

REPORT ON OIL ENGINE MACHINERY.

No. 10365

Received at London Office 12 AUG 1935

Date of writing Report 1st Aug 1935 When handed in at Local Office 8th Aug 1935 Port of Gottenburg
No. in Survey held at Gottenburg Date, First Survey 24th October 1934 Last Survey 1st August 1935
Reg. Book. 35025 on the ^{Single} ~~Twin~~ ~~Triple~~ ^{Quadruple} Screw vessel "M/S THORHILD" Number of Visits 80

Tons { Gross 10,316.28
Net 6,242.76
Built at GOTTHENBURG By whom built A.B. GÖTAVERKEN Yard No. 490 When built 1935
Engines made at GOTTHENBURG By whom made A.B. GÖTAVERKEN Engine No. 1111 When made 1935
Donkey Boilers made at GOTTHENBURG By whom made A.B. GÖTAVERKEN Boiler No. 192/1913 When made 1935
Brake Horse Power 3900 Owners TÖNNEVOLD'S TANKREDERI A/S. Port belonging to GRIMSTAD
Nom. Horse Power as per Rule 712 711 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted YES
Trade for which vessel is intended GENERAL

OIL ENGINES, &c.—Type of Engines Two Diesel Oil Engines 2 or 4 stroke cycle 4 Single or double acting Single

Maximum pressure in cylinders 45 kg/cm² Mean Indicated Pressure 7 kg/cm² Diameter of cylinders 630 mm [24 7/16"] Length of stroke 2007 mm [47 1/4"] No. of cylinders 12 No. of cranks 12
Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 892 mm Is there a bearing between each crank Yes
Revolutions per minute 140 Flywheel dia. None Weight Means of ignition Diesel System Kind of fuel used Diesel fuel oil
Crank Shaft, dia. of journals as per Rule 395 mm as fitted 414 mm Crank pin dia. 414 mm Crank Webs Mid. length breadth shrunk Thickness parallel to axis 246-266 mm Mid. length thickness Thickness around eyehole 188 mm
Flywheel Shaft, diameter as per Rule as fitted Intermediate Shafts, diameter as per Rule 257 mm as fitted 345 mm Thrust Shaft, diameter at collars as per Rule 270 mm as fitted 345 mm
Tube Shaft, diameter as per Rule as fitted Screw Shaft, diameter as per Rule 283 mm as fitted 345 mm Is the screw shaft fitted with a continuous liner Yes

Bronze Liners, thickness in way of bushes as per Rule 16.3 mm as fitted 17.0-19 mm Thickness between bushes as per rule 12.2 mm as fitted 16.5 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 liner in 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
If two liners are fitted, is the shaft lapped or protected between the liners Is an approved Oil Gland or other appliance fitted at the after end of the tube shaft. If so, state type Length of Bearing in Stern Bush next to and supporting propeller 1350 mm

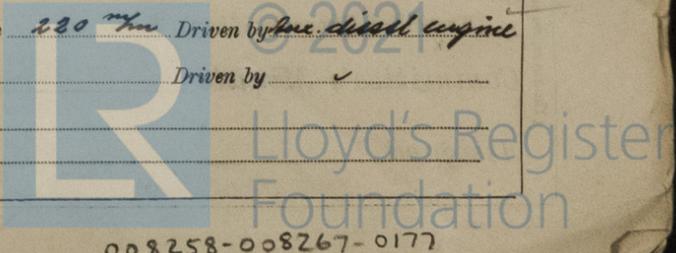
Propeller, dia. 3780 mm Pitch 2950 mm No. of blades 4 Material Bronze whether Moveable No Total Developed Surface 215.60 sq. feet
Method of reversing Engines with comp. air Is a governor or other arrangement fitted to prevent racing of the engine when declutched Yes Means of lubrication Forced Thickness of cylinder liners 46 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 led to a funnel

Cooling Water Pumps, No. Two - 200 ton/hour each 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 160 mm Stroke 180 mm Can one be overhauled while the other is at work Yes
Pumps connected to the Main Bilge Line { No. and Size 2-20 ton plungers 1-30 ton duplex 1-100 ton ballast 8" x 8" x 8"
How driven Steam engines 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 One-100 tons duplex, one 85 tons duplex in forward pump room, one 150 tons duplex and cargo pumps in pump rooms amidships

Ballast Pumps, No. and size in pump rooms amidships Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size Two - 90 ton each
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 three 3 1/2" & two 2 1/2" [Two 2" to engine room effluent] In Pump Room None
In Holds, &c. None [Two 2 1/2" in hold, one 2 1/2" in fwd. pump room, three 3 1/2" in pump room amidships to separate pumps]

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size one 3 1/2" to bilge pump, one 5" to ballast pump
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 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
What pipes pass through the bunkers No coal bunkers How are they protected
What pipes pass through the deep tanks Large pipe lines heating coils 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 Yes Is it fitted with a watertight door 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
Main Air Compressors, No. None No. of stages Diameters Stroke Driven by
Auxiliary Air Compressors, No. one No. of stages 2 Diameters 350 & 310 mm Stroke 160 mm Driven by Steam engine
Small Auxiliary Air Compressors, No. one No. of stages 2 Diameters 90 & 235 mm Stroke 230 mm Driven by Diesel engine
Scavenging Air Pumps, No. None Diameter Stroke Driven by
Auxiliary Engines crank shafts, diameter as per Rule 150 mm as fitted 650 mm



AIR RECEIVERS:—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* ✓
High Pressure 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. *Two* Total cubic capacity $2 \times 18.15 = 36.3 \text{ m}^3$ Internal diameter $18.50 = 1800 \text{ mm}$ thickness $25.5 \times 225 \text{ mm}$
 Seamless, lap welded or riveted longitudinal joint *Riveted* Material *S. 4 Steel* Range of tensile strength 44.50 kg/cm^2 Working pressure by Rules 25.8 kg/cm^2
 Actual 25 kg/cm^2

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 *5/6-34; 7/8-34* Receivers *7/8-34* Separate Tanks *17.11.35*
 (If not, state date of approval)
 Donkey Boilers *7/7-34* General Pumping Arrangements *5.26/9-34* Oil Fuel Burning Arrangements *✓*

SPARE GEAR.

Has the spare gear required by the Rules been supplied *Yes* ✓
 State the principal additional spare gear supplied *For the main engines: 1 cylinder liner, 1 cylinder cooling jacket, 4 halves of crank pin brasses, 4 halves of wristhead brasses, 2 halves of main bearing brasses, 4 sets of piston rings for one piston, 10 exhaust valves, 6 sets of working parts for a fuel pump, 1 propeller shaft, 2 cast iron propellers. For the aux. air engine: one cylinder cover, 1 piston, 3 sets of piston rings for one piston, 4 halves of main bearing brasses, 2 halves of crank pin brasses, 1 bush for guide pins.*

The foregoing is a correct description,

AKERBOLAGET NOTÄRERKEN
Ulf S. Weder

Henry
 Manufacturer.

Dates of Survey while building
 During progress of work in shops-- 1934: Oct. 24, Nov. 2, 7, 14, 20 1935: Jan. 17, 21, 22, 26, 28 Feb. 5, 8, 18, 19, 21, 23, 25, 28 April 15, 7, 8, 11, 13, 15, 20, 22, 23, 24, 26, 30
 April 2, 9, 12, 14, 17, 18 May 2, 4, 7, 14, 18, 20, 23, 29, 31 June 3, 5, 8, 11, 12, 15, 19 July 1, 15, 24, 26
 During erection on board vessel-- 1935: Feb. 20, March 26 June 21, 25 July 1, 9, 11, 16, 17, 18, 19, 22, 23, 23, 24, 25, 26, 29, 30, 31, 31 Aug 1
 Total No. of visits *80*

Dates of Examination of principal parts—Cylinders $7/4, 3/4, 1/6$ Covers $7/4, 3/4, 1/6$ Pistons $20/3, 14/4$ Rods $20/3$ Connecting rods $20/3$
 Crank shaft $12/17/3$ Flywheel shaft *✓* Thrust shaft $8/6$ Intermediate shafts $20/7$ Tube shaft *✓*
 Screw shaft $7/14, 20/12-34$ Propeller $20/3$ Stern tube $20/3$ Engine seatings $20/2$ Engines holding down bolts $25/6$
 Completion of fitting sea connections $2/6$ Completion of pumping arrangements $30/7$ Engines tried under working conditions $29/5, 5/6, 1/8$
 Crank shaft, Material *S. 4 Steel* Identification Mark $22, 11, 34$ Flywheel shaft, Material *✓* Identification Mark $4384, 4390$
 Thrust shaft, Material *S. 4 Steel* Identification Mark $4384, 4389$ Intermediate shafts, Material *S. 4 Steel* Identification Marks $68, 26, 7, 35$
 Tube shaft, Material *✓* Identification Mark $68, 26, 35$ Screw shaft, Material *S. 4 Steel* Identification Mark $68, 26, 35$

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 *✓*
 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 *No*

Is this machinery duplicate of a previous case *✓* If so, state name of vessel *In general M/S Pan Gothia*

General Remarks (State quality of workmanship, opinions as to class, &c. *The main & auxiliary machinery of this vessel have been built under special survey and all the requirements of the Rules have been complied with. The shafting as per forging reports attached. Test sheets of the material for starting air receivers is forwarded herewith. The workmanship is good and the material fulfils the requirements of the Rules and approved plans. The auxiliary machinery consists of one 3 cylinder, 4 stroke cycle, single acting diesel oil engine having a cylinder diam. of 270 mm and 360 mm stroke manufactured by Messrs. A.B. Götaverken of this port and one compound steam engine having cylinders of 18" & 16" diam. and 7" stroke manufactured by Messrs. E. Reader & Sons Ltd. of Nottingham, each driving a generator of 60 kw.*

*The machinery of this vessel is eligible in my opinion to be classed in the Register Book with record of + LMC 8.35.
 Working pressures of donkey boilers $150 \text{ lb}/\text{sq. in}$*

The amount of Entry Fee ... $\text{N} 109:20$: When applied for, *8th Aug 1935*
 Special ... $\text{N} 2012:92$:
 Start air receiver fee ... $\text{N} 152:38$:
 Donkey Boiler Fee ... $\text{N} 152:38$:
 Travelling Expenses (if any) £ : : 15.8 19/35
 19/8

Committee's Minute *TUE. 20 AUG 1935*
 Assigned *oil eng + dumb 8-35 2DB-150 lb*



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