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Liverpool F.E.R.M No 132467

SEP 1950

Rpt. 4c.

N D.O.

REPORT ON OIL ENGINE ELECTRIC GENERATOR SETS

No. 14258.

SEP 1950

Date of writing Report 8-8-1950. When handed in at Local Office 1st September, 50. Port of Manchester. Received at London Office

No. in Survey held at Manchester. Date, First Survey 13.12.49. Last Survey 1-8-1950. Reg. Book. Number of Visits 11.

on the ^{Single} ~~Twin~~ ^{Triple} ~~Quadruple~~ Screw vessel GENERAL SAN MARTIN Tons Gross 12,769 Net 7,405

Built at Birkenhead. By whom built Messrs. Cammell Laird & Co. Ltd. Engine No. 1203. When built 1950

Owners Yacimientos Petroliferos Yucules Port belonging to Amos Amos

Oil Engines made at Ashton-under-Lyne By whom made Messrs. National Gas & O.E. Co. Eng. 65630/1. When made 1950.

Generators made at Sunderland. By whom made Messrs. Sunderland Forge & Eng. Gen. 42205/6. When made 1950.

No. of Sets 2 Engine Brake Horse Power 150 x 2 M.N. as per Rule 75. Total Capacity of Generators 150. Kilowatts. Total = 300.

Is Set intended for essential services Yes.

OIL ENGINES, &c.—Type of Engines R4A Vertical Heavy Oil Engine 2 or 4 stroke cycle 4 Single or double acting Single.

Maximum pressure in cylinders 750 lbs/sq. inch. Diameter of cylinders 9" Length of stroke 12" No. of cylinders 4 No. of cranks 4

Mean indicated pressure 92 Firing order in cylinders 1,3,4,2. Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 10 1/4"

Is there a bearing between each crank Yes. Moment of inertia of flywheel (16 m² or Kg.-cm.²) 1440,000 lb ins² Revolutions per minute 500

Flywheel dia. 4' - 3 1/2" Weight 3259 lbs. Means of ignition Compression. Kind of fuel used Diesel.

Crank Shaft, dia. of journals as per Rule 6.622" Crank pin dia. 6.372" Crank Webs Mid. length breadth 7 3/4" Thickness parallel to axis 2 3/4" shrunk Mid. length thickness 2 3/4" Thickness round eyehole

Flywheel Shaft, diameter as per Rule Intermediate Shafts, diameter as per Rule General armature, moment of inertia (16 m² or Kg.-cm.²) 89,500 lb ins²

Are means provided to prevent racing of the engine when declutched 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 Watercooled.

Cooling Water Pumps, No. Centrifugal. Capacity 2500 G.P.H. Is the sea suction provided with an efficient strainer which can be cleared within the vessel

Lubricating Oil Pumps, No. and size Engine Driven Pump 360 G.P.H.

Air Compressors, No. No. of stages Diameters Stroke Driven by

Scavenging Air Pumps, No. Diameter Stroke Driven by

AIR RECEIVERS:—Have they been made under Survey Yes. State No. of Report or Certificate C.12003.

Is each receiver, which can be isolated, fitted with a safety valve as per Rule

Can the internal surfaces of the receivers be examined What means are provided for cleaning their inner surfaces

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

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. One. Total cubic capacity 11 cu. ft. Internal diameter 19" thickness 7/16"

Seamless, lap welded or riveted longitudinal joint Riveted. Material Mild Steel Range of tensile strength 28/32. Working pressure by Rules 350 lbs/sq. in.

ELECTRIC GENERATORS:—Type Open Type Drip Proof Compound Wound.

Pressure of supply 220 volts. Full Load Current 341. Amperes. Direct or Alternating Current Direct.

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 Yes and do the results comply with the requirements Yes.

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

Details of driven machinery other than generator

PLANS.—Are approved plans forwarded herewith for Shafting 27 - 7 - 49. Receivers 11 - 1 - 49. Separate Tanks

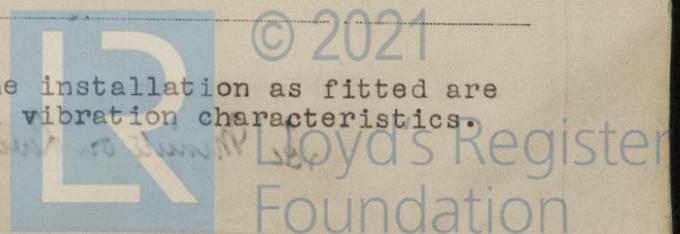
Have Torsional Vibration characteristics if applicable been approved 27 - 7 - 49. Armature shaft Drawing No.

SPARE GEAR AS PER RULE REQUIREMENTS.

The foregoing is a correct description, and the particulars of the installation as fitted are as approved for torsional vibration characteristics.

THE NATIONAL GAS AND OIL ENGINE Co. Ltd.

Manufacturer.



008786-008788-0096

Dates of Survey while building
 During progress of work in shops - - 1949. Dec. 13, 29. 1950. Jan. 3, 4, 11. Feb. 1. July 11, 24, 25, 31. Aug. 1.
 During erection on board vessel - - -
 Total No. of visits

Dates of Examination of principal parts—Cylinders 13 - 12 - 49. 4 - 1 - 50. 13 - 12 - 49.
 11 - 1 - 50. Covers 11 - 7 - 50. Pistons 1 - 8 - 50. Piston rods
 Connecting rods 11 - 1 - 50. Crank and Flywheel shafts 3 - 1 - 50. Intermediate shafts

Crank shaft Material O.H. Steel. Tensile strength 44.8, 42.0 Tons/sq. inch.
 Elongation 27% & 28%. Identification Marks 6362. 6586.
 1 - 11 - 49. 13 - 12 - 49.
 Flywheel shaft, Material JH. JH. Identification Marks

Identification marks on Air Receivers Lloyd's No. 300 L.A.W. 16.2.50. T.P. 550 lbs. W.P. 350 lbs.

Is this machinery duplicate of a previous case. If so, state name of vessel.

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) This engine has been constructed under Special Survey of tested materials in accordance with the Secretary's letters and Rule Requirements. The materials and workmanship are good. The engine was found satisfactory when tested at the Builder's Works under the following conditions of loading and coupled direct to its electric generator.

4 Hours at 100% load.

1 Hour at 110% load.

Torsional vibration characteristics have been approved for a service speed of 500 R.P.M.

The diesel generator sets are in our opinion suitable to be installed in a vessel classed with the Society for the purpose intended.

Attached hereto are Forging Reports F.6486 & 7, Air Receiver C.12003, Generators 42205/6 and Heat Exchanger C.9566.

These generator sets have been properly installed in the vessel, & tried under working conditions with satisfactory results.

*G. Hersey
 Liverpool 7.2.51*

The amount of Fee ... £ 15: 0 : 0. When applied for 5/9/50 (RM)
 Travelling Expenses (if any) £ 2: 2 : 0. When received 19

Committee's Minute LIVERPOOL 27 FEB 1951

Assigned See Minute on Liverpool S.S. Moby. Rpt.

G. Hersey
 Surveyor to Lloyd's Register of Shipping.



Rpt. 13.
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MADE AND PRINTED IN ENGLAND
 (The Surveyors are requested not to write on or below the space for Committee Minute.)