

REPORT ON OIL ENGINE MACHINERY.

No. 22634

Received at London Office

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Date of writing Report 11.1.38 10 When handed in at Local Office 10 Port of **HAMBURG**

No. in Survey held at **Kiel** Reg. Book. Date, First Survey 14.8.36 Last Survey 8.1.38 19 Number of Visits 74

on the ^{Single} ~~Twin~~ ~~Triple~~ ~~Quadruple~~ Screw vessel

"China"

Tons ^{Gross} 10781 _{Net} 6545

Built at **Kiel** By whom built **F. Krupp Germaniawerft A.G.** Yard No. **569** When built **1938**

Engines made at **Kiel** By whom made **ditto** Engine No. **5635-40** When made **1938**

Donkey Boilers made at **Kiel** By whom made **ditto** Boiler No. **2985-59** When made **1938**

Brake Horse Power **4800** Owners **Balboa Transport Corporation** Port belonging to **Panama P.R.**

Nom. Horse Power as per Rule **1165** Is Refrigerating Machinery fitted for cargo purposes **no** Is Electric Light fitted **yes**

Trade for which vessel is intended **Tanker Service**

IL ENGINES, &c.—Type of Engines **Heavy Oil, Maker's type 60/1152.d.** 2 or 4 stroke cycle **2** Single or double acting **single**

Maximum pressure in cylinders **46 kg/cm²** Diameter of cylinders **600 mm** Length of stroke **1150 mm** No. of cylinders **12** No. of cranks **12**

Mean Indicated Pressure **5.7 kg/cm²** Span of bearings, adjacent to the Crank, measured from inner edge to inner edge **1015 mm** Is there a bearing between each crank **yes**

Revolutions per minute **120** Flywheel dia. **2240 mm** Weight **6500 kgs** Means of ignition **Diesel syst.** Kind of fuel used **Diesel Oil**

Crank Shaft, ^{Solid forged} ~~Semi built~~ ~~All built~~ dia. of journals as per Rule **382 mm** Crank pin dia. **400 mm** Crank Webs Mid. length breadth **385-245 mm** Thickness parallel to axis **250 mm** as fitted **410 mm** with **120 mm** of central hole Mid. length thickness **250 mm** shrunk Thickness around eyehole **180 mm**

Flywheel Shaft, diameter as per Rule **382 mm** Intermediate Shafts, diameter as per Rule **280 mm** Thrust Shaft, diameter at collars as per Rule **294 mm** as fitted **400 mm**

Tube Shaft, diameter as per Rule **310 mm** Screw Shaft, diameter as per Rule **310 mm** Is the ^{tube} ~~screw~~ shaft fitted with a continuous liner **yes** as fitted **358 mm**

Bronze Liners, thickness in way of bushes as per Rule **16.1 mm** Thickness between bushes as per Rule **12.1 mm** Is the after end of the liner made watertight in the propeller boss **yes** as fitted **21 mm** as fitted **15 mm**

If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner **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 **yes** Is an approved Oil Gland or other appliance fitted at the after end of the tube **yes**

Shaft **no** If so, state type **yes** Length of Bearing in Stern Bush next to and supporting propeller **2200 mm**

Propeller, dia. **4250 mm** Pitch **3650 mm** No. of blades **3** Material **Bronze** whether Moveable **solid** Total Developed Surface **6.-** sq. feet

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 **lagged**

If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine **yes**

Cooling Water Pumps, No. **2** centrf. of **250 mm³/h** each 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 **yes** Stroke **yes** Can one be overhauled while the other is at work **yes**

Pumps connected to the Main Bilge Line ^{No. and Size **2 of 20 mm³/h (Bilge pumps)**} ^{How driven **electro-motor**} ^{1 of 18 mm³/h (Gen. Serv.) centrf.} ^{electro-motor}

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 **2 of 480 mm³/h** each **2 of 450 x 350 mm³/h** **560** Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size **2 centrf. of 43 mm³/h** ^{1 of 28 mm³/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 **3 x 90 mm³ φ**, Boiler Space: **3 x 60 mm³ φ**, aft **6.0 x 130 mm³ φ**, 2 B.C.D.s **2 x 50 mm³ φ** In Pump Room **2 x 100 mm³ φ**

Holds, &c. Cargo hold: **2 x 80 mm³ φ**, Chain locker: **1 x 80 mm³ φ**, Store Room: **1 x 80 mm³ φ**, Fore Pump Room: **1 x 50 mm³ φ**

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size **1 x 130 mm³ φ**, **1 x 200 mm³ φ**

Are all the Bilge Suction-pipes in Holds and Tunnel Well fitted with strum-boxes **yes** Are the Bilge Suctions in the Machinery Spaces

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 **Heating coils** How are they protected **yes**

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 apartment to another **yes** Is the Shaft Tunnel watertight **mach. aft** Is it fitted with a watertight door **no** worked from **yes**

On a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork **yes**

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

Auxiliary Air Compressors, No. **2** No. of stages **2** Diameters **240/205 mm** Stroke **255 mm** Driven by **Aux. Oil Engr.**

Small Auxiliary Air Compressors, No. **1** No. of stages **2** Diameters **100/38 mm** Stroke **120 mm** Driven by **Steam engine**

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

Revolving Air Pumps, No. **2 x 3** Diameter **700 mm** Stroke **1150 mm** Driven by **nos. 2-4-6 crossheads.**

Auxiliary Engines crank shafts, diameter as per Rule **159 mm** No. **2** as fitted **175 mm** Position **Engine Room, port & starb.**

Have the Auxiliary Engines been constructed under special survey **yes** Is a report sent herewith **yes**

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. *1* Cubic capacity of each *800 litres* Internal diameter *600 mm* thickness *10 mm*
Long joints water gas welded *Cine seams* Seamless, lap welded or riveted longitudinal joint *electric weld* Material *O.H. Steel* Range of tensile strength *35-45 kg/cm²* Working pressure by Rules *16.5 kg/cm²* Actual *10 kg/cm²*

Starting Air Receivers, No. *2* Total cubic capacity *14,000 litres* Internal diameter *1248 mm* thickness *26 mm*
Seamless, lap welded or riveted longitudinal joint *fusion weld* Material *O.H. Steel* Range of tensile strength *41-47 kg/cm²* Working pressure by Rules *30 kg/cm²* Actual *28 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 *15-10-36 31-12-36* Receivers *22-4-36 23-6-37* Separate Fuel Tanks *25-8-37*
(If not, state date of approval)

Donkey Boilers *31-12-36 11-12-36* General Pumping Arrangements *4-8-37* Pumping Arrangements in Machinery Space *27-2-37*

Oil Fuel Burning Arrangements *16-8-37*

SPARE GEAR.

Has the spare gear required by the Rules been supplied *yes*

State the principal additional spare gear supplied *2 cyl. pistons, 1 starty. valve, 1 safety valve, 2 pistons compl., 2 piston rings, 1 liner, 56 piston rings, 1 set of top brasses, 1 compl. bottom end brass, 1 set of main bearings, 2 over lead lub oil pumps, 32 scavenger rings, 2 sets of scavenger pump valves, 12 sets of valve plates thereto, 4 fuel oil valve cams, 2 fuel pump discharge valves, 30 tubes for oil cooler, 1 arrangement with shaft for turning gear, 1 tail shaft*

The foregoing is a correct description,

FRIED. KRUPP
GERMANIAWERKE
Aktien-Gesellschaft

Manufacturer.

Dates of Survey while building
During progress of work in shops: Aug: 14, 18, Sep: Oct: 6, 16, 20, 23, Nov: 3, 6, 1937: Feb: 19, Mar: 25, Apr: 23, 27, May: 4, 21, 28, Jun: 4, 14, 16, 22
During erection on board vessel: 3, 5, 8, 12, 15, 19, 22, 24, 26, 29, Dec: 1, 6, 8, 13, 15, 20, 27, 29, 1938: Jan: 3, 8
Total No. of visits *74*

Dates of Examination of principal parts—Cylinders *13-16-20-23-27* Covers *24-9, 14, 19, 12-11-37* Pistons *4-8-37* Rods *20-8-37* Connecting rods *1-10-37*

Crank shaft *27-4-37 4-5-37* Flywheel shaft *27-4-37* Thrust shaft *27-4-37* Intermediate shafts *8-10-37* Tube shaft *✓*

Screw shaft *8-10-37* Propeller *18-10-37 29-12-37* Stern tube *6-8-37 16-8-37* Engine seatings *on land top* Engines holding down bolts *15-11-37 22-11-37*

Completion of fitting sea connections *22-10-37* Completion of pumping arrangements *20-12-37* Engines tried under working conditions *8-1-37*

Crank shaft, Material *O.H. Steel* Identification Mark *360/V.S. 30-4-37* Flywheel shaft, Material *O.H. Steel* Identification Mark *362 V.S. 30-4-37*

Thrust shaft, Material *O.H. Steel* Identification Mark *1283 M.B. 1-3-37* Intermediate shafts, Material *O.H. Steel* Identification Marks *12608 J.L. 1-10-37*

Tube shaft, Material *✓* Identification Mark *✓* Screw shaft, Material *O.H. Steel* Identification Mark *12609 J.L. 1-10-37*

Is the flash point of the oil to be used over 150° F. *yes* Spars: *12684 J.L. 1-11-37*

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 *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 *✓*

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.)

These Heavy Air Engines and their accessories are constructed under Special Survey in accordance with the Society's Rules, as well as with the approved plans and instructions thereto. The materials used in the construction are of good quality and the workmanship is satisfactory. The outfit is ample. Under full working conditions during the trial trip the machinery has given full satisfaction. In my opinion it is eligible for notation in the Reg. Book with notations of

+ LMC - 1,38 (Oil eng.) and TS (CL)

The amount of Entry Fee *2 Mks £ 120- : When applied for,*

Special £ *2 582 50 : 22/11/38 19*

Donkey Boiler Fee £ *200- : When received,*

Travelling Expenses (if any) £ *220- : 17/2 1938*

Committee's Minute

Assigned + *Lmc 1.38*

*2 NB 100 lb 2 OB 200 lb
oil eng. CL.*

*P. A. W. ...
Engineer Surveyor to Lloyd's Register of Shipping.*



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