

REPORT ON OIL ENGINE MACHINERY.

No. 3325.

Received at London Office

9-APR-1954

Date of writing Report 6/4 1954. When handed in at Local Office 8/4 1954 Port of MALMÖ.
 No. in Survey held at MALMÖ. Date, First Survey 12/6 - 1953 Last Survey 31/3 1954.
 Reg. Book. 36109s on the Tuba Triple Quadruple Screw vessel. Motortanker "H A V J A R L"
 Built at Malmö. By whom built Kockums Mek. Verkstads A.-B. Yard No. 366 When built 1954.
 Engines made at Malmö. By whom made Kockums Mek. Verkstads A.-B. Engine No. 673 When made 1954.
 Donkey Boilers made at Gothenburg. By whom made A.-B. Lindholmens Varv Boiler No. 3004/5 When made 1953.
 Brake Horse Power 6300 ✓ Owners A/S Havprins Port belonging to Oslo.
 I.N. Power as per Rule 1260 ✓ Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted Yes.
 Trade for which vessel is intended General.

OIL ENGINES, &c. — Type of Engines Heavy oil engine, crosshead type. 2 or 4 stroke cycle. 2 ✓ Single or double acting Single. ✓

Maximum pressure in cylinders 50 kgs/cm² ✓ Diameter of cylinders 780 mm. ✓ Length of stroke 1400mm. ✓ No. of cylinders 7 ✓ No. of cranks 7
 Mean Indicated Pressure 6.4 kgs/cm² ✓ Ahead Firing Order in Cylinders 1-7-4-2-6-3-5 Span of bearings, adjacent to the crank, measured from inner edge to inner edge 1040 mm. ✓ Is there a bearing between each crank Yes. ✓ Revolutions per minute 115 ✓

Flywheel dia. 2682 mm. Weight 3550 kgs Moment of inertia of flywheel (as fitted) 42050.10³ Kg.cm.² Means of ignition Compress Kind of fuel used Heavy oil.
 Crank pin dia. 520mm. ✓ Crank webs Mid. length breadth 880mm. Thickness parallel to axis 315mm.
 Crank pin dia. 520mm. ✓ Crank webs Mid. length thickness 315mm. Thickness around eyehole 237, 5mm.

Flywheel Shaft, diameter as fitted 520-391mm. Intermediate Shafts, diameter as fitted 391mm. ✓ Thrust Shaft, diameter at collars as fitted 410mm. ✓
 Tube Shaft, diameter as fitted 520-406mm. Screw Shaft, diameter as fitted 434mm. red at coupl. to 410mm. Is the (screw) shaft fitted with a continuous liner Yes. ✓

Bronze Liners, thickness in way of bushes as fitted 21 mm. Thickness between bushes as fitted 21mm. Is the after end of the liner made watertight in the propeller boss Yes. ✓ If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner One length.

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. Fit tightly. 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 No. ✓ If so, state type. Length of bearing in Stern Bush next to and supporting propeller 1935 mm.

Propeller, dia. 5500mm. Pitch 3970mm. No. of blades 4 Material Bronze whether moveable No. Total developed surface 10.45 m² ✓
 Moment of inertia of propeller (as fitted) 187500.10³ Kg.cm.² Kind of damper, if fitted. Means of Method of reversing Engines Compressed air Is a governor or other arrangement fitted to prevent racing of the engine when declutched Yes. ✓

Lubrication Forced. Thickness of cylinder liners 45 mm. Are the cylinders fitted with safety valves Yes. ✓ Are the exhaust pipes and silencers water cooled or lagged with non-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 Led to funnel 1x3340 l/m F.W.; 2x5500 l/m S.W. 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. None. Diameter --- Stroke --- Can one be overhauled while the other is at work. ---
 Pumps connected to the Main Bilge Line (No. and size 1 ballast pump @ 175 m³/h; 1 bilge pump @ 70 m³/h. How driven Steam. Electrically.

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 1 x 175 m³/h. ✓ Power Driven Lubricating Oil Pumps, including spare pump, No. and size 1/2 x 54 m³/h.

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 3 x 3 1/2" ✓ In pump room 1x3 1/2"; 2x2" FP. tank top

In holds, &c. 2 x 3 1/2" dry cargo hold. ✓ IN MAIN PUMPROOM: 2 x 3 1/2" ✓ Independent Power Pump Direct Suctions to the engine room bilges, No. and size 1x5" to ballast pump and 1x5" to bilge pump. ✓

Are all the bilge suction pipes in holds and tanktops fitted with strum-boxes Yes. ✓ Are the bilge suction pipes 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 Both. ✓ Are they fixed sufficiently high on the ship's side to be seen without lifting the platform plates Not all Are the overboard discharges above or below the deep water line Below. ✓

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. ✓
 What pipes pass through the bunkers No coal bunkers. How are they protected. ---
 What pipes pass through the deep tanks Bilge pipes from cofferdam. Have they been tested as per Rule Yes. ✓

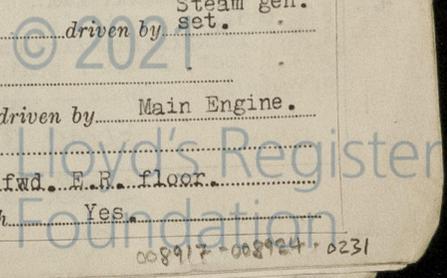
Are all pipes, cocks, valves and pumps in connection with the machinery and all boiler mountings accessible at all times Yes. ✓
 Is the arrangement of valves and their connections such as to prevent the possibility of water passing from the sea or from water tanks into the cargo or machinery spaces, or from one compartment to another Yes. ✓ Is the shaft tunnel watertight Yes. ✓ 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. None. ✓ No. of stages --- diameters --- stroke --- driven by ---
 Auxiliary Air Compressors, No. 2 ✓ No. of stages 2 diameters 260/235mm. stroke 180mm. driven by Aux. eng.

Small Auxiliary Air Compressors, No. 1 ✓ No. of stages 2 diameters 5" & 2.1/4" stroke 3 1/2" driven by Steam gen. set.
 What provision is made for first charging the air receivers The above small compr. ✓
 Scavenging Air Pumps, No. 1 ✓ diameter 1000 mm. stroke 890 mm. driven by Main Engine.

Auxiliary Engines crank shafts, diameter as fitted 170 mm. No. 2 Position Port and Stbd. fwd. E.B. floor.
 Have the auxiliary engines been constructed under special survey Yes. Is a report sent herewith Yes.

98
6/5/54



AIR RECEIVERS:—Have they been made under survey... Yes. ✓ State No. of ~~report~~ certificate / 17144

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. 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 20.4 m³ ✓ Internal diameter 1592 mm. ✓ thickness 29 mm. ✓

Seamless, welded or riveted longitudinal joint E.W. ✓ Material S.M. Steel ✓ Range of tensile strength / Working pressure Actual 30

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... London 18.6.52. Receivers 5.9.52. ~~Separate~~ fuel tanks 18.9.52.

Donkey boilers See Got. Rpt. No. 20176 General pumping arrangements 11.3.53. Pumping arrangements in machinery space London 18.9.53.

Oil fuel burning arrangements London 18.9.53.

Have Torsional Vibration characteristics been approved... Yes. Date of approval ✓ London 18.6.52.

SPARE GEAR.

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

State the principal additional spare gear supplied. 1 propeller shaft.

1 cylinder cover.

1 cylinder liner.

1 piston.

1 piston rod.

The foregoing is a correct description

KOCKUMS

Per *Stenberg*

Manufacturer.

Dates of Survey while building During progress of work in shops - - 12th June, 1953 - 29th March, 1954.

During erection on board vessel - - 4th January, 1954 - 31st March, 1954.

Total No. of visits 123.

Dates of examination of principal parts—Cylinders 15-29/7-53. Covers 16-28/9-53. Pistons 2/10-2 18/8-2. Rods 9/11-53. Connecting rods 27&30/7-53.

Crank shaft 26/6-53, 7/1-54. Flywheel shaft 20/8-53. Thrust shaft 30/11-53. Intermediate shafts 30/11-53. Spare screw 28/5-53. ~~Tube~~ shaft 28/5-53.

Screw shaft 28/5-53. Propeller 15/12-52. Stern tube 1/12-53. Engine seatings 4/1-54. Engine holding down bolts 17/2-54.

Completion of fitting sea connections 17/12-53. Completion of pumping arrangements 31/3-54. Engines tried under working conditions 31/3-54.

Crank shaft, material S.M. Steel Identification mark & 3882 SJ.71. Flywheel shaft, material S.M. Steel Identification mark LL.20.8.53.

Thrust shaft, material S.M. Steel Identification mark LL.20.11.52. Intermediate shafts, material S.M. Steel Identification marks LL.30.11.53.

Spare screw ~~shaft~~, material S.M. Steel Identification mark GA.28.5.53. Screw shaft, material S.M. Steel. Identification mark GA.28.2.53.

Identification marks on air receivers NOS. 2587 and 2588 LLOYD'S TEST 48,5 Kg. W.P. 30 Kg. GU. 20.8.53. ✓

Welded receivers, state Makers' Name Degerfors Järnverks A.-B., Degerfors. ✓

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. ✓

Description of fire extinguishing apparatus fitted Steam smothering under DB. & ER. floor; 6x10 l. Skum Trygg 1x45 l. portable Skum

Is the vessel (not being an oil tanker) fitted for carrying oil as cargo... Oil tanker 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 similar to duplicate of a previous case... Yes. If so, state name of vessel "OCEAN CLIPPER" Mmo. F.E. Rpt. No. 3252.

General Remarks (State quality of workmanship, opinions as to class, Speed restrictions, &c. The main and auxiliary engines of this vessel

have been constructed under special survey in accordance with the Rule and approved plans. The workmanship and material

are good and test sheets in respect of the shaftings are attached. The machinery has been securely fitted in the vessel

under our inspection and to our satisfaction and has been tested under full power conditions on a trial trip and found

in order. All pumps for essential service have been examined and tested in accordance with the Rule.

In accordance with the Secretary's letter dated 18th June, 1952, initialed "E" a notice board has been fitted at

control station stating that the main engine is not to be run continuously between 50 and 60 R.P.M. and the tachometer

been marked accordingly.

The machinery of this vessel is eligible in our opinion to be classed *LMC 3.54, Tail Shaft fitted with CL and

Working Pressure of 2 (two) Donkey Boilers 150 lbs/sq".

Ex. & test of forgings Kr. 120:--

Ex. & test of condenser Kr. 65:--

Special dr. constr. Kr. 3,920:--

" " install. Kr. 2,200:--

Donkey Boiler Kr. 325:--

SS. bedpl. & entabl. (E.W.) Kr. 65:--

Ex. & test of water heater. Kr. 65:--

When applied for 8/4 1954.

When received 19

*Per *Stenberg**
Engineer Surveyor to Lloyd's Register of Shipping.

TUESDAY 11 MAY 1954

Committee's Minute

Assigned *LMC 3.54 (Oil Eng. (With Torsional End^{nt.}))

2 DB: 150 lb.

CL.



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Lloyd's Register Foundation

Surveys Office, Malmö

23.4.54

RD

Surveys are requested not to write on or below the space for Committee's Minute.