

RECEIVED

Rpt. No. 14586

# REPORT ON OIL ENGINE ELECTRIC GENERATOR SETS.

No. 14586

IN D.O.

Received at London Office 12 JUN 1951

Date of writing Report 22nd May, 1951. When handed in at Local Office 8th June 1951. Port of MANCHESTER.

No. in Survey held at MANCHESTER. Date, First Survey 4th December, 1950. Last Survey 6th April, 1951.

Reg. Book. 35216 on the Single Screw vessel. Cargo Vessel for Flota Mercante. Grancolombiana. "CIUDAD de Barquisimeto" Tons (Gross) (Net) Number of Visits 19.

Built at Glasgow By whom built Fairfield Shipbuilding Co. Yard No. 753. When built 1951-11

Owners Port belonging to

Oil Engines made at Ashton-U-Lyne. By whom made National Gas & O.E. Co. Ltd. Engine Nos. 65745/6/7 When made 1950.

Generators made at Bedford. By whom made W.H. Allen & Sons. Generator Nos. E2/89737/4/5/6. When made 1951.

No. of Sets 3. Engine Brake Horse Power 560 x 3 M.N. as per Rule 420. Total Capacity of Generators 340.8 x 3 Kilowatts. Total - 1022.

Is Set intended for essential services. Yes.

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

Maximum pressure in cylinders 950 lbs/sq. inch. Diameter of cylinders 9". Length of stroke 12". No. of cylinders 8. No. of cranks 8.

Mean indicated pressure 135 lbs/sq. inch. Firing order in cylinders 1,5,2,6,8,4,7,3. 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>) 586,000 lbs ins<sup>2</sup>. Revolutions per minute 600.

Flywheel dia. 3'-7". Weight 1820 lbs. Means of ignition Compression. Kind of fuel used Diesel.

Crank Shaft, dia. of journals as per Rule 6.623". Crank pin dia. 6.372". Crank Webs Mid. length breadth 7". Thickness parallel to axis. 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 m<sup>2</sup> or Kg.-cm.<sup>2</sup>) 367,708 lbs in<sup>2</sup>.

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 Lagged.

Cooling Water Pumps, No. 1 F.W. 6,000 G.P.H. 1 S.W. 14,700 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 1 - gear type 1,000 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 G.6432.

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 3/8".

Seamless, lap welded or riveted longitudinal joint Riveted. Material M.S. Range of tensile strength 26/32. Working pressure by Rules 275.

ELECTRIC GENERATORS:—Type Open type, drip-proof, compound wound.

Pressure of supply 240/120 volts. Full Load Current 1420. 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 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, Rpts. Nos. G.1867/8/9 forwarded to Glasgow.

Details of driven machinery other than generator.

PLANS.—Are approved plans forwarded herewith for Shafting 15/6/50. Receivers. Separate Tanks.

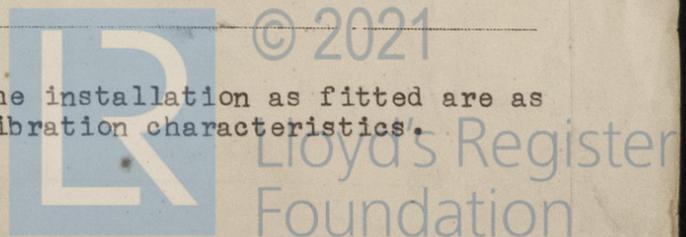
Have Torsional Vibration characteristics if applicable been approved Yes - 31/7/50. Armature shaft Drawing No. E.53221X.

SPARE GEAR Additional to Rule Requirements.

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

Manufacturer.

THE NATIONAL GAS AND OIL ENGINE Co. Ltd.



Dates of Survey while building: During progress of work in shops - 1950. Dec. 4, 7, 8, 9, 12, 18, 20. 1951. Jan. 8, 9, 11, 12, 15, 18. March 20, 30. April 2, 3, 5.  
 During erection on board vessel - - -  
 Total No. of visits - - -

Dates of Examination of principal parts: Column. 18.12.50. 20.12.50. 18.12.50. Liners 8.12.50.  
 12.1.51. Covers 15.1.51. 11.1.51. 9.1.51.  
 30.3.51. 5.4.51. 20.4.51. ~~Pistons~~ 29.3.51.  
 18.12.50.  
 11.1.51. Crank and Flywheel shafts 18.12.50.  
 20.4.51. 3.4.51. Intermediate shafts

Material O.H. Steel. Tensile strength 46.4, 45.6, 46.0 tons/sq.inch.  
 Crank shaft Elongation on 2" 26%, 24.5%, 24%. Identification Marks Lloyd's 7012, Lloyd's 1336, Lloyd's 1452  
 G.P.S. 28.9.50, G.P.S. 14.12.50, G.P.S. 8.3.51.  
 Flywheel shaft, Material Identification Marks

Identification marks on Air Receivers. Cradley Boiler Co. No. 33485. Lloyd's No. 6432. T.P. 465 lbs W.P. 275 lbs H.M.D. 10.9.47.

Is this machinery duplicate of a previous case? Yes. If so, state name of vessel. Yes, see Mch. Rpt. 14484, Fairfield's Yard 75

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) The 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 engines were found satisfactory when tested at the Builders' Works under the following conditions of loading when direct coupled to their respective generators:-  
 4 Hours at 100% Load. ; 1 Hour at 110% Load,

Torsional vibration characteristics have been approved for a service speed of 600 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 Forging Reports Nos. F.6613, 53411, 53834 and Air Receiver Cert. C.6432.

*The machinery has been efficiently installed in the vessel, examined under working conditions and found satisfactory.*

*This auxiliary machinery is eligible in my opinion to be classed with the Main engine + L.M.C. 11.51.*

G.H. Macdonald  
 Glasgow 1/11/51

2-11-51

The amount of Fee ... £ 84 : 0 : 0. When applied for 2/6/1951 (P.M.)  
 Travelling Expenses (if any) £ 2 : 17 : 0. When received 19

Committee's Minute  
 Assigned

GLASGOW 20 NOV 1951

SEE ACCOMPANYING MACHINERY REPORT

G.B. Hussey  
 Surveyor to Lloyd's Register of Shipping.



(The Surveyors are requested not to write on or below the space for Committee Minute.)  
 2011-11-51