

REPORT ON OIL ENGINE MACHINERY.

No. **5032**

Received at London Office **3 - FEB 1954**

Date of writing Report **30th May 1953** When handed in at Local Office **19** Port of **NAPLES**

Survey held at **Castellammare** Date, First Survey **5th January 1949** Last Survey **4th September 1953**

Number of Visits **24**

on the ~~Twin~~ ^{Single} Screw vessel **M/V "SHAKTI"** Tons ^{Gross} **2788** ^{Net} **1445**

built at **Castellammare di Stabia** By whom built **Navalmeccanica Cantiere Navale** Yard No. **590** When built

engines made at **Legnano** By whom made **Franco Tosi.** Engine No. When made

Boiler made at **Naples** By whom made **Nav.ca Off. Meccaniche e Fonderie** Boiler No. When made **1950**

Indicated Horse Power **2 at 1100** Owners **The Government of India.** Port belonging to

N. Power as per Rule **440** Is Refrigerating Machinery fitted for cargo purposes **no** Is Electric Light fitted **yes.**

Trade for which vessel is intended **Naval Fleet Tanker.**

MAIN ENGINES, &c. — Type of Engines **Tosi 6 D 46/64** 2 or 4 stroke cycle **2** Single or double acting **single**

Maximum pressure in cylinders **55 Kg/cm²** Diameter of cylinders **460 mm.** Length of stroke **640 mm.** No. of cylinders **6** No. of cranks **6**

Mean Indicated Pressure **5.09 Kg/Cm²** Ahead Firing Order in Cylinders **162435** Span of bearings, adjacent to the crank, measured from inner edge to inner edge **616 mm.** Is there a bearing between each crank **yes** Revolutions per minute **190**

Flywheel dia. = Weight = Moment of inertia of flywheel (**16** lbs. in² or Kg. cm.²) = Means of ignition **Diesel** Kind of fuel used **Diesel oil.**

Crank shaft, ^{Solid forged} ~~Semi-forged~~ dia. of journals as per Rule **310 mm.** Crank pin dia. **310 mm.** Crank webs Mid. length breadth **400 mm.** Thickness parallel to axis = shrunk Thickness around eyehole = Mid. length thickness **160 mm.**

Flywheel Shaft, diameter as per Rule = Intermediate Shafts, diameter as fitted **230 mm.** Thrust Shaft, diameter at collars as per Rule **310 mm.**

Tube Shaft, diameter as per Rule = Screw Shaft, diameter as fitted **235 mm.** Is the ^{tube} shaft fitted with a continuous liner **no**

Bronze Liners, thickness in way of bushes as per Rule **16 & 15 mm.** Thickness between bushes as fitted = 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 **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 = 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 **no** If so, state type = Length of bearing in **"A" bracket** next to and supporting propeller **1200 mm.**

Propeller, dia **2700 mm.** Pitch **2450 mm.** No. of blades **3** Material **steel** whether moveable **no** Total developed surface **2.1918 sq. mts.**

Moment of inertia of propeller (**16** lbs. in² or Kg. cm.²) Kind of damper, if fitted =

Method of reversing Engines **direct.** Is a governor or other arrangement fitted to prevent racing of the engine **yes.** Means of lubrication **forced** Thickness of cylinder liners **36 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 = Cooling Water Pumps, No. **3** (2 attached, one power driven 180 Tons/H.) 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. **2** 50 T/H Diameter **170 mm.** Stroke **150 mm.** Can one be overhauled while the other is at work **yes.**

Pumps connected to the Main Bilge Line { No. and size **2** 50 T/H **1** 80 T/H How driven **Main Eng.** **Electr. Motor.**

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** 80 T/H Power Driven Lubricating Oil Pumps, including spare pump, No. and size **1** 50 T/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 **Seven (64 mm. six and one 125 mm.)** In pump room **two 82 mm.**

In ~~holds,~~ **dry cargo hold: two suction 64 mm. in for'd pump room two suction 64 mm.**

Independent Power Pump Direct Suctions to the engine room bilges, No. and size **one 125 mm.**

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 **valves.** Are they fixed sufficiently high on the ship's side to be seen without lifting the platform plates **no** 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 **yes.**

What pipes pass through the bunkers **after cofferdam suction** How are they protected **passing in a E.W. steel conduit.**

What pipes pass through the deep tanks **none** 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 = 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. **2** No. of stages **2** output **60 m³/H at a pressure of 50 Kg/cm²** driven by **Electric m.**

Auxiliary Air Compressors, No. = No. of stages = diameters = stroke = driven by =

Small Auxiliary Air Compressors, No. **1** No. of stages **2** for initial charging of the emer. starting air vessel. driven by **hand.**

What provision is made for first charging the air receivers **the above small aux. air compressor, hand driven.**

Scavenging Air Pumps, No. **2** diameter **780 mm.** stroke **540 mm.** driven by **main engine.**

Auxiliary Engines crank shafts, diameter as per Rule **115 mm.** No. **3** (one 4 cyl. & two 2 cyl.) Position **E.R. one centre aft, one stbd aft, one emergency on poop deck casing.**

Have the auxiliary engines been constructed under special survey **no** Is a report sent hereon =

AIR RECEIVERS:—Have they been made under survey... **no** State No. of report or certificate... =
 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... **no** 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. **12** ^{8 aft} **main E.** Total cubic capacity **3900 lts.** Internal diameter **303 & 400** thickness **7.5 & 15** ✓
 Seamless, welded or riveted longitudinal joint **seamless** Material **Steel** Range of tensile strength **44/55** Working pressure by Rules... Actual... **50 Kg.**
Actual 42 Kg.

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... **yes**
PLANS. Are approved plans forwarded herewith for shafting... **yes.** Receivers... **yes.** Separate fuel tanks... =
 (If not, state date of approval)
 Donkey boiler... **yes** General pumping arrangements... **yes** Pumping arrangements in machinery space... **yes**
 Oil fuel burning arrangements... **only test certificate.**
 Have Torsional Vibration characteristics been approved **yes for 190 revs.** Date of approval **15th Sept. 1947.**

SPARE GEAR.

Has the spare gear required by the Rules been supplied... **yes.**
 State the principal additional spare gear supplied... **One Main Engine cylinder liner.**

The foregoing is a correct description,

Soc. An. Navalemeccanica
 CANTIERI NAVALI di CASTELLAMMARE di STABIA
 Il Direttore *[Signature]* Vice Direttore *[Signature]*
 Manufacturer.

Dates of Survey while building
 During progress of work in shops - - =
 During erection on board vessel - - - on **1949 14 visits, on 1950 10 visits, 1953 8 visits.**
 Total No. of visits **32.**

Dates of examination of principal parts—Cylinders... Covers... Pistons... Rods... Connecting rods...
 Crank shaft... Flywheel shaft... Thrust shaft... Intermediate shafts... Tube shaft...
 Screw shaft... Propeller... Stern tube... Engine seatings... Engine holding down bolts...
 Completion of fitting sea connections... **May 1949** Completion of pumping arrangements... Engines tried under working conditions...
 Crank shaft, material... Identification mark... Flywheel shaft, material... Identification mark...
 Thrust shaft, material **Steel** Identification mark **P.V7458 A 30.5.47 RI** Intermediate shafts, material... Identification marks...
 Tube shaft, material... Identification mark... Screw shaft, material... Identification mark **P.RI 259 AP I**
 Identification marks on air receivers... **S.RI 259 AP I**

Welded receivers, state Makers' Name... =
 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 **Boiler & Engine Rooms steam smothering CO2 & Chemical extinguishers**
 Is the vessel (not being an oil tanker) fitted for carrying oil as cargo... **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 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 built during the war under the Survey of the Registro Italiano and Italian Navy Surveyors. It has been dismantled, examined, each shafts Brinell tested (See Secretary letter to Surveyor Sept. 1947). It has now been securely fitted on board the vessel.
The machinery has been tested under working conditions during sea trials and found satisfactory.
The Machinery of this vessel is eligible in our opinion to have the record of LMC 9.53 and and the notation "OIL ENGINE".

The amount of Entry Fee ... **£ 284.325**
 GRM & Ex. Special ... **£ 42.649**
 Donkey Boiler ... **£ 9.809**
 Travelling Expenses (if any) £
FRIDAY 30 JUL 1954
 Committee's Minute
 Assigned **LMC 9.53 Oil Eng.**
NE made '47 fitted '53
DB 185 lb.

[Signature] *[Signature]*
 Engineer Surveyor to Lloyd's Register of Shipping.
Lloyd's Register Foundation

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