

REPORT ON OIL ENGINE MACHINERY.

No. 4580

Received at London Office 25 JUL 1935

Date of writing Report 5/10/35 When handed in at Local Office 22/7/35 Port of Oslo

No. in Survey held at Oslo Date, First Survey 30 June 1934 Last Survey 13 July 1935
Reg. Book. Number of Visits 46

on the Single Screw vessel N/S HAARON HAVAN Tons {Gross 6582
Net 3705

Built at Oslo By whom built MS Abers Mek. Verksted Yard No. 465 When built 1935

Engines made at Oslo By whom made MS Abers Mek. Verksted Engine No. 27 When made 1935

Key Boilers made at Oslo By whom made MS Abers Mek. Verksted Boiler No. — When made 1935

Indicated Horse Power at 2600 Owners Norlandske Jernbaneselskab Port belonging to Oslo

Indicated Horse Power as per Rule 489 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

Use for which vessel is intended oil trade, mostly U.S.A. - Norway

ENGINES, &c. — Type of Engines Abers B. M., vertical, airless injection 2 or 4 stroke cycle 4 Single or double acting SA

Maximum pressure in cylinders 46 kg/cm² Indicated Pressure 6.66 Diameter of cylinders 745 mm Length of stroke 1500 mm No. of cylinders 6 No. of cranks 6

Distance between bearings, adjacent to the Crank, measured from inner edge to inner edge 1050 mm Is there a bearing between each crank yes

Revolutions per minute 110 Flywheel dia. 2146 mm Weight 1900 kg Means of ignition compression Kind of fuel used P.P.C. Standard

Crank Shaft, dia. of journals as per Rule 476 mm Crank pin dia. 476 mm Crank Webs Mid. length breadth 770 mm Thickness parallel to axis 310 mm
as fitted 476 mm Mid. length thickness 290 mm Thickness around eyehole 222 mm

Intermediate Shaft, diameter as per Rule 15 1/2" Thrust Shaft, diameter at collars as per Rule 16 1/2"
as fitted 535 in way of 400 as fitted 16" Is the screw shaft fitted with a continuous liner yes

Screw Shaft, diameter as per Rule 16" Is the screw shaft fitted with a continuous liner yes
as fitted 16"

Liner thickness in way of bushes as per Rule 13/16" Thickness between bushes as per rule 10/16" Is the after end of the liner made watertight in the stern boss yes

If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner no

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 no

If the liners are fitted, is the shaft lapped or protected between the liners no Is an approved Oil Gland or other appliance fitted at the after end of the tube no

If so, state type no Length of Bearing in Stern Bush next to and supporting propeller 6'0"

Propeller, dia. 15'-6" Pitch 10'-11 1/2" No. of blades 4 Material manila bronze whether Moveable no Total Developed Surface 31.3 sq. feet

Method of reversing Engines astern cone Is a governor or other arrangement fitted to prevent racing of the engine when declutched yes Means of lubrication oil

Thickness of cylinder liners 53.5 mm Are the cylinders fitted with safety valves yes Are the exhaust pipes and silencers not lagged lagged with ducting 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 fund fitted

Sea Water Pumps, No. Two Is the sea suction provided with an efficient strainer which can be cleared within the vessel yes

Pumps worked from the Main Engines, No. one double Diameter 215 mm Stroke 200 mm Can one be overhauled while the other is at work yes

Pumps connected to the Main Bilge Line { No. and Size Three, 215 x 200 — 190 x 150 x 250 — 190 x 200 x 300
How driven one chain driven, one steam driven, one gear driven pump

Is 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 no

Oil Pumps, No. and size Two in forehold: 150 x 150 x 150 Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size Two: one steam dr. 190 x 200 x 250
one chain dr. 215 x 200 x 2

Are independent means arranged for circulating water through the Oil Cooler yes Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge

No. and size: — In Machinery Spaces one 6" gear driven p. — one 4 1/2" steam p. — one 4 1/2" chain dr. p. In Pump Room one 4"

Direct Suctions, &c. in forehold: Two 4" Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size one 5", one 4 1/2", one 4 1/2", one 3 1/2" hose

Are the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes yes Are the Bilge Suctions in the Machinery Spaces easily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges yes

Sea Connections fitted direct on the skin of the ship yes Are they fitted with Valves or Cocks valves

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 yes

Are 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

Do the pipes pass through the bunkers no How are they protected no

Do the pipes pass through the deep tanks Main cargo piping Have they been tested as per Rule yes

Are Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times yes

Are arrangements 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 yes worked from no

Are arrangements provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork no

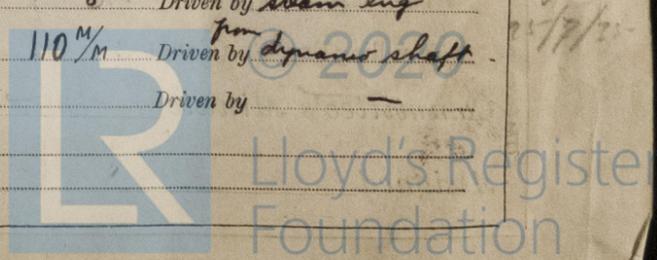
Air Compressors, No. — No. of stages — Diameters — Stroke — Driven by —

Auxiliary Air Compressors, No. one No. of stages 2 Diameters 185 mm Stroke 8" Driven by steam eng

Auxiliary Air Compressors, No. one No. of stages 2 Diameters 146 mm Stroke 110 mm Driven by dynamic shaft

Enging Air Pumps, No. — Diameter — Stroke — Driven by —

Auxiliary Engines crank shafts, diameter as per Rule 90 mm
as fitted 90 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. 1 Cubic capacity of each 1 Internal diameter 6'-0" thickness 1"
 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 280 cub. ft. each Internal diameter 6'-0" thickness 1"
 Seamless, lap welded or riveted longitudinal joint ✓ Material S.M. steel Range of tensile strength 28-35 TONS SQ. INCH. Working pressure by Rules ✓ Actual 356 LBS PER

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 ✓
PLANS: Are approved plans forwarded herewith for Shafting 25/6/34, 15/9/34 Receivers 23/3/34 Separate Tanks ✓
 Donkey Boilers 28/3/34 General Pumping Arrangements 11/7/34, 29/12/34 Oil Fuel Burning Arrangements ✓

SPARE GEAR.

Has the spare gear required by the Rules been supplied Yes
 State the principal additional spare gear supplied 1 complete fuel oil pump for main engines
1 tail shaft - Bottom end & main bearing brasses for air compressor.
Piston rings & valves for steam driven ballast pump, & sanitary pump.
Main bearing brasses, valves, pump piston (1 1/2), crosshead, piston rod for chain driven pumps.

The foregoing is a correct description,
 P. P. AKERS MEK. VERKSTED

Wm. Sanderson Manufacturer.

Dates of Survey while building
 During progress of work in shops - 1934 June 30th, July 13th, 19th, Sept. 20th, Oct. 6th, 16th, 25th, 27th, November 12th, 15th, 19th, Dec. 7, 17
 During erection on board vessel - 1935 May 16, 22, 29, 31; June 1, 6, 13, 14, 17, 19, 20, 27; July 1, 4, 9, 11, 12, 13
 Total No. of visits 46

Dates of Examination of principal parts—Cylinders 3/1, 7/1, 14/1/35 Covers 3/1, 7/1, 14/1/35 Pistons 8/1/35 Rods 7/12/34 Connecting rods 7/12/34
 Crank shaft 15/11/34 Flywheel shaft same as Thrust shaft 7/12/34, 15/4/35 Intermediate shafts 15/4/35 Tube shaft ✓
 Screw shaft 13/4/35 Propeller 13/4/35 Stern tube 18/5/35 Engine seatings 1/6/35 Engines holding down bolts 1/6/35
 Completion of fitting sea connections 20/6/35 Completion of pumping arrangements 20/6/35 Engines tried under working conditions 9/9/35
 Crank shaft, Material S.M. steel Identification Mark # 79.34 Flywheel shaft, Material see Thrust Shaft Identification Mark Lloyd's 2229
 Thrust shaft, Material S.M. steel Identification Mark # 69.34 Intermediate shafts, Material S.M. steel Identification Marks 69.34
 Tube shaft, Material ✓ Identification Mark ✓ Screw shaft, Material S.M. steel Identification Mark Lloyd's 2227

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 ✓

Is this machinery duplicate of a previous case ✓ If so, state name of vessel ✓
General Remarks (State quality of workmanship, opinions as to class, &c. This machinery has been constructed in accordance with the approved plans, & with Secretary's letter in connection with same. All materials have been tested by the Society's Surveyors, where required by the Rules. - All cylinders covers & pistons, oil fuel piping, starting air piping, receivers and have been tested by hydraulic pressure & found in order. The pumping arrangements have been carried out as approved & amended. The workmanship throughout is good. - The forging reports are enclosed herewith. The machinery has been examined under working conditions on the trial trip as well as during tests on the test bed. It is recommended that this vessel's machinery be classed in the Society's Register Book with notation L.M.C. 7.35

The amount of Entry Fee Rs. 99.50 : When applied for, 22/7/1935
 Special ... £ 1957.15 :
 Donkey Boiler Fee £ 167.15 : When received, 31.7.1935
 Travelling Expenses (if any) £ 125.35 :

Herrie Per John Rolie
 Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute FRI. 16 AUG 1935 631 FRI 11 OCT 1935
 Assigned Deferred Handl. 7.35
258-150
Cl. Oil