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# REPORT ON OIL ENGINE ELECTRIC GENERATOR SETS.

No. 14379.

Date of writing Report 17th November, 50. When handed in at Local Office 7th December, 50. Port of MANCHESTER. Received at London Office 12 DEC 1950

No. in Survey held at MANCHESTER. Date, First Survey 25th April, 1950. Last Survey 3rd November 1950. Reg. Book. Number of Visits 12.

on the <sup>Single</sup> ~~Twin~~ ~~Triple~~ ~~Quadruple~~ Screw vessel. Classed Vessel. "General Progress" Tons Gross 12744 Net 7396

Built at Birkenhead. By whom built Cammell Laird & Co. Yard No. 1204. When built 1950.

Owners Yacimiento Petrolifero Fincas Port belonging to Buenos Aires Engine 65632/3. When made 1950.

Oil Engines made at Ashton-Under-Lyne By whom made National Gas & O.E. Co. Ltd. Contract No. 65632/3. Generator 42209/10. When made 1950.

Generators made at Sunderland. By whom made Sunderland Forge & Eng. Co. Contract No. 42209/10. When made 1950.

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

Is Set intended for essential services Yes.

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

Maximum pressure in cylinders 790 lbs/sq. inch. Diameter of cylinders 9". Length of stroke 12". No. of cylinders 4. No. of cranks 4.

Mean indicated pressure 92 lbs/sq. inch. 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 m<sup>2</sup> or Kg.-cm.<sup>2</sup>) 1,440,000 lbs in sec. Revolutions per minute 500.

Flywheel dia. 4' - 3 1/2". Weight 3260 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 5/8". Thickness parallel to axis. Mid. length thickness 2 5/8". Thickness round eye-hole.

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>) 89500 lbs in sec.

Are means provided to prevent racing of the engine when declutched. Means of lubrication Forced. Kind of damper if fitted. Watercooled.

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

Cooling Water Pumps, No. 1 - Cent. 2,500 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 Gear type, Engine driven, 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 Ends 3/4". Working pressure by Rules 350 lbs/sq. inch.

Seamless, lap welded or riveted longitudinal joint riveted. Material 28-32 Tons/sq. in. Steel. Range of tensile strength. Working pressure by Rules sq. inch.

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.

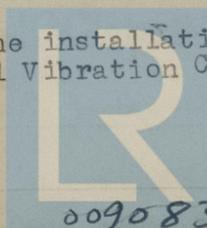
PLANS.—Are approved plans forwarded herewith for Shafting 27.7.49. Receivers 11.1.49. Separate Tanks.

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.



Lloyd's Register Foundation

009083 - 009093 - 0193

Dates of Survey while building { During progress of work in shops - - 1950. April 25. May 1, 11, 15. June 6, 8. Sept. 13. Oct. 30, 31. Nov. 1, 2, 3.  
 { During erection on board vessel - - -  
 Total No. of visits

Dates of Examination of principal parts—Cylinders 11.5.50. Covers 16.5.50. Pistons 16.5.50. Liners 25.4.50.  
 6.6.50. 8.6.50. 7.6.50. Piston rods 26.5.50.  
 Connecting rods 16.5.50. Crank and Flywheel shafts 16.5.50. Intermediate shafts  
 8.6.50. 6.6.50. 45.2 Tons per sq. inch.  
 Crank shaft { Material O.H. Steel. Tensile strength 43.6 Tons per sq. inch.  
 { Elongation on 2" 26% & 25% Identification Marks 6591 6571  
 G.M.K. J.H.  
 18.1.50. 13.12.49.  
 Flywheel shaft, Material Identification Marks  
 Identification marks on Air Receivers Lloyd's 301 16.2.50. T.P. 550 lbs/sq.inch, W.P. 350 lbs/sq.inch.

Is this machinery duplicate of a previous case Yes. If so, state name of vessel Cammell Laird Engine 1203. (See Mch. Rpt. 14258)

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) These engines have been constructed under special

survey of tested materials and 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 Builders' 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 my opinion, suitable to be installed in a vessel classed with the Society for the purpose intended.

Attached hereto Crankshaft Forging Reports F.6714/3, Air Receiver C.12003, Generators 42209/10 and Heat Exchanger C.9566.

*These sets have been properly installed in the vessel and tried under working conditions with satisfactory results.*

*G. Pinnerif  
 Liverpool 2/5/51*

The amount of Fee ... £ 15 : 0 : 0.

When applied for

9/12/50 (R.M.)

Travelling Expenses (if any) £ 3 : 12 : 0.

When received

19

Committee's Minute

LIVERPOOL

- 5 JUN 1951

Assigned

*See Liverpool Machinery Rpt.*

*G. Pinnerif*  
 Surveyor to Lloyd's Register of Shipping.



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