

# REPORT ON OIL ENGINE MACHINERY

SEP 19 1938

Received at London Office

Date of writing Report 30<sup>th</sup> SEPT. 1938 When handed in at Local Office

Port of Hamburg

No. in Survey held at Kiel & HAMBURG

Date, First Survey 10<sup>th</sup> Nov. 1937 Last Survey 1938

Reg. Book.

Number of Visits 1

Single }  
Twin }  
Triple }  
Quadruple }  
Screw vessel

## ARTHUR F. CORWIN

Tons } Gross 10516  
Net 6077

Built at Hamburg

By whom built Blohm & Voess

Yard No. 573 When built 1938

Engines made at Kiel

By whom made F. Krupp Germania Werke, A.G. Engine No. 5746 When made 1938

Donkey Boilers made at HAMBURG

By whom made BLOHM & VOESS

Boiler No. When made 1938

Brake Horse Power 3600

Owners ORIENTAL TANKERS LTD.

Port belonging to LONDON

Nom. Horse Power as per Rule 912

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 Heavy Oil, Krupp's 60/125 C2A 2 or 4 stroke cycle 2 Single or double acting single

Maximum pressure in cylinders 45 kg/cm<sup>2</sup> Diameter of cylinders 650 mm Length of stroke 1250 mm No. of cylinders 8 No. of cranks 8

Mean Indicated Pressure 5.4 kg/cm<sup>2</sup> Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 1035 mm Is there a bearing between each crank yes

Revolutions per minute 110 Flywheel dia. 2240 mm Weight 5270 kgs Means of ignition Diesel syst. Kind of fuel used Diesel Oil

Crank Shaft, { Solid forged } as per Rule 408 mm Crank pin dia. 430 mm Crank Webs { Mid. length breadth } Thickness parallel to axis 270 mm  
{ Semi built dia. of journals } as fitted 430 mm { Mid. length thickness } Thickness around eye-hole 188 mm  
{ All built }

Flywheel Shaft, diameter as per Rule 408 mm Intermediate Shafts, diameter as per Rule 329 mm Thrust Shaft, diameter at collars as per Rule 346 mm  
as fitted 430 mm as fitted 352 mm as fitted 430 mm

Tube Shaft, diameter as per Rule 368 mm Screw Shaft, diameter as per Rule 398 mm Is the shaft fitted with a continuous liner { screw } yes  
as fitted 368 mm as fitted 398 mm

Bronze Liners, thickness in way of bushes as per Rule 20 mm Thickness between bushes as per Rule 15 mm Is the after end of the liner made watertight in the propeller boss yes  
as fitted 23 mm as fitted 18 mm

If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner no

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 no

If two liners are fitted, is the shaft lapped or protected between the liners no Is an approved Oil Gland or other appliance fitted at the after end of the tube shaft no If so, state type no Length of Bearing in Stern Bush next to and supporting propeller 2000 mm

Propeller, dia. 5000 mm Pitch 3940 mm No. of blades 4 Material Iron whether Moveable no Total Developed Surface 8.64 sq. mts

Method of reversing Engines direct Is a governor or other arrangement fitted to prevent racing of the engine when declutched yes Means of lubrication forced Thickness of cylinder liners 50 mm Are the cylinders fitted with safety valves yes 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 funnel

Cooling Water Pumps, No. 3 Is the sea suction provided with an efficient strainer which can be cleared within the vessel yes

Bilge Pumps worked from the Main Engines, No. 2 Diameter 225 mm Stroke 200 mm Can one be overhauled while the other is at work yes

Pumps connected to the Main Bilge Line { No. and Size } 1 Doubl. 225 mm 85t/s = 1 of 390x260 mm 105t/s - 1 of 220x210 mm 85t/s.  
{ How driven } main engs 200 mm 450 mm 300 mm

Is the cooling water led to the bilges no If so, state what special arrangements are made to deal with this water in addition to the ordinary bilge pumping arrangements no

Ballast Pumps, No. and size 2 size P.T.O. Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size Arbitrary of 30 m<sup>3</sup>/h

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 of 90 mm from D.B. Sues: 2 of 90 mm from after Coffers, 2 of 110 mm In Pump Rooms 2 of 80 mm

In Holds, &c. From after D.B. 1 of 125 mm from Peak of 98 mm from D.B. 2 of 98 mm from Coffers 2 of 98 mm from Coffers 2 of 70 mm from 1st + 2nd + 3rd + 4th + 5th + 6th + 7th + 8th + 9th + 10th + 11th + 12th + 13th + 14th + 15th + 16th + 17th + 18th + 19th + 20th + 21st + 22nd + 23rd + 24th + 25th + 26th + 27th + 28th + 29th + 30th + 31st + 32nd + 33rd + 34th + 35th + 36th + 37th + 38th + 39th + 40th + 41st + 42nd + 43rd + 44th + 45th + 46th + 47th + 48th + 49th + 50th + 51st + 52nd + 53rd + 54th + 55th + 56th + 57th + 58th + 59th + 60th + 61st + 62nd + 63rd + 64th + 65th + 66th + 67th + 68th + 69th + 70th + 71st + 72nd + 73rd + 74th + 75th + 76th + 77th + 78th + 79th + 80th + 81st + 82nd + 83rd + 84th + 85th + 86th + 87th + 88th + 89th + 90th + 91st + 92nd + 93rd + 94th + 95th + 96th + 97th + 98th + 99th + 100th

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 1-250 mm - 1 of 125 mm Are all the Bilge Suction pipes in Holds and Tanked 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 Valves and Cocks

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 no How are they protected no

What pipes pass through the deep tanks cargo lines 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 machinery all Is it fitted with a watertight door no worked from no

If a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork no

Main Air Compressors, No. none No. of stages no Diameters no Strokes no Driven by no

Auxiliary Air Compressors, No. 1 No. of stages 2 Diameters 2x240 mm, 2x200 mm Stroke 255 mm Driven by Steam Engine

Small Auxiliary Air Compressors, No. 1 No. of stages 2 Diameters 165/75 mm Stroke 150 mm Driven by Steam Engine

What provision is made for first Charging the Air Receivers Steam driven Air Compressor

Scavenging Air Pumps, No. 4 Diameter 780 mm Stroke 1250 mm Driven by 3 brackets of Nos. 1-3-5-7 crossheads

Auxiliary Engines crank shafts, diameter as per Rule 90 mm No. 2 Generators 1 Engine Room 1 Is a report sent herewith yes

Have the Auxiliary Engines been constructed under special survey yes



W1180 - 0126

**AIR RECEIVERS:**— Have they been made under survey *yes* Are reports or certificates now forwarded *yes*  
 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*  
**Injection Air Receivers, No.** *solid injection* Cubic capacity of each *—* Internal diameter *—* Thickness *—*  
 Seamless, lap welded or riveted longitudinal joint *—* Material *—* Range of tensile strength *—* Working pressure *—*  
**Starting Air Receivers, No.** *2* Total cubic capacity *28 m<sup>3</sup>* Internal diameter *1248 mm* Thickness *26 mm*  
 Seamless, lap welded or riveted longitudinal joint *fusion weld* Material *0.4 steel* Range of tensile strength *41-47 kg/mm<sup>2</sup>* Working pressure *by Rules 30 kg/cm<sup>2</sup>*  
 Actual *28 kg/cm<sup>2</sup>*

**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 *—*

**PLANS.** Are approved plans forwarded herewith for Shafting *(Esso Bolivar)* Receivers *22.4.36 - 24.7.36* Separate Fuel Tanks *17.10.35*  
 (If not, state date of approval) *28.4.36 - 22.4.36 - 6.3.36*  
 Donkey Boilers *yes* General Pumping Arrangements *yes* Pumping Arrangements in Machinery Space *8.2.37/Esso Bolivar*  
 Oil Fuel Burning Arrangements *17.3.37/Esso Bolivar*

**SPARE GEAR.**

Has the spare gear required by the Rules been supplied *yes*  
 State the principal additional spare gear supplied *1 crank throw without journals, 1 set of piston cooling water pipes, 2 top and 2 bottom end brasses, 24 thrust block pads, 1 piston complete with skirt, 2 piston crowns, 2 crosshead lub. oil pumps, 2 main bearing brasses, 1 cylinder liner, 1 eye cover without valves, 2 compl. Archapumps, 1 armature with shaft for turning gear.*

**DESCRIPTION OF CARGO PPS.** 3 main of 454 t/2. *480 x 380 mm - 2 Hammer Mills - 193 t/2 - 400 x 280 mm*  
 2 Dept tank Pps. *193 t/2 - 390 x 260 mm - 2 Stripper Pps. - 193 t/2 - 390 x 260 mm*

The foregoing is a correct description.

*Hamburg, Lutterlin* Manufacturer.

|                                |                                  |  |   |
|--------------------------------|----------------------------------|--|---|
| Dates of Survey while building | During progress of work in shops | 1937-10/6 - 5/10/38  | 16/7/38, 12, 13, 15, 16, 17, 19, 21, 23, 24, 25, 29/4 - 11, 15, 18, 23/5 - 4, 7, 9, 11, 15, 16, 17, 21, 22/6 - 2, 5, 7, 13, 14, 17, 19, 21, 23, 24, 25, 29/6 - 1, 2, 3, 5, 10, 15, 16, 26, 29/7 - 1, 2, 3, 4, 7, 11, 14, 15, 18, 19, 21, 24, 29/8 - 5, 7, 9, 11, 14, 16, 17, 19, 21, 23, 24, 25, 29/9 |
|                                | During erection on board vessel  | 1938-1/13, 19, 21, 23, 25, 29, 30/3 - 4, 5, 6, 7, 9, 11, 12, 13, 14, 19, 20, 21, 22, 24, 25, 29, 31/4 - 4, 7, 9, 11, 14, 15, 18, 19, 21, 24, 29/5 - 1, 2, 3, 5, 10, 15, 16, 26, 29/7 - 1, 2, 3, 4, 7, 9, 11, 15, 16, 17, 21, 22/8 - 1, 2, 3, 4, 7, 9, 11, 14, 15, 18, 19, 21, 24, 29/9 |   |
| Total No. of visits            |                                  | 121  | 10/1/38   |

Dates of Examination of principal parts—Cylinders *4-7-18/2/38* Covers *11/2/38* Pistons *22/10/37* Rods *31/1/38* Connecting rods *21/2/38*  
 Crank shaft *22/9/37* Flywheel shaft *22/9/37* Thrust shaft *22/9/37* Intermediate shafts *20/12/37 - 17/4/38* Tube shaft *—*  
 Screw shaft *14/4 - 26/4/38* Propeller *11/4/38* Stern tube *29/3/11/38* Engine seatings *14/4/38* Engines holding down bolts *2/6 - 28/6/38*  
 Completion of fitting sea connections *15/2/38* Completion of pumping arrangements *12/8/38* Engines tried under working conditions *22/8 - 23/8/38*

Crank shaft, Material *0.4 steel* Identification Mark *LLOYD'S 13324 M.B. 13.10.37* Flywheel shaft, Material *See crankshaft* Identification Mark *Nº 3584 - F.S. B.3.*  
 Thrust shaft, Material *0.4 steel* Identification Mark *LLOYD'S 13382 M.B. 13.10.37* Intermediate shafts, Material *S.M. STEEL* Identification Marks *Nº 316 - H.R. 17.6.*  
 Tube shaft, Material *—* Identification Mark *—* Screw shaft, Material *S.M. STEEL* Identification Mark *Nº 628 - V.S. 24.6.*  
 Spare: *Nº 440 - V.S. 42.5.*

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 *lantern* If so, have the requirements of the Rules been complied with *yes*  
 If the notation for Ice Strengthening is desired, state whether the requirements in this respect have been complied with *Main motor duplicate of "Esso Bolivar"*  
 Is this machinery duplicate of a previous case *yes* If so, state name of vessel *SEXTONOLE. HAM Reg. 21912.*

**General Remarks** (State quality of workmanship, opinions as to class, etc.) *material and workmanship of this machinery are of good quality and the outfit is ample. The materials used in the construction are made at works recognized by the Committee and have been tested by the Society's Surveyors in compliance with the Rules. It has been constructed at Kiel, F.R.G. Germania-Werft under Special Survey in accordance with the approved plans, the Secretary's Letters and otherwise in conformity with the requirements of the Rules. It has been fitted on board by Messrs. Globus & Von at Hamburg and has given full satisfaction under working and manoeuvring conditions during a 12 hours trial trip and is eligible in my opinion for notification "I-2 TTC-838" - OIL ENG. - T.S.C.*

|                              |            |                 |                                  |
|------------------------------|------------|-----------------|----------------------------------|
| The amount of Entry Fee      | <i>RMK</i> | <i>96.234</i>   | When applied for, <i>15-1-38</i> |
| Special                      | <i>RMK</i> | <i>1930.482</i> | When received, <i>19-1-38</i>    |
| Donkey Boiler Fee            | <i>RMK</i> | <i>174.60</i>   | When received, <i>14-5-38</i>    |
| Travelling Expenses (if any) | <i>RMK</i> | <i>—</i>        | <i>5/10</i>                      |

Committee's Minute *1938 SEP 1938*  
 Assigned *+ LMC 8.38*  
*Oil Eng. DB (forward) 200 lb. 2 DB (aft) 200 lb. CL.*

*Friedrich H. P. A. M. T. S. C. E. E. E.*  
 Engineer Surveyor to Lloyd's Register of Shipping.



Hamburg Office.

Certificate (if required) to be sent to (The Surveyors are requested not to write on or below the space for Committee's Minute.)

WINDH, HORIZ, TRA, ST, S, FLAT, BOTTOM OF ST, BILGE STRA, SIDE P STRA, UPPER STRAK, UPPER STRAK, STRAKE STRAK, STRAKE STRAK, POOP SI, BRIDGE, FOREC'TI, Total No, MIDSH, COLLE, AFTER, STEE