5-12-21	an one
Engines holding down bolts	28-4-22	Completion of pumping arrangements	31-5-22	Engines tried under working conditions	6-7-22									sizes of p
Completion of fitting sea connections	13-12-21	Stern tube	30-11-21	Screw shaft and propeller	13-12-21									nd in h
Material of crank shaft	O.H. STEEL	Identification Mark on Do.	3316 JMF	Material of thrust shaft	O.H. STEEL	Identification Mark on Do.	3349 R.S.							s the ba
Material of tunnel shafts	O.H. STEEL	Identification Marks on Do.	3357 JMF	Material of screw shafts	O.H. STEEL	Identification Marks on Do.	3672 R.S.							ngine I
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Is the flash point of the oil to be used over 150° F. YES.

Is this machinery duplicate of a previous case YES. If so, state name of vessel "CALIFORNIAN"

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

THE MACHINERY HAS BEEN BUILT UNDER SPECIAL SURVEY, THE MATERIALS AND WORKMANSHIP ARE OF GOOD DESCRIPTION, HYDRAULIC TESTS SATISFACTORY, THE MAIN ENGINES, AUXILIARY MACHINERY & MOTORS HAVE BEEN SECURED ON BOARD IN A SATISFACTORY MANNER. THE MACHINERY WAS TRIED UNDER FULL WORKING CONDITIONS ON TRIAL TRIP, AND WAS FOUND IN GOOD AND SAFE WORKING CONDITION. THE MACHINERY IS ELIGIBLE, IN MY OPINION, TO BE CLASSED AND TO HAVE THE RECORD LMC 7-22, FITTED FOR OIL FUEL, F.P. ABOVE 150° F 7-22, IN THE REGISTER BOOK.

The amount of Entry Fee \$130.00

Special \$589.00

Donkey Boiler Fee \$1 25.00

Travelling Expenses (if any) \$1 23.00

Committee's Minute New York, Jul. 18, 1922

Assigned

+ LMC-7-22

+ DB-22-150 lb

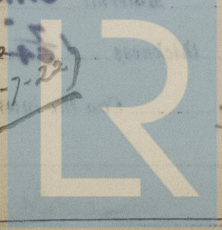
When applied for.

19

When received.

19

Engineer Surveyor to Lloyd's Register of Shipping.



Lloyd's Register Foundation