

LONDON

6 FEB 1953

# REPORT ON OIL ENGINE ELECTRIC GENERATOR SETS.

No. 1172

Received at London Office

of writing Report... 19... When handed in at Local Office... 19... Port of... Kobe

Survey held at Nagasaki Date, First Survey 15th January Last Survey 28th August 1952 Number of Visits 61

on the Single motor Triple Screw vessel "AWATA MARU" Tons Gross 7,601.48 Net 4,320.50

at Nagasaki By whom built Nagasaki Works, Mitsubishi Zosen K.K. Yard No. 1428 When built 1952, 8 mo

Engines made at Nagasaki By whom made Nagasaki Works, Mitsubishi Zosen K.K. Contract No. 252, 253, 254 When made 1952, 5 mo

Generators made at Nagasaki By whom made Mitsubishi Electric Mfg. Co. Contract No. 318825, 318826, 318827 When made 1952, 2 mo

of Sets 3 Engine Brake Horse Power 350 (Each) M.N. as per Rule Total Capacity of Generators 690 Kilowatts

intended for essential services Yes

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

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

Indicated pressure 6.7 Kgs/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

Are there a bearing between each crank Yes Moment of inertia of flywheel (16 m<sup>2</sup> or Kg.-cm.<sup>2</sup>) 5,475 kg.-cm.<sup>2</sup> Revolutions per minute 375

Wheel dia 1,450 mm 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 Thickness parallel to axis shrunk Mid. length thickness 825 mm Thickness round eye-hole

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

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 Exhaust lagged

Driving Water Pumps, No. one Is the sea suction provided with an efficient strainer which can be cleared within the vessel Yes

Lubricating Oil Pumps, No. and size one - 100 mm dia x 60 mm stroke single acting

Compressors, No. none No. of stages Diameters Stroke Driven by

Revolving Air Pumps, No. one Roots blower Diameter of rotor 270 mm Stroke length 499 mm Driven by Each engine

AIR RECEIVERS:—Have they been made under Survey Yes State No. of Report or Certificate No. AR-333

Each receiver, which can be isolated, fitted with a safety valve as per Rule Yes

Are 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

Low Pressure Air Receivers, No. one Total cubic capacity 500 litres Internal diameter 696 mm thickness Shell 16 mm End 25.2 mm

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

ELECTRIC GENERATORS:—Type Open drip proof

Pressure of supply 230 volts Full Load Current 1,000 Amperes Direct or Alternating Current D.C.

Is the automatic Governor been tested and found as per Rule when full load is suddenly thrown 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

Are the generators 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

Are there tails of driven machinery other than generator Starting air compressor

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

Are Torsional Vibration characteristics if applicable been approved London 17 July 1952 Armature shaft Drawing No. C333061

PREPARE GEAR As required by Rules and following in addition:

Fuel needle valves for 6 cylinders

Piston rings for two pistons Studs and 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,  
*[Signature]*  
NAGASAKI WORKS  
MITSUBISHI SHIPBUILDING & ENGINEERING CO., LTD.  
Manufacturer.



Dates of Survey while building  
 During progress of work in shops - - ) 1952 Jan. 15, 16, Feb. 11, 18, 19, 22, 25, 26, 27, 28, March 3, 4, 11, 12, 14, 17, 20, 24, 25, 27, 31, April 1, 3, 7, 8, 9, 11, 12, 14, 15, 16, 18, 19, 21, 22, 23, 25, 28, 30, May 1, 2, 7, 9, 14, 15, 16, 19, 20  
 During erection on board vessel - - ) 1952 June 2, 3, 7, 14, 19, 28, July 8, 13, 21, Aug. 3, 22, 23, 28  
 Total No. of visits ..... 61

Dates of Examination of principal parts—Cylinders 9.2.52, 16.3.52, 16.4.52 Covers 12.5.52, 22.3.52, 9.4.52 Pistons 14.3.52, 14.4.52, 12.4.52 Piston rods

Connecting rods 7.3.51, 12.3.52, 7.4.52 Crank and Flywheel shafts 3.3.52, 4.3.52, 28.3.52 Intermediate shafts

Crank shaft Material Electric furnace forged steel Tensile strength 32 T 10"  
 Elongation 33.5% in 2 ins. Identification Marks 31944, HAF 5368, LLOYD'S NO 45F 578, H.A.R. 3.3.52  
 (H.N.O. 709 TP 17 LLOYD'S NO SF-361 Y.H.R. 4.3.52  
 (H.N.O. 723 TP 17 LLOYD'S NO SF-365 Y.H.R. 28.3.52

Flywheel shaft, Material Identification Marks

Identification marks on Air Receivers No. AR 333 Lloyd's TEST 45 Kgs W.P. 30 Kgs H.A.R. 2 9.5.52

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.)

These Engines have been constructed under the Supervision of Society's Surveyors in accordance with the Rules and Approved plans.  
 Materials and workmanship are satisfactory.  
 These Engines have been examined under full load working condition in the shop and found satisfactory  
 on completion of installation in the vessel, these engines have been tested under full load condition and found satisfactory.

500.4.48-T. (MADE AND PRINTED IN ENGLAND)  
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)

The amount of Fee ... £ 150,000  
 Travelling Expenses (if any) £

When applied for 27. JAN. 1953  
 When received

*J. D. Lane Esq*

TUES. 24 FEB 1953

Committee's Minute  
 Assigned *See F. E. usby rpt.*

