

# REPORT ON OIL ENGINE MACHINERY.

No. 24.3.52.  
1750

pt. 4b.

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No. in Survey held at HAMBURG Date, First Survey 27th Aug. 1951 Last Survey 20th Feb. 1952  
Reg. Book Supplement 16347 on the <sup>Single</sup> ~~Triple~~ Screw vessel "GRONLAND" Tons Gross 11600 Net -

Built at Hamburg-Finkenwerder By whom built Deutsche Werft A.G. Yard No. 635 When built 1952

Engines made at Augsburg By whom made M.A.N. Engine No. 503000 When made 1952

Donkey Boilers made at Hamburg-Finkenwerder By whom made Deutsche Werft A.G. Boiler No. 1180/81 When made 1952

Brake Horse Power { Maximum 8000 der Service 6650 Owners A/S Det Dansk-Franske Dampskipselskab Port belonging to Copenhagen

N. as per Rule 1600 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

Trade for which vessel is intended International

ENGINES, &c. - Type of Engines Heavy Oil, Type D 8 Z 70/120 2 or 4 stroke cycle 2 Single or double acting double

Maximum pressure in cylinders top 50 Atm. bott. 47 Atm. Diameter of cylinders 700 mm Length of stroke 1200 mm No. of cylinders 8 No. of cranks 8

Indicated Pressure 8000 BHP - 5,3 Atm. - n 117/6650 BHP - 4,9 Atm. Span of bearings (i.e., distance between inner edges of bearings in y of a crank) 1020 mm Is there a bearing between each crank yes Revolutions per minute { Maximum 117 - 8000 BHP Service 110 - 6650 BHP

Flywheel dia. 2700 mm Weight 4000 kg Moment of inertia of flywheel (obs. in Kg/m<sup>2</sup>) 17000 kg/m<sup>2</sup> Means of ignition comp. Kind of fuel used diesel

Crank shaft, { Solid forged dia. of journals as per Rule 523 mm Crank pin dia. 524,5 mm Crank webs Mid. length breadth 310 mm Thickness parallel to axis 310 mm Semi built All built as fitted 523 mm Mid. length thickness 310 mm shrunk Thickness around eye-hole 238,5 mm

Flywheel Shaft, diameter as per Rule 525 mm Intermediate Shafts, diameter as per Rule 500 mm Thrust Shaft, diameter at collars as per Rule 500 mm

Propeller Shaft, diameter as per Rule 499 x 501 mm Is the (tube screw) shaft fitted with a continuous liner yes

Cylinder Liners, thickness in way of bushes as per Rule 26,5-25,5 mm Thickness between bushes as per Rule 26,5-25,5 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 -

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 - If two liners are fitted, is the shaft lapped or protected between the liners - Is an approved Oil Gland fitted at the after end of stern tube - If so, state type - Length of bearing in Stern Bush next to and supporting propeller 2000 mm

Propeller, dia. 5450 mm Pitch 4350 mm No. of blades 4 Material Bronze whether moveable no Total developed surface 9,808 sq. feet

Moment of inertia of propeller including entrained water (Obs. in Kg.cm<sup>2</sup>) 71000 kg +30% Kind of damper, if fitted -

Method of reversing Engines Direct Is a governor or other arrangement fitted to prevent racing of the engine yes Means of lubrication forced Thickness of cylinder liners 45 mm Are the cylinders fitted with safety valves yes Are the exhaust pipes and silencers water cooled 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 - Cooling Water Pumps, No. and how driven 3 - 400 m<sup>3</sup>/h Working F.W. 1

W. 1 Spare F.W. and S.W. 1 Is the sea suction provided with an efficient strainer which can be cleared within the vessel yes

Large Pumps worked from the Main Engines, No. and capacity none Can one be overhauled while the other is at work -

Pumps connected to the Main Bilge Line (No. and capacity of each 1-75 m<sup>3</sup>/h (Bilge Pp) 1-200 m<sup>3</sup>/h (Condenser cooling w. Pp.) How driven electric (Bilge Pump) steam (Condenser cooling water pump)

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 - (General Service Pump in engine room)

Ballast Pumps, No. and capacity 1-120 m<sup>3</sup>/h Power Driven Lubricating Oil Pumps, including spare pump, No. and size 1-65 m<sup>3</sup>/h

Are there two independent means arranged for circulating water through the Oil Cooler yes Branch Bilge Suctions Mchy, Cargo & F.P. pump room

and size: - In machinery spaces 2-80 mm (fwd) 1-80 mm (aft) 1-80 Cofferdam In pump room 5-80 mm (each)

Direct Bilge Suctions to the engine room bilges, No. and size 1-125 mm (Bilge pump) 1-100 mm (General Service Pump) 1-150 mm (Cond. cooling w. pump)

Are all the bilge suction pipes in holds and tunnel well fitted with strum-boxes yes Are the bilge suction 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 efficiently 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 - How are they protected -

What pipes pass through the deep tanks Forepeak line (fwd. stbd. deep tank) 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 none Is it fitted with a watertight door - worked from -

On 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. 2 No. of stages 2 diameters 2x140/160 mm stroke 130 mm driven by elect. motor

Auxiliary Air Compressors, No. - No. of stages - diameters - stroke - driven by -

Small Auxiliary Air Compressors, No. - No. of stages - diameters - stroke - driven by -

Is that provision is made for first charging the air receivers Emergency Diesel Generator can be started by hand for generating steam in boilers.

Saving Air Pumps or Blowers No. 1 attached - 760 m<sup>3</sup>/h at How driven by main engine crankshaft

Have they been made under survey 110 R.p.m. yes Engine Nos. 430 725 - 430 726 - 430 727

Auxiliary Engines Makers name M.A.N. Position of each in engine room 2-p.fwd. inbd & outboard

1 port aft Report No. 84, Augsburg, 2.11.1951

004194-00499-0302 Register Foundation

**AIR RECEIVERS:**—Have they been made under survey  yes ✓ State No. of report or certificate Ham Cert. N 962 A-B. 4b.  
 State full details of safety devices 1 safety valve on each stage of compressor, 1 safety valve in pressure pipe compr. UN 19  
 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, welded or riveted longitudinal joint - Material - Range of tensile strength - Working pressure -  
 Starting Air Receivers, No. 2 ✓ Total cubic capacity 16m<sup>3</sup> Internal diameter 1543 mm thickness 28,5 mm  
 Seamless, welded or riveted longitudinal joint welded ✓ Material S.M.O.H. steel Range of tensile strength - Working pressure 30 Atm  
 Ends 41-47 kg/mm<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  yes  
**PLANS.** Are approved plans forwarded herewith for shafting  yes Receivers  yes Separate fuel tanks  yes  
 Donkey boilers  yes General pumping arrangements - Pumping arrangements in machinery space  yes  
 Oil fuel burning arrangements  yes  
 Have Torsional Vibration characteristics been approved - Date and particulars of approval -

**SPARE GEAR.**

Has the spare gear required by the Rules been supplied  yes ✓ State if for "short voyages" only no, Ocean going  
 State the principal additional spare gear supplied spare shaft ✓

**DEUTSCHE WERFT**

The foregoing is a correct description of the machinery of the vessel **AKTIENGESELLSCHAFT**  
*Deutsche Werft A.G.* manufacturer.

Dates of Survey while building  
 During progress of work in shops - -  
 During erection on board vessel - - Aug.: 27, Sep.: 20, Oct.: 6, 20, 30, Nov.: 7, 12, 16, 20, 22, 28, Dec.: 1, 3, 4, 7, 11, 12, 18, 20, 27, Jan.: 2, 5, 7, 9, 12, 16, 17, 19, 22, 26, Feb.: 1, 7, 8, 11, 12, 15, 19  
 Total No. of visits 38  
 Dates of examination of principal parts—Cylinders 19.4.50 Covers 7.1.50-28.2.50 Pistons 22.9.49 Rods 11/24.1.50 Connecting rods 4/5.4.50  
 Crank shaft 25.1.51 Flywheel shaft 9.3.50 Thrust shaft 30.10.51 Intermediate shafts 30.10.51 Tube shaft 11/12.4.50  
 Screw shaft 22.11.51 Propeller 23.10.51 Stern tube 22.11.51 Engine seatings 20.12.51 Engine holding down bolts 6.2.52  
 Completion of fitting sea connections 20.12.51 Completion of pumping arrangements 1.2.52 Engines tried under working conditions 7.2.52  
 Crank shaft, material SMOH steel Identification mark LLOYDS 1574/75/76 Flywheel shaft, material, SMOH steel Identification mark LLOYDS 10  
 Thrust shaft, material SMOH steel Identification mark 28.9.51 Intermediate shafts, material SMOH steel Identification marks LLOYDS H  
 Tube shaft, material - Identification mark - Screw shaft, material SMOH steel Identification mark LLOYDS HS 1  
 Identification marks on air receivers R.F.K. 962 A + 962 B LLOYD'S TEST 49 Atm. WP 30 Atm.

Welded receivers, state Makers' Name Deutsche Werft A.G., Hamburg, Finkenwerder, Nos. 1182 & 1183  
 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 ✓  
 Full description of fire extinguishing apparatus fitted in machinery spaces Steam smothering, flooding & Chemical Extinguishing  
 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 -  
 What is the special notation desired -  
 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, Speed restrictions, &c. This engine has been constructed under  
 Special Survey in conformity with the Society's Rules and Regulations, the approved plans and the Secretary's  
 letters. The materials and workmanship are good. The engine has been examined during construction, properly  
 installed in the above vessel and found satisfactory under working conditions and is eligible, in my opinion, for  
 classification with the notation \* LMC 2,52,  
 Oil Engines 2 SC DA, 8 Cyl. 27 9/16" - 47 1/4", 1600 MN, 2 DB - 170,7 lbs, 2 DB(WT) 170,7 lbs TS CL.  
 The Machinery is not to be operated continuously between 56 and 67 R.p.m. A notice to this effect has been  
 fitted to the engine control platform.

The amount of Entry Fee ... £ - : - :  
 Special ... £ 190 : 0 : When applied for 19  
 Donkey Boiler Fee... £ 132 : 0 : When received 19  
 Travelling Expenses (if any) £ 34 : 0 :  
 Committee's Minute  
 Assigned **LMC 2,52 Oil Eng. (with torsional endorsement)**  
**C.L. 2DB 171/6 DB(WT) 171/6.**  
 FRI. 16 MAY 1952  
 W. Senechal & R. Kähler  
 Engineer Surveyors 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.