REPORT ON OIL ENGINE MACHINERY

No. 2325

Received at London Office 19 OCT 1954

...ting Report ... 19 ... When handed in at Local Office OCT. - 8. 1954 19 ... Port of K O B E

Survey held at Aioi, Japan ... Date, First Survey 16-12-52 ... Last Survey 24-6-54 19 54

Number of Visits 100

...on the Single Screw vessel M/V "ISE-MARU" ... Tons Gross 13,220.70 Net 9,350.81

...Aioi, Japan ... By whom built Harima Shipbuilding & Engineering Co., Ltd., Yard No. 481 When built July, 54

...e at Aioi, Japan ... By whom made Harima Shipbuilding & Engineering Co., Ltd., Engine No. 119 When made July, 54

...res made at Aioi, Japan ... By whom made Harima Shipbuilding & Engineering Co., Ltd., Boiler No. 771 When made July, 54

Power 9500 ✓ ... Owners Terukuni Kaiun K.K. ... Port belonging to Tokyo

as per Rule 1900 ✓ ... Is Refrigerating Machinery fitted for cargo purposes No ... Is Electric Light fitted Yes

...hich uessel is intended Ocean Going (Carrying Oil in Bulk)

...GINES, &c. — Type of Engines Harima Sulzer 10RS76 ... 2 or 4 stroke cycle 2 ✓ Single or double acting Single ✓

...essure in cylinders 52.0kg/cm2 ✓ ... Diameter of cylinders 760 mm ✓ ... Length of stroke 1,550 mm ✓ ... No. of cylinders 10 ✓ ... No. of cranks 10

...ed Pressure 6.13 kg/cm2 ✓ ... Ahead Firing Order in Cylinders 1-8-5-4-9-2-7-6-3-10 ... Span of bearings, adjacent to the crank, measured ...edge to inner edge 1,010 mm ✓ ... Is there a bearing between each crank Yes ... Revolutions per minute 118 ✓

...2,396.3mm ... Weight 1,520 kgs ... Moment of inertia of flywheel (~~xx xxxx~~ Kg. cm.²) 2.28 x 10⁷ ... Means of ignition Compression ... ~~xxxx~~ of fuel used Diesel Oil

~~xxxx~~ ~~xxxx~~ ~~xxxx~~ dia. of journals as per Rule As Approved as fitted 550 mm ✓ ... Crank pin dia 550 mm ✓ ... Crank webs Mid. length breadth 900 mm Mid. length thickness 340 mm ... shrunk Thickness parallel to axis 340 mm Thickness around eyehole 252.5mm

...rt built ...haft, diameter as per Rule – as fitted – ... **Intermediate Shaft,** diameter as per Rule As Approved (and fly wheel) as fitted 450 mm ✓ ... **Thrust Shaft,** diameter at collars as fitted 550 mm ✓ as per Rule As Approved

..., diameter as per Rule – as fitted – ... **Screw Shaft,** diameter as per Rule As Approved as fitted 498 mm ... Is the {~~xx~~ tube / screw} shaft fitted with a continuous liner {– / Yes ✓}

...ers, thickness in way of bushes as per Rule As Approved as fitted 25 mm ... Thickness between bushes 475mm at coupling as per Rule – as fitted – ... Is the after end of the liner made watertight in the ...Yes ... If the liner is in more than one length are the junctions made by fusion through the whole thickness of 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-...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 ...haft – ... If so state type – ... Length of bearing in **Stern Bush** next to and supporting propeller 3,000 mm ✓

...dia. 5,900 mm ✓ ... Pitch 4,304.5mm ... No. of blades 4 ... Material Mangenese Bronze ... whether moveable Moveable ... Total developed surface 123.7 sq. feet

...rtia of propeller (~~xx xxxx~~ Kg. cm.²) 1.243 x 10⁹ ... Kind of damper, if fitted –

...reversing Engines Direct ... Is a governor or other arrangement fitted to prevent racing of the engine ~~xxxxxxxxx~~ Yes ✓ ... Means of ...rced ... Thickness of cylinder liners 45 mm ... Are the cylinders fitted with safety valves Yes ✓ ... Are the exhaust pipes and silencers water cooled ...h non-conducting material Lagged ... If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned ...ine – **Cooling Water Pumps,** No. 2-S.W. independent ... Is the sea suction provided with an efficient strainer which can be cleared within the vessel Yes ✓

...s worked from the **Main Engines,** No. 1 ... Diameter 125 mm ... Stroke 150 mm ... Can one be overhauled while the other is at work Yes

...cted to the **Main Bilge Line** {No. and size / How driven} 1-180 M³/H, Steam (Ballast) ... 1-100 M³/H, Steam (Butterworth) ... 1-15 M³/H x 2, Main Engine ✓

...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 ...–

...ps, No. and size 1 x 180 M³/H ✓ **Power Driven Lubricating Oil Pumps,** including spare pump, No. and size ✓3 x 190 M³/H

...ndent means arranged for circulating water through the **Oil Cooler** Yes ✓ **Suctions,** connected to both main bilge pumps and auxiliary ...o. and size:— In machinery spaces 4-4" ✓, 1-2½" ✓, In Engine Room 3-2" In Eng. ✓ Cofferdam ... In pump room 1-3½" ✓, 2-3" ✓, 1-2", Fore pump room ✓ : 2-2½" Cargo hold ✓

...Power Pump Direct Suctions to the engine room bilges, No. and size 1-10" ✓, 1-6" ✓, 1-4" ✓

...ilge suction pipes in holds and ~~xxxxx~~ fitted with strum-boxes Yes ✓ ... Are the bilge suctions in the machinery spaces led from easily ...oxes, placed above the level of the working floor, with straight tail pipes to the bilges Yes ✓

...onnections fitted direct on the skin of the Ship Yes ✓ ... Are they fitted with valves or cocks Both ✓ ... Are they fixed ...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 Both ✓

...fitted with a discharge valve always accessible on the plating of the vessel Yes ✓ ... Are the blow off cocks fitted with a spigot and brasscovering plate Yes ✓

...s through the bunkers Ballast water pipe ... How are they protected Remote control valve fitted as per rule

...through the deep tanks – ... Have they been tested as per Rule –

...cocks, valves and pumps in connection with the machinery and all boiler mountings accessible at all times Yes ✓

...ent 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 ...one compartment to another Yes ✓ ... Is the shaft tunnel watertight None ✓ ... Is it fitted with a watertight door – ... worked from –

...el, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork –

...ompressors, No. – ... No. of stages – ... diameters – ... stroke – ... driven by –

...r Compressors, No. 2 ✓ ... No. of stages 2 ... diameters 190 mm, 190-170 mm ... stroke 150 mm ... driven by Diesel

...ary Air Compressors, No. 1 ... No. of stages 2 ... diameters 80 mm, 80-70 mm ... stroke 70 mm ... driven by Diesel

...is made for first charging the air receivers Small Auxiliary Air Compressor manual driven

...ir Pumps, No. 10 ... diameter 670 mm ... stroke 1,550 mm ... driven by Main Engine

...gines crank shafts, diameter as per Rule As Approved ... No. 2 ... as fitted JOURNAL 200 mm CRANK PIN 185 mm ... Position Fore port side starboard side in engine room

...ry engines been constructed under special survey Yes ... Is a report sent herewith Yes

AIR RECEIVERS:—Have they been made under survey Yes ✓ State No. of report or certificate ✓AR 19665

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 Rule – Actual –

Starting Air Receivers, No. 2 Total cubic capacity 14 M3x2 ✓ Internal diameter 1.850 mm ✓ thickness 38 mm ✓

Seamless, welded or riveted longitudinal joint Welded Material O.H.Steel ✓ Range of tensile strength 45.3kg/mm2 47.8kg/mm2 ✓ Working pressure by Rule – Actual –

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 Essential purposes

PLANS. Are approved plans forwarded herewith for shafting 1-10-53 (KOBE) 11-11-53 (KOBE) Receivers 13-10-53 (KOBE) Separate fuel (If not, state date of approval)

Donkey boilers 23-10-53 (KOBE) 30-3-54 (KOBE) 7-1-54 (KOBE) General pumping arrangements 30-12-53 (KOBE) Pumping arrangements in machinery space 23-12-53

Oil fuel burning arrangements 30-12-53 (KOBE) Date of approval 2-6-54

Have Torsional Vibration characteristics been approved YES

SPARE GEAR.

Has the spare gear required by the Rules been supplied Yes

State the principal additional spare gear supplied 2 Propeller blades 1 Cylinder cover, 1 Cylinder liner

The foregoing is a correct description, M. Yoshizawa Manufacturer.

THE HARIMA SHIPBUILDING AND ENGINEERING COMPANY, LTD.

Dates of Survey while building

During progress of work in shops: 1952:- Dec. 16, 1953:- Jan. 14, Feb. 4, 9, 14, 18, 21, 23 March 1, 9, May 11, 22, June 8, 29, 30 July 6, 25, 27, Sept. 22, 26, 30 Oct. 3, 9, 12, 14, 19, 23, 28, 30, 31 Nov. 2, 10, 24, 28, 30 Dec. 24, 5, 8, 12, 1954:- Jan. Feb. 4, 8, 15, 18, March 9, 10, 20, 22, 25, 27, 31,

During erection on board vessel: 1954:- MAR. 27, April 1, 3, 5, 7, 8, 10, 12, 14, 19, 20, 22, 23, 26, 27, 28, 30, May 4, 6, 7, 10, 12, 13, 14, 15, 28, 31, June 4, 15, 16, 17, 18, 21, 24,

Total No. of visits 100

Dates of examination of principal parts— Cylinders 12-12-53 Covers 2-11-53 pistons 2-12-53 Rods 29-6-53 Connecting rods 27-11-53

Crank shaft 11-5-53 Flywheel shaft 22-5-53 Thrust shaft – Intermediate shafts 20-3-54 Tube shaft –

Screw shaft 20-3-54 Propeller 22-3-54 Stern tube 20-3-54 Engine seatings 27-5-54 Engine holding down bolts 27-5-54

Completion of fitting sea connections 27-3-54 Completion of pumping arrangements 16-6-54 Engines tried under working conditions 21-6-54

Crank shaft, material O.H.Steel Identification mark K-OK 326 Flywheel shaft, material, thrust & O.H.Steel Identification mark K-

Thrust shaft, material – Identification mark – Intermediate shafts, material O.H.Steel Identification marks K-

Tube shaft, material – Identification mark – Screw shaft, material O.H.Steel Identification mark K-

Identification marks on air receivers No. AR 549 ✓ LLOYD'S TEST KOB W.T.P. 48.5 kg/cm2 W.P. 30 kg/cm2 KT Ltd
No. AR 550 LLOYD'S TEST KOB W.T.P. 48.5 kg/cm2 W.P. 30 kg/cm2 KT Ltd

Welded receivers, state Makers' Name Harima Shipbuilding & Engineering Co., Ltd., Aioi, Japan

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 Engine room: 2-45.5 liters 6-7.5 liters 2-water hose Steam Smothering & oil fuel
Boiler room: 1-45.5 liters 7-7.5 liters 2-water hose

Is the vessel (not being an oil tanker) fitted for carrying oil as cargo Yes 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 No If so, state name of vessel –

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

The Machinery of this vessel has been constructed under Special Survey in accordance with the Rules, Approved Plans, and Secretary's letters.

The Materials and workmanship are sound and good.

The Machinery of this vessel has been examined under full working condition during comprehensive sea trials and found satisfactory, and also torsiographs have been taken on main shafting and found satisfactory.

In our opinion, the Machinery of this vessel is eligible to have a record of +LMC engine, TS(CL) 7,54, +DBS(WT) W.P. 25kg/cm2, +DBS(SB) W.P. 9kg/cm2, 7,54.

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

The amount of Entry Fee ... £ 885:000:
Special ... ... £ : :
Donkey Boiler Fee ... £ : :
Travelling Expenses (if any) £ See Rpt. / : :

When applied for OCT. - 8. 1954 19
When received 19

R. Hoffman for K. C. Engineer Surveyor to Lloyd's Register

Committee's Minute

Assigned +LMC 6.54
DB(WT) 356 ll.
DB 128 ll. CL.