

REPORT ON OIL ENGINE MACHINERY.

No. 181365

Date of writing Report 10 Feb 1952 When handed in at Local Office 19 Port of Amsterdam Received at London Office 25 FEB 1952
 No. in Survey held at Amsterdam Date, First Survey 15 Feb 1950 Last Survey 8 Feb 1952
 Reg. Book. Number of Visits 10
 Single on the Twin Screw vessel M.V. ZAMRUD Tons Gross Net
 Built at Waterhuizen By whom built Geb. van Diepen Yard No. 910 When built 1952
 Engines made at Amsterdam By whom made Werkspoor N.V. Engine No. 1017 When made 1950
 Donkey Boilers made at By whom made Boiler No. When made
 Brake Horse Power 500 Owners Port belonging to
 M.N. Power as per Rule 100 Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted
 Trade for which vessel is intended

OIL ENGINES, &c. — Type of Engines T.M.A.S 170 2 or 4 stroke cycle 4 Single or double acting Single
 Maximum pressure in cylinders 506.9 m² Diameter of cylinders 170 m Length of stroke 500 m No. of cylinders 8 No. of cranks 8
 Mean Indicated Pressure 7.569 m² Ahead Firing Order in Cylinders 1-4-7-6-8-5-2-3 Span of bearings, adjacent to the crank, measured from inner edge to inner edge 320 m
 Is there a bearing between each crank Yes Revolutions per minute 325
 Flywheel dia 1180 m Weight 1250 kg Moment of inertia of flywheel (lbs. in² or Kg. cm²) 4.571¹⁰⁶ Means of ignition Comp. Kind of fuel used Diesel oil
 Crank Shaft, Solid forged dia. of journals as per Rule Crank pin dia 100 m Crank webs Mid. length breadth 340 m Thickness parallel to axis
All built as fitted 100 m Mid. length thickness 82 m shrunk Thickness around eyehole
 Flywheel Shaft, diameter as per Rule Intermediate Shafts, diameter as per Rule Thrust Shaft, diameter at collars as per Rule
 as fitted 195 m 215 m
 Tube Shaft, diameter as per Rule Screw Shaft, diameter as per Rule Is the shaft fitted with a continuous liner
 as fitted 197 m at top of cone

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 If so, state type
 Length of bearing in Stern Bush next to and supporting propeller 395 m
 Propeller, dia Pitch 1130 m No. of blades 4 Material bronze whether moveable Total developed surface sq. feet
 Moment of inertia of propeller (lbs. in² or Kg. cm²) 9.7014¹⁰⁶ Kind of damper, if fitted
 Method of reversing Engines By hand and electric Is a governor or other arrangement fitted to prevent racing of the engine when declutched Yes Means of lubrication forced Thickness of cylinder liners 21 m Are the cylinders fitted with safety valves 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

Cooling Water Pumps, No. 1 Is the sea suction provided with an efficient strainer which can be cleared within the vessel
 Bilge Pumps worked from the Main Engines, No. 1 Diameter 130 m Stroke 75 m Can one be overhauled while the other is at work
 Pumps connected to the Main Bilge Line (No. and size How driven)
 Is the cooling water led to the bilges 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 Power Driven Lubricating Oil Pumps, including spare pump, No. and size 1045 c.p.h.
 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 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
 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. 1 No. of stages 3 diameters 100-120 m stroke 90 m driven by M. Engine
 Auxiliary Air Compressors, No. No. of stages diameters stroke driven by
 Small Auxiliary Air Compressors, No. No. of stages diameters stroke driven by

What provision is made for first charging the air receivers
 Scavenging Air Pumps, No. diameter stroke driven by
 Auxiliary Engines crank shafts, diameter as per Rule No. Position
 as fitted

Have the auxiliary engines been constructed under special survey Is a report sent herewith
 013783 - 013793 - 0259



AIR RECEIVERS:—Have they been made under survey... *Yes* State No. of report or certificate *C 3700*

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*

Injection Air Receivers, No. *—* Cubic capacity of each... *—* Internal diameter... *—* thickness... *—*

Seamless, welded or riveted longitudinal joint... Material... Range of tensile strength... Working pressure... by Rules... Actual...

Starting Air Receivers, No. *2* Total cubic capacity *1340 litres* Internal diameter *500 mm* thickness *12 mm*

Seamless, welded or riveted longitudinal joint *Welded* Material *SM Steel* Range of tensile strength *41-47 kg* Working pressure... by Rules... Actual... *30 kg*

IS A DONKEY BOILER FITTED... If so, is a report now forwarded...

Is the donkey boiler intended to be used for domestic purposes only...

PLANS. Are approved plans forwarded herewith for shafting... *20-1-52* Receivers... *20-1-52* Separate fuel tanks...

Donkey boilers... General pumping arrangements... Pumping arrangements in machinery space...

Oil fuel burning arrangements...

Have Torsional Vibration characteristics been approved... *Yes* Date of approval... *25-1-52*

SPARE GEAR.

Has the spare gear required by the Rules been supplied...

State the principal additional spare gear supplied...

The following is a correct description, *M. J. De Plaatsmets*

Manufacturer.

Dates of Survey while building: During progress of work in shops - - *1950 Feb 25, March 10-10-27-30, April 10-21, May 12, June 9, Aug 19-30-31*

During erection on board vessel - - *Sept 2-7-12-15, 1952 Feb 1-8*

Total No. of visits *10*

Dates of examination of principal parts—Cylinders *30-3-50* Covers *10-21/4/50* Pistons *12-5-50* Rods... Connecting rods *12-5-50*

Crank shaft *27-3-50* Flywheel shaft... Thrust shaft *10-3-50* Intermediate shafts... *0-2-52* Tube shaft...

Screw shaft *0-2-52* Propeller *0-1-52* Stern tube *1-2-52* Engine seatings... Engine holding down bolts...

Completion of fitting sea connections... Completion of pumping arrangements... Engines tried under working conditions *12-9-50*

Crank shaft, material *SM Steel* Identification mark *LLOYD'S No 10120* Flywheel shaft, material... Identification mark...

Thrust shaft, material *SM Steel* Identification mark *LLOYD'S No 4959* Intermediate shafts, material *SM Steel* Identification marks *LLOYD'S No 1567*

Tube shaft, material... Identification mark... Screw shaft, material *SM Steel* Identification mark *LLOYD'S No 1567*

Identification marks on air receivers... *No 1069-1070 LLOYD'S TEST 60 kg/cm² W.P. 30 kg/cm² A.V.B. 14-2-50*

Welded receivers, state Makers' Name... *M. J. De Plaatsmets, Helken*

Is the flash point of the oil to be used over 150°F...

Have the requirements of the Rules for oil fuel pipes and tank fittings been complied with...

Description of fire extinguishing apparatus fitted...

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 engine has been built as a Hoek engine in 1950 under special survey in accordance with approved plan and Society's rules. Material tested as required and workmanship found good. Engine has been tested under full load condition on makers test bench with satisfactory results. The engine has been shipped to Waterhuizen (Groningen district). In my opinion the vessel for which this engine is intended will be eligible for the notation of L.M.C. (with date) when the whole machinery has been fitted satisfactorily on board and tried under full working condition. Copy certificate's of crankshaft, thrustshaft, int. shaft, screwshaft and airreceivers attached.*

At the time of building the h.p. was 103. The full amount of fee has been charged and paid

The amount of Entry Fee ... £ 577.00 ... See 31-1-51
Special ... £ : : When applied for ... 13
Donkey Boiler Fee... £ : : When received 15.2.1951
Travelling Expenses (if any) £ 13.00 : : number C. 4448.

M. J. De Plaatsmets
Engineer Surveyor for Lloyd's Register of Shipping.

Committee's Minute TUES. 1 JUL 1952

Assigned *See F.E. Mohy, rph. Exp. 677*



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