Rpt. 4b.

# REPORT ON OIL ENGINE MACHINERY.

No. 7272

Received at London Office MAY 10 1937

Date of writing Report 15th April 1937 When handed in at Local Office 15th April 1937 Port of Philadelphia

No. in Reg. Book. Survey held at Chester Pa Date, First Survey March 1st 1932 Last Survey April 1st 1937 Number of Visits 52

on the ~~Single~~ ~~Twin~~ ~~Triple~~ ~~Quadruple~~ Screw ~~vessel~~ M.V. TEXAS SUN Tons Gross Not Net available

Built at Chester Pa By whom built Sun Shipbldg & DD Co Yard No. 159 When built 1937

Engines made at " By whom made " " Engine No. 7521 When made "

Donkey Boilers made at Canton N.J. Dansville N.Y. Cleveland O. By whom made Foster Wheeler Corp. Boiler No. When made "

Brake Horse Power 5600 Owners Sun Oil Co Port belonging to Philadelphia

Nom. Horse Power as per Rule 1182 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

Trade for which vessel is intended Carrying Petroleum in bulk

**OIL ENGINES, &c.**—Type of Engines Doxford 6 opposed Pistons 2 or 4 stroke cycle 2 Single or double acting Single

Maximum pressure in cylinders 600 lbs Diameter of cylinders 640 M/M Length of stroke 1160 " 1850 M/M No. of cylinders 6 No. of cranks 18

Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 2370 M/M Is there a bearing between each crank No

Revolutions per minute 110 Turning Wheel. ~~Flywheel~~ dia. 2644 M/M Weight 5300 lbs Means of ignition Solid Injection Kind of fuel used Bunker "C"

**Crank Shaft,** dia. of journals as per Rule 470 M/M as fitted 480 M/M Crank pin dia. 500 M/M Crank Webs Mid. length breadth 974 M/M Mid. length thickness 262 M/M shrunk Thickness parallel to axis 262 M/M Thickness around eyehole 231 M/M

**Flywheel Shaft,** diameter as per Rule as fitted **Intermediate Shafts,** diameter as per Rule 16¼" as fitted 19" **Thrust Shaft,** diameter at collars as per Rule 17 1/16" as fitted 19 3/8"

**Tube Shaft,** diameter as per Rule as fitted **Screw Shaft,** diameter as per Rule 17¾" as fitted 19" Is the {tube screw} shaft fitted with a continuous liner Yes

**Bronze Liners,** thickness in way of bushes as per Rule 27/32" as fitted 15/16" Thickness between bushes as per rule as fitted 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 junctions made by fusion through the whole thickness of the liner One piece

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 Is an approved **Oil Gland** or other appliance fitted at the after end of the tube shaft No If so, state type Length of Bearing in **Stern Bush** next to and supporting propeller 10'-4 3/8"

**Propeller,** dia. 18'-6" Pitch 15'-6" No. of blades 4 Material Manganese Bronze whether Moveable No Total Developed Surface 115.5' sq. feet

**Method of reversing Engines** Sliding Cam shaft Is a governor or other arrangement fitted to prevent racing of the engine ~~when declutched~~ Yes Means of lubrication forced Thickness of cylinder liners 25 M/M Are the cylinders fitted with safety valves Yes 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

**Cooling Water Pumps,** No. 2 Fresh water 2 salt water Is the sea suction provided with an efficient strainer which can be cleared within the vessel Yes

What special arrangements are made for dealing with cooling water if discharged into bilges Not discharged into bilges.

**Bilge Pumps** worked from the **Main Engines,** No. None Diameter Stroke Can one be overhauled while the other is at work

**Pumps** connected to the **Main Bilge Line** {No. and Size 1-7½"x8½"x10" Hor duplex Steam / 1-4" "Caird" centrifugal Motor / 1 Worthington 3-UB-1 Volute Motor / 1 Worthington 3-UB-4 Volute Hor driven} **Ballast Pumps,** No. and size 1 " 6"x5¾"x6" Hor duplex

**Power Driven Lubricating Oil Pumps,** including Spare Pump, No. and size 2 Worthington No 5 GR Rotary.

Are two independent means arranged for circulating water through the **Oil Cooler** Yes **Suctions,** connected to both Main Bilge Pumps and Auxiliary Bilge Pumps, No. and size:—In Machinery Spaces 2-3½ in engine room 2-3½ in tunnel bottom cofferdam. 2. 3½" in after bilge well. 3. 2" in flywheel & tub oil sump wells In Pump Room 2-2½ Cargo pump room 1-3" in fwd " " In Holds, &c. 2-3" in dry Cargo hold. 1-3" in chain locker 3-3" in afte cofferdam.

**Independent Power Pump Direct Suctions** to the Engine Room Bilges, No. and size 1-10"-(1-5" 4-2½" in bilge room flat.

Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes Yes Are the Bilge Suctions in the Machinery Spaces led from easily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges Yes

Are all **Sea Connections** fitted direct on the skin of the ship Yes Are they fitted with Valves or Cocks Yes

Are they fixed sufficiently high on the ship's side to be seen without lifting the platform plates Yes Are the Overboard Discharges 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 the Blow Off Cocks fitted with a spigot and brass covering plate Yes

What pipes pass through the bunkers None How are they protected

What pipes pass through the deep tanks Fresh suction in watertight tunnel Have they been tested as per Rule Yes

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Yes

Is the arrangement of valves and their connections such as to prevent the possibility of water passing from the sea or from water tanks into the cargo or machinery spaces, or from one compartment to another Yes Is the Shaft Tunnel watertight Is it fitted with a watertight door 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

**Main Air Compressors,** No. 1 No. of stages 3 Diameters 11"x7"x3½" Stroke Combined 8" Driven by Motor

**Auxiliary Air Compressors,** No. 1 No. of stages 3 Diameters 10½"x6¾"x3½" Stroke " 15½" Driven by Steam

**Small Auxiliary Air Compressors,** No. No. of stages Diameters Stroke Driven by

**Scavenging Air Pumps,** No. 1 Double Diameter 1400 M/M Stroke 1080 M/M, Driven by Main Engine

**Auxiliary Engines** crank shafts, diameter as per Rule as fitted 7½" No.:— 3 Position—Engine room port side

**AIR RECEIVERS:**—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 and cleaned Yes Is a drain fitted at the lowest part of each receiver Yes

**High Pressure Air Receivers,** No. 3 Cubic capacity of each 150 cu ft Internal diameter 42" thickness 1 3/16"

Seamless, lap welded or riveted longitudinal joint Fusion Welded Material Steel Range of tensile strength 55-66 tons Working pressure by Rules Actual 600 lbs

**Starting Air Receivers,** No. 1 Total cubic capacity 12 cu ft Internal diameter 15" thickness ½"

Seamless, lap welded or riveted longitudinal joint Seamless Material Steel Range of tensile strength 55-66 tons Working pressure by Rules Actual 600 lbs.

004194-004199-0093

IS A DONKEY BOILER FITTED? Yes ✓ If so, is a report now forwarded? Yes

Is the donkey boiler intended to be used for domestic purposes only pumping cargo.

PLANS. Are approved plans forwarded herewith for Shafting Yes ✓ Receivers Yes ✓ Separate Tanks

(If not, state date of approval)

Donkey Boilers Yes ✓ General Pumping Arrangements Yes Oil Fuel Burning Arrangements Yes

SPARE GEAR.

Has the spare gear required by the Rules been supplied Yes ✓

State the principal additional spare gear supplied 3 fuel valves, 1 crank shaft spool, 1 cylinder liner, 1 piston, 3 sets piston rings, 2 fuel pump blocks, 1 tail shaft.

Boiler spare gear.

2 burners complete, 1 pressure gauge, 2 flexible oil connections, 21 burner tips, 1 set of safety valves gaps, springs & washers, 12 gauge glasses.

*The foregoing is a correct description.*

A. McConechy.

SUN SHIPBUILDING & DRY DOCK CO. *Manufacturer.*

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*Dates of Survey while building*

During progress of work in shops: 1936 July 2.10.28. Sept 29.30. Nov 4.13. Dec 1.28. 1937 Jan 14.15.18.28. Feb 11.17.18.19. March 2.9.10.11. March 1.3. April 6.8.28 May 6.19. June 22.24. Aug 19. Sept 14 21. 1938. April 23.29. May 21. June 4.6.30. 1939

During erection on board vessel: 1936. Dec 3. 1937. Feb 5.8.11.16.25. March 4.12.16.24.26.30. April 1.

Total No. of visits 51.

Dates of Examination of principal parts—Cylinders July 2nd & 10th Covers July 2nd & 10th Pistons July 10. Feb 11th Rods Nov 4. Dec 1st Connecting rods Feb 19th

Crank shaft Jan 28. Feb 18. Flywheel shaft " Thrust shaft Jan 28th Intermediate shafts March 2nd Tube shaft ✓

Screw shaft Reg March 9 Spare " 10 Propeller March 9th Stern tube Feb 17th Engine seatings Feb 5th Engines holding down bolts March 16th

Completion of fitting sea connections March 4th Completion of pumping arrangements March 16th Engines tried under working conditions April 1st

Crank shaft, Material Steel Identification Mark See separate reports Flywheel shaft, Material ✓ Identification Mark ✓

Thrust shaft, Material " Identification Mark 2641. WHR. Intermediate shafts, Material Steel Identification Marks 3222 WHR, Reg 3223 WHR Spare 3231 WHR

Tube shaft, Material ✓ Identification Mark ✓ Screw shaft, Material Steel Identification Mark

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

Have the requirements of the Rules for oil fuel pipes and tank fittings been complied with Yes

Is the vessel (not being an oil tanker) fitted for carrying oil as cargo ✓ If so, have the requirements of the Rules been complied with ✓

If the notation for Ice Strengthening is desired, state whether the requirements in this respect have been complied with ✓

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.) The above machinery has been constructed under Special Survey, and in accordance with the approved plans, the material and workmanship are good. The machinery has been satisfactorily installed on board the vessel, tried out at full power and found satisfactory. In my opinion this installation is eligible for the record of +LMC 3.37.

Please see attached sheet for forging results.

This engine was started in 1932 as a stock engine, it was partially completed in 1932, work was then suspended till 1936, and has now been completed

*(Certificate (if required) to be sent to*

*(The Surveyors are requested not to write on or below the space for Committee's Minute.)*

The amount of Entry Fee .. £30.00 :

~~Installation~~ Special ... $130.00 :

~~Donkey Boiler Fee~~ ... $18.00 :

~~Travelling~~ Expenses (if any) £61.00 :

When applied for, 20th April 1937 and d.

When received, 10.6 1937

NEW YORK APR 28 1937

*Committee's Minute*

*Assigned* +LMC 4.37

W. A. Cunham

*Engineer Surveyor to Lloyd's Register of Shipping.*

Oil Eng.
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