

Rpt. 4c.

## REPORT ON OIL ENGINE ELECTRIC GENERATOR SETS.

No. 205

Received at London Office 25 AUG 1952

Date of writing Report 19 When handed in at Local Office 19 Port of Shimono-seki

No. in Survey held at Nagasaki Date, First Survey 17th March 1952 Last Survey 27th February 1953

Reg. Book. Number of Visits 60

Single motor  
on the Twin Screw vessel  
Triple  
Quadruple

"ARITA MARU"

Built at Nagasaki By whom built Nagasaki Wks. Mitsubishi Shipbuilding & Engineering Co., Ltd. Yard No. 1430 When built 1953. 2 mo

Owners Nippon Yusen Kaisha Port belonging to Tokyo

Oil Engines made at Nagasaki By whom made Nagasaki Wks. Mitsubishi Shipbuilding & Engineering Co., Ltd. Contract No. 255,256,257 When made 1952. 11 mo

Generators made at Nagasaki By whom made Mitsubishi Electric Hfg. Co. Contract No. 319648, 319649, 319650 When made 1952. 6 mo

No. of Sets 3 Engine Brake Horse Power 360 (each) M.N. as per Rule  $7.2 \times 3 = 216$  Total Capacity of Generators 7.75 Kilowatts.

Is Set intended for essential services Yes

**OIL ENGINES, &c.**—Type of Engines 5 M4T 22/40 2 or 4 stroke cycle 2 Single or double acting Single

Maximum pressure in cylinders 60 kg/cm<sup>2</sup> Diameter of cylinders 220 mm Length of stroke 400 mm No. of cylinders 5 No. of cranks 5

Mean indicated pressure 67 kg/cm<sup>2</sup> Firing order in cylinders 1-4-3-2-5 Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 290.5 mm

Is there a bearing between each crank Yes Moment of inertia of flywheel (16 m<sup>2</sup> or Kg.-cm.<sup>2</sup>) 5475 Kg.-cm.-sec<sup>2</sup> Revolutions per minute 375

Flywheel dia 1.450 m Weight 1,555 Kgs Means of ignition Compression Kind of fuel used Heavy oil

**Crank Shaft**, dia. of journals as per Rule 140 mm as fitted 150 mm Crank pin dia 150 mm Crank Webs Mid. length breadth 200 mm Mid. length thickness 82.5 mm Thickness parallel to axis shrunk Thickness round eyehole

**Flywheel Shaft**, diameter as per Rule as fitted Intermediate Shafts, diameter as per Rule as fitted Generator armature, moment of inertia (16 m<sup>2</sup> or Kg.-cm.<sup>2</sup>) 1,546.64

Are means provided to prevent racing of the engine when declutched Yes Means of lubrication Forced Kind of damper if fitted Exh. pipe, water cooled

Are the cylinders fitted with safety valves Yes Are the exhaust pipes and silencers water cooled or lagged with non-conducting material Silencer, Lagged

**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 - 100 mm bore x 60 mm stroke single acting

**Air Compressors**, No. None No. of stages Diameters Stroke Driven by

**Scavenging Air Pumps**, No. 1 - Roots blower Diameter of rotor 270 mm Length of rotor 494.4 mm Stroke Driven by Each engine

**AIR RECEIVERS:**—Have they been made under Survey Yes State No. of Report or Certificate AR-10,172

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 None

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

**High Pressure Air Receivers**, No. None Cubic capacity of each Internal diameter thickness

Seamless, lap welded or riveted longitudinal joint Material Range of tensile strength Working pressure by Rules Shell 16 mm, thickness End, 25.22 mm

**Starting Air Receivers**, No. 1 Total cubic capacity 500 litres Internal diameter 696 mm thickness End, 25.22 mm

Seamless, lap welded or riveted longitudinal joint Riveted Material Boiler quality steel Range of tensile strength End, 26-30 kg/cm<sup>2</sup> Working pressure by Rules 30 kg/cm<sup>2</sup>

**ELECTRIC GENERATORS:**—Type Open drip proof

Pressure of supply 230 volts Full Load Current 1,065 Amperes Direct or Alternating Current D.C.

If 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

or shielded that they cannot be accidentally earthed, short circuited, or touched Yes Are the lubricating arrangements of the generators as per Rule Yes

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

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

Details of driven machinery other than generator Starting air compressors

**PLANS.**—Are approved plans forwarded herewith for Shafting London 17 July 1952 Receivers Kobe 14 Aug 1952 Separate Tanks Kobe 20 June 1952

Have Torsional Vibration characteristics if applicable been approved London 17 July 1952 H 3754 Armature shaft Drawing No. C-335111

**SPARE GEAR** As per Rules requirement and followings in addition.

Fuel needle valves for 6 cylinders, Piston rings for two pistons, Stud & nuts for 7 cylinder covers.

Two and half set of suction and delivery valves of each size used for compressor

The foregoing is a correct description,

S. Matsushita  
NAGASAKI WORKS

Manufacturer.

MITSUBISHI SHIPBUILDING &amp; ENGINEERING CO., LTD.



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014325-014334-0024

Dates of Survey while building { During progress of work in shops-- } 1952 March 17, April 8, 18, 24, May 5, 7, 17, 20, 27, 31, June 2, 7, 10, 18, 25, 30, July 3, 7, 10, 16, 17, 21, 24, 26, 29, 30, Aug 6, 9, 11, 13, 17, 22, 28, Sep 2, 10, 16, 17, 27, Oct 1, 4, 11, 22, 27, Nov 3, 7  
{ During erection on board vessel-- } 1952 Nov 8, 18, 25, 29, Dec 15, 19, 22, 24, 1953 Jan 18, 22, 24, 31, Feb 23, 24, 25, 26, 27  
Total No. of visits 60

Dates of Examination of principal parts—Cylinders 19-8-52 Covers 22-8-52 Pistons 8-9-52 Piston rods

Connecting rods 30-7-52 Crank and Flywheel shafts 10-4-52, 27-5-52, 16-6-52 Intermediate shafts

Crank shaft { Material Forged Steel Tensile strength 32 T/O  
Elongation 34 % in 2 ins Identification Marks CH NO. 723 1F8 758 1162 158 1163 YH  
SF 364 SF 376 SF 377  
10-4-52 27-5-52 16-6-52 A

Flywheel shaft, Material Identification Marks

Identification marks on Air Receivers AR-10172 WYB'S TEST 45 kg W.P. 30 kg M.C. & 22-12-52

Is this machinery duplicate of a previous case Yes If so, state name of vessel AWATA MARU

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

These machines have been constructed under Special Survey in accordance with the Rules, Approved plans and Secretary's letter.  
The material and workmanship are good.  
On completion these machines have been examined under full power working condition at shop and after installed in the vessel in accordance with the Rules and found satisfactory.

The amount of Fee ... £157,000.- : When applied for JUL 31 1953 19  
Travelling Expenses (if any) £ : : When received 19

Committee's Minute FRIDAY 18 SEP 1953  
Assigned See Rpt 46

Hamada Peter Manson  
Surveyor to Lloyd's Register of Shipping  
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