

# REPORT ON OIL ENGINE ELECTRIC GENERATOR SETS.

3 JUN 1952 (5)-C

Date of writing Report 12-3-1952 When handed in at Local Office 12-3-1952 Port of YOKOHAMA Received at London Office

No. in Reg. Book. Survey held at YOKOHAMA, JAPAN Date, First Survey 9-5-1951 Last Survey 15-2-1952 Number of Visits 41

Single on the Twin Triple Quadruple screw vessel M.V. "TOKYO MARU" Tons { Gross 6573.83 Net 3765.80

Built at YOKOHAMA, JAPAN By whom built YOKOHAMA SHIPYARD & ENGINE WORKS EAST JAPAN HEAVY INDUSTRIES, LTD. Yard No. 5701 When built 2-1952

Owners TOKYO SENPAKU Port belonging to TOKYO

Oil Engines made at YOKOHAMA, JAPAN By whom made YOKOHAMA SHIPYARD & ENGINE WORKS EAST JAPAN HEAVY INDUSTRIES, LTD. ENGINE Contract No. D133104 D133105 D133106 When made 2-1952

Generators made at NAGASAKI, JAPAN By whom made mitsubishi Electric MFG. CO., LTD. MACHINE Contract No. 318480 318481 318482 When made 10-1951

No. of Sets 3 Engine Brake Horse Power 225x3=675 M.N. as per Rule 45x3=135 Total Capacity of Generators 450 Kilowatts.

Is Set intended for essential services YES

**OIL ENGINES, &c.**—Type of Engines 4SC SA. YOKOHAMA MAN 6GV 22/33 2 or 4 stroke cycle 4 Single or double acting SINGLE

Maximum pressure in cylinders 55 kg/cm<sup>2</sup> Diameter of cylinders 220 mm Length of stroke 330 mm No. of cylinders 6 No. of cranks 6

Mean indicated pressure 6.89 kg/cm<sup>2</sup> Firing order in cylinders 1-3-5-6-4-2 Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 250 mm

Is there a bearing between each crank YES Moment of inertia of flywheel ( $\pm 6 m^2$  or Kg.-cm.<sup>2</sup>) 1 x 10<sup>7</sup> Revolutions per minute 500

Flywheel dia 1250 mm Weight 927 kg Means of ignition COMPRESSION Kind of fuel used DIESEL OIL

Crank Shaft, dia. of journals as per Rule 128.8 mm as fitted 145 mm Crank pin dia 145 mm Crank Webs Mid. length breadth 240 mm Mid. length thickness 68 mm Thickness parallel to axis — Thickness round eye-hole —

Flywheel Shaft, diameter as per Rule — as fitted — Intermediate Shafts, diameter as per Rule — as fitted — General armature, moment of inertia ( $\pm 6 m^2$  or Kg.-cm.<sup>2</sup>) 2.5 x 10<sup>6</sup>

Are means provided to prevent racing of the engine when declutched YES Means of lubrication FORCED Kind of damper if fitted —

Are the cylinders fitted with safety valves YES Are the exhaust pipes and silencers water cooled or lagged with non-conducting material SILENCER... WATER COOLED

Cooling Water Pumps, No. 1 Is the sea suction provided with an efficient strainer which can be cleared within the vessel YES

Lubricating Oil Pumps, No. and size 1 GEAR PUMP (MODULE 4, NO. OF TEETH 11, LENGTH OF TEETH 80 mm, 875 r.p.m.)

Air Compressors, No. 2 No. of stages 2 Diameters 1ST. STAGE 190 mm 100 mm DRIVEN BY MOTOR 2ND. STAGE 190-170 mm Stroke 150 mm Driven by DIESEL GENERATOR ENGINE.

Scavenging Air Pumps, No. — Diameter — Stroke — Driven by —

**AIR RECEIVERS:**—Have they been made under Survey YES State No. of Report or Certificate Y2453

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 YES What means are provided for cleaning their inner surfaces STEAM

Is there a drain arrangement fitted at the lowest part of each receiver YES

High Pressure Air Receivers, No. — Cubic capacity of each — Internal diameter — thickness —

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

Starting Air Receivers, No. 1 Total cubic capacity 200 LITRE Internal diameter 450 mm thickness 12 mm

Seamless, lap welded or riveted longitudinal joint DOUBLE BUTT JOINT RIVETED Material O.H. STEEL Range of tensile strength 34.4 T/a Working pressure by Rules 30.10 kg/cm<sup>2</sup>

**ELECTRIC GENERATORS:**—Type DRIP PROOF, SELF VENTILATED, D.C. COMPOUND WOUND.

Pressure of supply 230/115 volts. Full Load Current 625x3 Amperes. Direct or Alternating Current DIRECT

Is an alternating current system, state the periodicity — Has the Automatic Governor been tested and found as per Rule when full load is suddenly thrown on and off YES Generators, are they compounded as per Rule YES is an adjustable regulating resistance fitted in series with each shunt field YES

Are all terminals accessible, clearly marked, and furnished with sockets YES Are they so spaced shielded that they cannot be accidentally earthed, short circuited, or touched YES Are the lubricating arrangements of the generators as per Rule YES

Do the generators are under 100 kw. full load rating, have the makers supplied certificates of test — and do the results comply with the requirements —

Do the generators are 100 kw. or over have they been built and tested under survey YES

Do the shafts of driven machinery other than generator AUXILIARY AIR COMPRESSOR

**SHAFTS.**—Are approved plans forwarded herewith for Shafting 14-12-51 Receivers 9-8-51 (KOBEL) Separate Tanks 5-10-51 (KOBEL)

(If not, state date of approval)

Are Torsional Vibration characteristics if applicable been approved 14-12-51 Armature shaft Drawing No. C331196

(state date of approval)

**REPAIR GEAR** 1-CYLINDER COVER, 3-SUCTION VALVES, 6-EXHAUST VALVES, 6-FUEL VALVES, 2-SAFETY VALVES.

**REPAIR SETS** 1-MAIN BEARING BOLTS, 1-CYL. LINBR, 36-PISTON PACKING RINGS, 1-CONNECTING ROD, 3-CRANK PIN BEARINGS

**REPAIR SETS** 1-PISTON PIN BEARING, 3-FUEL OIL PUMPS, 3-CYLINDER COVER BOLTS.

The foregoing is a correct description,

*H. K. Kugakubo*

Manufacturer.



© 2021 Lloyd's Register Foundation

Dates of Survey while building  
 During progress of work in shops -- } 1951: - MAY. 9, 30 JUN. 2, 25, 29, JUL. 13, 14, 27, AUG. 1, 9, 10, 14, 17, 21 SEPT. 4, 10, 12, 17, 18, 19, 21 OCT. 1, 8, 18, 29, NOV. 2, 9, 13, 16, 20, 24, 26, DEC. 12, 14, 17, 18, 19.  
 During erection on board vessel -- } 1952: - JAN. 31 FEB. 2, 5, 15  
 Total No. of visits 41

Dates of Examination of principal parts—Cylinders 28-1-51 Covers 18-9-51 Pistons 18-10-51 Piston rods —

Connecting rods 20-11-51 Crank and Flywheel shafts 10-10-51 Intermediate shafts —  
 Y2165 Y2166 Y2167  
 Tensile strength 34.78 % 35.36 % 30.57 %  
 D133104 D133105 Y13306  
 Identification Marks Y2165 Y2166 Y2167

Crank shaft: Material O. H. STEEL  
 Y2165 Y2166 Y2167  
 Elongation 28.90% 27.50% 30.25%

Flywheel shaft, Material —  
 Identification marks on Air Receivers Y2451 RT Y2452 RT  
 Y2453 YK Y2454 YK

Is this machinery duplicate of a previous case YES If so, state name of vessel M.V. "TOZAN MARU"

**GENERAL REMARKS** (State quality of workmanship, opinions as to class, &c.)  
 THESE GENERATOR SETS HAVE BEEN CONSTRUCTED UNDER THE SUPERVISION OF THE SOCIETY'S SURVEYORS IN ACCORDANCE WITH THE RULES AND APPROVED PLANS, THE QUALITY OF WORKMANSHIP AND MATERIAL HAS BEEN FOUND SATISFACTORY, BUT SEE NOTE BELOW.  
 THESE GENERATOR SETS HAVE BEEN EXAMINED UNDER FULL WORKING CONDITION IN THE SHOP AND FOUND SATISFACTORY.  
 THIS MACHINERY HAS BEEN SATISFACTORILY INSTALLED IN THE VESSEL IN ACCORDANCE WITH THE RULES, TESTED UNDER WORKING CONDITION AND FOUND SATISFACTORY.  
 IT IS SUBMITTED THAT THE MACHINERY OF THIS VESSEL IS ELIGIBLE TO BE CLASSED WITH THE SOCIETY WITH THE NOTATION OF + LMC 2,52 SUBJECT TO THE ENTABLATURES OF THE PORTSIDE INBOARD AND OUTBOARD GENERATORS BEING SPECIALLY EXAMINED BEFORE THE END OF AUGUST 1952

**NOTE :-** THE ENTABLATURES OF THE PORT INBOARD AND OUTBOARD GENERATORS WERE FOUND LOCALLY THINNED IN WAY OF OUTER SIDE WALLS IN WATER JACKET. THESE WERE DRILLED, PLUGGED AND TESTED AND FOUND SATISFACTORY, BUT IT IS RECOMMENDED THAT THEY BE AGAIN SPECIALLY EXAMINED BEFORE THE END OF AUGUST 1952

The amount of Fee ... £ 67,500.- :  
 Travelling Expenses (if any) £ : :  
 When applied for 19  
 When received 19

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

FRI. 27 JUN 1952

Committee's Minute  
 Assigned *Su F.E. mch. apl.*

CC 5. 51 NOBE  
 (The Surveyors are requested not to write on or below the space for Committee Minute.)

