

## REPORT ON OIL ENGINE MACHINERY.

No. 22444

Received at London Office

AUG 11 1937

Date of writing Report 5.8.37 10. When handed in at Local Office 10. Port of HAMBURG  
No. in Survey held at Kiel Date, First Survey 12.6.36 Last Survey 8.7.37 19  
Reg. Book. 24 576 on the Single Twin Triple Quadruple Screw vessel Esso Bolivar Tons Gross 10389  
Net 6081  
Built at Kiel By whom built Fr. Krupp Germaniawerft A.G. Yard No. 568 When built 1937  
Engines made at Kiel By whom made ditto Engine No. 5523 When made 1937  
Donkey Boilers made at Kiel By whom made ditto Boiler No. 3960 1/2 When made 1937  
Brake Horse Power 3600 Owners Panama Transport Co. Port belonging to Panama R.P.  
Nom. Horse Power as per Rule 912 Is Refrigerating Machinery fitted for cargo purposes See below Is Electric Light fitted yes  
Trade for which vessel is intended Tanker Service 25% 49%

OIL ENGINES, &c.—Type of Engines Heavy Oil, Krupp's 60/125 c.c. 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 kg Means of ignition Diesel system Kind of fuel used Diesel Oil

Crank Shaft, { Solid forged as per Rule 408 mm as fitted 430 mm Crank pin dia. 430 mm Crank Webs Mid. length breadth shrunk Thickness parallel to axis 270 mm  
Semi built dia. of journals as fitted 430 mm Mid. length thickness 270 mm Thickness around eye-hole 180 mm  
All built

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

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

Bronze Liners, thickness in way of bushes as per Rule 20 mm as fitted 23 mm Thickness between bushes as per Rule 15 mm as fitted 18 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 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

shaft no If so, state type yes 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 Bronze whether Moveable yes Total Developed Surface 8.64 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

for each 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 yes

Cooling Water Pumps, No. 3 main driven for fresh water and 3 for sea water each of 50 m<sup>3</sup>/h 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. 1 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 of 200 mm 2 of 100 m<sup>3</sup>/h 1 of 85 m<sup>3</sup>/h 2 of 300 mm 2 of 200 mm How driven main shafting steam 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 yes

Cargo Ballast Pumps, No. and size 4 P.T.O. Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size 1 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 3 x 90 mm Stroke 125 mm In Pump Room 2 x 90 mm 2 x 80 mm

In Holds, &c. From Cofferdam: 2 x 100 mm, Chain Locker: 1 x 70 mm, Dry Cargo Hold: 2 x 70 mm, From Store room: 2 x 70 mm

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 1 x 250 mm, 1 x 125 mm

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 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 heating coils How are they protected yes

What pipes pass through the deep tanks large 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 mach. aft Is it fitted with a watertight door none worked from yes

If 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. solid injection No. of stages 2 Diameters 225 mm Stroke 125 mm Driven by steam

Auxiliary Air Compressors, No. 1 No. of stages 2 Diameters 225 mm, 220 mm Stroke 125 mm Driven by Steam engine

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

What provision is made for first Charging the Air Receivers steam driven air compressors

Scavenging Air Pumps, No. 4 Diameter 780 mm Stroke 1250 mm Driven by 1-2-5-7 crossheads

Auxiliary Engines crank shafts, diameter as per Rule Atlaswerke's Standard type as fitted 95 mm No. 2 dynamo sets, 1 compressor steam engine

Have the Auxiliary Engines been constructed under special survey yes, Cert. dated Bremen, 18.3.37. Is a report sent herewith per man. compressor: yes " generator sets: yes

002602-002610-0076



AIR RECEIVERS:—Have they been made under survey yes Are reports or certificates now forwarded Certificate attached  
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 28 m<sup>3</sup> Internal diameter 12.48 m thickness 26 mm  
Seamless, lap welded or riveted longitudinal joint fusion weld Material O.H. steel Range of tensile strength 41-47 kg/mm<sup>2</sup> Working pressure by Rules 28 kg/cm<sup>2</sup>  
Actual 30

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 28.4.36 22.4.36 6.3.36 Receivers 22.4.36 24.7.36 Separate Fuel Tanks 17.10.35  
(If not, state date of approval)

Donkey Boilers 9.3.36 8.8.36 General Pumping Arrangements 18.5.37 10.6.37 Pumping Arrangements in Machinery Space 8.2.37

Oil Fuel Burning Arrangements 17.3.37

### 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, 1 set of thrust block pads, 1 piston compl. with skirt, 2 piston crowns, 2 crosshead lub. oil pumps, 2 main bearing brasses, 1 cylinder liner, 1 cylinder cover without valves, 2 Archimedes pumps compl., 1 armature for turning gear

\* Cargo oil pumps: 3 of 455 m<sup>3</sup>/h each =  $\frac{450 \times 350}{560} \times 2$  (duplex) 2 sumbertank pumps of 193 m<sup>3</sup>/h each =  $\frac{400 \times 280}{450}$   
2 stripping pumps of 193 m<sup>3</sup>/h each =  $\frac{390 \times 260}{450} \times 2$

The foregoing is a correct description,

GERMANIA WERFT

Manufacturer.

Dates of Survey while building  
During progress of work in shops--  
1936: Jan: 12 Aug: 14, 18 Sept: 1, 8, 22, 25 Oct: 6, 20 Nov: 3, 6, 10, 13, 17, 20, 24 Dec: 1, 4, 18 1937: Jan: 12, 15, 18, 20, 27  
During erection on board vessel--  
1937: Mar: 25 Apr: 13, 16, 20 May: 4, 7, 14, 18, 21, 25 Jun: 2, 9, 14, 18, 27 Jul: 2, 8  
Total No. of visits 59

Dates of Examination of principal parts—Cylinders 7.11.36 27.11.37 Covers 8.9.36 Pistons 27.11.37 Rods 1.2.37 Connecting rods 26.2.37

Crank shaft 9.2.37 Flywheel shaft 9.2.37 Thrust shaft 9.2.37 Intermediate shafts 15.3.37 Tube shaft ✓

Screw shaft 15.3.37 Propeller 22.2.37 22.3.37 Stern tube 1.9.36 Engine seatings on tank top Engines holding down bolts 30.4.37

Completion of fitting sea connections 25.3.37 30.3.37 Completion of pumping arrangements 18.5.37 Engines tried under working conditions 8.7.37

Crank shaft, Material O.H. steel Identification Mark 11345-6 J.L. 7.10.36 Flywheel shaft, Material O.H. steel Identification Mark 11246 J.L. 7.10.36

Thrust shaft, Material O.H. steel Identification Mark 11347 J.L. 7.10.36 Intermediate shafts, Material O.H. steel Identification Marks 11725-6 J.L. 5.1.37

Tube shaft, Material ✓ Identification Mark ✓ Screw shaft, Material O.H. steel Identification Mark 11724 J.L. 5.1.37

Is the flash point of the oil to be used over 150° F. yes Spare: 3578 F.S. 2.3.37

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 yes

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 yes If so, state name of vessel "Henry Dundas" Ham. Reg. No. 2229

General Remarks (State quality of workmanship, opinions as to class, &c.)

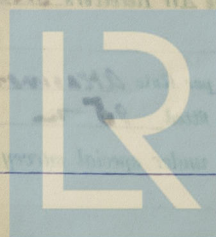
This Heavy Oil Engine is constructed under Special Survey in accordance with the Society's Rules, as well as with the approved plans and instructions thereto. The materials used in the construction are of good quality and the outfit is ample. During the trial trip the machinery has given satisfaction under full working and manoeuvring conditions. In my opinion it is eligible for notation in the Reg. Book of  
+LMC-2.37 (oil eng) and TS(CL)

The amount of Entry Fee 2 Mks £ 120.- When applied for, 26.7.37 19  
Special £ 24.12.- When received, 27.8.37 19  
Donkey Boiler Fee £ 204.-  
Travelling Expenses (if any) £ 214.-

Committee's Minute

Assigned + Lmb. 8.37 at L  
3 DB-200K  
CL

J.A. Wright  
Engineer Surveyor to Lloyd's Register of Shipping.



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Foundation