

# REPORT ON OIL ENGINE MACHINERY.

No. 23097

Received at London Office

MAR 22 1939

Date of writing Report 16<sup>th</sup> March 1939 When handed in at Local Office

Port of HAMBURG

No. in Survey held at Augsburg & HAMBURG Date, First Survey 21<sup>st</sup> January 1938 Last Survey 10<sup>th</sup> March 1939

Number of Visits Augsburg 73  
Hamburg 64

Reg. Book. 87293 on the Single } Screw vessel  
Twin }  
Triple }  
Quadruple }

## BRITANNIA

Tons } Gross 9977  
Net 5801

Built at HAMBURG By whom built Deutsche Werft A.G. Yard No. 217 When built 1939

Engines made at Augsburg By whom made Maschinenfabrik Augsburg-Kunling Engine No. 681450/823, 824 When made 1939

Donkey Boilers made at HAMBURG By whom made Deutsche Werft A.G. Boiler No. 762, 763 When made 1939

Brake Horse Power 2 x 2550 Owners The Texas Co (Norway) A/S. Port belonging to Oslo

Nom. Horse Power as per Rule 1170 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

Trade for which vessel is intended Carrying Petroleum in bulk.

**IL ENGINES, &c.** Type of Engines Heavy oil eng. Makers type 2 x 8 2 1/2 52/90 2 or 4 stroke cycle 2 Single or double acting single

Maximum pressure in cylinders 45 kg/cm<sup>2</sup> Diameter of cylinders 530 mm Length of stroke 900 mm No. of cylinders 2 x 8 No. of cranks 2 x 8

Mean Indicated Pressure 5.5 kg/cm<sup>2</sup>

Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 680 mm Is there a bearing between each crank yes

Revolutions per minute 166 Flywheel dia. 1932 mm Weight 980 kg Means of ignition diesel system Kind of fuel used diesel oil

Crank Shaft, { Solid forged } dia. of journals as per Rule 319 mm Crank pin dia. 350 mm Crank Webs Mid. length breadth 520 mm Thickness parallel to axis shrunk  
{ Semi-built } as fitted 350 mm Mid. length thickness 160 mm Thickness around eyehole shrunk  
{ All built }

Flywheel Shaft, diameter as per Rule 255 mm Intermediate Shafts, diameter as per Rule 260 mm Thrust Shaft, diameter at collars as per Rule 268 mm  
as fitted 260 mm as fitted 330 mm

Tube Shaft, diameter as per Rule 282 mm Screw Shaft, diameter as per Rule 282 mm Is the { tube } shaft fitted with a continuous liner { yes }  
as fitted 282 mm as fitted 282 mm { screw }

Bronze Liners, thickness in way of bushes as per Rule 16.2 mm Thickness between bushes as per Rule 12.15 mm Is the after end of the liner made watertight in the  
as fitted 22 mm as fitted 16 mm

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 yes

Shaft If so, state type Length of Bearing in Stern Bush next to and supporting propeller 1500 mm

Propeller, dia. 3800 mm Pitch 2660 mm No. of blades 3 Material bronze whether Moveable no Total Developed Surface 4.413 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 40 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. 4 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 250 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 4 - two Bilge pumps each 50 m<sup>3</sup>/h. - one bilge pump 50 m<sup>3</sup>/h. one ballast 70 m<sup>3</sup>/h }  
{ How driven by main engines steam duplex pumps steam duplex pumps }

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 1 - of 70 m<sup>3</sup>/h steam dupl. Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size 3 - 1 steam dupl. p. 75 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 5 - one of 90 mm frame 9/10, two of 90 mm frame 35/36, two of 90 mm frame 47/49. In Pump Room three of 90 mm φ

In Holds, &c. two forepeak pump room connected to ballast 50 m<sup>3</sup>/h. & two of 90 mm φ for cargo hold frame 183/84, one of 60 mm φ for pump room frame 196/197

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 3, Bilge 110 mm φ, Ballast 125 mm φ, circulating cooling w. p. 125 mm 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

and 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

That pipes pass through the bunkers oil fuel suction from cofferdam frame 53/54 - 150 mm φ How are they protected strong steel tube, 7.5 mm thickness of wall

That pipes pass through the deep tanks oil fuel suction 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 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. two No. of stages two Diameters 100 x 350 mm Stroke 250 mm Driven by steam eng. 400 rev/min

Auxiliary Air Compressors, No. two No. of stages two Diameters 100 x 350 mm Stroke 250 mm Driven by steam eng. 400 rev/min

Small Auxiliary Air Compressors, No. two No. of stages two Diameters 100 x 350 mm Stroke 250 mm Driven by steam eng. 400 rev/min

What provision is made for first Charging the Air Receivers Compressors driven by steam engines

Scavenging Air Pumps, No. two rotary blowers, n = 707 Diameter output 434 m<sup>3</sup>/h Stroke no Driven by main engine

Auxiliary Engines crank shafts, diameter as per Rule for single-cyl. steam engines driving starting air compressors & generators 100 mm Makers' Standard types yes  
as fitted circul. cooling water pumps 90 mm

Have the Auxiliary Engines been constructed under special survey yes Is a report sent herewith for starting air compressors yes

**AIR RECEIVERS:**—Have they been made under survey yes State No. of Report or Certificate Certificates of material 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 by manhole Is a drain fitted at the lowest part of each receiver yes  
**AIR WHISTLE**  
**Injection Air Receivers, No.** 1 Cubic capacity of each 0.5 m<sup>3</sup> Internal diameter 700 mm thickness 8 mm  
 Seamless, lap welded or riveted longitudinal joint riveted Material S-TC-STEEL Range of tensile strength 41-47 kg/mm<sup>2</sup> Working pressure 8 kg/cm<sup>2</sup>  
**Starting Air Receivers, No.** two Total cubic capacity each 10 m<sup>3</sup> Internal diameter 1750 mm thickness 2.45 mm  
 Seamless, lap welded or riveted longitudinal joint riveted Material S-TC-Steel Range of tensile strength ends 41/47 Working pressure 25 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 no

**PLANS.** Are approved plans forwarded herewith for Shafting 25.8.36 - 8.10.36 Receivers 27.6.36 - 29.8.35 Separate Fuel Tanks 4.12.36  
 (If not, state date of approval)  
 Donkey Boilers 14.5.36 3.9.36 General Pumping Arrangements 26.11.36 13.12.38 Pumping Arrangements in Machinery Space 30.9.38  
 Oil Fuel Burning Arrangements 8.3.37

**SPARE GEAR.**

Has the spare gear required by the Rules been supplied yes  
 State the principal additional spare gear supplied 2 pistons, 2 cylinder covers, 2 upper- & 2 lower cylinder liners, 6 starting & 6 safety valves, 2 connecting rods, 2 bronze propellers, 2 propeller shafts marked LLOYDS No. 268, H.S. 8.3. LLOYDS No. 269, H.S. 8.3.38.

The foregoing is a correct description,  
 17.3.1939. *W. Rohrs*  
 DEUTSCHE WERFT AKTIENGESELLSCHAFT  
 Manufacturer.

Dates of Survey while building  
 During progress of work in shops-- 1938. Sept. 6, 15, 20, 22 Oct. 1, 15, 22 Nov. 1, 3, 5, 7, 2, 10, 12, 17, 19, 21, 24, 25 Dec. 1, 2, 7, 9, 12, 14, 21, 23, 28, 30  
 1939. Jan. 3, 6, 9, 12, 14, 19, 21  
 During erection on board vessel-- 1938. Dec. 10, 13, 15, 17, 20, 27, 29 1939. Jan. 4, 7, 11, 18, 16, 23, 24, 26 Feb. 3, 6, 10, 13, 16, 20, 22, 24, 28  
 1939. March 4, 7, 8, 10.  
 Total No. of visits 64

Dates of Examination of principal parts—Cylinders Please Covers see Pistons Angsburg Rods Report Connecting rods 2095  
 Crank shafts dated 18.1.39. Flywheel shaft — Thrust shafts 23.12.38. Intermediate shafts 23.12.38 Tube shaft —  
 Screw shafts 14 & 15.12.38. Propellers 13.12.38. Stern tube 15/17.12.38 Engine seatings 4.1.39 Engines holding down bolts 13.2.39.  
 Completion of fitting sea connections 27.12.38. Completion of pumping arrangements 16.2.39. Engines tried under working conditions 28.2 & 10.3.39  
 Crank shaft, Material S-TC-Steel Identification Mark LLOYDS 14142 M.B. 31.10.38. Flywheel shaft, Material — Identification Mark LLOYDS 2393 L.S. 13.7.3  
 Thrust shafts, Material S-TC-Steel Identification Mark LLOYDS 3292, 3293 H.B. 28.5.38. Intermediate shafts, Material S-TC-Steel Identification Marks 1823, 1824, 1825 L.S. 1  
 Tube shaft, Material — Identification Mark — Screw shaft, Material S-TC-Steel Identification Mark LLOYDS 162. H.S. 25.1.3

Identification Marks on Air Receivers  
 for whistle: No. 1091 LLOYDS TEST 16 KG/CM<sup>2</sup> W.P. 8 KG/CM<sup>2</sup> H.R. 22.10.38.  
 for starting air: No. 1122 & 1123 LLOYDS TEST 39 ATM. W.P. 25 ATM. H.R. 21.11.38.

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 yes If so, state name of vessel GERMANIA NUEVA GRANADA; Reg. Rep. No. 22304 dated 16.4.37. 23050. 12.2.39.

**General Remarks** (State quality of workmanship, opinions as to class, &c.) The two main heavy oil engines have been built at Augsburg under Special Survey of the Society's Surveyors. Materials and workmanship of this machinery are of good quality and the outfit is ample. It has been fitted under Special Survey at Hamburg in accordance with the approved plans, the Secretary's letters and otherwise in conformity with the requirements of the Rules. During the trial trips the machinery has given satisfaction under full working and manoeuvring conditions.  
The machinery is eligible in my opinion to be classed with notation in the Register.

**LMC 3.39. Oil Eng. TS (CL).**

The amount of Entry Fee 1/53 R.M. : 24- When applied for, 17.3.1939  
 Special ... 1/53 R.M. : 517-  
 Donkey Boiler Fee ... 3 R.M. : 305- When received, 25.4.1939  
 3 AIR RECEIVERS R.M. 210-  
 Travelling Expenses (if any) 3 R.M. : 64-

Committee's Minute FRI 31 MAR 1939  
 Assigned + LMC 3.39 Oil Eng. 2 DB 2 DB (WT) 171 lb

*H. Rohrs*  
 Engineer Surveyor to Lloyd's Register of Shipping.  
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Hamburg Office. (The Surveyors are requested not to write on or below the space for Committee's Minute.) Certificate (if required) to be sent to