

REPORT ON OIL ENGINE MACHINERY.

Rpt. 4b.

Received at London Office **MAR 28 1938**

Date of writing Report **23rd March 1938** When handed in at Local Office **23.3.1938** Port of **BREMEN**
No. in Survey held at **VEGESACK** Date, First Survey **14th Aug. 1937** Last Survey **5th March 1938**
Reg. Book. Number of Visits **61**

on the ~~Triple~~ ^{Single} Screw vessel **TANKER** **INVERLEE** Tons { Gross **9158**
Net **5496**
Built at **VEGESACK** By whom built **BREMER VULKAN** Yard No. **748** When built **1938**
Engines made at **VEGESACK** By whom made **BREMER VULKAN** Engine No. **464/471** When made **1938**
Donkey Boilers made at **VEGESACK** By whom made **BREMER VULKAN** Boiler No. **819/820** When made **1938**
Brake Horse Power **4100** Owners **THE INVER TANKERS LTD.** Port belonging to **DUBLIN**
Nom. Horse Power as per Rule **1001** Is Refrigerating Machinery fitted for cargo purposes **no** Is Electric Light fitted **yes**
Trade for which vessel is intended **OPEN SEA SERVICE**

OIL ENGINES, &c.—Type of Engines **BREMER VULKAN-MAN. K8ZU 68/120** 2 or 4 stroke cycle **2** Single or double acting **SINGLE**

Maximum pressure in cylinders **45 kg/cm²** Diameter of cylinders **680 mm** Length of stroke **1200 mm** No. of cylinders **8** No. of cranks **8**
Mean Indicated Pressure **5.6**

Span of bearings, adjacent to the Crank, measured from inner edge to inner edge **925 mm** Is there a bearing between each crank **yes**
Revolutions per minute **115** Flywheel dia. **2100 mm** Weight **3400 kg.** Means of ignition **Diesel princ.** Kind of fuel used **Fuel oil**

Crank Shaft, { ~~Solid forged~~ ^{Semi built} dia. of journals **400 mm** as per Rule **400 mm** as fitted **460 mm** Crank pin dia. **460 mm** Crank Webs Mid. length breadth **shrunk** Thickness parallel to axis **185 mm**
Mid. length thickness **shrunk** Thickness around eyehole **205 mm**

Flywheel Shaft, diameter **400 mm** as per Rule **400 mm** as fitted **400 mm** Intermediate Shafts, diameter **336 mm** as per Rule **336 mm** as fitted **355 mm** Thrust Shaft, diameter at collars **353 mm** as per Rule **353 mm** as fitted **390 mm**

Tube Shaft, diameter **369 mm** as per Rule **369 mm** as fitted **388 mm** Screw Shaft, diameter **369 mm** as per Rule **369 mm** as fitted **388 mm** Is the { ~~tube~~ ^{screw} shaft fitted with a continuous liner **yes**

Bronze Liners, thickness in way of bushes **18 mm** as per Rule **18 mm** as fitted **22 mm** Thickness between bushes **14 mm** as per Rule **14 mm** as fitted **16 mm** 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 length**

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 **no**

Propeller, dia. **4800 mm** Pitch **3400 mm** No. of blades **4** Material **brass** whether Moveable **solid** Total Developed Surface **75.65** sq. feet
Length of Bearing in Stern Bush next to and supporting propeller **1685 mm**

Method of reversing Engines **diesel** Is a governor or other arrangement fitted to prevent racing of the engine when declutched **yes** Means of lubrication **forced**
Thickness of cylinder liners **42 mm** 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 **to funnel for from water cooling 250 m³/h worked from Main Eng. by chain drive**
Cooling Water Pumps, No. **2** 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. **none** Diameter **—** Stroke **—** Can one be overhauled while the other is at work **no**
Pumps connected to the Main Bilge Line { No. and Size **one vert. displ. 160x195 75 m³/h, one vert. displ. 260x305 250 m³/h**
How driven **steam** **steam**

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 **—**

Ballast Pumps, No. and size **one vert. displ. 260x305 250 m³/h** Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size **1 cog wheel attached to Main Eng. 400 m³/h, one vert. displ. 200x160 40 m³/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 **4 of 90 mm** In Pump Room **2 of 80 mm**

In Holds, &c. **Fore peak P.R. 1 of 90 mm, cargo hold 2 of 90 mm, chain locker 1 of 70 mm, Fore peak 1 of 90 mm**
Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size **port, 1 of 115 mm from Bilge P.; Starb. 1 of 150 mm from Bilge P.**

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 **fitted on steel decks** Are they fitted with Valves or Cocks **valves & 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 **none** How are they protected **—**

What pipes pass through the deep tanks **none** Have they been tested as per Rule **—**

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 **no** 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. **none** No. of stages **—** Diameters **—** Stroke **—** Driven by **—**

Auxiliary Air Compressors, No. **2** No. of stages **2** Diameters **250/210 mm** Stroke **220 mm** Driven by **Steam engine**

Small Auxiliary Air Compressors, No. **none** No. of stages **—** Diameters **—** Stroke **—** Driven by **—**

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

Scavenging Air Pumps, No. **1 tandem pump** Diameter **1380 mm** Stroke **850 mm** Driven by **Steam engine**
Auxiliary Engines crank shafts, diameter **90 mm** as per Rule **90 mm** as fitted **90 mm** Position **Port side**
Have the Auxiliary Engines been constructed under special survey **yes** Is a report sent herewith **yes** **Aug 1937 Rpt.**



Vertical text on the left margin: List of, 2.11.13, 2.20.14, 95



AIR RECEIVERS:—Have they been made under survey yes Are reports or certificates now forwarded made at Bremer Vulkan
 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. none Cubic capacity of each — Internal diameter — thickness —
 Seamless, lap welded or riveted longitudinal joint — Material — Range of tensile strength — Working pressure by Rules
Starting Air Receivers, No. 2 Total cubic capacity 20 m³ Internal diameter 1900 thickness 25
 Seamless, lap welded or riveted longitudinal joint riveted Material P.M. Steel Range of tensile strength 47-53 kg/cm² Working pressure Actual 25.5 kg/cm²
 by Rules 25.5 kg/cm²
 Actual 25 kg/cm²

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 no
PLANS. Are approved plans forwarded herewith for Shafting 17/6.36 17/12.36 Receivers 17/12.36 Separate Fuel Tanks 15.10.37
 (If not, state date of approval) ✓
 Donkey Boilers 4.12.36 Machinery General Pumping Arrangements 30.9.37 Pumping Arrangements in Machinery Space 30.9.37
 Oil Fuel Burning Arrangements 30/9.37 The plans have been retained for dealing with sister vessels
SPARE GEAR.

Has the spare gear required by the Rules been supplied yes
 State the principal additional spare gear supplied 4 fuel injection valves, 1 fuel pump couple.
1 piston with rod for scavenging pump.

The foregoing is a correct description,

Bremer Vulkan
 Schiffbau und Maschinenfabrik

Manufacturer.

1937
 Dates of Survey while building
 During progress of work in shops-- Aug. 12, 17, 20, 27, 31. Sept. 6, 8, 20, 28, 30. Oct. 5, 6, 8, 12, 15, 19, 21, 26, 28, 30. Nov. 2, 4, 9, 11, 16, 19, 22, 24, 29.
 During erection on board vessel-- Dec. 2, 6, 9, 13, 16, 20, 22, 27, 29. 1937 Jan. 3, 7, 11, 14, 17, 20, 24.
Jan. 27. Feb. 1, 4, 8, 10, 12, 15, 16, 17, 21, 23, 24, 28. March 3, 4, 5.
 Total No. of visits 61

Dates of Examination of principal parts—Cylinders 16.11.37 Covers 2.6.12.37 Pistons 16.12.37 Rods 16.12.37 Connecting rods 29.11.37
 Crank shaft 30.9.37 Flywheel shaft 6.9.37 Thrust shaft 6.9.37 Intermediate shafts 20.12.37 Tube shaft —
 Screw shaft 20.12.37 Propeller 14.1.38 Stern tube 26.10.37 Engine seatings 1.2.38 Engines holding down bolts 12.15.2.38
 Completion of fitting sea connections 27.1.38 Completion of pumping arrangements 3.3.38 Engines tried under working conditions 5.3.38
 Crank shaft, Material P.M. Steel Identification Mark LLOYD'S 3.8.5427, 3.15.37 Flywheel shaft, Material — Identification Mark —
 Thrust shaft, Material P.M. Steel Identification Mark AC. 6.9.37 Intermediate shafts, Material P.M. Steel Identification Marks AC. 20.12.37
 Tube shaft, Material — Identification Mark — Screw shaft, Material P.M. Steel Identification Mark LLOYD'S 4.5.620/21.23.6.37
LLOYD'S 11.K.106.8.5.37 LLOYD'S 4.5.357.28.4.37
AC. 20.12.37

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 oil tanker ✓ 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 no Ice Strengthening ✓
 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. This Machinery has been built under Special Survey in accordance with the approved plans, the Secretary's letters, and in conformity with the requirements of the Rules. The materials used in the construction are made at works recognized by the Committee and tested as required by the Rules. Materials and workmanship are of good quality. During a 10 hour trial trip all the machinery has been tested under full working and manouvering condition and found satisfactory in all respects.

This Machinery is eligible in my opinion to be classed in the 1st. Reg. Book with records of * L.M.C. 3.38. OIL ENGINE. TAIL SHAFT (L.

Certificate (if required) to be sent to Bremer Vulkan

The amount of Entry Fee .. RM	120.00	When applied for,	19.3.1938
Special £	2500.50	When received,	4.4.1938
2 STARTING AIR RECEIVERS			
Donkey Boiler Fee £	168.00		
Travelling Expenses (if any) £	305.50		

A. Carstensen
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE 5 APR 1938
 Assigned tdmb 3.38
DB. 1804
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