

Rpt. 4c.

# REPORT ON OIL ENGINE ELECTRIC GENERATOR SETS.

No. 15019.

Date of writing Report 25th April 19 52. When handed in at Local Office 3rd June, 19 52. Port of MANCHESTER. Received at London Office 16 JUN 1952  
17 FEB 1953

No. in Survey held at REDDISH, Nr. STOCKPORT. Date, First Survey 2.1.52. Last Survey 28.3. 19 52.  
Reg. Book. Number of Visits 9.

Single on the Twin Triple Quadruple Screw vessel W.S.C. Ranger Tons Gross 154.18  
Net.....

Built at Leith. By whom built Henry Robb Ltd. Yard No. 415.E. When built 1951.

Owners Manchester Ship Canal Co. Ltd. Port belonging to Manchester. Contract No. ....

Oil Engines made at Reddish. By whom made Crossley Bros. Ltd., 17827. Engine No. 145553/4. When made 1952.

Generators made at Liverpool. By whom made Campbell & Isherwood Ltd., Generator No. 47348. When made 1952.

No. of Sets One. B.H.P. of each Set 42 x 2. M.N. as per Rule 8.4 x 2. Capacity of each Generator 26. Kilowatts.

Is Set intended for essential services Yes.

**OIL ENGINES, &c.**—Type of Engines Vertical Solid Injection Heavy Oil B.M. 2 or 4 stroke cycle 4. Single or double acting Single.  
Maximum pressure in cylinders 850 lbs/sq. inch. Diameter of cylinders 5". Length of stroke 6 1/2". No. of cylinders 3 x 2. No. of cranks 3 x 2.

Mean indicated pressure 121 lbs/sq. inch. Span of bearings (i.e., distance between inner edges of bearings in way of a crank) 6 3/8" and 12 3/8".  
Is there a bearing between each crank No. Moment of inertia of flywheel (160000 Kg.-cm.<sup>2</sup>) 121,400. Revolutions per minute 1,000.

Flywheel dia. 24". Weight 460 lbs. Means of ignition Compression. Kind of fuel used Diesel Oil.

Crank Shaft, { Solid forged as per Rule Approved. Crank pin dia. 3 1/2". Crank Webs Mid. length breadth 4 1/2". Thickness parallel to axis -  
{ Semi-built dia. of journals as fitted 3 1/2". Mid. length thickness 1.13/16" shrunk Thickness round eyehole -  
{ All-built

Flywheel Shaft, diameter as per Rule..... Generator armature, moment of inertia (16 m<sup>2</sup> or Kg.-cm.<sup>2</sup>).....  
as fitted.....

Are means provided to prevent racing of the engine Yes. Means of lubrication Forced. Kind of damper if fitted -

Are the cylinders fitted with safety valves No. Are the exhaust pipes and silencers water cooled or lagged with non-conducting material -  
One - 720 G.P.H. on each Engine.

Cooling Water Pumps, No. and how driven..... Is the sea suction provided with an efficient strainer which can be cleared within the vessel -

Lubricating Oil Pumps, No. and size One - 150 G.P.H. on each Engine.

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

Scavenging Air Pumps or Blowers, No. How driven

**AIR RECEIVERS:**—Have they been made under Survey..... State No. of Report or Certificate.....  
(other than main engines)

State full details of safety devices.....

Can the internal surfaces of the receivers be examined and cleaned.....

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

Starting Air Receivers, No. Total cubic capacity Internal diameter thickness

Seamless, lap welded or riveted longitudinal joint Material Range of tensile strength Working pressure

**ELECTRIC GENERATORS:**—Type Enclosed, ventilated, drip proof, compound wound, continuous rating.

Pressure of supply 110. volts. Full Load Current 236. 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 See Liverpool Rpt. 10 No. C.7500 attached.

Details of driven machinery other than generator.....

**PLANS.**—Are approved plans forwarded herewith for Shafting 18.7.50. Receivers - Separate Tanks -  
(If not, state date of approval)

Have Torsional Vibration characteristics if applicable been approved Not applicable. Armature shaft Drawing No. -  
(State date of approval and name of previous duplicate case, if any)

Has the spare gear required by the Rules been supplied AS PER RULE REQUIREMENTS.

The foregoing is a correct description,

CROSSLEY BROTHERS LIMITED

*D J Gaff*

Manufacturer.



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Lloyd's Register Foundation

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*30*  
*6*  
*32*

Dates of Survey while building { During progress of work in shops - - } 1952. Jan. 2, 10, 22, 23, 24, 25. Feb. 1. March 27, 28.  
 { During erection on board vessel - - - }  
 Total No. of visits

Dates of Examination of principal parts - Crank Case 24.1.52. Covers 22.1.52. Pistons - Liners 22.1.52.  
 M.377 1.2.52. Piston rods 2.1.52. 2.1.52.  
 Connecting rods M.364 7.11.51. Crank and Flywheel shafts 23.1.52. Intermediate shafts -  
 25.1.52.

Crank shaft { Material O.H. Steel. Tensile strength 46.8 Tons/sq. inch.  
 Elongation 26% Identification Marks LLOYD'S J.4885 WJD.301 23.1.52. RJY.  
 LLOYD'S J.4886 WJD.302 25.1.52. RJY.

Flywheel shaft, Material Identification Marks

Identification marks on Air Receivers

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 Special Survey of tested materials in accordance with the Secretary's letters, approved plans and Requirements of the Rules.

The materials and workmanship are good, and on completion the combined set of two engines and a generator on a fabricated base was tested in the shop under full load conditions, each engine running for 4 hours on full load followed by 1 hour on 10% overload coupled to the generator through friction clutches, and showed satisfactory results.

In our opinion, this machinery is suitable for installation on board a vessel to be classed with this Society for the purpose intended.

Copies of the following are attached hereto:-

Liverpool Report 10 No. C.7805 covering the Generator.

Copy of Sheffield Report 6 No. F.54271 covering the Crankshafts.

*This machinery has been installed on board. Tested under full working conditions with satisfactory results*

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9652

3in. 6.51.-T. (MADE AND PRINTED IN ENGLAND)  
 (The Surveyors are requested not to write on or below the space for Committee Minutes.)

The amount of Fee ... £ 10 : 0 : 0. { When applied for 5-6-52-1952  
 Travelling Expenses (if any) £ 4 : 4 : 6. { When received 19

*R. J. Gordon*  
 Surveyor to Lloyd's Register of Shipping.  
*Chas. S. Donaldson*

GLASGOW 10 FEB 1953

Committee's Minute  
 Assigned SEE ACCOMPANYING MACHINERY REPORT

