

REPORT ON OIL ENGINE MACHINERY.

No. 8586

2 JAN 1932

Received at London Office

Date of writing Report 28th Dec 1931When handed in at Local Office 29th Dec 1931

Port of

GOTHENBURG

No. in Survey held at

GOTHENBURG

Date, First Survey 19th May 1930Last Survey 8th Dec 1931

Reg. Book.

Number of Visits 89

287 on the ^{Single} ~~Twin~~ ^{Triple} ~~Quadruple~~ Screw vessel

"ANNA KNUDSEN"

Tons { Gross 9057
Net 5389

Built at GOTHENBURG

By whom built A.B. GÖTAVERKEN

Yard No. 442 When built 1931-12

Engines made at GOTHENBURG

By whom made A.B. GÖTAVERKEN

Engine Nos 1935 When made 1931

Key Boilers made at STOCKTON

By whom made RILEY BROS. (BOILERMAKERS)

Boiler Nos 5978 When made 1930

Horse Power

3475

Owners KNUT KNUDSEN O.A.S.

Port belonging to HAUGESUND

Horse Power as per Rule

3480

Is Refrigerating Machinery fitted for cargo purposes No

Is Electric Light fitted Yes

Use for which vessel is intended

General

Tanker

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

Maximum pressure in cylinders 35.0 kg/cm² Diameter of cylinders 630 mm [24 13/16"] Length of stroke 1300 mm [51 13/16"] No. of cylinders 12 No. of cranks 12

Pitch 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 125 Turning wheel 19022 Weight 6375 kg Means of ignition Diesel spark Kind of fuel used Diesel oil

Crank Shaft, dia. of journals as per Rule 404 mm as fitted 404 mm Crank pin dia. 404 mm Crank Webs Mid. length breadth 345 mm Mid. length thickness 345 mm Thickness parallel to axis 246-266 mm Thickness around eye-hole 185 mm

Wheel Shaft, diameter as per Rule as fitted Intermediate Shafts, diameter as per Rule as fitted Thrust Shaft, diameter at collars as per Rule as fitted 345 mm

Propeller Shaft, diameter as per Rule as fitted None Screw Shaft, diameter as per Rule as fitted 363 mm Is the shaft fitted with a continuous liner Yes

Bronze Liners, thickness in way of bushes as per Rule as fitted 18.5 mm Thickness between bushes as per Rule as fitted 14 mm Is the after end of the liner made watertight in the

bell 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

No If so, state type Yes Length of Bearing in Stern Bush next to and supporting propeller 1726 mm

Propeller, dia. 396 mm Pitch 3150 mm No. of blades 4 Material Bronze whether Moveable No Total Developed Surface 2 x 4.75 = 9.5 sq. feet

Method of reversing Engines By Reversing Gear Is a governor or other arrangement fitted to prevent racing of the engine when declutched Yes Means of lubrication

Lubricated Thickness of cylinder liners Top 46 mm Bottom 36 mm Are the cylinders fitted with safety valves Yes Are the exhaust pipes and silencers water cooled or lagged with

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 Yes

Cooling Water Pumps, No. Two centrifugal 175 tons each 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. 2 Diameter 160 mm Stroke 260 mm Can one be overhauled while the other is at work Yes

Pumps connected to the Main Bilge Line No. and Size Two direct driven pumps 33 tons each, One separate bilge pump 20 tons The ballast pump 6 tons

How driven By main engines Electric Electric

Ballast Pumps, No. and size One 60 tons in machinery space Lubricating Oil Pumps, including Spare Pump, No. and size Two rotary pumps, 70 tons 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 Two 3 1/2" One 3" four 2 1/2" [Two 2 1/2" to cofferdams in way of engine room] In Pump Room None

Holds, &c. None [Two 2 1/2" to hold, one 2 1/2" to forward pump room & three 3 1/2" to pump room amidship connected 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 Tunnels fitted with strum-boxes Yes Are the Bilge Suctions in the Machinery Spaces

fitted 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 No bunkers How are they protected Yes

That pipes pass through the deep tanks Cargo oil pipes & 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 No tunnel Is it fitted with a watertight door Yes

If a wood vessel, what means are provided to prevent leakage of oil from fuel oil or lubricating oil from soot or from the engine work

Fitted for Soot & oil suction 10 3/8" Compressor on Main Engines

Main Air Compressors, No. 2 No. of stages 3 Diameter 120, 540 & 600 mm Stroke 520 mm Driven by Main engines

Auxiliary Air Compressors, No. 3 No. of stages 3 Diameters 78, 285 & 318 mm Stroke 170 mm Driven by Suction "

Small Auxiliary Air Compressors, No. 1 No. of stages 2 Diameters 34 & 106 mm Stroke 80 mm Driven by Steam "

Scavenging Air Pumps, No. None Diameter Stroke Driven by

Auxiliary Engines crank shafts, diameter as per Rule as fitted 170 mm Position — Two on port & one on starboard side in engine space

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. 7 Cubic capacity of each 12 of 400 liters Internal diameter 450 mm thickness 12.5 mm

Seamless, lap welded or riveted longitudinal joint 3 Seamless Material L.H. Steel Range of tensile strength 44.0-50 kg/cm² Working pressure 25.4 kg/cm²

Starting Air Receivers, No. 2 Total cubic capacity 2 x 19.7 = 39.4 cub. m Internal diameter 1800 & 1850 mm thickness 25 & 25.5 mm

Seamless, lap welded or riveted longitudinal joint Riveted Material L.H. Steel Range of tensile strength 44.0-50 kg/cm² Working pressure 25.4 kg/cm²Actual 25.0 kg/cm²Actual 25.0 kg/cm²Actual 25.0 kg/cm²Actual 25.0 kg/cm²Actual 25.0 kg/cm²Actual 25.0 kg/cm²Actual 25.0 kg/cm²Actual 25.0 kg/cm²Actual 25.0 kg/cm²Actual 25.0 kg/cm²Actual 25.0 kg/cm²Actual 25.0 kg/cm²

IS A DONKEY BOILER FITTED? *Yes, two boilers* 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 *No* 19/9/29, 16/11/29, 20/1/30 Receivers *No* 19/12/29, 28/1/30 Separate Tanks *✓*

Donkey Boilers *Yes* 31/1/30 General Pumping Arrangements *No* 14/1/30 Oil Fuel Burning Arrangements *No* 7/7/30

SPARE GEAR.

Has the spare gear required by the Rules been supplied *Yes*

State the principal additional spare gear supplied

For the main engines: 10 exhaust valves complete, 10 fuel valves complete & 6 extra valves for same, 5 cam rollers with pins for the exhaust valves, 3 ditto for the fuel valves, 1 set for the starting air valves, 1 set of cross head brasses, 1 set of crank pin brasses, 1 set of main bearings, 1 cylinder liner, 1 cooling jacket for same, 4 sets of piston rings for one piston, telescopic cooling pipes, 2 pistons, propeller shaft with nut, 2 cast iron propellers, 12 safety caps for the inj. air piping, 12 ditto for the start air piping.
For the main engine compressors: 1 set of crank pin brasses, 1 set of suction & delivery valves, 1 set of piston rings, 1 HP air cooling fan.
For the auxiliary engines: 1 cylinder cover & liner, 1 exhaust valve complete and 2 extra valves and 2 extra valves for same, 1 starting air valve complete, 1 cam roller with pin of each size, 1 fuel valve complete, 5 extra valves for same, 1 set of cross head brasses, 1 set of crank pin brasses, 2 lower halves of main bearings, 1 gudgeon pin brasses, 1 set of valves, 1 set of piston rings.

The foregoing is a correct description.

AKTIEBOLAGET GÖTAVÄRKEN

Manufacturer.

Dates of Survey while building
During progress of work in shops - 1930: May 19, June 4, Sept 22, 29, Nov 5, 18, Dec 2, 3, 3, 4, 4, 8, 12, 16, 17, 18, 19, 20, 20, 22, 1931: Jan 2, 2, 8, 9, 13, 16, Feb 3, 5, 7, 7, 1931: Feb 19, 21, 23, 23, 24, 25, 27, 28, March 3, 3, 4, 6, 10, 11, 21, 24, 17, 19, 21, 21, 24, 26, April 17, May 28, 29, June 5, 6, 18, July 10, 17, 24, 30, Aug 1
During erection on board vessel - 1931: Feb 23, May 23, June 12, 17, July 2, 11, 15, 22, 27, 28, 30, 31, Aug 3, 4, 11, 17, 18, Sept 4, Dec 11, 15, 16, 18.
Total No. of visits *89*

Dates of Examination of principal parts—Cylinders *and* Covers *25/1/31* *4/6/11/31* Pistons *2/16/11/31* Rods *✓* Connecting rods *28/12/30*
Crank shaft *✓* Flywheel shaft *✓* Thrust shaft *28/2/31* Intermediate shafts *10/7/31* Tube shaft *✓*
Screw shaft *✓* Propeller *8/1/31* Stern tube *28/5/31* Engine seatings *23/2/31* Engines holding down bolts *12/6/31*
Completion of fitting sea connections *22/7/31* Completion of pumping arrangements *16/2/31* Engines tried under working conditions *18/2/31*
Crank shaft, Material *L.M. Steel* Identification Mark *LLOYDS 13.8048-49 14/162 14.30.50* Flywheel shaft, Material *✓* Identification Mark *LLOYDS 13.8048-49 14/162 14.30.50*
Thrust shaft, Material *L.M. Steel* Identification Mark *LLOYDS 13.8048-49 14/162 14.30.50* Intermediate shafts, Material *L.M. Steel* Identification Marks *LLOYDS 13.8048-49 14/162 14.30.50*
Tube shaft, Material *✓* Identification Mark *✓* Screw shaft, Material *L.M. Steel* Identification Mark *LLOYDS 13.8048-49 14/162 14.30.50*

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 *No*
Is this machinery duplicate of a previous case *Yes* If so, state name of vessel *"Kaia Knudsen"*

General Remarks (State quality of workmanship, opinions as to class, &c. *The main & auxiliary engines 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. Material of the starting air receivers as per test sheets now forwarded. The workmanship is good and the material fulfils the requirements of the Rules and approved plans. The auxiliary machinery consists of three 2 cylinder, 4 stroke cycle, single acting Diesel oil engines, manufactured by Muns. AB. Götaverken of this port and each working a dynamo of 66 Kw. The main & auxiliary engines of this vessel have been tested under full working power on a trial trip and found to work satisfactorily.*

The Machinery of this vessel is eligible in my opinion to be classed in the Register Book of this Society with notation of *+L4C 12.31 (Working pressure of D.B. 150 lbs/sq. in.)*

The amount of Entry Fee *£ 109.20* When applied for, *30th Dec. 1931*
Special *£ 2009.28*
Starting air receiver *£ 152.88* When received, *28/11/32*
Donkey Boiler Fee
Travelling Expenses (if any) *£*
Committee's Minute *FRI. 8 JAN 1932*
Assigned *+L4C 12.31 oil eng. Cl. 250-150 lbs*