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Rpt. 4c. 5 JUL 1951

## REPORT ON OIL ENGINE ELECTRIC GENERATOR SETS

IN D.O.

Date of writing Report 31st May, 1951. When handed in at Local Office 22nd June, 1951. Port of MANCHESTER.

Received at London Office

10 OCT 1951

No. in Survey held at HAZEL GROVE, STOCKPORT. Date, First Survey 19th January, 1951. Last Survey 31st May, 1951. Reg. Book.

Number of Visits 9.

Single  
on the Twin  
Triple  
Quadruple

Screw vessel.

Classed Vessel. **BRITISH PIONEER**

J. G. Kincaid.

Engine No. K113/1.

Built at By whom built Blythwood Shipbuilding Co. Ltd., Yard No. 97. When built

Owners. Port belonging to

Engines 32221-2.

Oil Engines made at Hazel Grove. By whom made Mirrlees, Bickerton &amp; Day Ltd. Contract No. 3222. When made 1951.

Generators made at Liverpool. By whom made Campbell &amp; Isherwood. Generator 46135. When made 1951.

No. of Sets Two. Engine Brake Horse Power 135 x 2. M.N. as per Rule 34. x 2. Total Capacity of Generators 75 x 2. Kilowatts. Total - 270. Total - 68. Total - 150.

Is Set intended for essential services.

OIL ENGINES, &amp;c.—Type of Engines Mirrlees TL.3 Type Heavy Oil. 2 or 4 stroke cycle. 4. Single or double acting Single.

Maximum pressure in cylinders 800 lbs/sq. inch. Diameter of cylinders 8.5". Length of stroke 13 3/4". No. of cylinders 3. No. of cranks 3.

Mean indicated pressure 115 lbs/sq. inch. Firing order in cylinders 1-3-2. Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 8 5/8".

Is there a bearing between each crank Yes. Moment of inertia of flywheel (16 m<sup>2</sup> or Kg.-cm.<sup>2</sup>) 3,500 lb ins sec<sup>2</sup>. Revolutions per minute 500.

Flywheel dia. 4'-6". Weight 2800 lbs. Means of ignition Compression. Kind of fuel used pool diesel.

Crank Shaft, dia. of journals As approved. Crank pin dia. 5.9/16". Crank Webs Mid. length breadth 8". Thickness parallel to axis.

Flywheel ~~Shank~~ Fitted to Half coupling forged. Integral with Intermediate Shafts, diameter as fitted. General armature, moment of inertia (16 m<sup>2</sup> or Kg.-cm.<sup>2</sup>) 281 lb ins sec<sup>2</sup>.

Are means provided to prevent racing of the engine when declutched Yes. 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 Cooled/Lagged.

Cooling Water Pumps, No. One per Engine. Is the sea suction provided with an efficient strainer which can be cleared within the vessel.

Ref. No. 3189-3491/49. One per Engine, Gear Type, Engine Driven. Capacity 666 G.P.H.

Lubricating Oil Pumps, No. and size.

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 Not supplied by M.B. &amp; Day. State No. of Report or Certificate.

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. Total cubic capacity. Internal diameter. thickness.

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

ELECTRIC GENERATORS:—Type Open Type, Ventilated, Drip-proof, Compound wound.

Pressure of supply 110 volts. Full Load Current 682. 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 Built and tested under survey.

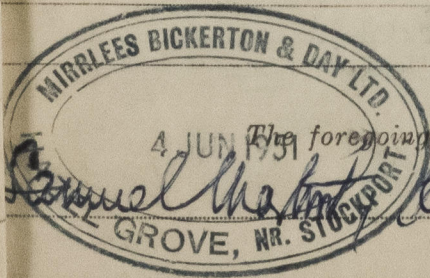
If the generators are 100 kw. or over have they been built and tested under survey.

Generator Identification: Lloyd's Test 24/4/51 H.H. Lloyd's Test 16.5.51. H.H.

Plans.—Are approved plans forwarded herewith for Shafting Crankshaft Drawing No. TL.300.A. Receivers. Separate Tanks.

Have Torsional Vibration characteristics if applicable been approved Yes. 22.2.50. for 500 R.P.M. Armature shaft Drawing No. A.13221. Noted 21.2.50.

PARE 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.

Manufacturer.

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Foundation



Dates of Survey while building { During progress of work in shops - - 1951. January 19. April 24. May 16, 17, 22, 23, 29, 30, 31.  
During erection on board vessel - - -  
Total No. of visits - - -  
Dates of Examination of principal parts - Cylinders 17.5.51. 19.1.51. 29.5.51. Cylinder Casings 23.5.51.  
Covers 22.5.51. 19.5.51. 23.5.51. Oil Cooler 23.5.51.  
Pistons 31.5.51. Exhaust Manifold 23.5.51.  
Alignment. 16.5.61. 27.5.51. Intermediate shafts  
Connecting rods 22.5.51. Crank ~~and~~ Crankshafts  
Crank shaft { Material S.M. Steel. Tensile strength 48.8, 46.8 Tons/sq.inch.  
Elongation 23%, 25%. Identification Marks Lloyd's 1145 9.1.51. W.J.I.  
Crankshaft Identification Marks Lloyd's W.T.M. 6922. G.A. 29.8.5  
Identification marks on Air Receivers. Not supplied by M.B. & Day.

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.) These oil Engine Electric Generator Sets have been constructed under Special Survey of tested materials and in accordance with the Secretary's letters, approved plans and Rule requirements. The material as far as could be seen, appears sound and free from defects. The workmanship is good.

Each engine, direct coupled to its respective Electric Generator was tested at the Engine Builders' Works under the following conditions of loading and found satisfactory:-

6 Hours 100% Generator Load - 75 K.W. - 135 B.H.P.

1 Hour 110% Generator Load - 82.5 K.W. - 148.5 B.H.P.

Torsional vibration characteristics of the shafting installation of this auxiliary machinery have been examined in conjunction with the Engine Builders' calculations and have been approved for a service speed of 500 R.P.M.

In the opinion of the undersigned, these Diesel Engine Electric Generator Sets are suitable for the purpose intended in a vessel classed with the Society.

Attached hereto Mch. Forging Report F.6530 and Extract from Sheffield Forging Report 51890. Generator Certificates will be forwarded later.

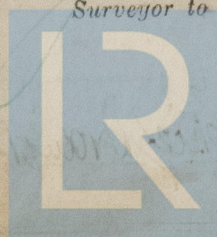
*These engines have been efficiently installed in the vessel & tested on full load with satisfactory results.*  
Charles J. Hunter

The amount of Fee ... £ 13 : 12 : 0. (When applied for 24/6/57 19  
Travelling Expenses (if any) £ : : (When received 19

Committee's Minute

Assigned

Surveyor to Lloyd's Register of Shipping.



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