

REPORT ON OIL ENGINE MACHINERY.

No. 380

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Date of writing Report 22.8.49 When handed in at Local Office 19 Port of Stockholm.
No. in Survey held at Stockholm and Norrköping Date, First Survey 10.1.47 Last Survey 20.7.1949.
Reg. Book. 95857 on the ~~Two~~ ^{Single} ~~Triple~~ ^{Quadruple} Screw vessel m/s "NORDHEM"
Built at Norrköping By whom built Norrköpings Varv & Verkstad Yard No. 124 When built 1949
Engines made at Stockholm By whom made A/B Atlas-Diesel Engine No. 86230 When made 1949
Donkey Boilers made at Gothenburg By whom made A/B Lindholmens Varv Boiler No. 2850 When made 1949
Brake Horse Power 850 Owners Rederi A/B Manhem Port belonging to Stockholm
M.N. Power as per Rule 187 NHP = 157 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes
Trade for which vessel is intended Tanker

OIL ENGINES, &c. — Type of Engines M55M Heavy oil, trunk pistons 2 or 4 stroke cycle 2 Single or double acting SA
Maximum pressure in cylinders 60 kg/cm² Diameter of cylinders 340 m/m Length of stroke 570 m/m No. of cylinders 5 No. of cranks 5
Mean Indicated Pressure 7.1 kg/cm² Ahead Firing Order in Cylinders Span of bearings, adjacent to the crank, measured from inner edge to inner edge 490 m/m Is there a bearing between each crank Yes Revolutions per minute 260
Flywheel dia. 1600 m/m Weight 2610 kg Moment of inertia of flywheel (46 lbs. in² or Kg.cm.²) Means of ignition Compr. Kind of fuel used Diesel
Crank Shaft, Solid forged dia. of journals as per Rule appd. & as fitted 235 m/m Crank pin dia. 235 m/m Crank webs Mid. length breadth 324 m/m Thickness parallel to axis —
Flywheel Shaft, diameter as per Rule — Intermediate Shafts, diameter as per Rule appd. & as fitted 160 m/m Thrust Shaft, diameter at collars as per Rule appd. & as fitted 235 m/m
Tube Shaft, diameter as per Rule — Screw Shaft, diameter as per Rule appd. & as fitted 195 m/m Is the tube shaft fitted with a continuous liner No
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 tube shaft Yes If so, state type Cedervalls oil gland No. 9 Length of bearing in Stern Bush next to and supporting propeller 800 m/m
Propeller, dia. 2300 m/m Pitch 1595 m/m No. of blades 4 Material Steel whether moveable No Total developed surface 2.21 sq. feet
Moment of inertia of propeller (46 lbs. in² or Kg.cm.²) Kind of damper, if fitted Fluid type
Method of reversing Engines Direct Is a governor or other arrangement fitted to prevent racing of the engine when disengaged Yes
Lubrication Forced Thickness of cylinder liners 25.5 mm Are the cylinders fitted with safety valves Yes Are the exhaust pipes and silencers water-cooled
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 —
Cooling Water Pumps, No. Two Is the sea suction provided with an efficient strainer which can be cleared within the vessel Yes
Bilge Pumps worked from the Main Engines, No. One Diameter 100 m/m Stroke 140 m/m Can one be overhauled while the other is at work —
Pumps connected to the Main Bilge Line No. and size One 21 tons/hour One 35 tons/hour One 32 tons/hour
How driven Main engine Electr. driven Steam- & air driven
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 2-150 tons, 1-32 tons Power Driven Lubricating Oil Pumps, including spare pump, No. and size 1-22 tons/hour
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 4-2½", 1-2" from aft cofferdam In pump room 2-2½"
Holds, &c. Chain locker 1-1½ hand pump, Forw. cofferdam 1-2", Dry cargo hold 2-2" (one fr. hand pump) Forw. pump room 1-2"
Independent Power Pump Direct Suctions to the engine room bilges, No. and size 1-3", 1-2½" 2 @ 3"
Are all the bilge suction pipes in holds and tunnel well fitted with strum-boxes Yes Are the bilge suction 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 below at pipes pass through the bunkers —
How are they protected —
Are 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 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 Mchy. aft Is it fitted with a watertight door — worked from —
Is the 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. 1 No. of stages 2 diameters 55-135 mm stroke 60 driven by Main engine
Auxiliary Air Compressors, No. 1 No. of stages 2 capacity 738 lit. stroke pr. min. driven by El. motor
All Auxiliary Air Compressors, No. None No. of stages — diameters — stroke — driven by —
Is provision made for first charging the air receivers Harbour lighting set can be started by hand.
Ventilating Air Pumps, No. 1 ahead & 1 astern diameter — stroke — driven by Main engine
Auxiliary Engines crank shafts, diameter as per Rule — as fitted 3 1/8" No. Two Position Port side in engine room.
Have the auxiliary engines been constructed under special survey No Is a report sent herewith Yes

AIR RECEIVERS:—Have they been made under survey... Yes ✓ State No. of report or certificate... Copies attached...
Is each receiver, which can be isolated, fitted with a safety valve as per Rule... One on valve head. One on shell ✓
Can the internal surfaces of the receivers be examined and cleaned... Yes ✓ Is a drain fitted at the lowest part of each receiver... Yes ✓
Injection Air Receivers, No. None ✓ Cubic capacity of each... Internal diameter... thickness...
Seamless, welded or riveted longitudinal joint... Material... Range of tensile strength... Working pressure...
Starting Air Receivers, No. 2 ✓ Total cubic capacity 1x740 lit. Internal diameter 626 m/m thickness 12 m/m
Seamless, welded or riveted longitudinal joint. Welded Material S.M. Steel Range of tensile strength 45.3-47.6 Working pressure 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 15.10.47 Receivers 30.1.46 Separate fuel tanks 1.9.46
Donkey boilers No. 3.11.47. General pumping arrangements No 7.12.48. Pumping arrangements in machinery space No 7.12.48
Oil fuel burning arrangements...
Have Torsional Vibration characteristics been approved Yes 21/9/49 with bare shaft of 55475 lb. + 120+140 lb. Date of approval 4 to blow shaft being examd after 12th service.
SPARE GEAR.
Has the spare gear required by the Rules been supplied Yes, except for the Paxman auxiliary engines.
State the principal additional spare gear supplied

The foregoing is a correct description,
AKTIEBOLAGET ATLAS DIESEL Manufacturer.

Dates of Survey while building
During progress of work in shops - 10.1.47 - 22.9.48 = 13 visits.
During erection on board vessel - 28.10.48 - 20.7.49 = 23 visits.
Total No. of visits 36
Dates of examination of principal parts—Cylinders 23.2.48 Covers 5.7.48 Pistons 2.9/6-48 Rods - Connecting rods 20.8.48
Crank shaft 14.5.48 Flywheel shaft - Thrust shaft 14.5.48 Intermediate shafts 10.5.48 Tube shaft -
Screw shaft 10.5.48 Propeller 2.2.48 Stern tube 3.11.48 Engine seatings 16.2.49 Engine holding down bolts 16.2.49
Completion of fitting sea connections 21.6.49 Completion of pumping arrangements 13.7.49 Engines tried under working conditions 14.7.49
& Thrust
Crank shaft, material S.M. Steel Identification mark HBS 14.5.48 Flywheel shaft, material - Identification mark -
Thrust shaft, material - Identification mark - Intermediate shafts, material S.M. Steel Identification marks 488 BR 1
Tube shaft, material - Identification mark - Screw shaft, material S.M. Steel Identification mark 489 BR 10.5
Identification marks on air receivers LLOYD'S TEST 50 kg. LLOYD'S TEST 50 kg.
W.P. 25 kg. W.P. 25 kg.
SA 7.8.47. S.J. 10.1.47.
Welded receivers, state Makers' Name.
Is the flash point of the oil to be used over 150°F Yes ✓ In eng. room 3-10 lit. scum-, In pur. 1-10 lit. scum--In accomm. 2-10 lit. scum-
Have the requirements of the Rules for oil fuel pipes and tank fittings been complied with Yes ✓ exting:s 2 Water service comm:s & hoses
Description of fire extinguishing apparatus fitted tanks 7-30 kg CO₂-flasks for cargo tanks. 2-3/4" perforated steam pipes 3 metre length
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 -Yes ✓
Is this machinery duplicate of a previous case. No If so, state name of vessel.

General Remarks (State quality of workmanship, opinions as to class, &c. The machinery has been built under Special Survey in accordance with the Rules, the approved plans and the Secretary's letters. The workmanship is good and the material fulfil the requirements of the Rules. The engine has been tested in the Makers' shop and during a trial trip and found satisfactory. The torsional vibration characteristics were approved in the Secretary's letter of the 15th October, 1949, but a bronze shaft for the scavenge blower transmission has subsequently been fitted instead of the steel shaft originally proposed, and the class is therefore subject to the amended torsional vibration characteristics being approved. Machinery of this vessel is eligible, in our opinion, to be classed in the Register Book with the notations of +LMC and "OG", subject to the engine not being run continuously between 122 and 146 r.p.m. (a notice board to which effect has been fitted at the controls) also subject to the amended torsional vibration characteristics being approved, a spare transmission shaft for main engine and spare parts for the Paxman auxiliary engines being supplied at the first opportunity and a boiler blow off spigot cock with protection ring being fitted next docking. Certificates in respect of propellers, pumps and air receivers are attached herewith.
The amount of Entry Fee ... £ : :
Special ... 1/3 ... Kr. 570:-- :
Donkey Boiler Fee... £ : :
Travelling Expenses (if any) Kr. 702:10 :
When applied for 22/8 1949
When received 19
Engineer Surveyor to Lloyd's Register of Shipping
Committee's Minute
Assigned +LMC 7.49 Oil Eng (subject)
D.B. 178th. O.G.