

Rpt. 4b.

REPORT ON OIL ENGINE MACHINERY.

No. 8494.

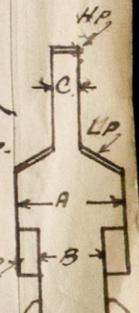
Received at London Office 11 MAY 1931

Date of writing Report 23/4 1931 When handed in at Local Office 31 19 Port of Copenhagen. Date, First Survey 24/10 1930 Last Survey 18/4 1931 Number of Visits 11

No. in Reg. Book 90858 on the Single Twin Triple Quadruple Screw vessel "HENRIK AMELN" Built at Nakskov By whom built Nakskov Skibsværft Yard No. 44 When built 1931 Engines made at Holboey By whom made Holboey Dieselmotor Fabrik Engines No. 356-7 When made 1930 Donkey Boilers made at Aarhus By whom made Frichs Boilers No. 850-1 When made 1930 Brake Horse Power 2 x 100 Owners Frøgt & Co. (L. Jacobsen & Co.) Port belonging to Oslo. Nom. Horse Power as per Rule Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted Yes. Trade for which vessel is intended Ocean going Oil carrier.

OIL ENGINES, &c.—Type of Engines Vertical Diesel, trunk type, air injection 4 stroke cycle 4 Single or double acting Single Maximum pressure in cylinders 35 kg/cm² Diameter of cylinders 310 mm Length of stroke 350 mm No. of cylinders 2 No. of cranks 2 Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 360 mm Is there a bearing between each crank Yes. Revolutions per minute 400 Flywheel dia. 1240 mm Weight 2650 kg Means of ignition compression kind of fuel used crude oil. Crank Shaft, dia. of journals as per Rule 162 mm as fitted 170 mm Crank pin dia. 170 mm Crank Webs Mid. length breadth 355 mm dia. Thickness parallel to axis Crank Mid. length thickness 95 mm Thickness around eye-hole Flywheel Shaft, diameter as per Rule Intermediate Shafts, diameter as per Rule Thrust Shaft, diameter at collars as per Rule Tube Shaft, diameter as per Rule Screw Shaft, diameter as per Rule Is the tube shaft fitted with a continuous liner Bronze Liners, thickness in way of bushes as per Rule Thickness between bushes as per Rule Is the after end of the liner made watertight in the propeller boss If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner 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 Propeller, dia. Pitch No. of blades Material whether Moveable Total Developed Surface sq. feet Method of reversing Engines Is a governor or other arrangement fitted to prevent racing of the engine when declutched Means of lubrication Thickness of cylinder liners Are the cylinders fitted with safety valves Are the exhaust pipes and silencers water cooled or lagged with non-conducting material 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. Is the sea suction provided with an efficient strainer which can be cleared within the vessel Bilge Pumps worked from the Main Engines, No. Diameter Stroke Can one be overhauled while the other is at work Pumps connected to the Main Bilge Line No. and Size How driven Lubricating Oil Pumps, including Spare Pump, No. and size Are two independent means arranged for circulating water through the Oil Cooler Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge Pumps, No. and size:—In Machinery Spaces In Pump Room In Holds, &c. Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes 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 Are all Sea Connections fitted direct on the skin of the ship Are they fitted with Valves or Cocks Are they fixed sufficiently high on the ship's side to be seen without lifting the platform plates Are the Overboard Discharges above or below the deep water line Are they each fitted with a Discharge Valve always accessible on the plating of the vessel Are the Blow Off Cocks fitted with a spigot and brass covering plate What pipes pass through the bunkers How are they protected What pipes pass through the deep tanks Have they been tested as per Rule Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times 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 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. No. of stages Diameters A B C Stroke Driven by Auxiliary Air Compressors, No. 2 No. of stages 3 Diameters 318-285-78 Stroke 170 mm Driven by auxiliary engine Small Auxiliary Air Compressors, No. No. of stages Diameters Stroke Driven by Scavenging Air Pumps, No. Diameter Stroke Driven by Auxiliary Engines crank shafts, diameter as per Rule as fitted Position No. 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. 2 Cubic capacity of each 27 litres Internal diameter 185 mm thickness 9.5 mm Seamless, lap welded or riveted longitudinal joint Seamless Material S.M. Steel Range of tensile strength 60.3 kg/cm² Working pressure by Rules 226 kg/cm² Actual 65 kg/cm² Starting Air Receivers, No. Total cubic capacity Internal diameter thickness Seamless, lap welded or riveted longitudinal joint Material Range of tensile strength Working pressure by Rules Actual



IS A DONKEY BOILER FITTED? *Yes. 2 off.* If so, is a report now forwarded? *Yes.*

Is the donkey boiler intended to be used for domestic purposes only *for dealing with the cargo oil.*

PLANS. Are approved plans forwarded herewith for Shafting *Yes.* Receivers *Yes.* Separate Tanks *Yes.*
 Donkey Boilers *27/30.* General Pumping Arrangements *Yes.* Oil Fuel Burning Arrangements *Yes.*

SPARE GEAR.

Has the spare gear required by the Rules been supplied *Yes.*
 State the principal additional spare gear supplied *please see accompanying list.*

The foregoing is a correct description,

AKTIESELSKABET
 HOLEBY DIESEL MOTOR FABRIK

Manufacturer.

Dates of Survey while building	During progress of work in shops --	<i>24/10. 21/11. 12/12 1930</i>		
	During erection on board vessel --	<i>10/2. 20/2. 3/3. 11/3. 18/3. 27/3. 1/4. 18/4 1931</i>		
	Total No. of visits	<i>11.</i>		
Dates of Examination of principal parts	Cylinders with Covers	<i>24/10. 21/11</i>		
	Pistons	<i>24/10. 21/11</i>		
	Boils	<i>24/10</i>		
	Connecting rods	<i>24/10</i>		
Crank shaft	<i>24/10</i>	Flywheel shaft	<i>24/10</i>	
	Thrust shaft	<i>24/10</i>	Intermediate shafts	<i>24/10</i>
	Tube shaft	<i>24/10</i>		
Screw shaft	<i>24/10</i>	Propeller	<i>24/10</i>	
	Stern tube	<i>24/10</i>	Engine seatings	<i>20/12. 23/1</i>
	Engines holding down bolts	<i>10/2. 20/2</i>		
Completion of fitting sea connections	<i>12/12. 1/4. 18/4</i>	Completion of pumping arrangements	<i>12/12. 1/4. 18/4</i>	
	Engines tried under working conditions	<i>12/12. 1/4. 18/4</i>		
Crank shaft, Material	<i>S.M. iron of steel</i>	Identification Mark	<i>24.10.30</i>	
	Flywheel shaft, Material	<i>LLYONS No 7608-7</i>		
	Thrust shaft, Material	<i>LLYONS No 7608-7</i>		
	Intermediate shafts, Material	<i>LLYONS No 7608-7</i>		
	Tube shaft, Material	<i>LLYONS No 7608-7</i>		
	Screw shaft, Material	<i>LLYONS No 7608-7</i>		

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 *Yes.* If so, have the requirements of the Rules been complied with *Yes.*
 If the notation for Ice Strengthening is desired, state whether the requirements in this respect have been complied with *Yes.*
 Is this machinery duplicate of a previous case *Yes.* If so, state name of vessel *Yes.*

General Remarks (State quality of workmanship, opinions as to class, &c.)
These auxiliary engines have been built and fitted under special survey and in accordance with the Society's Rules, the approved plan and the requirements contained in the Secretary's letter E dated 10/330.
Each engine is connected to a 66 kwts. dynamo, and after completion of the installation on board the vessel the engines were tested under working conditions and found to work satisfactorily.

The amount of Entry Fee	£ <i>2.00.00</i>	When applied for	<i>30/12 1930</i>
Special	£ <i>0.00.00</i>	When received	<i>5/1 1931</i>
Donkey Boiler Fee	£ <i>0.00.00</i>		
Travelling Expenses (if any)	£ <i>0.00.00</i>		
Committee's Minute	<i>See other S.C. App</i>		

Cliff
 Engineer Surveyor to Lloyd's Register of Shipping.

FRI. 15 MAY 1931

Expt. No.

Port of

Copenhagen. Continuation of Report No. 8494 dated *23rd April 1931* on the
4 1/2 "Heurik Ancliv" of Oslo.

The Auxiliary Machinery comprises:

Two centrifugal cooling water pumps for main engine, 120 t/l.
 Two cog wheel lubricating oil pumps for main engine, 50 t/l.
 One cog wheel oil fuel transfer pump, 15 t/l.
 One bilge & sanitary pump, consisting of 2 trunk pistons, one for each purpose, 20 t/l each.
 One centrifugal cooling water pump for auxiliary Diesel engine, 10 t/l.
 Two 2-cylinder 4 S.C.S.A. Diesel oil engines, air injection, each working a 66 kwts. compound wound dynamo, giving current at 220 Volts pressure for the following purposes:

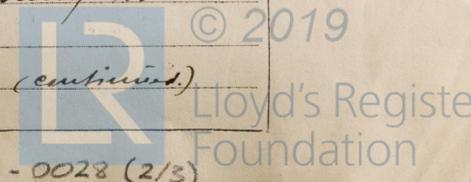
- 2 off 35 hp shunt wound electromotors for the combined cooling water and lubricating oil pumps.
- 1 " 5 " " " " " " oil fuel transfer pump.
 - 1 " 9 " " " " " " bilge & sanitary pump.
 - 1 " 4 " " " " " " cooling water pump for a/c engine.
 - 2 " 3 " series " " " " engine turning gears.
 - 1 " 7.5 " shunt " " " " CO₂ compressor for provision store.
 - 1 " 2 " " " " " " cooling water pump for CO₂ condenser.
 - 1 " 1 " " " " " " fresh water pump (sanitary).
 - 1 " 2 " " " " " " lubricating oil purifiers.
 - 1 " 2.7 " " " " " " turning lathe.
 - 1 " 1 " " " " " " drilling machine.
 - 1 " 0.33 " " " " " " grinding machine.
 - 1 " 13 " series " " " " electric steering gear.
 - 1 " 0.25 " " " " " " fan in the galley.
 - 1 " 4 " shunt " " " " wireless telegraphy.
 - 1 " 16 " " " " " " direct coupled to and working a 10 kwts compound wound dynamo, giving current at 110 Volts pressure for the electric light installation.

The Auxiliary Steam Plant comprises:

2 single ended multitubular donkey boilers of a combined heating surface of 2800 sq. ft., oil fired, placed on a platform aft in the engine room and giving steam of 170 lbs./sq. inch pressure for the following purposes:

- 2 cargo oil pumps, 18" x 14" x 18" diaph. } fitted in the main pump room.
- 1 bilge & stripping pump, 19" x 20" x 17 1/2" diaph. }
- 1 oil fuel transfer pump, 15" x 15" x 15" diaph. } fitted in the forward pump room.
- 1 bilge & ballast pump, 15" x 15" x 15" diaph. }

(continued)



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M/S "Henrik Anulin" of Oslo.

- 1 Todd Oil burning unit with simple oil fuel pressure pump, duplex filters and preheats.
- 2 donkey feed pumps, 8" x 6" x 18, simplex (THOS. LAMONT & CO. L.S.)
- 1 ballast & circulating water pump (for the condenser), 9" x 10" x 10" duplex.
- 1 feed water preheats.
- 1 small air compressor for emergency use.
- 1 11.5 kwts. 110 volts dynamo for electric light.
- 1 windlass, 2 cargo winches & 1 warping winch on deck, heating coils and steaming out & fire extinguishing pipes in the cargo oil tanks and heats in accommodation spaces.

all fitted in the engine room.

Stüblifer

SURVEYOR TO LLOYD'S REGISTER OF SHIPPING

The foregoing is a correct description.

AKTIESELSKABET NAKSKOV SKIBSVÆRFT

H. P. Christensen



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