

REPORT ON OIL ENGINE MACHINERY.

No. 10365

Received at London Office

12 AUG 1935

Date of writing Report 1st Aug 35 When handed in at Local Office 8th Aug 35 Port of Göthenburg
 No. in Survey held at Göthenburg 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 GÖTHENBURG By whom built A.B. GÖTAVERKEN Yard No. 490 When built 1935
 Engines made at GÖTHENBURG By whom made A.B. GÖTAVERKEN Engine No. 1111 When made 1935
 Donkey Boilers made at GÖTHENBURG By whom made A.B. GÖTAVERKEN Boiler No. 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 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 7/8"] Length of stroke 2007 [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 ✓ Mid. length thickness ✓ Thickness parallel to axis 246-266 mm 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 tube 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 campe air Is a governor or other arrangement fitted to prevent racing of the engine when decoupled 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 from 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"x8"x8"
 How driven Main 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 ✓

Ballast Pumps, No. and size in pump room 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 off end] 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 ✓ Is it fitted with a watertight door ✓ worked from ✓

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 one diesel engine

Scavenging Air Pumps, No. None Diameter ✓ Stroke ✓ Driven by ✓

Auxiliary Engines crank shafts, diameter as per Rule 150 mm as fitted 150 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* *✓*

Actual *✓*

Starting Air Receivers, No. *Two*

Total cubic capacity $2 \times 18.15 = 36.3 m^3$

Internal diameter $18.50 = 1800$ mm

thickness 25.5 ± 2.5 mm

Seamless, lap welded or riveted longitudinal joint *Riveted*

Material *S. 4 Steel*

Range of tensile strength 44.50 kg/mm²

Working pressure *by Rules* 25.8 kg/cm²

Actual 25 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 *5/6-54; 7/8-54*
(If not, state date of approval)

Receivers *7/8-54*

Separate Tanks *17.11.55*

Donkey Boilers *7/7-54*

General Pumping Arrangements *5.26/9-54*

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. oil 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,

W. S. Hedder

Manufacturer.

Dates of Survey while building
During progress of work in shops: 1954: Oct. 24 Nov. 27 Dec. 31 1955: Jan. 17 21 22 26 28 Feb. 5 8 18 19 21 23 25 28 April 15 27 31 May 13 15 16 20 22 23 24 26 28 June 29 31 July 1 15 24 26
During erection on board vessel: 1955: 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 $2/4$ $1/4$ Rods $2/4$ Connecting rods $2/4$

Crank shaft $1/15/5$ Flywheel shaft *✓* Thrust shaft $8/6$ Intermediate shafts $2/4/7$ Tube shaft *✓*

Screw shaft $2/14/20/12-54$ Propeller $2/4/3$ Stern tube $2/4/3$ Engine seatings $2/0/2$ Engines holding down bolts $2/5/6$

Completion of fitting sea connections $2/1/6$ Completion of pumping arrangements $30/7$ Engines tried under working conditions $2/9/5$ $5/6$ $1/8$

Crank shaft, Material *S. 4 Steel* Identification Mark *KN 13653 MS 10290/71* Flywheel shaft, Material *✓* Identification Mark *✓*

Thrust shaft, Material *S. 4 Steel* Identification Mark *4384, 4390* Intermediate shafts, Material *S. 4 Steel* Identification Marks *68 26.7.35*

Tube shaft, Material *✓* Identification Mark *✓* Screw shaft, Material *S. 4 Steel* Identification Mark *624398 644 2370 639124*

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 4/5 Pan Gotherie*

General Remarks (State quality of workmanship, opinions as to class, &c. *The main & auxiliary machinery of this vessel has 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 240 mm and 360 mm stroke manufactured by Messrs. W. G. Göttsche 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 66 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 lb/sq. in.

The amount of Entry Fee *£ 109.20* : When applied for, *8th Aug 1935*

Special *£ 2012.92* : When received, *15.8 1935*

Start air receiver fee *£ 152.88* : *19/8*

Donkey Boiler Fee *£ 152.88* : *19/8*

Travelling Expenses (if any) £ : *19/8*

Committee's Minute *TUE. 20 AUG 1935*

Assigned *oil eng + LMC 8.35*

208-150 lb

