

15 OCT Recd

Rpt. 4c.

REPORT ON OIL ENGINE ELECTRIC GENERATOR SETS.

No. 15203.

Received at London Office 3 - NOV 1952

SEP 1953

Date of writing Report 11th Oct 1952. When handed in at Local Office 27th October 1952. Port of MANCHESTER.

No. in Survey held at Ashton-under-Lyne. Date, First Survey 11.3.52. Last Survey 9.10.52. 19
Reg. Book.35053 on the Tug M.V. BURMAH SAPPHIRE Single Screw vessel. Classed Vessel. Number of Visits 6230.88
Tons Gross 6230.88
Net 3354.23

Built at Newcastle-on-Tyne. By whom built Swan Hunter & Wigham Richardson Yard No. 1821 When built -

Owners. Burnah Oil Co. (Tankers) Ltd. Port belonging to London E.C. 2.

Oil Engines made at Ashton-u-Lyne. By whom made National Gas & O.E. Co. Ltd. Engine No. 80156 When made 1952.

Generators made at Sunderland. By whom made Sunderland Forge & Eng. Co. Generator No. 47194 When made 1952.

No. of Sets 2 B.H.P. of each Set 125 M.N. as per Rule - Capacity of each Generator 80 Kilowatts.

Is Set intended for essential services. Yes

OIL ENGINES, &c.—Type of Engines National 'R43' Heavy Oil 2 or 4 stroke cycle 4 Single or double acting Single

Maximum pressure in cylinders 850 lbs/sq. in. Diameter of cylinders 9" Length of stroke 12" No. of cylinders 3 No. of cranks 3

Mean indicated pressure 116 lbs per sq. in. Span of bearings (i.e., distance between inner edges of bearings in way of a crank) 10 1/4"

Is there a bearing between each crank Yes Moment of inertia of flywheel (16 m² or Kg.-cm.²) 586,000 lbs in² Revolutions per minute 500

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

Crank Shaft, Solid forged dia. of journals as per Rule. Approved with 3" dia. hole slightly offset. Mid. length breadth 7 1/2" Thickness parallel to axis. Crank pin dia. 6.372" Crank Webs Mid. length thickness 2 1/2" shrunk Thickness round eyehole.

Flywheel Shaft, diameter as per Rule. Generator armature, moment of inertia (16 m² or Kg.-cm.²) 91,000 lbs ins²

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. Yes. Are the exhaust pipes and silencers water cooled or lagged with non-conducting material. Water Cooled

Cooling Water Pumps, No. and how driven 1 - F.W. Pump Engine Driven. Is the sea suction provided with an efficient strainer which can be cleared within the vessel. -

Lubricating Oil Pumps, No. and size 1 - S.W. Pump Engine Driven. 850 G.P.H.

Air Compressors, No. None No. of stages - Diameters - Stroke - Driven by -

Scavenging Air Pumps or Blowers, No. None How driven -

AIR RECEIVERS:—Have they been made under Survey. Yes State No. of Report or Certificate. Leeds C18864

(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. One Total cubic capacity Internal diameter thickness

Seamless, lap welded or riveted longitudinal joint welded in accordance with Class II Requirements. Material Range of tensile strength Working pressure

ELECTRIC GENERATORS:—Type O.T.D.P.

Pressure of supply 110 volts. Full Load Current 728 Amperes. Direct or Alternating Current D.C.

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 to Lloyd's Tests & Requirements. and do the results comply with the requirements.

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 30th July, 1951. Receivers Separate Tanks -

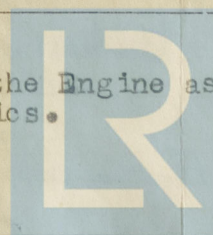
Have Torsional Vibration characteristics if applicable been approved 26th November, 1951. Armature shaft Drawing No.

Has the spare gear required by the Rules been supplied. Yes

The foregoing is a correct description, and the particulars of the Engine as supplied are as approved for the Torsional Vibration Characteristics.

THE NATIONAL GAS AND OIL ENGINE Co. Ltd.

Manufacturer.



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Lloyd's Register
Foundation

002536-002542-0169

80156. 1952. March 11th, August 28th September 4th, 8th. October 9th.
80157. 1952. April 10th. September 8th, 10th, 12th, 19th October 9th.
Dates of Survey while building { During progress of work in shops - - }
{ During erection on board vessel - - }
Total No. of visits
Dates of Examination of principal parts - Cylinders 8.9.52. 8.9.52. Exhaust Manifold 8.9.52
Covers 12.9.52. 12.9.52. Pistons 12.9.52. Piston rods 19.9.52
8.9.52. Liners 5.9.52.
Connecting rods 12.9.52. Crank and Flywheel shafts 8.9.52. Intermediate shafts
Crank shaft { Material S.M. Steel. Tensile strength 65.3 Kg./sq.mm.
Elongation 26.1% 27.1% Identification Marks LLOYD'S 835 11.3.52. W.J.I.
LLOYD'S 617 10.4.52. R.C.C.
Flywheel shaft, Material Identification Marks
Identification marks on Air Receivers J. & H. McLaren 11/1016 LLOYD'S TEST 700 lbs/sq.inch W.P. 350 T.P.G. 21.8.52.

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.) 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.

On completion of erection, the engines, direct coupled to their respective generators and units mounted on their base plates were tested under the following conditions of loading:-

4 hours full load.

1 hour 110% full load.

$\frac{1}{2}$ hour 75% full load.

$\frac{1}{2}$ hour 50% full load.

Governors tested and found satisfactory.

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

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

Attached hereto:- Df. Report Nos. 2759 & 3022.

Sunderland Report No. C.3041.

Leeds Report No. C.18864.

SURVEY OF MACHINERY.

NEWCASTLE-ON-TYNE.

The generators have been satisfactorily installed on board, tested under working conditions & left in safe working order.

J. A. Oakley.

Newcastle-on-Tyne Aug 1953.

SURVEYOR TO LLOYD'S REGISTER.
NEWCASTLE-ON-TYNE.

The amount of Fee ... £ 23 : 0 : 0 When applied for 3/10/53

Travelling Expenses (if any) £ 2 : 19 : 0. When received 19

TUESDAY 6 - OCT 1953

Committee's Minute

Assigned

See F.E. mch. rpt.

Surveyor to Lloyd's Register of Shipping.



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