

Rpt. 4c.

## REPORT ON OIL ENGINE ELECTRIC GENERATOR SETS.

BODEC 1952/138

Date of writing Report

19

When handed in at Local Office

18 DEC. 1952

Received at London Office

Port of

Yokohama - KOBE

No. in  
Reg. Book.

Survey held at

Niigata + Nagasaki

Date, First Survey

21st February 1951

Last Survey

15th May

1952

Number of Visits

23

Single  
on the Twin  
Triple  
Quadruplemotor  
Screen vessel

"TOMISHIMA-MARU"

Tons { Gross 7,613.89  
Net 4,334.44

Built at

Nagasaki Japan

By whom built

Nagasaki Works, Mitsubishi Zosen K.K.

Yard No. 1426

When built 1952, 5 mo.

Owners

Iino Raiun K.K.

Port belonging to

Tokyo

Oil Engines made at

Niigata, Japan

By whom made

Niigata Engineering Co., Ltd.

ENGINE Contract No. 8147

When made

Jan. 1952

Generators made at

Nagasaki, Japan

By whom made

Mitsubishi Electric mfg. Co.

MAHINE Contract No. 318821

When made

Nov. 1951

No. of Sets

3

Engine Brake Horse Power

350 B.H.P. M.N. as per Rule 70

Total Capacity of Generators

690 Kilowatts.

Is Set intended for essential services

Yes

## OIL ENGINES, &amp;c.—Type of Engines

Solid Injection Diesel Engine (MODEL)

55-H or 4 stroke cycle

4

Single or double acting Single

Maximum pressure in cylinders

50 Kg/cm<sup>2</sup>

Diameter of cylinders

310 mm

Length of stroke

420 mm

No. of cylinders

5

No. of cranks

5

Mean indicated pressure

6.38 Kg/cm<sup>2</sup>

Firing order in cylinders

1-3-5-4-2

Span of bearings, adjacent to the Crank, measured from inner edge to inner edge

366.5 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>)5670 Kg.-m<sup>2</sup>

Revolutions per minute

380 R.P.M.

Flywheel dia

1,600 mm

Weight

3,280 Kg

Means of ignition

Compression

Kind of fuel used

Diesel oil

Crank Shaft, dia. of journals

as per Rule 173.61 mm

as fitted

210 mm

Crank pin dia

190 mm

Crank Webs

Mid. length breadth

286 mm

Thickness parallel to axis

—

Mid. length thickness

94 mm

Thickness round eyehole

—

Flywheel Shaft, diameter

as per Rule

—

Intermediate Shafts, diameter

as per Rule

—

General armature, moment of inertia (16 m<sup>2</sup> or Kg.-cm.<sup>2</sup>)

Are means provided to prevent racing of the engine when declutched

Yes

Means of lubrication

Forced Lub.

Kind of damper if fitted

—

Are the cylinders fitted with safety valves

Yes for each cyl.

Are the exhaust pipes and silencers water cooled or lagged with non-conducting material

Water cooled

Cooling Water Pumps, No.

One centrifugal pump

Is the sea suction provided with an efficient strainer which can be cleared within the vessel

Yes

Lubricating Oil Pumps, No. and size

One gear pump

7,000 L/HR capacity

43.6 mm

Del. pipe dia.

Air Compressors, No.

Two

No. of stages

Three

Diameters

108, 360/305, 360/195, mm

Stroke

220 mm

Driven by

dynamo engine

Scavenging Air Pumps, No.

—

Diameter

—

Stroke

—

Driven by

—

## AIR RECEIVERS:—Have they been made under Survey

Yes

State No. of Report or Certificate

AR-331

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

Manhole

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

Shell 16 mm.

Starting Air Receivers, No.

one

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

Range of tensile strength

End 26-30 7/16"

Working pressure by Rules

30 Kg/cm<sup>2</sup>

## ELECTRIC GENERATORS:—Type

Open Drip Proof

Pressure of supply

230 volts

Full Load Current

1,000

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 rating, 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

Two (2) air compressors each 85 B.H.P

ENG. NO.

COMP. NO.

8147

T 36/22-4

8148

T 36/22-3

PLANS.—Are approved plans forwarded herewith for Shafting

6th Nov. 1951

Receivers

27 Apr. 1951

Separate Tanks

2 Apr. 1952

Have Torsional Vibration characteristics if applicable been approved

6th Nov. 1951

Armature shaft Drawing No. C331241B

## SPARE GEAR

Cyl. cover complete—1. Cyl. cover, bolts &amp; nuts for one cyl.—2 sets.

Main bearing

brasses of each kind—2 sets.

Connecting rod bearing brasses, small &amp; big end—5 sets.

Connecting rod complete—1.

Cyl. liner complete—1.

Piston complete—1.

Piston rings

with oil scraper rings—5 sets.

Coupling bolts for one coupling—1 set.

Fuel injection

pump complete for 2 cyl. &amp; 3 cyl.—2 sets.

The foregoing is a correct description,

I. Maki-shi  
NAGASAKI WORKS  
MITSUBISHI SHIPBUILDING & ENGINEERING CO., LTD.

Manufacturer.

Certified Duplicate Original Register  
mislaid at Kobe office  
012306.012314-0192

Dates of Survey while building  
During progress of work in shops-- } 1951:- 2-2. 8-3. 16.26-6 13.27-7 9.29-8 21-9 1-11 1952:- 16.17.19.  
During erection on board vessel-- } 1952 Feb. 23.29 March 6.12.27 April 7.14.15.17 May 18.  
Total No. of visits 23

Dates of Examination of principal parts--Cylinders 24-74 9-8 Covers 9-8 Pistons 21-9 Piston rods

Connecting rods 27-7

Crank and Flywheel shafts 16-6... 2 shafts 21-9... 1 shaft Intermediate shafts

Crank shaft: Material Open hearth forged steel  
TEST MARK CS-303 CS-301 CS-304  
Elongation TOP SIDE 30 29 28  
BOT. SIDE 30 31 30

Tensile strength  
ENG. NO 8147 8148 8149  
TOP SIDE 33.5 33.5 33.8  
BOT. SIDE 33.8 33.1 32.5  
Identification Marks  
262 1/4-1 CS-303 NO. Y 2221 KM R 29-8-51  
2611 3/4-1 CS-301 NO. Y 2222 KM R 21-9-51  
2611 3/4- CS-304 NO. Y 22 KM R 1-11-

Flywheel shaft, Material

Identification Marks

Identification marks on Air Receivers NO. AR 331 LLOYD'S TEST 4549 N.P. 3049 Y.H. R 12.3.52

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 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.

These generator sets have been examined under full working condition in the shop and found satisfactory.

These generator sets have been placed on board the T.M.V. "TOMISHIMA-MARU" and on completion of installation, have been examined under full loading condition comprehensive deck & sea trials and found satisfactory.

The amount of Fee... £ 105,840 When applied for 22 DEC 1952  
Travelling Expenses (if any) £ : : When received 19

Committee's Minute FRI 16 JAN 1953

Assigned See R.E. maly. rpt.

L. Gunning  
Surveyor to Lloyd's Register of Shipping  
Lloyd's Register Foundation