

REPORT ON OIL ENGINE MACHINERY.

No. 4650

Date of writing Report SEP. 5th 1923 When handed in at Local Office SEP. 5th 1923 Port of PHILADELPHIA Received at London Office MON. 24 SEP. 1923

No. in Survey held at CHESTER, PA. Date, First Survey DEC. 6th 1922 Last Survey SEP. 5th 1923

Reg. Book. 14672 on the Single Screw vessel "BIDWELL" Tons Gross 6975
Triple Net 4284

Master ✓ Built at BALTIMORE By whom built BALTIMORE D.D. YARD Yard No. — When built 1920

Engines made at CHESTER, PA. By whom made SUN S.S. & D.D. CO. Engine No. 7501 When made 1923

Donkey Boilers made at BALTIMORE By whom made BALTIMORE D.D. & S.S. CO. Boiler No. — When made 1920

Brake Horse Power — Owners SUN S.S. & D.D. CO. Port belonging to PHILADELPHIA

Nom. Horse Power as per Rule 490 Is Refrigerating Machinery fitted for cargo purposes NO. Is Electric Light fitted YES.

OIL ENGINES, &c.—Type of Engines DOLFOORD OPPOSED PISTON 2 or 4 stroke cycle ✓ Single or double acting SINGLE

Maximum pressure in cylinders 500 lb. No. of cylinders 4 No. of cranks 12 Diameter of cylinders 580⁷/₁₆

Length of stroke 9¹/₂ Revolutions per minute 90 Means of ignition COMPRESSED AIR Kind of fuel used CRUDE OIL

Is there a bearing between each crank TRIPLE YES. Span of bearings (Page 92, Section 2, par. 7 of Rules) 2750⁷/₁₆

Distance between centres of main bearings 2750⁷/₁₆ Is a flywheel fitted YES. Diameter of crank shaft journals as per Rule 430⁷/₁₆
as fitted 430⁷/₁₆

Diameter of crank pins 460⁷/₁₆ Breadth of crank webs as per Rule 580⁷/₁₆ Thickness of ditto as per Rule 260⁷/₁₆
as fitted 530⁷/₁₆ as fitted 260⁷/₁₆

Diameter of flywheel shaft as per Rule 430⁷/₁₆ Diameter of INT. shaft as per Rule 14¹/₂ Diameter of thrust shaft as per Rule 430⁷/₁₆
as fitted 430⁷/₁₆ as fitted 14¹/₂ as fitted 430⁷/₁₆

Diameter of screw shaft as per Rule 15⁷/₁₆ Is the screw shaft fitted with a continuous liner the whole length of the stern tube YES.
as fitted 16¹/₂

Is the after end of the liner made watertight in the propeller boss YES. 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 NONE Length of stern bush 5'-10" Diameter of propeller 18'-0"
18'-0"

Pitch of propeller 15'-6" No. of blades 4 state whether moveable YES. Total surface 102 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 25⁷/₁₆

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 LAGGED 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 STACK.

No. of cooling water pumps TWO 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 TWO How driven STEAM.

Sizes of pumps 14" x 10" x 12" & 6" x 5" x 6" No. and sizes of suction connected to both main bilge pumps and auxiliary bilge pumps:—In engine room 4'-3¹/₂"
14" x 10" x 12" No. of ballast pumps ONE How driven STEAM. Sizes of pumps 14" x 10" x 12"

Is the ballast pump fitted with a direct suction from the engine room bilges YES. State size 3¹/₂" Is a separate auxiliary pump suction fitted in engine room and size YES. 4'-3¹/₂"

Are all the bilge suction pipes fitted with roses YES. Are the roses in Engine Room always accessible YES.

Are the stices 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 BELOW. 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 — Is it fitted with a watertight door —

Is the screw shaft tunnel watertight — 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 NONE. No. of stages — Diameters STEAM 10 1/2 x 5 1/2 x 3 Stroke — Driven by —

No. of auxiliary air compressors TWO No. of stages THREE Diameters 18" x 10" Stroke 10" x 10" Driven by STEAM.

No. of small auxiliary air compressors NONE. No. of stages — Diameters — Stroke — Driven by —

No. of scavenging air pumps ONE Diameter 1850⁷/₁₆ Stroke 1000⁷/₁₆ Driven by MAIN ENGINE.

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 —

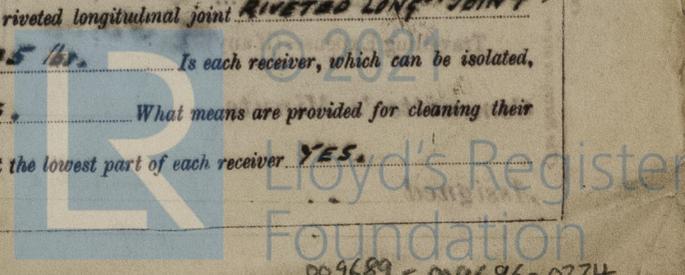
RECEIVERS:—No. of high pressure air receivers SOLID INJECTION Internal diameter — Cubic capacity of each —

Material — Seamless, lap welded or riveted longitudinal joint — Range of tensile strength —

Working pressure by Rules — No. of starting air receivers TWO Internal diameter 3'-5¹/₂"

Cubic capacity 220 CUB. FT. Material STEEL. Seamless, lap welded or riveted longitudinal joint RIVETED LONG. JOINT

Range of tensile strength 28-32 TONS thickness 1" Working pressure by rules 605 lb. Is each receiver, which can be isolated, provided 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 internal 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.**

HYDRAULIC TESTS:—

DESCRIPTION.	DATE OF TEST.	WORKING PRESSURE.	TEST PRESSURE.	STAMPED.	REMARKS.
ENGINE CYLINDERS LINERS.....	SEE SURVEY REPORT COPY ATTACHED.				
" " COVERS.....	—	—	—	—	—
" " JACKETS.....	13-4-23	15 lbs	30 lbs	L.R.	—
" " PISTON WATER PASSAGES.....	25-4-23	15 "	30 "	L.R.	—
MAIN COMPRESSORS—1st STAGE.....	—	—	—	—	—
" 2nd ".....	—	—	—	—	—
" 3rd ".....	—	—	—	—	—
AIR RECEIVERS—STARTING.....	12-6-23	600 lbs.	1000 lbs.	ALPHA TEST 1000 lbs. W.P. 500 "	—
" INJECTION (SOLID).....	—	—	—	JMS 12-6-23	—
AIR PIPES.....	7-6-23	600 "	1200 "	L.R.	—
FUEL PIPES.....	13-6-23	6000 "	12000 "	L.R.	—
FUEL PUMPS.....	19-6-23	6000 "	12000 "	L.R.	—
SILENCER.....	—	—	—	—	—
" WATER JACKET (NONE).....	—	5 "	15 "	—	—
SEPARATE FUEL TANKS.....	TWO 10 TONS.				

PLANS. Are approved plans forwarded herewith for shafting (If not, state date of approval) Receivers **OCT 6th 1923.** Separate Tanks —

SPARE GEAR ONE CYLINDER LINER, ONE UPPER & ONE LOWER PISTON COMPLETE WITH RINGS, STOODS & NUTS ONE SET OF PISTON RINGS FOR MAIN ENGINE, TWO CON. ROD TOP END BOLTS & NUTS, TWO CON. ROD BOTTOM END BOLTS & NUTS, TWO MAIN BEARING BOLTS & NUTS, ONE SET OF COUPLING BOLTS FOR CRANK SHAFT, ONE SET COUPLING BOLTS FOR INT. SHAFT, HALF SET OF VALVES FOR AUXILIARY COMPRESSORS, ONE FUEL PUMP FOR MAIN ENGINE, ONE SET VALVES FOR DAILY FUEL SUPPLY PUMP, ONE SET VALV FOR WATER & CIRCUL. PUMP, ONE SET VALVES FOR BILGE PUMP, ONE SET VALVES FOR SCAVENGE PUMP, SET OF VALVES & BUCKET & ROD FOR LUBRICATING OIL PUMP, ASSORTED BOLTS & NUTS, LENGTHS OF PIPES VARIOUS SIZES.

The foregoing is a correct description.
A.P. Dawitz
FOR SUN SHIPBUILDING & D.D. Co. Manufacturer.

Dates of Survey while building
 During progress of work in shops: 1923. DEC. 6, 12, 20. 1923. JAN. 16, FEB. 8, 23, MAR. 4, 14, 22, APR. 9, 12, 13, 25.
 During erection on board vessel: MAY 3, 7, 11, 14, 21, 29, JUNE 7, JUNE 12, 18, 22, 27, JULY 9, 10, 27, 30, AUG. 1, 4, 7, 8, SEP. 5th.
 Total No. of visits 33.

Dates of Examination of principal parts—Cylinders MAR. 19 Covers — Pistons MAR. 19 Rods MAR. 19 Connecting rods MAR. 19
 Crank shaft DEC. 25 Thrust shaft MAY 3. INT shafts MAR. 29 Screw shaft MAR. 24 Propeller AUG. 1 Stern tube MAY 29 Engine seatings JUNE 7
 Engines holding down bolts JULY 10. Completion of pumping arrangements AUG. 8 Engines tried under working conditions AUG. 23.
 Completion of fitting sea connections AUG. 1. Stern tube AUG. 1. Screw shaft and propeller AUG. 1.
 Material of crank shaft 0.4 STEEL Identification Mark on Do. 1691-1 Material of thrust shaft 0.4 STEEL Identification Mark on Do. 1691-1
 Material of INT shafts 0.4 STEEL. Identification Marks on Do. A. B. 4. 21-23 Material of screw shafts 0.4 STEEL Identification Marks on Do. A. B. 4. PERH

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 **"MILLER COUNTY"**

General Remarks (State quality of workmanship, opinions as to class, &c.)
THE ENGINES HAVE BEEN BUILT UNDER SPECIAL SURVEY, THE MATERIALS AND WORKMANSHIP ARE OF GOOD DESCRIPTION, HYDRAULIC TESTS SATISFACTORY, THEY HAVE BEEN FITTED ON BOARD IN A SATISFACTORY MANNER AND ON COMPLETION WERE TRIED UNDER FULL WORKING CONDITIONS ON TRIAL TRIP AND FOUND TO WORK SATISFACTORYLY, IN MY OPINION THE MACHINERY IS RELIABLE FOR RECORD OF 4 LMC 2-23 AND B.S. 3-23 FITTED FOR OIL FUEL 9-23, R.A. ABOVE 150° F.

The amount of Entry Fee ... 25.00
 Special ... 498.50
 Donkey Boiler Fee ... 30.00
 Travelling Expenses (if any) ... 30.00
 When applied for, 7 Sep. 1923
 When received, 4. 12. 23
 Committee's Minute New York SEP 11 1923
 Assigned + LMC-9.23 DB-23 200 lbs.
 J.S.H.
 PHILADELPHIA OFFICE
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)
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