

RECEIVED

# REPORT ON OIL ENGINE MACHINERY.

No. 17369

DEC 1949

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Date of Writing Report 1-12-49 When handed in at Local Office 1-12-49 Port of GENOA  
 No. in Survey held at TURIN Date, First Survey 26-10-48 Last Survey 23-4-49  
 Reg. Book. M.T. NELLY MAERSK. Number of Visits 14  
 Single on the Twin Screw vessel BLYTH DRYDOCK & SHIPBUILDING CO YARD N° 342 Tons Gross 14 Net 14  
 Built at BLYTH By whom built BLYTH DD & SB CO LD Yard No. 342 When built 1949  
 Engines made at TURIN By whom made SOC AN FIAT STAB. GRANDINOTTO Engine No. 2973 When made 1942  
 Donkey Boilers made at L By whom made L Boiler No. L When made L  
 Brake Horse Power 5100 Owners MESSRS A.P. MOLLER Port belonging to L  
 M.N. Power as per Rule 1328 Is Refrigerating Machinery fitted for cargo purposes L Is Electric Light fitted L  
 Trade for which vessel is intended L

IL ENGINES, &c. —Type of Engines FIAT DL 646 C AIRLESS INT. 2 or 4 stroke cycle 2 Single or double acting DOUBLE  
 Maximum pressure in cylinders 60 kg/cm<sup>2</sup> Diameter of cylinders 640 mm Length of stroke 1160 mm No. of cylinders 6 No. of cranks 6  
 Mean Indicated Pressure 5.4 kg/cm<sup>2</sup> Ahead Firing Order in Cylinders 1-6-2-4-3-5 Span of bearings, adjacent to the crank, measured from inner edge to inner edge 933 mm Is there a bearing between each crank YES Revolutions per minute 125/115  
 Flywheel dia. 2670 mm Weight 6600 kg Moment of inertia of flywheel (16 lbs. in<sup>2</sup> or Kg.cm.<sup>2</sup>) 82920 Means of ignition COMPRESSOR Kind of fuel used DIESEL  
 Crank Shaft, Solid forged dia. of journals as per Rule APPR 450 mm Crank pin dia. 450 mm Crank webs Mid. length breadth 880 mm Mid. length thickness 290 mm Thickness parallel to axis 290 mm Thickness around eyehole 212.5 mm  
 Flywheel Shaft, diameter as per Rule APPR 450 mm Intermediate Shafts, diameter as per Rule APPR 381 mm Thrust Shaft, diameter at collars as per Rule APPR 450 mm  
 Tube Shaft, diameter as per Rule APPR 450 mm Screw Shaft, diameter as per Rule APPR 450 mm Is the (tube or screw) shaft fitted with a continuous liner YES  
 Bronze Liners, thickness in way of bushes as per Rule APPR 20.5 mm Thickness between bushes as per Rule APPR 15 mm 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 YES  
 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 YES If two liners are fitted, is the shaft lapped or protected between the liners YES Is an approved Oil Gland or other appliance fitted at the after end of tube shaft YES If so, state type L Length of bearing in Stern Bush next to and supporting propeller 1710 mm  
 Propeller, dia. 5000 mm Pitch L No. of blades L Material L whether moveable L Total developed surface L sq. feet  
 Moment of inertia of propeller (16 lbs. in<sup>2</sup> or Kg.cm.<sup>2</sup>) 131,100 Kind of damper, if fitted L  
 Method of reversing Engines DIRECT Is a governor or other arrangement fitted to prevent racing of the engine when declutched GOVERNOR Means of lubrication FORCED Thickness of cylinder liners L Are the cylinders fitted with safety valves YES Are the exhaust pipes and silencers water cooled YES  
 Are the exhausts 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 off to the engine L Cooling Water Pumps, No. 15 W-140 mm I.F.W. 3.4 m<sup>3</sup>/hr FOR FUEL TANKS ALL RECIP PUMPS  
 Bilge Pumps worked from the Main Engines, No. 1-RECIP Diameter 60 mm Stroke L Can one be overhauled while the other is at work L  
 Pumps connected to the Main Bilge Line No. and size L How driven L  
 Is the cooling water led to the bilges L If so, state what special arrangements are made to deal with this water in addition to the ordinary bilge pumping arrangements L  
 Ballast Pumps, No. and size L Power Driven Lubricating Oil Pumps, including spare pump, No. and size L  
 Are two independent means arranged for circulating water through the Oil Cooler L Suctions, connected to both main bilge pumps and auxiliary bilge pumps, No. and size:—In machinery spaces L In pump room L  
 Are the holds, &c. L  
 Independent Power Pump Direct Suctions to the engine room bilges, No. and size L  
 Are all the bilge suction pipes in holds and tunnel well fitted with strum-boxes L 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 L  
 Are all Sea Connections fitted direct on the skin of the Ship L Are they fitted with valves or cocks L Are they fixed L  
 Are they sufficiently high on the ship's side to be seen without lifting the platform plates L Are the overboard discharges above or below the deep water line L  
 Are they each fitted with a discharge valve always accessible on the plating of the vessel L Are the blow off cocks fitted with a spigot and brass covering plate L  
 What pipes pass through the bunkers L How are they protected L  
 What pipes pass through the deep tanks L Have they been tested as per Rule L  
 Are all pipes, cocks, valves and pumps in connection with the machinery and all boiler mountings accessible at all times L  
 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 L Is the shaft tunnel watertight L Is it fitted with a watertight door L worked from L  
 Is a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork L  
 Main Air Compressors, No. L No. of stages L diameters L stroke L driven by L  
 Auxiliary Air Compressors, No. L No. of stages L diameters L stroke L driven by L  
 Small Auxiliary Air Compressors, No. L No. of stages L diameters L stroke L driven by L  
 Is provision made for first charging the air receivers L  
 Sucking Air Pumps, No. 2 PUMPS WITH 3 PISTONS diameter 880 mm stroke 850 mm driven by MAIN ENG  
 Auxiliary Engines crank shafts, diameter as per Rule APPR 450 mm Position L  
 Have the auxiliary engines been constructed under special survey L Is a report sent herewith L

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AIR RECEIVERS:—Have they been made under survey.

YES

State No. of report or certificate

GENOA No 69/1

Is each receiver, which can be isolated, fitted with a safety valve as per Rule.

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.

Starting Air Receivers, No.

2

Total cubic capacity.

Internal diameter.

thickness.

Seamless, welded or riveted longitudinal joint.

Material.

Range of tensile strength.

Working pressure.

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.

(If not, state date of approval)

LETTER 'E'

16-9-48

Receivers

18-11-46

Separate fuel tanks.

Donkey boilers.

General pumping arrangements.

Pumping arrangements in machinery space.

Oil fuel burning arrangements.

YES LETTER 'E'

Date of approval

28-2-49

Have Torsional Vibration characteristics been approved.

SPARE GEAR.

Has the spare gear required by the Rules been supplied.

TO RULE

REQUIREMENTS.

State the principal additional spare gear supplied.

TO BE SUPPLIED AT BLYTH.

FIAT  
STABILIZZAZIONE GRANDI MOTORI

The foregoing is a correct description, AND THE PARTICULARS OF THE INSTALLATION AS FITTED

Manufacturer.

AS APPROVED FOR TORSIONAL VIBRATION CHAIR

Dates  
of Survey  
while  
building

During progress of  
work in shops - -

During erection on  
board vessel - -

Total No. of visits

26-10-48 - 24-4-49

14

Dates of examination of principal parts

Cylinders

Covers

Pistons

Rods

Connecting rods

18-1-49

Crank shaft

7-11-48

Flywheel shaft

18-1-49

Thrust shaft

7-11-48

Intermediate shafts

18-1-49

Tube shaft

Screw shaft

18-1-49

Propeller

Stern tube

Engine seatings

Engine holding down bolts

Engines tried under working conditions

Completion of fitting sea connections

Completion of pumping arrangements

Engines tried under working conditions

Crank shaft, material

STEEL

Identification mark

as above

Flywheel shaft, material

STEEL

Identification mark

as above

Thrust shaft, material

STEEL

Identification mark

as above

Intermediate shafts, material

STEEL

Identification mark

as above

Tube shaft, material

STEEL

Identification mark

as above

Screw shaft, material

STEEL

Identification mark

as above

Identification marks on air receivers.

18.5 KG/CM<sup>2</sup>

W.P. 28.5 KG/CM<sup>2</sup>

7-2-48

A.G.

Welded receivers, state Makers' Name.

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 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.

General Remarks

(State quality of workmanship, opinions as to class, &c.)

This engine has been reconstructed under Special Survey and in accordance with the Secretary's letter. Approved Plans and Rule requirements. This engine was built during the war under the supervision of the Registro Italiano Navale and copies of test sheets covering the principal parts of the engine have been opened up for examination. Water spaces of cylinders and covers hydraulically tested in presence, dismantling of the crank and thrust shafts checked with the Approved Plans and all found in order, checks tests have been carried out on the propeller and intermediate shaft and also examined in accordance with the Secretary's letter 'E' of 11-1-48. The torsional vibration characteristics of the shafting installation have been approved for a service speed of 125 rpm provided that the one node (critical speed) calculated to occur at 68 rpm and placing a suitable hand speed range in way of this. This engine has been despatched to Blyth for fitting on board and N° 342 and when this has been done and the engine fitted and under working conditions to the satisfaction of the local surveyors, the vessel will be eligible to have the notation L.M.C. (1) 012.

Certificate (if required) to be sent to

(The Surveyors are requested not to write on or below the space for Committee's Minute.)

Assigned

COLL

AFTE

STE

The amount of Entry Fee ... £

Special ...

DONKEY BOILER FEE ...

Travelling Expenses (if any) ...

REV. TAX

Committee's Minute

When applied for

When received

J. F. Mansfield

Engineer Surveyor to Lloyd's Register of Shipping



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